Scaling Weatherization in Minnesota: Opportunities and Challenges from a Landscape Analysis and Case Study Analysis

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Report authors

Gabriel Chan

Elise Harrington

Jacqueline Berger

gabechan@umn.edu

eliseh@umn.edu

jackie-berger@appriseinc.org

Executive Summary

This report aims to inform decision makers in Minnesota as they consider scaling the state's Weatherization Assistance Program. The report summarizes information from two research approaches: (1) a landscape analysis of weatherization funding reports and implementation plans across Minnesota and 20 comparable states, and (2) a set of comparative case studies drawn from interviews with weatherization program offices and implementers and reports in six states. We analyze states' experience in effectively leveraging WAP funding with other programs, applying additional sources of capital for weatherization, and addressing barriers to broadening the reach of and services provided by weatherization programs.

The report presents the information from the landscape analysis and case studies, which we use to propose recommendations for Minnesota decision makers to consider. Our findings and recommendations cut across legislation, program design, and implementation of weatherization.

Sustainably Increasing Weatherization Funding: States described the centrality of stable state funds to set clear expectations to implementing agencies (thus enabling better planning for workforce development and capital expenditures), to provide the necessary flexibility to innovate new programs, and implement measures that have significant benefits to households but that do not fall under the strict reporting and measurement criteria required of DOE funds.

Recommendation 1: In expanding available funds for weatherization, to the extent feasible, create stability to enable program managers and implementers to build capacity and make long-term plans.

Navigating Deferrals: Nearly all states spoke to the challenges of having to defer weatherization service to otherwise eligible households. States spoke to the challenges of having to forgo providing service to potential customers who lived in houses with underlying issues, such as vermiculite and mold, that would benefit significantly from weatherization services but whom they could not serve.

Recommendation 2: In expanding available funds for weatherization, consider approaches to enable and encourage funding to be directed to address deferrals (avoiding future deferrals and returning to previous-ly deferred homes).

Setting Long-Term Goals: States stressed the benefits of aligning their investments with funding availability. When this alignment was possible, states were better able to set ambitious long-term goals and design innovative approaches to meet those goals, often through new pilots that built up learnings toward an ambitious vision for the future. States described their need for ramp-up time to work toward ambitious long-term goals. Currently, some implementing agencies are particularly concerned about having sufficient and predictable ramp-up time due to the continuing COVID-19 pandemic, near-term labor market instability, supply chain disruptions, and rising material costs.

Recommendation 3: Align long-term goals for weatherization with funding available over a similar timescale while allowing for flexibility to learn and adjust to short-term challenges along the way.

Addressing Multifamily Weatherization: Most states described the need for specialization to address multifamily homes, due to the specific measures that are relevant in multifamily homes, the high cost of weatherizing an entire multifamily home, and the geographic differences across their states of where multifamily homes were located.

Recommendation 4: Consider how to support capacity building for specialized multifamily weatherization providers, either through a new specialized agency or with an existing agency.

Workforce: States described challenges associated with offering wages and working conditions that could compete with other contractor firms. And states also spoke to the need to align the training of their workforce with funding cycles and expectations for production. By some states ' estimates, building up a workforce takes time 2 years or more for trainees without any prior experience.

Recommendation 5: Work collaboratively with implementing agencies to develop tailored approaches to building workforce, including by providing stable funding and providing training capacity.

Administrative Burden: States described the administrative burdens of weatherization as a barrier to rapidly scaling up programs. In particular, nearly all states mentioned the administrative burdens associated with complying with DOE performance metrics. Some states also spoke to the specific administrative burdens of linking, or "braiding," multiple funding streams, each with their own goals, metrics, and in some cases, data management practices.

Recommendation 6: In expanding available funds for weatherization, allow new state-derived funds to apply flexibility to measures and projects to reduce the administrative burdens on implementers, contractors, and program managers.

In addition to the above findings, our research also allowed us to identify several areas of opportunity where Minnesota can lead on weatherization implementation.

Leading on Equity: We found that very few states had fully developed equity-focused approaches to weatherization. In the near term, there may be opportunities to expand on the way implementing agencies prioritize their waitlists to advance more equitable service. But as weatherization expands, deeper engagement with underserved communities requires further outreach to build awareness and interest.

Recommendation 7: Consider developing strategic goals, performance metrics, and implementation priorities to weave equity into weatherization programs.

Leading on Resilience: Minnesota has an opportunity to lead in the integration of resilience considerations in weatherization. The demands on the housing stock are rapidly changing in Minnesota, and across all households, there is a need to consider increasing resilience in the state's building stock, but also a particular need to understand disproportionate impacts that are particularly relevant for the population of Minnesotans eligible for weatherization.

Recommendation 8: Consider developing strategic goals, performance metrics, and implementation priorities for weatherization practices that support a more resilient housing stock.

Strengthening Alignment between the State and Implementing Agencies: The working relationship between state weatherization offices and their implementing agencies is vital to the success of weatherization programs. States described how they worked to convene and build consensus among their implementing agencies, but interviews did not reveal a coherent set of best practices.

Recommendation 9: Consider developing new practices and staffing roles to support the continued nurturing of relationships and communication channels between the state energy office and implementation agencies as the program scales. **State-to-State Knowledge Exchange:** we found that states were very excited to talk to our research team and share their experience. They were also very curious to hear what we found by talking to other states.

Recommendation 10: As states continue to explore innovative approaches to scaling, leveraging WAP funds with other sources, and implementing expanded programs, build stronger coordination among states to share best practices, lessons learned from other pilots, and anticipate barriers.

1. Introduction

1.1. Report Goals

The 2021 Weatherization Assistance Program (WAP) Working Group was created by the Minnesota Department of Commerce to make legislative recommendations to increase the number of low-income Minnesota households served by weatherization and explore ways to leverage existing funding and identify new funding sources. The WAP Working Group contracted with the University of Minnesota to conduct a research study to inform their recommendations.

In this report, we analyze reported data on state weatherization programs and describe case studies based on interviews and document review of states' experience in effectively leveraging WAP funding with other programs, applying additional sources of capital for weatherization, and addressing barriers to broadening the reach of and services provided by weatherization programs.

1.2. Approach

This study took two main approaches to researching the weatherization implementation experience of other states. In Section 2, we present the findings of a landscape assessment of weatherization implementation data, primarily based on reports to the National Association for State Community Services Programs (NASC-SP). The landscape assessment compares data on weatherization implementation in Minnesota and 20 comparison states. This part of the report was produced by APPRISE Incorporated, and the full report prepared by APPRISE is included as Appendix A.

In Section 3, we present the key findings of a set of six case studies prepared by the University of Minnesota. These case studies are based on in-depth interviews conducted with implementers of weatherization programs in each case study states. Interviews were primarily conducted with state energy offices, but in some cases, also included other professionals involved in the implementation of programs, such as weatherization implementing agencies, third-party support firms, and other state agencies. Section 3 organizes the synthesized findings of the case studies, and Section 4 presents the full case description for each state.

1.3. Key Findings

From our landscape analysis comparing Minnesota to twenty other states (21 states total), we find that Minnesota's weatherization program was the 12th largest out of 21 states, and Minnesota ranked 16th out of 21 states for leveraging DOE WAP funds with other sources and 13th out of 21 states for leveraging federal funding overall, considering WAP and transfers from the Department of Health and Human Services (HHS) Low-Income Home Energy Assistance Program (LIHEAP). The five states with the highest percentage of leveraged funds among the 21 study states are Massachusetts, Vermont, Wisconsin, Oregon, and Washington.

From our case study analysis of six states (Washington, Vermont, Colorado, New York, Wisconsin, and Ohio), we identified six key topics related to expanding weatherization (with respect to the number of households served and the scope of weatherization services):

- 1. sustainability increasing weatherization funding,
- 2. navigating deferrals,
- 3. setting long-term goals (to achieve long-term gains),

- 4. addressing multifamily weatherization,
- 5. workforce challenges (and opportunities), and
- 6. the administrative burden related to expanding weatherization programs.

Beyond these six areas, we offer four recommendations on areas where Minnesota can grow or continue leadership in the country:

- 1. equity,
- 2. resilience,
- 3. alignment between the state and implementers, and
- 4. state-to-state knowledge sharing to support expansion and innovation in weatherization programs.

For each state, we identify key lessons and legislative, executive, or administrative actions that influenced the expansion of or changes in each state's weatherization program.

Our case studies demonstrate that considerations for expanding weatherization must consider the stability of funding sources (in addition to the total amount of funding). Most states use the LIHEAP transfer to supplement DOE WAP dollars but often achieve both more flexible and stable funding from other state-derived sources. Examples of other funding sources to support Weatherization programs include a public benefits charge (WI and NY), fuel usage and extraction charges (VT and CO), and state funds (WA). State efforts focused on building long-term, stable funding with some flexibility has allowed states to address pre-weatherization measures to reduce deferrals and to support efforts to build capacity and a reliable workforce. Lessons from expanding weatherization with American Recovery and Reinvestment Act (ARRA) funds from 2009-2012 allowed for an increase in units weatherized and contributed to improved project quality, but the post-ARRA contraction required layoffs and ongoing unemployment burdens for agencies.

Achieving long-term goals associated with increased weatherization services (both increases in services offered and more households weatherized) requires sufficient lead time to prepare and stability to encourage implementing agencies to invest in their internal capacity to support growth. This includes strategies such as piloting new initiatives with agencies that express an interest in the pilot, setting realistic goals for expansion, and ensuring reliable funding for extended periods of time (at least five years).

2. Minnesota in the Weatherization Landscape

2.1. Landscape Study Design

This section summarizes a landscape assessment of weatherization program funding in Minnesota and 20 comparison states. The full landscape assessment was prepared by APPRISE, Incorporated and is included as Appendix A.

Several funding resources are used in coordination with Department of Energy (DOE) WAP funding. These sources include transfers from the Low-Income Home Energy Assistance Program (LIHEAP), utility collections from ratepayers, state-collected fees or tax revenues, state general revenues, or state appropriations to WAP.

Additionally, the Weatherization Leveraging Partnership Project (WLPP), managed by the Community Action Partnership (CAP), interviews WAP subgrantees, utilities, Community Action Associations (CAAs), and other sources to develop data on non-federal funding used by WAP subgrantees. These are contracts and grants made between subgrantees and other partners that are not captured in the state WAP reports.

Data on the amount of each funding source for 2019 was reported by the National Association of State Community Service Programs NASCSP.¹ Data reporting practices vary across states, and we have not taken additional steps to correct or standardize the data beyond what NASCSP reports.

The landscape analysis compares Minnesota to 20 other states based on proximity and knowledge of WAP programs. The states included in the analysis are:

- Midwest Census Region (IL, IA, IN, KS, MI, MO, NE, ND, OH, SD, WI)
- 6 Northeast states (CT, MA, NJ, NY, PA, VT)
- 3 Western states (CO, OR, WA)

The analysis looked at trends from fiscal year 2009 through 2019 and state weatherization implementation plans. Data quality for weatherization funds is uneven across states. In particular, some states run programs very similar to weatherization but do not integrate those programs with weatherization. For example, New York State implements EmPower New York, which is an income-qualified energy efficiency and community solar program funded through a System Benefit Charge on utility bills. EmPower New York is administrative-ly separate from New York's weatherization program (EmPower New York is implemented by the New York State Energy Research and Development Administration and New York's weatherization program is implemented by the New York Homes and Community Renewal). EmPower New York and similar programs in other states that are not integrated with weatherization are inconsistently reported in the data described in this section. However, we believe this is the most comprehensive data available to facilitate high-level comparisons across states.

2.2. Key Findings

In FY 2019, Minnesota's weatherization program reported a total program size of \$22.0 million. This was made up of \$11.2 million in DOE funding, \$7.7 million in LIHEAP for weatherization funding, and \$3.1 million in state funding. Minnesota's state funding was made up of \$2.7 million in funds from the Conservation Improvement Program for weatherization, \$0.3 million in propane weatherization, and several other smaller programs. **See Figure 1.**

¹Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>



Minnesota Weatherization Funding Sources (FY 2019)

Data: courtesy of APPRISE, Inc from state reporting compiled by NASCSP

Figure 1. Funding Sources in Minnesota's Weatherization Program (reported to NASCSP for FY2019). DOE: Department of Energy; LIHEAP: Low-Income Home Energy Assistance Program (U.S. Department of Health and Human Services); CIP: Conservation Improvement Program.

In terms of total program size, across comparison states, Minnesota's weatherization program was the 12th largest out of 21 comparison states. The largest program in the comparison states in FY 2019 was Massachusetts (\$129.7 million), and the smallest program among comparison states was South Dakota (\$2.1 million). **Figure 2** displays total funding for weatherization and the sources of funding, indicating DOE funding, LIHEAP funding, "other" funding (which includes state programs, such as public benefits funds or designated funds from energy efficiency programs), and CAP funds (funding from implementing agencies, such as Community Action Partnerships, that deploy leveraged funds for weatherization).

Standardized by population, across comparison states, Minnesota's weatherization program was again the 12th largest out of 21 comparison states. Minnesota spent \$3.9 on weatherization per capita in FY 2019. The state with the most per-capita weatherization spending in FY 2019 was Vermont, which spent \$24.4 on weatherization per capita. **Figure 3** displays per capita funding totals by funding source.



Total Reported Weatherization Funding by Source (FY 2019)

Data: courtesy of APPRISE, Inc from state reporting compiled by NASCSP

Figure 2. Funding Sources for Weatherization Across States (reported to NASCSP for FY 2019).



Population-Normalized Weatherization Funding by Source (FY 2019)

Figure 3. Funding Sources for Weatherization Across States (reported to NASCSP for FY 2019), Standardized by Population. Reported in total funding per capita.

Data: courtesy of APPRISE, Inc from state reporting compiled by NASCSP and US Census

Relative to the comparison states, in FY 2019, Minnesota ranked 16th out of 21 for leveraging DOE WAP funds with other sources, with 51% of weatherization funding from DOE and 49% of funds from non-DOE sources (see **Figure 4**, left). Across comparison states, states ranged from 94% non-DOE funds (Massachusetts) to 0% non-DOE funds (South Dakota and Connecticut).

Incorporating federal LIHEAP funding transferred to weatherization, Minnesota ranked 13th out of 21 states for leveraging federal funding with other sources, with 86% of weatherization funding from federal LIHEAP and DOE funds combined and 14% from state-sourced funds (see **Figure 4**, right). Across comparison states, states ranged from 94% non-federal funds (Massachusetts) to 0% non-federal funds (North Dakota, Connecticut, New Jersey, South Dakota, and Nebraska).



Data: courtesy of APPRISE, Inc from state reporting compiled by NASCSP

Figure 4. Percent of Total Weatherization Funds from DOE (left) and DOE + LIHEAP (right)

Finally, **Figure 5** shows the total funding in each state disaggregated by the percentage of funds from different sources.



Reported Weatherization Funding by Source (FY 2019)

Figure 5. Percent of Total Weatherization Funds by Source.

Appendix A contains additional details about the APPRISE landscape analysis. Appendix A includes additional detail regarding the funding data presented here, as well as data on production (households served), state funding for training and technical assistance (T&TA), specific state leveraging efforts, state energy efficiency programs for low- and moderate-income (LMI) households, and recommendations from APPRISE analysts.

3. Synthesized Findings from Case Studies

In this section, we describe our analysis of six case studies of state weatherization programs. These case studies cover Washington, Vermont, Colorado, New York, Wisconsin, and Ohio. The cases were selected with input from the Weatherization Working Group for their relevance to Minnesota and reputation for innovation.

For each case, we interviewed one to three individuals working in the state with a high level of expertise. Interviewees were primarily state energy office directors, weatherization program directors, or others working closely with state energy offices on weatherization implementation. Some states also include the perspectives of weatherization implementing agencies. Interviews were conducted from December 2021 - February 2022. Interviews followed a pre-designed protocol focusing on key questions reviewed by the Working Group. The interview protocol is included in Appendix B of this report. Interviews were recorded and reviewed by a team of researchers at the University of Minnesota and synthesized for the key takeaways. Interviewees are not identified as part of this study.

In this section, we first detail the key findings of the case studies and then turn to the opportunities for Minnesota to lead identified during our interviews or in the research team's reflections following the interviews.

3.1. Findings from Comparison Case Studies

This section synthesizes the key findings and opportunities identified through the case studies. The section integrates across relevant case studies where interviewees provided relevant insights. The full case studies organized by state are provided in Section 4.

3.1.1. Sustainably Increasing Weatherization Funding

Recommendation 1: In expanding available funds for weatherization, to the extent feasible, create stability to enable program managers and implementers to build capacity and make long-term plans.

The case studies describe selected states' experiences navigating transitions when weatherization funding expanded. Across cases, states described their experience with the American Recovery and Reinvestment Act (ARRA) of 2009 that provided \$5 billion in additional WAP funding. States also described changes to weatherization policy at the state level that led to increased funding.

The 2009 ARRA increase in funding was mentioned by nearly every state. The ARRA period saw significant funding increases, but funding levels were not sustained. See **Figure 6**.



Figure 6. Department of Energy Weatherization Assistance Program funding the Recovery Act Period. Reproduced from <u>B. Tonn, et al. (2015)</u>.

Because funding levels were not sustained, ARRA led to sustained challenges among weatherization implementing agencies. Several states mentioned that their implementing agencies had to lay off significant staff following ARRA, which made subsequent efforts to hire new staff more difficult. The ARRA experience also contributed to a general sense among states that increases in funding need to be sustained to be most effective. States described the relative inefficiency of a big ramp-up in funding that cannot be sustained, as investments in building workforce and administrative capacity would not realize their full return due to subsequent layoffs of trained staff once funding levels came back down.

In contrast to ARRA, several states described the significant benefits of additional revenue streams created

or directed by state policy. Funding sources for state funds varied significantly. For example, Vermont directs funds to weatherization from a tax on heating fuels; Washington directs funds to weatherization from a state fund that was initially funded by an oil-related legal settlement in the 1980s; Colorado directs funds to weatherization from a "severance tax" on fossil fuel and mineral extraction; and Wisconsin directs funds to weatherization from a "public benefit charge" collected from a surcharge on utility bills. Ohio also implemented a utility charge and has built strong coordination of the use of these funds and weatherization.

Across these cases, states described the centrality of stable state funds to set clear expectations to implementing agencies (thus enabling better planning for workforce development and capital expenditures), to provide the necessary flexibility to innovate new programs, and implement measures that have significant benefits to households but that do not fall under the strict reporting and measurement criteria required of DOE funds.

In some cases, such as Colorado, state funds could be reserved from year-to-year, enabling weatherization offices to smooth fluctuations in federal funding and develop long-term plans for innovative new technology deployments (solar and heat pumps) with their implementing agencies. In other cases, such as Washington, the stability of funds was seen as a prerequisite for accepting funds at all, as funds could be most effectively deployed if they could be used to make at least 5-year commitments to hire new staff.

Multiple states described the administrative burdens of complying with DOE funding rules, which were viewed as prohibitive for making some types of important investments (examples mentioned included, single-measure investments, health-related remediation, and comfort-related measures). Flexible state funds could be used to make investments that benefit households without the administrative requirement or need to meet strict savings-to-investment ratio (SIR) criteria of DOE funds.

Overall, five of the six states that were selected for case studies have access to state funding sources that they use to bolster their federal funds. (The sixth state, New York, also has a "System Benefits Charge" that funds income-qualified energy efficiency and community solar investments through NYSERDA, but this is not directly through their weatherization program). Each state described that these more flexible funds have significant advantages. Minnesota also has access to non-federal funds for Weatherization, primarily through the Conservation Improvement Program. However, compared to the five case study states with access to state funds for their weatherization program, Minnesota's state funds are significantly lower (see Section 1 and Figures 2-5). For example, of the case studies we investigated, Wisconsin receives the most comparable DOE allocation to Minnesota (\$10.1 million in FY 2019 in Wisconsin compared to \$11.2 million in Minnesota's \$22.0 million. The primary cause of this difference was the \$50.8 million public benefit charge for weatherization that Wisconsin reported in FY 2019.

3.1.2. Navigating Deferrals

Recommendation 2: In expanding available funds for weatherization, consider approaches to enable and encourage funding to be directed to address deferrals (avoiding future deferrals and returning to previous-ly deferred homes).

Nearly all states spoke to the challenges of having to defer weatherization service to otherwise eligible households. States spoke to the challenges of having to forgo providing service to potential customers who lived in houses with underlying issues, such as vermiculite and mold, that would benefit significantly from

weatherization services but whom they could not serve. This section synthesizes lessons learned from states that took innovative steps to navigate deferrals.

Across several states, the ability to reduce deferral rates was made possible by more flexible state funds that allowed implementing agencies to conduct "pre-weatherization" measures.

For example, Wisconsin and Ohio have both made recent policy changes to use some of their LIHEAP to weatherization transfer to address deferrals. In Wisconsin, this change came about through a unanimous decision of the weatherization providers in the state, demonstrating an important way that Wisconsin has built collaboration between the state energy office and the implementing agencies to shape program rules and policy.

In Ohio, the legislature required that the state apply for the maximum transfer of 25% of LIHEAP funds from HHS. The state uses DOE WAP and HHS LIHEAP (15% of the transfer) funds for their Home Weatherization Assistance Program (HWAP) program, with the additional 10% in their waiver for their HWAP Enhancement Program. In Ohio's traditional HWAP program, the 15% from HHS is used for health and safety measures, while in the HWAP Enhancement Program, the additional 10% from HHS is used for previously deferred homes. Ohio started the HWAP Enhancement Program 3 years ago and has worked with HHS each year to add additional allowable uses to address deferrals.

Vermont has an innovative approach to addressing deferrals by allocating specific funds for vermiculite remediation and standardizing deferral criteria across implementing agencies. Prior to a concerted effort to standardize deferrals, the state found that agencies were deferring homes based on different criteria resulting in inconsistent service across the state. Depending on the agencies, some would defer clients for issues that others would serve. To achieve parity across the state, Vermont developed a deferral policy paired with additional funding to address deferrals. The deferral policy specifically calls out vermiculite insulation because 10-15% of weatherization-eligible homes have vermiculite. Vermiculite must be remediated prior to any work on the home as it is highly likely to have asbestos. To sufficiently address vermiculite deferrals, Vermont combines flexible state funding from the fuel tax with three additional sources: Vermont Low Income Trust for Electricity (VLITE), Office of Economic Opportunity (OEO) Vermiculite Fund, and Zonolite Trust. The combination of multiple funds targeted at vermiculite enabled the state to realize a policy change made in 2014, that vermiculite cannot be cause for an automatic deferral.

3.1.3. Setting Long-Term Goals and Preparing for Long-Term Gains

Recommendation 3: Align long-term goals for weatherization with funding available over a similar timescale while allowing for flexibility to learn and adjust to short-term challenges along the way.

Across interviews, states stressed the benefits of aligning their investments with funding availability. When this alignment was possible, states were better able to set ambitious long-term goals and design innovative approaches to meet those goals, often through new pilots that built up learnings toward an ambitious vision for the future. States described their need for ramp-up time to work toward ambitious long-term goals. Currently, some implementing agencies are particularly concerned about having sufficient and predictable time due to the continuing COVID-19 pandemic, near-term labor market instability, supply chain disruptions, and rising material costs. Still, states are working to build up funding ramps and build capacity to prepare for increases in federal funding.

Vermont described their approach to building up capacity among contractors and implementing agencies prior to increasing the expectations of their agencies for delivering services. Washington talked explicitly about needing to set realistic expectations so as to not overwhelm implementing agencies.

To work toward a long-term vision for weatherization, nearly all states emphasized the importance of developing pilot programs and building learnings before expanding. For example, Colorado discussed their approach to setting a bold vision of beneficial electrification which empowered them to target households with persistently high energy burden with a solar and air-source heat pump pilot. Multiple states emphasized deploying pilots and new innovations in weatherization with those implementing agencies interested in or excited about the specific innovation as this led to more effective pilots.

3.1.4. Targeting Multifamily Weatherization

Recommendation 4: Consider how to support capacity building for specialized multifamily weatherization providers, either through a new specialized agency or with an existing agency.

Identifying ways to address weatherization in multifamily households was an important area of focus during the interviews. Most states described the need for specialization to address multifamily homes, due to the specific measures that are relevant in multifamily homes, the high cost of weatherizing an entire multifamily home, and the geographic differences across their states of where multifamily homes were located.

States described some of the "baked in" incentives and disincentives for implementing agencies and their contractors to pursue weatherization for multifamily homes. For example, Vermont found that weatherizing multifamily homes instead of single-family homes allowed some of their less efficient agencies to still meet their target number of weatherization units in a year. The Vermont Office of Economic Opportunity started to address this 6-7 years ago by implementing a "flexible job cost average." This allows for flexibility in cost across single and multifamily projects. Given the lower cost of multifamily jobs, the flexible job cost average requires an agency to complete more units with the same amount of money compared to an agency with a higher percentage of single-family homes.

New York State is the leader in multifamily building weatherization primarily due to the high concentration of multifamily in New York City (NYC). To address multifamily in NYC, subgrantees operate at a more granular level than elsewhere in the state. Most subgrantees in New York State are responsible for counties, but in New York City they operate by neighborhood. This enables subgrantees to have specific and intimate knowledge about the existing buildings within their area of operation. Subgrantees in New York City work with housing authorities, like New York City Housing Authority (NYCHA) which owns hundreds of old buildings across all five boroughs. Multifamily buildings in New York are eligible for WAP if 66% of tenants are income-qualified, and New York State has a methodology of identifying these buildings owners want building improvements that increase the building's value, but they are required to sign that they will not sell the building or increase rent based on this increased value. In exchange, owners can add services (that they pay for) that are completed during weatherization, such as new windows. Additionally, as new rules phase out certain fuels, some building owners participate in the program for the benefit of a new boiler or heating system for fuel-switching to comply with local or state laws.

To address the multifamily housing sector Vermont created a specialized service provider for multifamily homes. This new provider works statewide, but Vermont developed a creative compromise by giving the five

primary service providers the right of first refusal for multifamily properties in their areas. In practice, most now turn over multifamily properties to the specialized provider because it can increase efficiency. Having the sixth multifamily agency has also allowed the program to leverage more funds by completing more units per year.

Similar to Vermont, Colorado also created a specialized multifamily weatherization implementing agency. In Colorado, this agency completes all multifamily weatherization projects.

Wisconsin has also taken steps to address the multifamily building sector. During ARRA, Wisconsin developed a program focused on buildings with 20 or more units. And since ARRA, Wisconsin implementing agencies with a significant multifamily building stock have continued engagement with multifamily buildings, occasionally doing "application fairs" for energy assistance and weatherization together in the lobbies of multifamily buildings.

3.1.5. Workforce for Weatherization

Recommendation 5: Work collaboratively with implementing agencies to develop tailored approaches to building workforce, including by providing stable funding and providing training capacity.

All interviewees spoke to the challenges of maintaining a sufficiently trained workforce over time. States described challenges associated with offering wages and working conditions that could compete with other contractor firms. And states also spoke to the need to align the training of their workforce with funding cycles and expectations for production. By some states' estimates, building up a workforce takes time 2 years or more for trainees without any prior experience.

Ramping up funding without a sufficient workforce can create inefficiencies and frustrations. To address workforce needs, states have developed approaches to build capacity. For example, the Ohio Weatherization Training Center (OWTC) was started with the Weatherization Assistance Program in the 1970s and continues to play a central role in the state's program. The OWTC is housed in the Corporation for Ohio Appalachian Development (COAD) and funded by DOE WAP funds. The integration of the OWTC into the state's program allows for the center to use subgrantee technical monitoring reports to guide training and technical assistance efforts. As training needs continue to evolve in the state, OWTC is exploring ways to make training opportunities more accessible across the state. Traditionally, HWAP training sessions are held at the COAD in Athens, Ohio in the southeastern part of the state. Recently, OWTC has been expanding training offerings through a hub model with options in the northern/middle parts of the state. One of the strengths of Ohio's training capacity is that the training center is flexible; given 5-15 students in the same track, trainers can travel to different parts of the state to enhance accessibility.

Colorado offers another innovative approach to planning for long-term workforce capacity. Colorado, which relies heavily on contractors, described significant workforce challenges in competing with other construction firms. This competition results in weatherization relying on contractors who are either more junior or who really believe in the mission of weatherization. They recently considered how to bolster their recruiting efforts by emphasizing their sustainability mission (rather than only construction). For example, the Colorado Energy Office has partnered with <u>Colorado Youth Corps</u> in identifying sustainability-minded youth into Weatherization externships (they are piloting this program with six Youth Corps members this year). Colorado's implementing organizations have also made concerted efforts to recruit younger people through social media platforms.

Wisconsin described how they are strategically managing for the specific dynamics of their workforce. Many of the senior employees in Wisconsin's weatherization program have had long tenures and are now retiring, taking their knowledge based on years of experience with them. Wisconsin is planning more intentionally for staffing overlap between new staff and retiring senior staff to facilitate this knowledge transfer, at times, this means they are providing duplicative staffing. To help build capacity moving forward, Wisconsin has also used LIHEAP transfer funds to build up staff and capital requirements. It is critical that funds are deployed as soon as possible ahead of scaling up. But Weatherization is very technical, and it takes a while to train, so they are seeking ways to move quickly without overwhelming implementing agencies.

During ARRA, New York state looked to new ways to expand their workforce. During ARRA, New York Homes and Community Renewal expanded their training and technical assistance program primarily relying on their two vendors that administer training (Association for Energy Affordability and the NYS Weatherization Directors' Association). The vendors operate training centers, which was extremely important to handle the influx of training needs during ARRA. The state does conduct state-led training but this was limited in comparison to the training led by the vendor training centers, the state's role was primarily to create the support and means for training centers to operate.

3.1.6. Managing Administrative Burden in Weatherization Scale-Up

Recommendation 6: In expanding available funds for weatherization, allow new state-derived funds to apply flexibility to measures and projects to reduce the administrative burdens on implementers, contractors, and program managers.

States described the administrative burdens of weatherization as a barrier to rapidly scaling up programs. In particular, nearly all states mentioned the administrative burdens associated with complying with DOE performance metrics. Some states also spoke to the specific administrative burdens of linking, or "braiding," multiple funding streams, each with their own goals, metrics, and in some cases, data management practices.

Wisconsin has helped control some administrative burdens by working with a third-party vendor, Slipstream, to handle data management and evaluation. Slipstream helps facilitate data analysis, allows implementing agencies to conduct "self-study" assessments, and more efficiently conduct referrals. They were very happy with the data management services they have access to and described the ways in which digitized records and easy-to-access databases helped them better measure success, motivating staff at all levels to continue impacting people's lives. Their data management practices and partnering with Slipstream also helped reduce administrative burden while enhancing their operations.

With respect to braiding multiple funding streams, New York, Vermont, and Washington each undertook notable pilots to braid weatherization and health. All three states spoke to the administrative burdens to integrate these funding streams, but all three are still encouraged that this approach can be worth it with further refinement and tailoring.

The NYS Healthy Homes Value-Based Payment Pilot relies on Medicaid's value-based payment (VBP) system that pays for outcomes rather than inputs and aligns with the state's Medicaid transition to a VBP frame-work. The pilot includes 500 healthy homes interventions focused on asthma-related outcomes, reductions in energy use, utility bills, improved home comfort and safety, and reduced Medicaid utilization associated with hospitalization and emergency department visits. Given the focus on health, NYSERDA and the New York State Department of Health identified ways to work together, which started a long planning process for

the pilot. NYSEDRA and the Department of Health planned for about 1.5-2 years and the program will run for 2 years in the field (ongoing). The inclusion of specific Medicaid claims data is an innovation in this pilot and would not be possible without the close collaboration with the Department of Health. Establishing this arrangement required substantial lead time and separate legal agreements. New York state officials engaged in this pilot have developed substantial experience that can help future states pursuing this type of integration to reduce the significant administrative burden they faced.

Another example of managing the administrative burden of health-weatherization integration comes from Vermont. In Vermont's case, they piloted an approach to reduce the administrative burdens associated with engaging customers in multiple service programs. The Vermont Low Income Weatherization Assistance Program started an "efficiency coach" program using a SERC (Sustainable Energy Resources for Consumers) grant funded under ARRA. This coaching program was instituted as a first step in the weatherization process in Vermont and enables a coach to introduce the state's weatherization program to a new client. This provides a customer service-like person who is knowledgeable in the weatherization program offerings and opportunities for energy conservation. In this first meeting, the coach describes the work that is going to occur, explains why, discusses conservation practices, and reviews the client's electric bill with them. The efficiency coach is the first step in Vermont's holistic approach and is followed by the One Touch Program. In Vermont, efficiency coaches and energy auditors were trained in Healthy Homes Assessment to maximize health outcomes along with the Weatherization Assistance Program. The One Touch program, or One Touch Screening and Referral Process, links energy, health, and housing by providing a common home assessment and automatic electronic referral system across involved programs in the state. Data from Vermont shows that 30% of clients needed referrals to other programs. This example from Vermont demonstrates the potential to share capacity across weatherization and health to reduce administrative burdens on a single program, while also maximizing holistic benefits to households.

3.2. Opportunities Identified in Comparison Case Studies

Interviewees highlighted opportunities for further innovation in weatherization. Our research team also reflected on the conversations of the Minnesota Weatherization Working Group to identify gaps that none of the states we interviewed had already fully embraced. This section summarizes our findings and reflections on opportunities for Minnesota to lead innovation in weatherization implementation.

3.2.1. Opportunity for Minnesota to Lead on Equity

Recommendation 7: Consider developing strategic goals, performance metrics, and implementation priorities to weave equity into weatherization programs.

During our interviews, we asked each state how they were considering equity in the context of weatherization. We found that very few states had fully developed equity-focused approaches. In fact, our interview question itself prompted two states to respond that they were now inspired to brainstorm about how they should be addressing equity moving forward. One state, Colorado, also responded that they just started a stakeholder process to study equity in their weatherization program (still ongoing).

One area where states had been considering equity was in how they set prioritization within their waiting lists. Vermont, for example, sets priority categories on their waitlist, but they are still working on processes to specify which populations have been historically underserved. Ohio prescribes that the first 25% of the waitlist is based on application date but gives autonomy to implementing agencies to prioritize the remain-

ing waitlist, some of which have used certain demographics to set priorities.

In the near term, there may be opportunities to expand on the way implementing agencies prioritize their waitlists to advance more equitable service. But as weatherization scales up, it is plausible that agencies will shift from managing a waitlist to seeking new customers, in which case, this may be a more limited way to address equity. Deeper engagement with underserved communities would require further outreach to build awareness and interest in weatherization.

Based on this research, our view is that Minnesota has an opportunity to lead in thinking about equity in weatherization implementation. Bringing in equity considerations could have multiple benefits to the program, including a more inclusive vision that motivates current and potential workforce. In our interviews, equity was often assumed as a component of weatherization programs given the overall program mission and goals. But states also described differences in parity of service across a single state, for example regarding deferrals, or with respect to leveraging utility funds that are only available in certain areas. In some cases, due to which funds are available based on utility service some homes may be able to receive more comprehensive services or address pre-weatherization to prevent deferrals. Based on our assessment, the states in our case studies demonstrate multiple paths that Minnesota can explore to develop a comprehensive approach to equity in weatherization.

3.2.2. Opportunity for Minnesota to Lead on Resilience

Recommendation 8: Consider developing strategic goals, performance metrics, and implementation priorities for weatherization practices that support a more resilient housing stock.

Minnesota has an opportunity to lead in the integration of resilience considerations in weatherization. The demands on the housing stock are rapidly changing in Minnesota, and across all households, there is a <u>need</u> to consider increasing resilience in the state's building stock, but also a particular need to understand <u>disproportionate impacts</u> that are particularly relevant for the population of Minnesotans eligible for weatherization.

There were few examples from our interviews that explicitly built strong linkages between weatherization and resilience. The strongest connections are emerging in Weatherization+Health initiatives. Minnesota has the potential to lead in this area by linking weatherization with other state agencies preparing for resilience in the state's building stock. For example, Minnesota's draft Climate Action Framework recommends the state "Adopt resiliency provisions in codes, permits, and policies for new construction, rehabilitation and adaptive reuse, and create resilient design standards." As the state considers ramping up funding for weatherization, it is also an important opportunity to consider how to ensure weatherized homes are prepared for a changing future. This can help ensure that funds used to support weatherization today continue to have a lasting impact in the future.

3.2.3. Strengthening Alignment between the State and WAP Implementers

Recommendation 9: Consider developing new practices and staffing roles to support the continued nurturing of relationships and communication channels between the state energy office and implementation agencies as the program scales.

States emphasized that the working relationship between the state weatherization office and their implementing agencies (or also often called subgrantees) was vital to their success. Many states described ways

they were seeking to "nurture relationships" and build coordination. States described how they worked to convene and build consensus among their implementing agencies.

States also described that some of the inherent demographic and contextual differences between implementing agencies precluded them from "one size fits all" solutions. Colorado described that they sought to cultivate "champions" among their implementing agencies to lead innovative pilots and socialize ideas among their peers. Vermont worked closely with implementing agencies to co-create a technical manual to standardize services. Having this common understanding helped agencies ramp up, and should be in place to hold agencies accountable. Now, the statewide program is more cohesive and clients across the state get the same comprehensive weatherization service.

But overall, our interviews did not reveal a coherent set of best practices for building coordination between state offices and implementing agencies. In particular, in reflecting on their ARRA experience, many states described the ways in which the short window of rapid change during this period strained these relationships. As Minnesota considers ramping up funding, we believe it is important that investments are also made to continue to build a strong alignment between the state and implementing agencies that will help Minnesota navigate significant changes in scale and ambition. The experience of other states emphasizes the importance of being on the same page and setting realistic expectations. But to go further and faster, Minnesota also has an opportunity to demonstrate how to go together.

3.2.4. State-to-State Knowledge Exchange

Recommendation 10: As states continue to explore innovative approaches to scaling, leveraging WAP funds with other sources, and implementing expanded programs, build stronger coordination among states to share best practices, lessons learned from other pilots, and anticipate barriers.

Across our interviews, we found that states were very excited to talk to our research team and share their experience. They were also very curious to hear what we found by talking to other states. It was encouraging to hear little tidbits of the kind of informal knowledge exchange that was happening organically. For example, several state interviewees mentioned meeting with staff from Washington to learn about their experience building health linkages with weatherization. But we also were told repeatedly that states wanted to hear a more systematic overview of what other states were doing well, and also where they hit obstacles.

As states continue to explore issues related to pre-weatherization, reducing deferrals, linking weatherization with health, and adding new innovative technologies to weatherization programs, interviewees shared information about pilots in each of these areas. State-to-state knowledge exchange can also help support opportunities to learn from the research and pilots being conducted elsewhere to get a head start on learning about how to design pilots and initiatives that will create benefits here. National observers of weatherization programs from NASCSP emphasized the value of building on—rather than duplicating—evidence related to increasing energy efficiency, reducing energy burden, and the health outcomes related to better integrating weatherization and health measures.

As states continue to explore innovative approaches to scaling, leveraging WAP funds with other sources, and implementing expanded programs, there is an important role for coordination among states themselves to share best practices, lessons learned, and anticipate barriers. This could be a helpful role for the federal government to coordinate state collaboratives.

4. Case Studies of Comparison States

This section summarizes the case studies state-by-state. The case studies below represent the "raw data" that informed the synthesis in Section 3. Many of the examples from case study states included in Section 3 are expanded in the following summaries with additional details and information about a given state's approach to weatherization.

4.1. Washington

The Washington weatherization program has a strong focus on energy efficiency and building performance and has done some innovative pilot programs, particularly around Weatherization+Health (Wx+H). The Washington Weatherization program is run by a network of 27 agencies of various sizes and types. While two-thirds of the agencies are CAP agencies, they only produce about 40% of the units, and the majority are produced by a smaller number of municipal and tribal housing authorities. This diverse network can provide challenges for consistency across agencies as capacity varies greatly, as does funding stability and potential program reach. For example, municipal agencies may have more stable funding, but it can be challenging for them to grow because they usually have a geographic boundary and there are more hurdles for hiring and contracting within government agencies. On the otherhand, CAP agencies may have more flexibility but have less funding stability and are hesitant to increase their capacity without funding continuity. These differences in the characteristics of the implementing agency are critical to understanding what's possible and how agencies might react to program expansion. The program is facilitated through the Department of Commerce, and the service delivery network is tied to a number of different Commerce and housing programs.

The program funding level is generally between \$30-40 million a year (see Appendix Table II-1), composed of a mix of DOE funds, LIHEAP, utility funding (including a transfer from the large federal utility, Bonneville Power Authority, to the state for small public utilities), and the remainder state funds through their matchmaker program (originally created from the result of a <u>legal case</u> in the mid-1980s stemming from oil overcharges and then transitioned to state capital dollars) (see Appendix Table II-3). While they utilize and have leveraged different funding streams, they have seen some challenges with braiding funding while observing some notable benefits with decoupling funding. The biggest challenge with braiding funding is sticking to compliance rules, and even if a funding source is a small portion of the funds, if there is any funding applied, those rules also apply. For example, when working on a single family home, with DOE funds, the savings-to-investment ratio (SIR) has to be greater than one, which is often hard to meet though the project still might be important to do. Washington worked to "de-couple" some of their funds from more restrictive DOE funds. To do this, they have approved a set of measures as a state that they allow agencies to implement without running the DOE-required model if funded with non-DOE funds. In this way, Washington was able to leverage other funding sources so that they don't have to have a positive SIR to do the project (though they still need to run DOE models if DOE funding is involved).

In addition to the original matchmaker state fund legislation, another period of big expansion was in 2015 when the legislature passed legislation authorizing Weatherization-Health integration (Wx+H), building off the experience of a pilot in King County. This allowed the Weatherization program to address underlying health issues when they were already in the home doing weatherization (see Figure 7). The legislation led to an extensive round of pilots for this work, though efforts have been put on hold during the pandemic. Some agencies were able to partner with public health organizations to provide services, which can provide significant benefits for clients. However, this integrated service model also requires agencies to have a lot of capacity, maintained funding, and dedicated interest. Some agencies have really taken to integrated funding

and have seen benefits. But for other agencies, this can be too much. Initial pilots show promising results on energy-saving and health impacts. In retrospect, this braiding effort took a lot of advocacy and program development, but success ultimately hinged on implementers' interest in actually leading new efforts to do something different while building new kinds of capacity. As a result, only some implementing agencies are really taking this on. At the moment, due in part to the pandemic, full statewide efforts are currently focused on increasing education and adding more required measures to the portfolio, rather than continuing the deep integration of Weatherization with health across the board.



Figure 7. Weatherization + Health Program Components (Courtesy of Washington Department of Commerce, 2019)

The challenges with capacity, funding, and dedicated interest translate across multiple areas of expansion. When asking agencies if they would be interested in expanding their capacity if they got additional funds, the majority said they weren't interested. This disinterest can be for very good reasons. For example, for a small agency to significantly increase production, you need to hire additional staff, which is tricky if there is not long-term committed funding. Federal funding often comes in large amounts that can be hard to quickly respond to, and state funding can be at the whim of the legislature as Washington state funds are allotted through the capital budget. This can lead to unpredictable funding changes every couple of years. It was recommended that funding be ramped up and guaranteed for at least five years when doing program expansion. Washington mentioned their state policy on prevailing wages that is well-intentioned, from their perspective, but the compliance system with fair wage policy has created significant difficulties in scaling their workforce, particularly for contractors who might not be willing to put up with the policy.

The program delivers services to single-family, manufactured homes, multifamily 2-4 units, and multifamily 5+ units. Roughly 40% of units are multifamily, though most multifamily programs are conducted by only a few agencies that have enough technical capacity or budget for a multifamily program. Washington does have a few nationally recognized multifamily programs among their implementing agencies. They also mentioned challenges with multifamily rehabbing and weatherization competing for the same state funding, which can dissuade folks from doing weatherization independently because it could hurt chances of getting funding down the road. There are a few different models they are considering for multifamily program expansion, including models similar to Colorado's specialized statewide multifamily implementing agency. However, some of their leading implementing agencies for multifamily homes are local government agencies that can't make any significant investments outside of their jurisdiction. They also have a multifamily best practice task force that is focused on program expansion and developing tools like a best practice manual, specifications, etc. They noted that sometimes a phased approach, beginning with a single measure install, can be beneficial for multifamily, and they use non-federal funding for that approach.

Washington described that while many implementing organizations and advocates in the state have focused on whole-home Weatherization, there are a lot of potential gains from single measures that are easier to implement more broadly. This single measure install approach was also very successful in manufactured homes where they have done a number of pilot projects. For example, they worked with IOUs to sweep mobile parks for duct sealing and replacement, which was able to achieve 80-85% penetration. While it was not a full scope weatherization, they were able to reach 15,000 units. This was met with some resistance because it can be hard to go back into those homes for full weatherization or to meet federal standards, but can reach a lot of homes quickly.

To measure success, Washington uses three cost-benefit perspectives: the utility approach, a state policy approach, and a general society approach. The utility approach is very limited in non-energy benefits, so the cost-benefit ratio is lower. However, when including broader outcomes, that ratio quickly shifts, as non-energy benefits are likely an order of magnitude bigger than energy benefits. Unfortunately, health benefits are hard to attribute solely to weatherization measures since there are so many confounding variables with health outcomes. Additionally, different metrics are more meaningful for different audiences: utilities and DOE are more interested in energy benefits, while the state legislature may be more interested in a broader suite of benefits.

Washington has also mapped their low-income weatherization projects to census tract vulnerability indices to ensure they are helping those most in need. While this was a useful evaluation exercise, they cautioned against adding it as a tool for agencies to use to determine projects since agencies are already navigating a large volume of requirements and serving highly vulnerable areas. Additionally, they noted that while targeting can be really beneficial, it takes more resources to do.

Lessons from Washington

- Institutional capacity at both the agency and state level is critical to success in expansion efforts. To start any expansion, they recommended conducting pilots and focusing pilots in one to two places, rather than spreading resources more thinly. That ensures those running the pilot are well-resourced.
- They recommended starting pilots with clear specifications, rules, and data collection/reporting procedures upfront. They also noted that to do any expansion, the state goals need to be specific (e.g. breadth vs depth) and not try to tackle everything at once to balance capacity and interest.

Legislative Actions

• Matchmaker program created by the Washington Legislature in 1987 with authorized use of state capital funds each biennium since 1991.

• 2015 expansion (H.B. 1720) of the Matchmaker program to create the Weatherization Plus Health program which explicitly allows for asthma in children in adults.

4.2. Vermont

Vermont's weatherization program sits alongside other social services in the Office of Economic Opportunity (OEO) housed under the Department of Children and Families. The state has five implementing agencies that focus on different geographic regions, plus one state-wide agency that exclusively focuses on multifamily buildings. The social mission of the program to "save fuel and money by improving the energy efficiency of your home" is an emphasis in the Vermont program, with an effort to do as much as they can with the resources available. The social mission is also reflected in the program's goal of no (or as few as possible) deferrals.

Historically, Vermont's program has relied heavily on state funding, typically comprising about 85% of their total funding. Since 1990 (with restructuring in 2016), Vermont has implemented a state tax on fuels to provide a permanent and flexible additional funding source for Weatherization (see 33 V.S.A. § 2503). The Vermont fuel tax applies to heating fuels (heating oil, propane, kerosene, and other dyed diesel fuel delivered in VT at a rate of \$0.02 per gallon), retail sales of coal and natural gas (rate of 0.75%), and on the retail sale of electricity (rate of 0.5%). The entirety of Vermont's "Fuel Tax" is to support the Low Income Home Weatherization Program, and regularly provides <u>\$6-8 million per year</u>. The total fuel tax allocation for Weatherization in 2019 was \$7.3 million, which was 1.6-times greater than the combined DOE and LIHEAP-transfer for Weatherization from the federal government. The fuel tax costs the average homeowner who heats with oil about \$15 per year, and in 2019, <u>the Vermont legislature considered increasing the fuel tax</u>.

Vermont began using LIHEAP funds for weatherization three years ago for emergency heating repairs and replacements (there was a reduction in WAP funds of the equivalent amount). This change in LIHEAP and WAP funds is reflected in the 2019 funds (see Appendix A Table II-1), the increase in LIHEAP funding in Vermont diverges from a historical pattern of 85% state funds and 15% DOE WAP funds. Even with recent changes in LIHEAP and WAP allocations to Vermont, the large portion of funding from the state gives implementing agencies substantial flexibility for deeper weatherization measures such as pre-weatherization and the Wx-+Health initiatives.

In 2021, <u>\$7.9 million from the American Rescue Plan Act (ARPA)</u> was allocated to expand the Weatherization Assistant Program in the state. The goal for this additional funding is to weatherize 550 additional homes beyond the average of 800-1000 the state typically completes each year.

Leveraged funds allowed for Vermont to significantly expand to approach weatherization with a holistic approach, but coordination on quality and technical guidance is also critical. DOE has also developed more quality-related rules since ARRA, but the Vermont program's collaborative process to develop a common technical manual has been a key component of their expansion.

The Vermont Wx program strives for no deferrals but also realizes that zero deferrals is not a realistic goal, so their efforts aim to reduce deferrals and ensure "parity in service provisions to program clients throughout the state" (VT TEC Manual - <u>Appendix F</u>: Deferral & Home Repair Policies). Prior to a concerted effort to standardize deferral decisions, the state found that agencies deferred homes based on different criteria. Depending on the implementing agency, some would defer clients for issues that others would serve. To achieve parity across the state, Vermont developed a deferral policy paired with additional funding to address deferrals.

To achieve this parity across the state, <u>Vermont developed three goals</u>: (1) increase parity of service in tough cases (to do this, they focused on consistent deferral decision-making strategies), (3) enhance client communication (to do this, they increased client involvement in decision making given a potential deferral), and (3) reduce the overall number of deferral decisions (find and leverage more resources).

The deferral policy specifically calls out vermiculite insulation because 10-14% of Wx homes have vermiculite (~20,000 homes in the state). Vermiculite must be remediated prior to any work on the home since it is very likely to have asbestos. Ramping-up capacity and infrastructure to support an increased focus on vermiculite deferrals took multiple years. First, the 2011 state policy that required deferrals for vermiculite due to the cancer risk from asbestos was reversed. The state's new policy of vermiculite no longer a cause for automatic deferral was enacted in 2014. Next, this was supported with new funding in 2015 and then again in 2017. Without additional funding, addressing vermiculite would be very difficult.

To sufficiently address vermiculite deferrals, Vermont combines flexible state funding from the fuel tax with three additional sources: Vermont Low Income Trust for Electricity (VLITE), Office of Economic Opportunity (OEO) Vermiculite Fund, and Zonolite Trust. Together these funds allow for up to \$11,125 to address vermiculite (VLITE: \$3,500 per household cap, OEO fund: \$3,500 per household cap, Zonolite Trust: 55% of a project up to \$4,125)². Even with these additional resources, there may still be a financial gap for some households as the abatement cost range is variable from \$2,500 - \$14,000. In Vermont, this gap may be addressed with USDA 504 Loans or Grants or loan options from Efficiency Vermont (0% "Heat Saver" or "Home Energy" loans). Although, based on Vermont's experience, loan options are not preferable or suggested as clients rarely have the financial resources to take out loans.

Combining multiple funds targeted at vermiculite has helped the state work towards their deferral goals, including remediating vermiculite. Not addressing homes with vermiculite represented an equity issue in the state; the presence of vermiculite often <u>prevented households from receiving weatherization services</u> in homes with high energy use intensity and high burden in Vermont.

More generally, Vermont identified that to address the causes of deferrals, they needed to leverage resources for help with non-energy repairs. This earmarked funding is used with WAP funding based on a consistent set of rules in tandem with consistent deferral decision procedures across agencies. The Vermont Wx program continues to preserve the DOE WAP requirement of a SIR (Savings to Investment Ratio) of 1.0 or greater <u>but augments this requirement with a new rule that leverages non-DOE funding when a non-direct</u> <u>energy-saving measure will exceed the cost threshold</u>. The Wx program defines the cost threshold based on a client's WAP rank (based on age, disability, children, etc.). Vermont's policies to address deferrals include direct energy-saving measures in the mmbtu savings projection and they contribute to the SIR in the project report, but non-direct energy savings measures (including health and safety, repairs, ancillary measures, general energy waste reduction measures) are not used for savings projections of measure-level SIRs.

The program has focused on going deeper in energy savings and service provision for each customer. The Vermont Low Income Weatherization Assistance Program started an "efficiency coach" program using a

²VLITE in Vermont was created as a public benefit, nonprofit corporation due to a merger of utilities in 2012 (Green Mountain Power and Central Vermont Public Service). VLITE has an ownership interest in VELCO (VT Electric Power Company) and uses dividend income (~\$1M/year) for low-income services. SERC (Sustainable Energy Resources for Consumers) grant funded by the American Reinvestment and Recovery Act. This coaching program was instituted as a first step in the weatherization process in Vermont and enables a coach to introduce the state's weatherization program to a new client. This provides a customer service-like person who is knowledgeable in the weatherization program offerings and opportunities for energy conservation. In this first meeting, the coach describes the work that is going to occur, explains why, discusses conservation practices, and reviews the client's electric bill with them.

The efficiency coach is the first step in Vermont's holistic approach and is followed by the One Touch Program. In Vermont, efficiency coaches and energy auditors were trained in Healthy Homes Assessment to maximize health outcomes along with the Weatherization Assistance Program. The One Touch survey to screen for other social service programs that might benefit the client and provide referrals for comprehensive and holistic service. The One Touch program, or One Touch Screening and Referral Process, links energy, health, and housing by providing a common home assessment and automatic electronic referral system across involved programs in the state. <u>Data from Vermont</u> shows that 30% of clients needed referrals to other programs. Both the efficiency coach and One Touch program demonstrate the potential to share capacity across weatherization and health to reduce administrative burdens on a single program, while also maximizing holistic benefits to households.

Vermont's program has also focused on weatherization and health (or Wx+H). This includes pre-weatherization measures, such as vermiculite removal and other home safety measures.

In addition to the efficiency coach and One Touch program, Vermont piloted visits to homes from a University of Vermont occupational health specialist to identify trip and fall hazards for direct install measures like grab bars and raising toilets to allow residents to stay in their homes more safely and install such measures with weatherization home upgrades to lower the overall cost by reducing the number of home visits.

In 2018, Vermont conducted a review of environmental determinants of health-related to housing based on existing research to support Wx+H initiatives. Vermont's Wx+H program aims to demonstrate how Wx+H builds on a base of basic weatherization services. Critical environmental determinants of health include temperature, humidity, mold, air quality, and pests. The health benefits of weatherization extend to multiple dimensions of health, from asthma to productivity. The summary from Vermont's assessment of health benefits is in **Figure 8**.



environmental quality and health impacts of Wx was reviewed to identify the expected effects. The strength of evidence for each finding was based on the quality and amount of evidence available.



Figure 8. Evidence linking indoor environmental quality and health impacts of Wx (replicated from Vermont review in 2018)

Weatherization+Health was rolled out in pilots based on agencies that wanted to work in this area, those with an interest in participating in this effort. They found stronger buy-in and quality if the agency actually wanted to expand into this arena.

In Vermont, one challenge to providing service to multifamily units was that it allowed less efficient agencies to meet their target number of weatherization units each year. Single-family homes can cost much more to complete than multifamily homes, so some agencies would compensate by doing more multifamily and fewer single-family homes. The Vermont OEO started to address this 6-7 years ago by implementing a 'flexible job cost average.' This allows for flexibility in cost across single-family and multifamily projects. If an agency completes a high percentage of multifamily units in a given year, they will have a lower Job Cost Average (or Allowable Cost Per Unit/ACPU).

Given the lower cost of multifamily jobs, the flexible job cost average requires an agency to complete more units with the same amount of money compared to an agency with a higher percentage of single-family homes.

Vermont's Flexible Job Cost Average:

0-10% Multifamily (MF): \$11,198

11-20% MF: \$10,662

21-30% MF: \$10,128

31-40% MF: \$9,593 41-50% MF: \$8,256 51-60% MF: \$6,383

At the end of the grant period, if 85% or more of the agency's combined units (HWAP and DOE) are true oneunit buildings, the maximum job cost average will be \$12,668. The flexible job cost average required for an agency is based on the actual percentage of multi-family completion at the end of the grant period, even if the intended number of multifamily units was higher or lower at the start of the grant period.

The five primary service providers in Vermont have the right of first refusal for multifamily properties, but many now defer to a multifamily provider because it can increase efficiency. Having the sixth multifamily agency has also allowed the program to leverage more funds by completing more units per year.

To encourage multifamily projects, Vermont requires a lower low-income threshold than DOE, DOE requires 66% and the state requires 25%. In multifamily projects, the state covers all energy efficiency updates, but requires building owners to cover habitability requirements (issues related to health, safety, and structure).

To support parity in service across the state and build capacity for program expansion, Vermont's weatherization program under OEO created a technical manual based on a collaborative and democratic process with agencies. Before ARRA, each implementing agency was running their weatherization program differently, which led to differences in service provision across the state (as noted regarding vermiculite). OEO worked closely with the agencies to co-create a technical manual to standardize services. To develop the manual OEO facilitated meetings over the course of a year to work together chapter by chapter and put decisions to a vote. This process helped get agency buy-in which was key to successful implementation. Notably, most often the group wanted to establish a high bar for the state and to go farther than the requirements. With a technical manual used by all agencies, the statewide program is more cohesive, and clients across the state get the same comprehensive weatherization service. While collaboration has been critical to achieving parity in service across the state, pilots may still be valuable to conduct with individual agencies for new services or processes to test out what may work and iron out details.

Like many weatherization programs in the country, Vermont has run into workforce challenges in building capacity for their program expansion, often leading to underspending. Vermont is a crew-based state and has been struggling to fill crew positions. They have recently released a state RFP for shell contractors so agencies can start to supplement their crew with contractors. They have also started tracking crew vacancies monthly and reassuring agencies that money will be there for retention.

They have strategically built capacity in their implementing agencies by raising the ACPU but with guidance to ensure they have enough contractors and that contractors are managed well, with a dedicated person focused on management. Agencies needed to be paid appropriately to support this needed capacity. Today, as ARPA is asking agencies to do more, their current model has this capacity in agencies to oversee contractor work.

Lessons from Vermont

• Weatherization is not a one size fits all, "shovel ready" program. It takes high-quality training for crew members and contractors to effectively install measures. This emphasis on quality is critical for energy savings and reducing the financial burden for clients.

- Strong collaboration with agencies to gather input and buy-in should be prioritized in any efforts. Having this common understanding helped agencies ramp up and should be in place to hold agencies accountable.
- A quality inspection is recommended for every job by someone independent of the unit and agency spending requirement.
- Aside from requiring multifamily building owners to pay for required health and safety measures, don't ask for participant contributions. Low-income participants don't have additional income to contribute, so 0% interest loans do not typically work.
- Utilize the strong weatherization networks across the country. State, regional, and nationwide networks exist, and programs can learn from one another to not reinvent the weatherization wheel.

Legislative Actions

• Fuel tax enacted in the 1990s and restructured in 2016

Administrative Actions

- Collaborative technical manual development
- Development of deferral policies for service parity across the state

4.3. Colorado

Colorado's Weatherization program had seen many years of funding instability, which strained the capacity of implementing organizations to plan effectively (recent fluctuations saw total funding swing from \$12 to \$16-18 million/year). In recent years, Colorado's DOE WAP allocation has been \$6-7 million/year. Colorado maxes out its LIHEAP to WAP transfer (at 15%), which has been \$7.5-9 million/year.

However, Colorado stabilized funding for Weatherization through a revenue stream from <u>the state's sever-ance tax</u>. Colorado's severance tax is funded by taxes collected on the production or extraction of minerals and fossil fuels and has been in place since 1977. In recent years, the severance tax has contributed approximately \$2 million/year for weatherization. Utility programs currently contribute an additional approximately \$2 million/year.

Recent legislation in Colorado (H.B.1105) will remove the severance tax transfer and replace it with additional stable utility-funded revenue. With the new legislation changes, Colorado expects to lose the \$2 million/ year in severance revenue and receive instead approximately \$10 million/year in new utility revenue. Colorado also expects approximately \$13 million from the federal infrastructure package. After fully implemented, these changes will more than double the total funding of Colorado's program compared to 2019 funding levels.

Since the Colorado severance tax has been directed to Weatherization, funding has been levelized and then put on a more predictable schedule of growth. The additional revenue streams Colorado has integrated with federal WAP funds has allowed them to keep some funds "on the sidelines" year to year to smooth the fluctuations in federal funding that has to be spent each year, as appropriated.

Colorado has taken additional steps to diversify their funding sources, including by accessing the renewable

energy system benefit charge to direct toward low-income solar in Weatherization. The stability in funding achieved through diversification has improved relationships with Weatherization sub-grantees (implementers) and allowed implementers to hire more staff and take more innovative long-term steps, such as integrating solar and beneficial electrification (e.g., air-source heat pumps) into Weatherization. The combination of solar and beneficial electrification allowed Colorado to more strategically provide benefits to the high proportion of households that heat with natural gas or delivered fuels in the state. For example, Colorado prioritizes air-source heat pumps in mobile homes with more standardized heating systems and needs.

Colorado was the first state to integrate solar into Weatherization. They credit their ability to innovate, in part, to the stability in funding that they achieved through the diversification of revenue streams and relationship with sub-grantees made possible by the severance tax revenue stream. In considering new technologies to integrate with Weatherization, like solar energy, Colorado's State Energy Office stated that they prioritized working directly with their implementing organizations to identify a "champion" among the implementing organizations and train existing staff in new technologies before replicating elsewhere. Colorado staff emphasized that starting with close partnerships with "champions" is a more effective approach to piloting because it builds deeper knowledge about implementation (compared to working top-down from state plans for broad pilots).

Colorado, which relies heavily on contractors, described significant workforce challenges in competing with other construction firms. They end up relying on contractors who are either more junior or who really believe in the mission of Weatherization. They have recently considered how to bolster their recruiting efforts by emphasizing their sustainability mission (rather than only construction). For example, the Colorado Energy Office has partnered with <u>Colorado Youth Corps</u> in identifying sustainability-minded youth into Weatherization externships (they are piloting this program with six Youth Corps members this year). Colorado's implementing organizations have also made concerted efforts to recruit younger people through social media platforms.

Since a governor's executive order in 1979, some of Colorado's Weatherization and LIHEAP funds have been managed by an independent nonprofit organization, Energy Outreach Colorado (EOC). EOC also raises additional funds from corporate, foundation, and individual donors. And legislation enables EOC to also receive utility bill insert donations and utility fines and settlements. EOC is the project manager for all multifamily weatherization projects in Colorado.

Colorado's state office conducts monthly surveys of weatherization recipients. The state office also deliberately "nurtures relationships" with its implementing organizations. They describe wanting to intentionally give clear guidance and flexibility to implementing organizations because they know the customers best. For example, the state office has sought to clarify how DOE funds vs. flexible funds can be used on different homes to allow the implementing organizations to navigate how best to serve customers.

Colorado has struggled with understanding the causes of deferrals. Colorado has also only recently begun considering equity in weatherization access. They are in the process of working on an engagement plan to address equity.

Lessons from Colorado

- A specialized multifamily weatherization implementer can be an effective way to address this sector.
- Stable funding provides an opportunity to innovate toward long-term goals. In Colorado's case, they

have been able to pilot beneficial electrification pilots that combine solar and air-source heat pumps.

• Colorado's state office believes in "nurturing relationships" with implementing organizations by striking the right balance between top-down guidance and bottom-up knowledge of customers.

Notable Legislative Actions

• 2021 H.B. 1105 Low-income Utility Payment Assistance Contributions

4.4. New York

New York's program is a division in Homes and Community Renewal (HCR), the state's housing agency, and works with a network of nonprofit organizations, community action agencies, counties, and local government agencies. New York's weatherization program relies primarily on DOE WAP funds and HHS LIHEAP funds (WAP is about 40% while LIHEAP is 60%). A different agency administers LIHEAP funds in New York, the Office of Temporary and Disability Assistance, and they set aside 10% of the state's LIHEAP budget for weatherization. Currently, they have additional HEAP funds from ARPA that are devoted to pilots to achieve the Climate Leadership and Community Protection Act (CLPCA) from 2019. The NYS Weatherization program follows DOE rules with their funding. For 2020-2021 program year HCR has \$6.7 million for weatherization, with \$26.9 million in DOE funds and \$40.2 million in HEAP (this is an increase from the 2019 amount listed in Appendix A Table II-1). Funding is allocated to counties by HCR based on heating and cooling degree days and low-income households in the county.

New York's goal continues to focus on alleviating some of the financial burden of energy expenditures on income-eligible households but now also includes more generalized goals associated with energy efficiency, emissions reductions, and health and safety concerns. These latter issues evolved to be a part of the program over time. HCR spends up to 10-15% of their funds on health and safety improvements and this is the area that has expanded as allowed.

Leveraged funds in New York to help clients receive the maximum benefit often focus on climate goals (carbon emissions reduction, NOx reductions, green technologies) and goals related to health homes (asbestos, lead, vermiculite). In the 2022 Draft State Plan, New York's WAP program outlines leveraging opportunities with the state-funded (via a <u>state benefits charge</u>) New York State Energy Research and Development Authority (NYSERDA) for energy efficiency in low-income households and the New York State Housing Trust Fund on Weatherization Preservation Plus (P+) (allocates up to \$7 million for priority housing portfolios, with a focus on the Section 8 Performance-Based Contract Administration portfolio).

From New York's experience, utility funds have been helpful to support lighting upgrades and upgrades in common areas for multifamily buildings, as well as upgrades to support new renewables that may be required, for example, 220V. In addition to utilities, HCR works closely with NYSERDA. NYSERDA's funds are often combined with WAP funds with a focus on coordinating together, although programs are not directly linked so this collaboration relies on communication between NYSERDA and HCR.

NYSERDA is primarily state-funded, whereas HCR relies on federal funds. But the two are in constant communication with each other to enhance their joint goals (ensure they achieve collaboration, not competition). To facilitate collaboration, they share seats on the other's policy advisory councils and task forces and are in constant communication about legislation and funding sources. Additionally, they created a combined application form, so if someone applies to WAP they are also applying to funds from NYSERDA, so clients do not have to apply separately. Equity in New York is examined under housing's broader sustainability programs in the state and by the Fair and Equitable Housing Office, each reports back on weatherization equity measures to HCR but they do not evaluate this within the WAP program.

The American Reinvestment and Recovery Act (ARRA) expanded New York's program from about \$50 million to <u>\$396 million and raised the Average Cost Per Unit (ACPU) to \$650</u>0 (2009-2012). With ARRA funds, HCR weatherized 70,000 units and supported 1400 jobs, with a significant increase in training resources. Since ARRA, New York's program has averaged about \$70 million.

This expansion was also followed by a contraction following the ARRA period and the administration of the program faced new administrative requirements, such as prevailing wage requirements (Davis Bacon rules) that were not previously applied to weatherization. This required new reporting to the Department of Labor which was not a part of weatherization reporting outside of ARRA.

ARRA required building a skilled workforce in a short period of time, and capacity was an issue to meet the new obligations of ARRA. To build capacity to administer the additional ARRA funds HCR put out an RFP for new temporary subgrantees, which identified nonprofit and government agencies interested in administering weatherization in certain designated areas. These temporary subgrantees were funded for the period of ARRA, and while there was a learning curve, all subgrantees met the minimum standard. During ARRA, HRC saw increased recruitment and greater participation of women and minority-owned businesses. Overall, this model worked for ARRA, but it was not due to a "pre-planned" process; it was developed in a short period of time in response to the funding allocation.

During ARRA, HCR expanded their training and technical assistance program, primarily relying on their two vendors that administer training (Association for Energy Affordability and the NYS Weatherization Directors' Association). The vendors ran training centers and were extremely important to handle the influx of training. The state does conduct state-led training but this was limited in comparison to the training led by the vendor training centers, and primarily the state's role was to create the support and means for training centers to operate.

Federal government policies set the limitations and opportunities for the program, but anticipating what is coming can help accommodate new government funds. New York now has a full-time program manager focused on stimulus and special funding, which was a job that did not exist before but offers flexibility for new sources of money. Given the federal funding focus on saving individual households money and state goals that may be focused on overall goals (e.g., GHGs), funding goals are not always aligned, but using non-DOE funds (like ARRA or ARPA) can bring multiple sources of funding into homes to accomplish multiple goals.

New York State is the leader in multifamily building weatherization primarily due to the high concentration of multifamily in New York City (NYC). To address multifamily in NYC, subgrantees operate at a more granular level than elsewhere in the state - most subgrantees are responsible for counties, but in New York City they operate by neighborhood. This enables subgrantees to have specific and intimate knowledge about the buildings existing within their area of operation. Subgrantees in New York City work with housing authorities, like New York City Housing Authority (NYCHA) which owns hundreds of old buildings across all five boroughs.

Multifamily buildings are eligible for WAP if 66% of tenants are income-qualified and New York State has a methodology of identifying these buildings and enacting owner contributions to get buy-in. Most owners want building improvements to increase the building's value, but they are required to sign that they will not

sell the building or increase rent based on this increased value. In exchange, owners can add services (that they pay for) that are completed during weatherization, such as new windows. As rules phase out certain fuels, some building owners participate in the program for the benefit of a new boiler or heating system for fuel-switching to comply with local or state laws.

Mandatory owner contributions are not required by DOE, but New York's WAP owner investment policy is expected to generate <u>\$10 million in owner investments</u> during the 2022 program year.

New York uses the broadest sense of health and safety, including smoke and carbon monoxide detectors, radon, lead, asbestos. As possible, they team up across agencies to address health issues, since issues like ventilation can be very expensive and time-consuming. Much of New York State's expansions to include non-energy benefits related to health and safety extend beyond the traditional weatherization model.

NYSERDA, which does not operate the state's WAP program, has complementary programs (EmPower, Multifamily Performance Program, Home Performance/Assisted Home Performance, and Green Jobs NY) and has an ongoing pilot program for a Healthy Homes Value-Based Payment (VBP) Pilot for Energy-Plus-Health in New York leveraging Medicaid's VBP framework. The VBP pilot is predicated on 80% of health outcomes determined by the physical environment, social determinants, and behavioral factors, leaving 20% to access to care and quality of service. The current pilot aims to combine energy efficiency and weatherization measures with others aimed at respiratory conditions to develop a framework for funding health homes interventions as a part of value-based payments in Medicaid. The pilot includes home skilled nurse visits and community health worker support. The current pilot is between NYSERDA and the New York State Department of Health. While no WAP or LIHEAP funds are directly involved in this pilot, it demonstrates the potential for leveraging health funds for Wx+H services.

The NYS Healthy Homes Value-Based Payment Pilot relies on Medicaid's VBP system that pays for outcomes rather than inputs and aligns with the state's Medicaid transition to a VBP framework. The pilot includes 500 healthy homes interventions focused on asthma-related outcomes, reductions in energy use, utility bills, improved home comfort and safety, and reduced Medicaid utilization associated with hospitalization and emergency department visits. The pilot is funded through NYSERDA's Clean Energy Fund (ratepayer dollars) at \$215,000 for feasibility analysis and about \$10 million for pilot implementation and support. NYSERDA is covering all the pilot costs (except for in-home nurse visits) with the hope that managed care organizations (MCOs) will cover the costs in the future (after the model is proven).

Support for the state's Wx+H work is bolstered by Executive Order 190, which requires all agencies in the state to incorporate health considerations into investments and program planning. Given the focus on health, NYSERDA and the New York State Department of Health identified ways to work together, which started a long planning process for the pilot. NYSEDRA and the Department of Health planned for about 1.5-2-years, and the program will run for 2-years in the field (ongoing). The program pilot evaluation is structured so that NYSERDA will be responsible for utility bill analysis and the Department of Health for the Medicaid claim data analysis. The inclusion of specific Medicaid claims data is an innovation in this pilot and would not be possible without the close collaboration with the Department of Health. Establishing this arrangement required lead time and separate legal agreements.

To support this pilot, NYSERDA ran a request for qualification in the two pilot areas in Western New York and New York City and qualified contractors working in NYSERDA's EmPower program (other income-eligible energy efficiency program). The program required the Building Performance Institute's Healthy Home Evaluator Certification, and NYSERDA found that this training was less available than anticipated (only available in NYC X2 per year).

Lessons from New York

- It is difficult to change old ways, opportunities for new funding take time to get moving
- Capacity issues are likely to continue to be challenging during COVID
- Due to supply issues, they are likely to have to return federal funds due to delay in projects
- Braiding Wx services with new funding streams can be very time-intensive (e.g., NY's experience navigating data practices in Healthy Homes Value-Based Payment Pilot)

Notable Legislative Actions

- 2019 Climate Leadership and Community Protection Act (CLPCA)
- Notable Executive Actions
- November 14, 2018: "Incorporating Health Across All Policies Into State Agency Activities" Executive Order No. 190

4.5. Wisconsin

Wisconsin receives about \$11 million from DOE WAP and requests a 15% LIHEAP transfer from HHS to Weatherization, but the largest source of Weatherization funding is from its <u>Public Benefit Fund</u> (ratepayer funding on every household in Wisconsin with a meter). The total funding for Weatherization in Wisconsin is about \$70 million, with about \$60 million going to implementing agencies (see Appendix A Table II-1 for 2019 reported numbers). Wisconsin has 18 agencies across the state, including both Community Action Agencies and other nonprofit organizations (12 CAAs, 6 other nonprofits). The Wisconsin Weatherization program has a goal of about 6,000 units per year (see Appendix A Table II-5 for 2019 reported production numbers).

Wisconsin's program has expanded at multiple points over time, with ARRA being one but not their largest expansion. With the public benefits charge <u>starting in 1999-2000</u> (during broader discussions about potential utility restructuring), the program expanded substantially beyond WAP and LIHEAP fundings with a focus on measures that DOE did not allow at that time. Public benefit funds are also much more flexible. For example, Wisconsin was able to reduce the savings-to-investment ratio (SIR) for investments made with public benefit funds.

During ARRA, Wisconsin ran a multifamily-specific program focused on 20+ units (although this is a small portion of buildings in Wisconsin, focused in the metro areas). Prior to ARRA, they had not addressed these larger buildings because there was not enough funding for such large units that require more capacity (and cost) for larger systems. Wisconsin has continued to engage landlords of multifamily buildings to discuss Weatherization and energy assistance, for example, implementers will sometimes do an "application fair" in the lobby of a multifamily building.

In addition, Wisconsin reflects how important it was to ramp up training with ARRA. They had a training "bootcamp" process in place to intensively train up their workforce. ARRA also provided Wisconsin an oppor-
tunity to develop new practices around monitoring. Wisconsin ramped up oversight staff ("project permanent positions") that enabled real-time monitoring, which enabled fewer visits to a customer's home during the Weatherization process. They have continued several of these practices since ARRA.

Beyond funding, the Wisconsin program has evolved to increasingly emphasize working collaboratively with implementing agencies on policy and program implementation to support high-quality work for clients.

Like other states, Wisconsin is planning for a new influx of federal funding. The issue for Wisconsin's program is not a lack of funding, but the limitations of how to spend DOE funding. With new DOE funding amounts that are coming in, Wisconsin would love more flexibility because the funding ratio of DOE to non-DOE is much higher than previously. But more important than moving fast, was doing things right. Wisconsin has decided not to pursue some new pilot-funding opportunities from DOE due to concerns about their network capacity and being able to do more things more easily with their flexible funding.

For example, the state is striving to provide each household with as much as possible since they cannot reweatherize for 15 years. Given limitations in DOE rules, they aim to not overwhelm the system and are careful with new initiatives.

In their program, they run pilots with agencies that express interest, which they are considering now with impending DOE funding. In the past, for example, Wisconsin ran a high-efficiency washing machine pilot to assess the impact on the SIR, ease of implementation, compatibility with the existing housing stock, etc. Looking forward, Wisconsin is looking toward potentially integrating solar with Weatherization with new DOE funding.

Wisconsin contracts with SlipStream for training and to do data analysis of pilots and make sure that savings do accrue to the homes. SlipStream also supports Wisconsin's "Self Evaluation" study, in which SlipStream analyzes pre- and post-Weatherization data for each Weatherized home and evaluates each agency (recognizing that there are significant differences in the homes in the areas of each agency). Agencies are motivated by these evaluations, which are shared with boards and staff to reinforce how meaningful the work is. Wisconsin is one of the only states that commissions self-evaluation studies annually. Wisconsin has also worked with SlipStream on a study with University of Michigan on an ongoing study to measure the health impacts of Weatherization (covering Milwaukee, Detroit, and Memphis).

One policy change that was important in Wisconsin was to allow agencies to use some of their LIHEAP allocation to address deferrals. This could be for pre-weatherization investments to do work that doesn't impact the overall SIR of Weatherization funds. This policy change was made with full agreement of their implementing network, demonstrating an important way Wisconsin has built collaboration between the state office and the implementing agencies. Overall, agencies have spoken favorably about the positive impact of this policy change.

In terms of workforce, it's not uncommon in Wisconsin for many promotions to come from within and have many folks who have been around for a long time. But now, many of the senior employees are retiring and taking their knowledge with them. Now, Wisconsin is planning more intentionally for staffing where new employees overlap intentionally with senior staff that's retiring--and they are providing duplicative staffing at times to enable knowledge transfer. To help build capacity moving forward, Wisconsin has also used LIHEAP transfer funds to build up staff and capital requirements. It's critical that funds get out there as soon as possible ahead of scaling up. But Weatherization is very technical, and it takes a while to train, so it's imperative to move quickly without overwhelming implementing agencies.

One workforce challenge that local agencies face is being able to offer competitive wages. There are a lot of challenges in balancing the wages and the demands of the jobs. Agencies trying to recruit face numerous challenges and they are not able to pay people what they want to pay them (e.g. because that drives up labor costs and lowers the performance metrics). Even though the programs have enough funds, they're still restricted in being able to raise wages. Most agencies also have an agency-wide wage structure to maintain equity, but that can also create hiring difficulties.

As dollars flow to agencies, agencies in Wisconsin complete a contract planning workbook. This tool helps agencies better plan for their capacity needs. The state office provides information on total allocation, and then the agencies can plan better for their staffing needs and then plan more accurately for the number of houses they can do in a year. This then informs the contracting. Then the state office issues advances and helps agencies make timely payments (even though the overall program is still a reimbursement program).

Wisconsin has an automatic referral process from energy assistance to Weatherization. Agencies benefit from this referral system because it helps them target high energy burden homes and where energy is being most consumed. To assist with the credibility of referrals, Wisconsin's state office sends referrals on state letterhead, which has helped increase customer uptake. Wisconsin has also worked to integrate their databases for energy assistance, weatherization, and their furnace upgrade benefit. LIHEAP eligibility is used to qualify for Weatherization, and all the data by household is linked in electronic records. This really helps with quality assurance too, as it allows the state office to track changes before and after Weatherization.

Wisconsin also requires that 40% of Weatherized homes are renters. But more broadly on equity, Wisconsin has not explicitly considered equity in terms of serving more underserved communities. Wisconsin has been tracking the Justice40 federal initiative and believes that all Weatherization should fall under the Justice40 guidelines. But they have not done this explicitly, but they are now interested in looking into this more with their existing data.

The Wisconsin state office operates under the philosophy that agencies are implementers, and the state office is there to help support with policy interpretation, technical assistance, and other high-level guidance.

Agencies do work to circle back to deferrals. Agencies keep their own records of deferrals and do circle back. Some other states have navigators to do case management to help customers navigate different programs (including HUD programs), but Wisconsin hasn't done that yet. But they are thinking about how to align eligibility across many different energy- and non-energy programs.

Lessons from Wisconsin

- A public benefit charge can be a transformative way to build capacity and serve more families
- Wisconsin has developed data management and evaluation practices that help them integrate programs and build efficiencies to reduce administrative burden
- Flexible funds, including LIHEAP transfer, can be targeted to reducing deferrals
- Planning intentionally for retirements can help build organizational robustness despite retirements

Notable Legislative Actions

• 1999 <u>Wisconsin Act 9</u> established public benefits fund for energy conservation, renewables, and low-income assistance programs (for areas not supported by federal funds)

4.6. Ohio

The Department of Development has 25 subgrantees in Ohio (18 Community Action Agencies, two local government agencies, and five nonprofit non-CAA agencies) which provide services to the state's 88 counties. Ohio's WAP program is housed in the Department of Development in the Community Services Division, which houses both Home Energy Assistance (HEAP) and HWAP (Home Weatherization Assistance Program). In addition to Ohio's HWAP program, the state offers an HWAP Enhancement program funded by 10% of the state's LIHEAP funds.

The Ohio legislature required that Development apply for the maximum transfer of 25% of LIHEAP funds from HHS. The state uses DOE WAP and 15% of HHS LIHEAP funds for their Home Weatherization Assistance Program (HWAP) program. With the 25% mandatory waiver request, Ohio's Department of Development allocates the additional 10% for their HWAP Enhancement Program. Ohio started the HWAP Enhancement Program 3 years ago and phased in the maximum waiver request. In program years 2018, 2019, and 2020 Ohio requested 20% of LIHEAP funds, allocating 5% to enhancement. Beginning in program year 2021, they expanded this request to 25% to allocate 10% to HWAP Enhancement. In the traditional HWAP program, the 15% from HHS is used for health and safety measures, while in the HWAP Enhancement Program, the 10% from HHS is used for previously deferred homes.

Since 2018, the Ohio Department of Development has worked with HHS to add additional allowable uses to address deferrals. Currently they have 8 items that can be addressed with HHS funds to provide service to homes that would otherwise be deferred (including minor roof repairs, plumbing, electrical, pest remediation, and air conditioning repair/replacement). To identify requests to bring to HHS for the enhancement program, the state office (Ohio Department of Development) solicits input and requests from agencies. They have added two additional allowable items each year through their HHS waiver. The waiver approval from HHS is done on an annual basis so it is not necessarily guaranteed, but it is always contingent on approval. This 10% used for the Enhancement program differs from the regular WAP allocation and the 15% LIHEAP transfer since the waiver must be applied for each year.

Beyond leveraging the maximum LIHEAP transfer to HWAP and HWAP Enhancement, subgrantees in Ohio are encouraged to leverage weatherization activities with other housing rehabilitation or neighborhood revitalization programs, including the Housing Assistance Grant Program, utility programs, and other state-administered programs (such as the Community Housing Impact and Preservation (CHIP) Program).

Ohio's utility funds are separate from the WAP funds, but the state agency, implementing agencies (or subgrantees), and utilities have built strong working relationships to find common ground on what can be done with WAP funds based on DOE rules and utility funds. Finding common ground with utility partners requires strong relationship building, Department of Development in Ohio uses regular meetings with their Public Advisory Board (3-4 times/year) to facilitate regular communication in addition to regular conversations between utility staff and agencies. Many implementing agencies that are HWAP subgrantees also implement utility programs in the state (not universally, but often). Training for HWAP and utility programs requires separate training, but there are opportunities for joint training. When it comes to funding flexibility, Ohio's approach emphasizes flexibility for different purposes. For example, in general, the utility funds are more flexible than the federal funds, but the DOE funds support the training center and HHS allows for some of the additional items. The experience in Ohio suggests that flexibility with funding can be approached based on identifying what is needed to achieve different weather-ization-related goals.

Ohio's experience scaling up their program during ARRA taught them to prepare more on the front-end, with a focus on training to support scaling. Beyond any single source of funding related to expansion (e.g., number of households), implementers in Ohio also point to the role of new technologies to help them expand the services offered to each household.

The Ohio Weatherization Training Center (OWTC) was started with weatherization in the 1970s and continues to play a central role in the state's program. The OWTC is housed in the Corporation for Ohio Appalachian Development (<u>COAD</u>) and funded by DOE WAP funds. The integration of the OWTC into the state's program allows for the center to use subgrantee technical monitoring reports to guide training and technical assistance efforts. If a subgrantee is struggling with performance (pass rate below 60%) the OWTC can help the subgrantee address this through training and technical assistance. In addition to technical training, the OWTC also provides the client education training (client education is required for every eligible household). The <u>OWTC is accredited by the Interstate Renewable Energy Council.</u>

As training needs continue to evolve in the state, OWTC is exploring ways to make training opportunities more accessible across the state. Traditionally, HWAP training sessions are held at the COAD in Athens, Ohio in the southeastern part of the state. Recently, OWTC has been expanding training offerings through a hub model with options in the northern/middle parts of the state. One of the strengths of Ohio's training capacity is that the training center is flexible; given 5-15 students in the same track, trainers can travel to different parts of the state to enhance accessibility.

Many Wx programs have ways of prioritizing clients on the waitlist, often focused on age, disabilities, or children. In Ohio, given disparities in access to utility programs, the state prescribes that the first 25% are chosen by their application date to ensure that no one is left out of HWAP services. The remainder of 75% can be determined by each implementing agency on an annual basis. Many agencies focus the 75% on jobs that can leverage funds ("combo jobs" with utilities) or they may prioritize certain groups or demographics (e.g., elderly) for the year.

Lessons from Ohio

- Ohio's use of DOE funds for training and the maximum LIHEAP transfer suggest that even within existing federal funding sources, there are opportunities for expansion and flexibility by aligning needs with what is allowable under different funding sources.
- Expanding programs requires getting out to talk to the people doing the work, and the people interested in seeing the program expand (e.g., utilities, providers, clients). Build on insights from people who have experienced the program in different ways.
- Keep communication channels open and relationships strong (take the time to build those relationships).

Notable Legislative Actions

• Ohio H.B. 6 (2019) requires the Director of Development to apply for a maximum 25% waiver from Health and Human Services (beginning fiscal year 2021).

Appendix A: Minnesota Weatherization Landscape Analysis

Applied Public Policy Research APPRISE Institute for Study and Evaluation

Executive Summary

The 2021 Weatherization Assistance Program (WAP) Working Group was created by the Department of Commerce in Minnesota to make legislative recommendations to increase the number of low-income Minnesota households served by WAP and explore ways to leverage existing funding and identify new funding sources for weatherization. The WAP Working Group contracted with the University of Minnesota to conduct a research study to inform their recommendations. APPRISE is contributing to this research by providing this report that characterizes WAP funding and programs, identifies other low- and moderate-income energy efficiency programs in Minnesota and around the country, and makes recommendations for expansion of Minnesota's WAP.

Weatherization Assistance Programs

Several funding resources are used in coordination with Department of Energy (DOE) WAP funding. These sources include transfers from the Low-Income Home Energy Assistance Program (LIHEAP), utility collections from ratepayers, state-collected fees or tax revenues, state general revenues, or state appropriations to WAP. Additionally, the Weatherization Leveraging Partnership Project (WLPP), managed by the Community Action Partnership (CAP), interviews WAP subgrantees, utilities, Community Action Associations (CAAs), and other sources to develop data on non-federal funding used by WAP subgrantees. These are contracts and grants made between subgrantees and other partners that are not captured in the state WAP reports.

Data on the amount of each funding source for 2019 was reported by the National Association of State Community Service Programs NASCSP.³ The five states (of the 20 comparison states included in this study) with the greatest leveraging of funds from non-DOE sources were Massachusetts, Vermont, Wisconsin, Oregon, and Washington. While these states ranged from 94 to 85 percent leveraged, Minnesota was ranked 16th of the 21 states reviewed, with 49 percent of their WAP funding from sources other than DOE.

A review of historical WAP funding from DOE, LIHEAP, and other state and utility funds from 2009 through 2019 found several states with large and sustained funding increases over several years during this time. Colorado, North Dakota, Ohio, Pennsylvania, and Washington are potential states for Minnesota to review when thinking about how to effectively utilize an increase its WAP resources.

Training and Technical Assistance

Review of comparison state WAP plans provided information on uses of Training and Technical Assistance (T&TA) funds that could be helpful in Minnesota (if not already implemented). Some of these ideas are as follows.

- Planning innovative pilot projects.
- Investing in advanced technology to improve weatherization efficiency or effectiveness.
- Health and safety training to address post COVID workplace challenges.

³Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>

- Analysis of blower door measured infiltration reductions, actual subgrantee energy savings, energy conservation measure savings, and health and safety expenditures to assess training needs.
- Planning how to address challenges in weatherization staffing and contractor recruitment including the development of a summer high school apprenticeship program.
- Sharing local agency management tools on a weatherization website.
- Drafting agreements with other states in the region to combine training resources and activities.

Leveraging Funds

Minnesota's plan states that funding sources can be combined on jobs with attention to policy differences in how the funds may be used. They provide examples of leveraging activities for which weatherization funding may be used. Information from other states can be informative to Minnesota in assessing how to increase leveraging.

- Use of non-federal funding sources to increase the installation of health and safety measures, address deferral issues, and reduce the percentage of WAP funds spent on health and safety.
- Prioritization of jobs where another funding source can be coordinated with WAP.
- Use of WAP leveraging funding to increase the pool of leveraged resources and identify how best to use available resources.

State and Utility Low-Income Energy Efficiency Programs

Information on low-income energy efficiency programs offered by investor-owned utilities (IOUs) as part of the Conservation Improvement Program (CIP) was obtained from the utilities' 2021-2023 triennial plans. The IOUs provide several low-income energy efficiency programs that include comprehensive home efficiency, multi-family services, lower cost installation programs, and heating system tune-ups.

Minnesota's Energy Conservation and Optimization (ECO) Act of 2021⁴ requires the utilities to increase the amount spent on low-income weatherization. Gas IOUs must spend one percent of gross operating revenue (GOR) (up from 0.4 percent); electric IOUs must spend 0.6 percent of GOR starting in 2024 (up from 0.2 percent); and municipalities and cooperative utilities will need to spend 0.2 percent on low-income programs (unchanged). The ECO Act also provides for increased spending on pre-weatherization measures to improve health and safety. These measures will be determined by the Minnesota Department of Commerce.

Information on these IOU and state programs in the comparison states was summarized where data were available. Some of the comparison states leading in low-income energy efficiency were as follows.

- Massachusetts has been one of the leaders in investment in energy efficiency overall, and with substantial funding for low-income energy efficiency.
- New Jersey has had a low-income energy efficiency program, the NJ Comfort Partners Program,

⁴https://www.revisor.mn.gov/bills/bill.php?b=house&f=HF0164&ssn=0&y=2021

jointly managed by the utilities for about 20 years. The individual utilities each recently introduced a Moderate-Income Weatherization Program to provide similar, no-cost energy efficiency services to households with income up to 400 percent of the federal poverty level.

- New York: NYSERDA and New York IOUs have aligned their programs for LMI households. In addition to the single-family and multi-family programs, they offer new construction, beneficial electrification, pilot programs, healthy homes programs, and outreach. Across these initiatives, 2021 LMI funding was budgeted at over \$122 million.
- Pennsylvania: Utilities are required to provide Low-Income Usage Reduction Programs (LIURP). The
 programs are targeted to participants in their required bill payment assistance programs with high
 energy usage. Each utility is required to conduct an annual impact evaluation of their LIURP using
 billing analysis to assess energy savings. This focus on savings (measured with billing data) is an important component in program improvement.

Recommendations

This section provides recommendations for Minnesota to consider in the expansion of their Weatherization Assistance Program.

 Ramp-up Speed: When large amounts of funding become available for new or expanded programs, there is often an emphasis on quick implementation at large scale. This method of implementation expends significant resources in a manner that may not be most effective, as providers are learning how to implement the new program or scale up an existing program, and managers have yet to learn where program design tweaks may be needed. Even if the program is not new, a significant expansion of an existing program can overwhelm experienced program implementers and reduce the quality of program implementation, leading to results that do not match expectations.⁵

Another approach is to pilot a few variations of the new design, collect needed data to assess program effectiveness, compare the impact of the pilots, and then adopt one or more designs that most successfully meet the program goals.⁶ Or in an expanded program, allow providers to ramp up at a speed in which they can continue to provide high-quality service delivery.

⁵For example, the significant WAP ramp-up during the American Recovery and Reinvestment Act of 2009 (ARRA) period resulted in challenges and increased costs that reduced the program's cost-effectiveness compared to the previous period. See https://www.commerce.wa.gov/wp-content/uploads/2016/10/cshd-hau-weatherization-works-II-oak-ridge-lab-eval.pdf

⁶For example, the Colorado Governor's Energy Office (GEO) implemented new low-income energy efficiency initiatives in 2006 using the following process. 1) Investigate promising program models and analyze potential program savings. 2) Initially implement services at a small scale. 3) Keep initial implementation simple. 4) Determine how to modify program offerings based on evaluation findings. See Colorado Energy Efficiency Evaluation Report, APPRISE, July 2007, available at http://www.appriseinc.org/resource-library/selected-reports/low-income-usage-reduction-program-research-and-evaluation/

- Sustained Funding: A one-time infusion of resources that must be spent within a short time also creates challenges and reduces potential impact. The 2009 American Recovery and Reinvestment Act of 2009 increased annual WAP funding from \$200 to \$250 million to \$5 billion and created challenges for the WAP network to hire and train staff and contractors.⁷ Such an expansion could be improved with lead time to ramp up the program and many years to achieve the goals of the expenditures. With current labor shortages, supply chain issues, increased material costs, and client hesitancy to have workers in their homes during COVID, the current environment may require an even longer ramp-up period.⁸
- Service Delivery Model: Research conducted during the ARRA period found the following with respect to the ability of WAP agencies to scale up service delivery.⁹
 - WAP agencies that had a contractor-based approach were most successful in scaling up their operations. Because the economy was in a downturn, it was especially easy for them to find additional contractors to perform the work.¹⁰
 - WAP agencies that had a crew-based approach and were able to move to a contractor-based approach did well. They were able to do this by promoting crew members to supervisors to oversee private contractors' work.
 - o WAP agencies that had a crew-based approach and did not make an adjustment, had more difficulty scaling up.

Minnesota should assess the extent to which their agencies are working with contractors, but keep in mind that labor shortages at this time will present different challenges for a ramp-up.

• Health and Safety Expenditures: Many low-income households are either deferred or incompletely served by LMI energy efficiency programs because of health and safety issues in the home that are too large for program funding to address. These homes may have large lost potential for energy savings. An expansion in program funding should include the ability to spend a significantly larger amount on health and safety remediation if the client is high energy user and has potential for large energy savings.

⁷https://rmi.org/the-wonders-of-weatherization-improving-equity-through-stimulus-funding/

⁸Bratburd, Jennifer. "Increasing Access to Energy Efficiency: Options for Improving Weatherization Assistance." MOST Policy Initiative. May 2021. https://mostpolicyinitiative.org/wp-content/uploads/2021/10/MOST_WX_report_2021.pdf

⁹Rinaldi, Kara Saul, Brad Penney, and rain Castelli. "Weatherization and Home Performance: Recommendations for Mutual Success and Collaboration." Home Performance Coalition. March 2017. <u>http://www.homeperformance.org/sites/default/files/Weatherization%20%26%20HP%20Recommendations%20Report.pdf</u> This report discusses how home performance contractors can help WAP.

¹⁰Tonn, Bruce, Erin Rose, and Beth Hawkins. "Weatherization Beyond the Numbers: Case Studies of Fifteen High-Performing Weatherization Agencies – Conducted May 2011 through July 2012." Oak Ridge National Laboratory. September 2014. <u>https://weatherization.ornl.gov/wp-content/uploads/pdf/WAPRetroEvalFinalReports/ORNL_TM-2014_317.pdf</u> The report describes how the Confederated Salish and Kootenai Tribe (SKHA) weatherization program, the only tribe in Montana with a weatherization program, was completely contractor-based, so it was straightforward for them to ramp up production under ARRA. Housing, Emergency Services, Life Skills, and Prevention (HELP) in Nevada was able to expand their production Minnesota's Energy Conservation and Optimization (ECO) Act of 2021 allows utilities to receive credit for pre-weatherization work and allows 15 percent of the spending for pre-weatherization. Also, beginning in July 2021, the Commerce Department began allowing WAP funds to be used for removing insulation with asbestos and mold. The expansion should include leverage of CIP funds to enable energy efficiency in homes that previously could not be served. Comparison states provide examples for how increased leveraging can be achieved.

- Target Services to Savings Opportunities: When expanding services and attempting to serve all income-eligible households, it is important to ensure that program funds are spent effectively. Low-us-age households will not provide savings opportunities and would be better served by other benefits that may include energy assistance, or solar-readiness services. High-usage homes should receive comprehensive services to achieve deep energy savings.¹¹ One proposal that was put forth recommended the installation of a standard package of measures in every home without conducting an audit.¹² This approach would waste resources by installing measures in homes that would not provide energy savings and by missing important opportunities in other homes. The weatherization process needs to assess each home and treat each home according to the opportunities that are present.
- Deferred Clients: If additional resources are made available for health and safety work and needed repairs, the program will have the ability to serve clients who were previously deferred because weatherization barriers were too significant to address with program funds. Some of these clients will now provide a good opportunity for energy savings, so they should be recontacted, reassessed, and treated where appropriate.
- WAP Guidelines: The Federal WAP Guidelines sometimes place restrictions on spending that make it difficult to provide services to households in need. This includes a restriction that the program cannot return to a home that was weatherized after 9/30/94, the percent of households in a multi-family building that must be income-qualified to serve the building, and limitations on health and safety spending (which may be needed to install weatherization measures). Additional MN WAP funding could be allocated to be spent outside WAP guidelines and meet these important needs. APPRISE's LI CIP research found that non-WAP service providers said inadequate funding for health and safety measures presents a significant barrier to treatment of some of the highest priority households, so this may be a particularly important target for increased funding.
- Multifamily Buildings: APPRISE MN LI CIP Research found that there may be additional opportunities to serve multi-family tenants in COU service territories. This could be a good opportunity for additional MN WAP spending.¹³

during ARRA partly by increasing the number of its contractors who hired 165 new staff for their crews. The Opportunity Council in Washington moved from an in-house crew-based model to a model where contractor crews were hired to ramp up production during ARRA.

¹¹Berger, Jacqueline. "Barriers and Solutions to Achieving Potential Savings in Whole House Low-Income Weatherization Programs. 2015 International Energy Program Evaluation Conference.

¹²http://www.opae.org/2021/02/26/quickfacts-results-of-ncaf-wap-relief-program-survey/

¹³Carroll, David. "Low Income CIP Program Assessment. Process Evaluation of COU Programs." December 2017. https://mn.gov/commerce-stat/pdfs/card-cip-process-eval-cou.pdf

- Electrification: The program should consider electrification in homes that require heating system replacement. This is an important step in including low-income households in decarbonization of the economy and is now allowed through ECO. The Act allows utilities to fuel switch if it results in a net reduction of source energy and greenhouse gas emissions, is cost-effective, and improves the utility's system load factor.
- Workforce Development: Significant increases in weatherization funding will require an expansion of the weatherization workforce. Funds should be made available to train new staff and contractors, with a focus on marginalized communities.
- Solar Assessments, Readiness, and Installations: A large increase in WAP funding should contribute to the development of renewable resources in low-income homes. Minnesota WAP could play several roles in this development.
 - o Solar Assessment: Energy auditors in Xcel's service territory have been trained to conduct a solar site assessment as part of their audit and develop a database of "solar possible" households. Additional WAP staff could be trained to conduct assessments of solar readiness in clients' homes when they perform the audit.¹⁴ They could then develop a list of clients who are solar-ready and a list of clients' needs to become solar-ready. This would provide a targeted list for additional solar installations and for solar readiness work.
 - o Solar Readiness: WAP could expand services to include roof repair, electrical system upgrades, and other repairs needed to make clients' home ready for rooftop solar.¹⁵
 - Solar Installations: Minnesota piloted Solar Into WAP which combined DOE funds with Xcel Energy Solar Rewards Income Qualified incentives. The Pilot expected to have 15 installations completed by the end of Program Year 2020. They plan to increase solar in Xcel's territory and discuss solar support with additional utilities. MN could use additional funding to speed up this implementation.¹⁶
- Moderate-Income Households: Programs have been developed in New York and New Jersey to provide no-cost energy efficiency services to moderate-income households. With additional funding, Minnesota could also consider providing services to this market segment that is often underserved by market-rate energy efficiency programs.

¹⁴See EPA's "Renewable Energy Ready Home Solar Photovoltaic Checklist" in "Solar Photovoltaic Specification, Checklist and Guide". May 2011. <u>https://www.energy.gov/sites/prod/files/2013/11/f5/rerh_solar_electric_guide.pdf</u>

¹⁵A review of 12 low- and moderate-income solar rooftop programs found solar readiness to be the most important barrier, cited by eight of the 12 program managers interviewed in a national program review included in this report: "Illinois Solar for All Phase II Evaluation, Final Evaluation Report." APPRISE. October 2021.

https://www.illinoissfa.com/app/uploads/2021/11/ILSFA-Phase-II-Final-Evaluation-Report-10-27-21.pdf

¹⁶ https://www.cesa.org/wp-content/uploads/Incorporating-Solar-as-a-Measure-of-Weatherization.pdf

I. Introduction

The 2021 Weatherization Assistance Program (WAP) Working Group was created by the Department of Commerce in Minnesota to make legislative recommendations to increase the number of low-income Minnesota households served by WAP and explore ways to leverage existing funding and identify new funding sources for weatherization. The WAP Working Group contracted with the University of Minnesota to conduct a research study to inform their recommendations. APPRISE is contributing to this research by providing this report that characterizes WAP funding and programs, identifies other low- and moderate-income energy efficiency programs in Minnesota and around the country, and makes recommendations for expansion of Minnesota's WAP.

The following information is provided in this report.

- Section II Weatherization Assistance Programs: This section provides a review of the Weatherization Assistance Program funding and characteristics in Minnesota and a set of 20 comparison states.
- Section III State and Utility Low- and Moderate-Income Energy Efficiency Programs: This section provides a review of state and utility low- and moderate-income energy efficiency programs in Minnesota and in comparison states where data were available.
- Section IV Findings and Recommendations: This section summarizes findings from this research and makes recommendations for Minnesota to consider in the expansion of their WAP. Recommendations are based upon the research presented in this report, as well as findings from numerous other APPRISE studies.

APPRISE prepared this report for the University of Minnesota. Any errors or omissions in this report are the responsibility of APPRISE. Further, the statements, findings, conclusions, and recommendations are solely those of analysts from APPRISE and do not necessarily reflect the views of the University of Minnesota researchers.

II. Weatherization Assistance Programs

This section provides a review of the Weatherization Assistance Program funding and characteristics in Minnesota and a set of 20 comparison states.

A. Comparison States

The following states were chosen for comparison to Minnesota.

- Midwest Census Region: All 11 states in this region, in addition to Minnesota, were included. These states are Illinois, Iowa, Indiana, Kansas, Michigan, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
- Northeast Region: Six states were selected in this region based on knowledge of their activity in WAP and state or utility low-income energy efficiency services. These states were Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, and Vermont.
- Western Region: Three states were selected in this region based on knowledge of their activity in WAP and state or utility low-income energy efficiency services. These states were Colorado, Oregon,

and Washington.

B. Weatherization Resources

Several funding resources are used in coordination with Department of Energy (DOE) WAP funding. Table II-1 displays the FY 2021 DOE WAP allocation and the PY 2019 funding from DOE, LIHEAP, Other state and utility funds, and additional identified funding.

- Department of Energy (DOE): Funds from the DOE provided to grantees. This is the core funding for each state's program, but often comprises a minority of the funding available for WAP jobs.
- Low-Income Home Energy Assistance Program (LIHEAP): State LIHEAP offices can designate up to 15 percent of their block grant to fund WAP, or up to 25 percent with an approved waiver. This funding can be used for traditional WAP services, emergency energy efficiency related repairs, health-related upgrades, or replacement of unsafe equipment.
- Other: These funds include utility collections from ratepayers, state-collected fees or tax revenues, state general revenues, or state appropriations to WAP. WAP grantees combine these state, local, and private resources with their DOE and LIHEAP funds and report them to the state WAP office.
- Weatherization Leveraging Partnership Project (WLPP): This project, managed by the Community Action Partnership (CAP) interviews WAP subgrantees, utilities, Community Action Associations (CAAs), and other sources to develop data on non-federal funding used by WAP subgrantees. These are contracts and grants made between subgrantees and other partners that are not captured in the state WAP reports. NASCSP began including these data in the PY 2018 report.

One state that stands out in this type of funding is Massachusetts, with 2019 funding of nearly \$73 million. Additional research is needed to understand the source and use of these funds.

Table II-1

Weatherization Assistance Program Funding

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	FY 2021	PY 2019 Funding**							
State	DOE WAP Allocation*	DOE	LIHEAP	Other	DOE, LIHEAP, & Other	САР	DOE, LIHEAP, <u>Other</u> , & CAP		
MN	\$11,722,05 1	\$11,190,37 1	\$7,741,987	\$3,094,781	\$22,027,13 9	\$0	\$22,027,139		
со	\$6,657,253	\$6,314,441	\$7,500,158	\$1,957,880	\$15,772,47 9	\$2,650,995	\$18,423,474		
СТ	\$3,417,529	\$6,117,380	\$0	\$O	\$6,117,380	\$0	\$6,117,380		
IL	\$16,511,51 1	\$11,669,76 6	\$15,908,06 1	\$3,302,942	\$30,880,76 9	\$16,447,46 3	\$47,328,232		
IN	\$8,353,685	\$8,790,089	\$7,634,271	\$186,914	\$16,611,27 4	\$374,879	\$16,986,153		
IA	\$5,893,595	\$5,586,637	\$8,183,145	\$3,380,640	\$17,150,42 2	\$O	\$17,150,422		
KS	\$3,104,047	\$2,892,165	\$5,470,380	\$483,712	\$8,846,257	\$0	\$8,846,257		
МА	\$8,040,682	\$7,949,986	\$0	\$48,915,71 2	\$56,865,69 8	\$72,854,21 8	\$129,719,916		
мі	\$19,093,96 2	\$21,369,40 2	\$6,000,000	\$0	\$27,369,40 2	\$7,900,000	\$35,269,402		
мо	\$7,388,481	\$6,876,381	\$7,000,000	\$1,576,941	\$15,453,32 2	\$1,075,450	\$16,528,772		
NE	\$3,019,814	\$2,853,612	\$1,850,000	\$0	\$4,703,612	\$0	\$4,703,612		
IJ	\$6,656,307	\$6,410,981	\$8,681,883	\$0	\$15,092,86 4	\$0	\$15,092,864		
NY	\$25,229,03 2	\$23,321,61 8	\$43,183,50 5	\$0	\$66,505,12 3	\$1,500,000	\$68,005,123		
ND	\$2,891,278	\$2,782,844	\$10,432,19 2	\$13,200	\$13,228,23 6	\$0	\$13,228,236		
он	\$16,856,22 6	\$16,122,20 2	\$23,242,25 1	\$15,967,11 6	\$55,331,56 9	\$10,630,30 4	\$65,961,873		
OR	\$3,531,636	\$3,325,518	\$5,614,670	\$11,316,05 5	\$20,256,24 3	\$3,922,000	\$24,178,243		
PA	\$18,125,87 7	\$16,889,76 2	\$30,062,55 5	\$12,906,54 3	\$59,858,86 0	\$0	\$59,858,860		
SD	\$2,236,681	\$2,136,561	\$0	\$0	\$2,136,561	\$0	\$2,136,561		
VT	\$1,604,548	\$1,430,005	\$3,066,942	\$7,307,138	\$11,804,08 5	\$3,393,322	\$15,197,407		
WA	\$5,648,547	\$5,329,638	\$11,994,48 1	\$18,501,89 7	\$35,826,01 6	\$0	\$35,826,016		
wi	\$10,695,95 9	\$10,056,39 3	\$15,764,72 1	\$50,862,17 0	\$76,683,28 4	\$0	\$76,683,284		

*Source: Department of Energy Weatherization Program Notice 21-2, January 21, 2021.

https://www.energy.gov/eere/wap/downloads/weatherization-program-notice-21-2-program-year-2021-grantee-allocations

**Source: Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>



Chart II-1 displays the sources of funding for Minnesota's FY 2019 WAP.

Chart II-2 displays the percent of funding obtained from DOE for Minnesota and the 20 comparison states. Minnesota has a greater percentage of funding from DOE (fewer leveraged resources) than most of the comparison states.



Table II-2 displays the percent of PY 2019 funding obtained from each source and ranks the states according to the highest percent of funds obtained from non-DOE sources, i.e., the states with the greatest leveraging. The five states with the greatest leveraging were as follows.

- Massachusetts: 94 percent of their WAP funds were leveraged. The majority of these funds were identified by the WLPP.
- Vermont: 91 percent of their WAP funds were leveraged.

- Wisconsin: 87 percent of their WAP funds were leveraged.
- Oregon: 86 percent of their WAP funds were leveraged.
- Washington: 85 percent of their WAP funds were leveraged.

Minnesota was ranked 16th of the 21 states reviewed, with 49 percent of their WAP funding from sources other than DOE.

Table II-2

WAP Funding Composition

	PY 2019 Funding	Per	rcent of Fundin	g From Each S	ource	Leveraging	
State	DOE, LIHEAP, Other, & CAP	DOE	LIHEAP	Other	САР	Ranking	
MN	\$22,027,139	51%	35%	14%	0%	16	
со	\$18,423,474	34%	41%	11%	14%	12	
СТ	\$6,117,380	100%	0%	0%	0%	20	
IL	\$47,328,232	25%	34%	7%	35%	8	
IN	\$16,986,153	52%	45%	1%	2%	17	
IA	\$17,150,422	33%	48%	20%	0%	10	
KS	\$8,846,257	33%	62%	5%	0%	11	
MA	\$129,719,916	6%	0%	38%	56%	1	
MI	\$35,269,402	61%	17%	0%	22%	18	
мо	\$16,528,772	42%	42%	10%	7%	14	
NE	\$4,703,612	61%	39%	0%	0%	19	
NJ	\$15,092,864	42%	58%	0%	0%	15	
NY	\$68,005,123	34%	64%	0%	2%	13	
ND	\$13,228,236	21%	79%	0%	0%	6	
ОН	\$65,961,873	24%	35%	24%	16%	7	
OR	\$24,178,243	14%	23%	47%	16%	4	
PA	\$59,858,860	28%	50%	22%	0%	9	
SD	\$2,136,561	100%	0%	0%	0%	21	
VT	\$15,197,407	9%	20%	48%	22%	2	
WA	\$35,826,016	15%	33%	52%	0%	5	
WI	\$76,683,284	13%	21%	66%	0%	3	

**Source: Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>

Table II-3 displays the other funding sources and the percent that each makes up of those other sources. Most of these were utility funding. However, Colorado had a majority of their funds from the state severance tax¹⁷ and Kansas had a majority of their other funds from local sources.

Table II-3

Other WAP Funding Sources

	PY 2019	Source 1		Source 2		Other Sources	
	Other \$	Source	%	Source	%	Sources	%
MN	\$3,094,781	Utility - Conservation Improvement Program	86%	State - Propane	10%	State – Healthy Homes; <u>Misc</u>	4%
со	\$1,957,880	State - Severance	87%	Utility - Rebate	7%	SEP Grant for Solar; Misc	6%
СТ	\$0						
IL	\$3,302,942	State - Utility Ratepayer Tax	100%				
IN	\$186,914	Utility – Duke & Vectren Rebates	100%				
IA	\$3,380,640	Utility – Interstate Power, MidAmerican, and Black Hills	100%				
KS	\$483,712	State – Local Funds	83%	Utility	9%	Misc.	9%
MA	\$48,915,712	Utility – 11 Utilities	100%				
MI	\$0						
мо	\$1,576,941	Utility – Ameren, Empire	100%				
NE	\$0						
NJ	\$0						
NY	\$0						
ND	\$13,200	Utility – Xcel Energy	100%				
он	\$15,967,116	Utility – 9 Utilities	100%				
OR	\$11,316,055	Utility – Public Purchase Charge	84%	Utility – Bonneville	14%	Utility – Energy Trust of Oregon	2%
PA	\$12,906,543	Utility	100%				
SD	\$0						
VT	\$7,307,138	State – VT Fuel Tax	100%				
WA	\$18,501,897	Utility – Bonneville, Other	59%	State	41%		
WI	\$50,862,170	Utility – Public Benefits	100%				

**Source: Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>

¹⁷The Colorado Severance Tax is a tax on nonrenewable natural resources removed from the earth including metallic minerals, molybdenum (ore), oil and gas, oil shale, and coal. https://tax.colorado.gov/severance-tax Chart II-3 displays historical funding from DOE, LIHEAP, and Other state and utility funds for 2010 through 2019 for Minnesota and five states that had large and sustained funding increases.



Table II-4 displays historical funding from DOE, LIHEAP, and Other state and utility funds for 2009 through 2019. It does not include the additional identified funding listed earlier as CAP, as these data were only collected beginning in 2018. The following large and sustained funding increases are highlighted (and shown in the above chart), as they may provide case studies for Minnesota to consider in ramping up its WAP spending.

- Colorado: Total WAP funding increased from \$11.63 million to \$20.92 million in 2011 and remained above \$17 million annually through 2016.
- North Dakota: Total WAP funding increased from \$6.73 million to \$11.27 million in 2014 and remained above \$11 million annually through 2019.
- Ohio: Total WAP funding increased from \$38.09 million to \$85.59 million in 2013 and remained above \$65 million annually through 2018.
- Pennsylvania: Total WAP funding increased from \$32.69 million to \$42.78 million in 2014 and remained above \$42 million annually through 2019.
- Washington: Total WAP funding increased from \$23.29 million to \$33.33 million in 2015 and remained above \$32 million annually through 2019.

Table II-3

Total WAP Funding 2009-2019 (\$ Millions)

Grantee	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Minnesota	\$27.90	\$26.01	\$21.58	\$24.1 1	\$18.4 2	\$21.14	\$15.87	\$22.6 4	\$26.06	\$27.21	\$22.03
Colorado	\$11.42	\$11.63	\$20.92	\$17.7 4	\$19.6 7	\$19.17	\$19.50	\$19.3 1	\$12.40	\$14.79	\$15.77
Connecticut	\$12.82	\$3.72	\$1.91	\$1.32	\$1.00	\$2.46	\$3.06	\$4.12	\$2.15	\$2.87	\$6.12
Illinois	\$60.44	\$38.73	\$45.21	\$60.6 4	\$66.1 4	\$21.32	\$30.58	\$31.6 7	\$39.86	\$30.95	\$30.88
Indiana	\$17.86	\$12.65	\$15.91	\$22.0 5	\$20.2 9	\$17.24	\$15.81	\$17.9 1	\$17.93	\$14.88	\$16.61
lowa	\$23.72	\$19.07	\$27.87	\$21.6 3	\$16.5 5	\$18.16	\$18.53	\$19.0 2	\$19.39	\$20.12	\$17.15
Kansas	\$11.55	\$4.56	\$8.33	\$6.62	\$6.66	\$6.84	\$7.83	\$8.32	\$8.14	\$8.70	\$8.85
Massachusett s	\$52.79	\$47.14	\$54.97	\$51.7 9	\$52.6 1	\$52.08	\$50.08	\$55.3 6	\$47.37	\$50.31	\$56.87
Michigan	\$43.45	\$36.25	\$41.92	\$12.1 5	\$20.5 7	\$20.95	\$20.54	\$20.4 0	\$18.06	\$25.88	\$27.37
Missouri	\$14.52	\$7.66	\$16.76	\$15.7 1	\$7.68	\$14.59	\$14.95	\$15.8 9	\$16.32	\$16.06	\$15.45
Nebraska	\$9.66	\$6.86	\$6.60	\$5.25	\$3.83	\$5.26	\$4.50	\$3.75	\$5.08	\$4.35	\$4.70
New Jersey	\$28.04	\$24.74	\$29.87	\$24.2 0	\$17.7 9	\$11.59	\$17.53	\$17.8 2	\$17.12	\$21.44	\$15.09
New York	\$114.5 0	\$70.61	\$73.91	\$69.3 6	\$53.1 9	\$50.27	\$57.78	\$58.1 1	\$59.54	\$62.44	\$66.51
North Dakota	\$1.66	\$3.57	\$6.07	\$6.03	\$6.73	\$11.27	\$11.40	\$15.0 1	\$19.08	\$16.46	\$13.23
Ohio	\$53.63	\$49.31	\$26.70	\$38.0 9	\$85.5 9	\$65.39	\$68.08	\$72.7 7	\$65.38	\$84.31	\$55.33
Oregon	\$18.51	\$17.33	\$17.85	\$17.2 7	\$20.0 1	\$18.19	\$18.65	\$18.6 3	\$18.35	\$19.55	\$20.26
Pennsylvania	\$41.10	\$30.18	\$36.14	\$44.5 8	\$32.6 9	\$42.78	\$42.84	\$45.1 2	\$46.82	\$55.83	\$59.86
South Dakota	\$3.51	\$2.01	\$1.51	\$1.47	\$0.51	\$1.51	\$1.59	\$1.78	\$1.88	\$2.08	\$2.14
Vermont	\$6.62	\$6.01	\$7.98	\$7.45	\$15.7 5	\$11.18	\$8.18	\$9.19	\$9.60	\$10.36	\$11.80
Washington	\$32.38	\$27.95	\$24.14	\$19.2 8	\$30.5 1	\$23.29	\$33.33	\$32.7 0	\$36.38	\$47.77	\$35.83
Wisconsin	\$82.76	\$82.70	\$107.8 7	\$87.9 4	\$76.8 3	\$73.08	\$70.16	\$71.6 8	\$71.56	\$69.91	\$76.68

**Source: Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>

C. WAP Production

Table II-5 displays the DOE production type and the number of homes weatherized by source and overall.

The DOE Production Type indicates whether funds were blended on a job.

- Unduplicated means that a single funding source is used for the job.
- Blended means that other funds are added to DOE funds or other funds to provide more comprehensive services.

DOE jobs are those that used only DOE funds or DOE funds combined with other funds. LIHEAP jobs are those that were produced with LIHEAP as the primary funding source, with or without other funding. Other jobs are those done with only other funds as the funding source.

Based on these descriptions of the production numbers, it appears that the sum of the DOE, LIHEAP, and Other production shown in the Total column of Table II-5 is an unduplicated count of the total number of jobs completed.

Fiscal Year 2019 production was reduced in some states due to COVID restrictions.

Table II-5

Chata	DOE Broduction Tuno	FY 2019 Production					
State	DOE Production Type	DOE	LIHEAP	Other	Total		
MN	Blended w/ LIHEAP & Other Funds	756	422	49	1,227		
со	Unduplicated = DOE Funds only	369	849	0	1,218		
СТ	Unduplicated = DOE Funds only	42	0	0	42		
IL	Blended w/ LIHEAP & Other Funds	1,271	1,101	261	2,633		
IN	Blended w/ LIHEAP & Other Funds	557	443	0	1,000		
IA	Blended w/ LIHEAP & Other Funds	610	402	0	1,012		
KS	Blended w / LIHEAP & Other Funds	296	558	18	872		
MA	Unduplicated = DOE Funds only	924	0	17,265	18,189		
MI	Blended w/ LIHEAP & Other Funds	734	127	0	861		
мо	Blended w/ LIHEAP & Other Funds	1,059	0	0	1,059		
NE	Unduplicated = DOE Funds only	144	179	0	323		
NJ	Blended w/ LIHEAP Funds	270	1,385	0	1,655		
NY	Blended w/ LIHEAP Funds	4,586	0	0	4,586		
ND	Blended w/ LIHEAP & Other Funds	297	224	0	521		
он	Blended w/ LIHEAP & Other Funds	1,875	721	0	2,596		
OR	Blended w/ LIHEAP & Other Funds	333	674	319	1,326		
PA	Blended w/ LIHEAP & Other Funds	1,316	252	2,744	4,312		
SD	Unduplicated = DOE Funds only	116	0	0	116		
VT	Unduplicated = DOE Funds only	86	166	397	649		
WA	Blended w/ LIHEAP & Other Funds	845	664	413	1,922		
WI	Blended w/ LIHEAP & Other Funds	5,753	0	0	5,753		

WAP FY 2019 Production

**Source: Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>

Table II-5 displays 2019 production, funding and average dollars spent per home as well as the 2018 average dollars spent per home. The production in 2019 was dampened due to COVID restrictions, resulting in a lower number of jobs completed that year. Therefore, 2018 statistics are a better representation of the total funding for completion of a WAP job. The 2018 average spending per WAP job was \$15,648 across the 21 states studied, compared to \$13,443 in Minnesota. These funds are all WAP allocations, so they include administrative costs, training and technical assistance costs, and purchase of vehicles and equipment.

Table II-5

WAP FY 2019	Production and	Funding
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State	FY 2019 Total Production	2019 DOE, LIHEAP, & Other Funding	2019 Average \$/Home	2018 Average \$/Home
MN	1,227	\$22,027,139	\$17,952	\$13,443
со	1,218	\$15,772,479	\$12,949	\$7,510
СТ	42	\$6,117,380	\$145,652	\$16,329
IL	2,633	\$30,880,769	\$11,728	\$7,697
IN	1,000	\$16,611,274	\$16,611	\$12,678
IA	1,012	\$17,150,422	\$16,947	\$17,394
KS	872	\$8,846,257	\$10,145	\$8,750
MA	18,189	\$56,865,698	\$3,126	\$7,584
MI	861	\$27,369,402	\$31,788	\$22,304
мо	1,059	\$15,453,322	\$14,592	\$12,498
NE	323	\$4,703,612	\$14,562	\$11,061
NJ	1,655	\$15,092,864	\$9,120	\$28,774
NY	4,586	\$66,505,123	\$14,502	\$13,036
ND	521	\$13,228,236	\$25,390	\$24,903
он	2,596	\$55,331,569	\$21,314	\$23,187
OR	1,326	\$20,256,243	\$15,276	\$13,427
PA	4,312	\$59,858,860	\$13,882	\$30,559
SD	116	\$2,136,561	\$18,419	\$10,955
VT	649	\$11,804,085	\$18,188	\$17,317
WA	1,922	\$35,826,016	\$18,640	\$17,772
WI	5,753	\$76,683,284	\$13,329	\$11,438
Mean	2,470	\$27,548,600	\$22,101	\$15,648

**Source: Weatherization Assistance Program Funding Report PY 2019. National Association of State Community Service Programs (NASCSP). <u>https://nascsp.org/wap/weatherization-publications/wap-annual-funding-surveys/</u>

D. WAP Training and Technical Assistance

Minnesota's Policy Manual states that the primary uses of T&TA resources are as follows.

- Conference or training registration fees or trainer fees.
- Training materials.
- Travel, lodging, and logistics for training activities.

When funds allow, T&TA may also be used for the following.

- Wages and benefits of Service Provider staff to attend a WAP training event.
- Contractor stipends and training expenses.

The Minnesota State Plan states that they will develop a reporting interface to compare production, spending levels, unit and health and safety averages, and blower door results. They plan to use the information for training and technical assistance.

Minnesota assesses training needs through surveys with service providers, risk assessments, results of monitoring visits, meetings with the Weatherization Advisory Group, and DOE's Customer Satisfaction Index. Minnesota reports that they do not analyze energy bills to estimate energy savings because they have over 200 utilities in the state.

Below, we provide information from comparison states that may be useful for Minnesota WAP to consider if not currently part of their practice. Some of these practices were documented by several states, and this is not a comprehensive listing of all practices documented in state resources.

- Colorado: Their state plan includes the following training activities that could aid with innovation and increased savings.
 - o Planning of innovative pilot projects.
 - o Advanced technology intended to improve efficiency and/or effectiveness of weatherization.
- Connecticut: Innovative training aspects mentioned include the following.
 - o Planning to address post COVID-19 workplace challenges. They have made allowance in their T&TA budgets for Health and Safety training specific to this demand.
 - o CT WAP identified states interested in combining training resources and training activities. Agreements were drafted for services to be delivered.
 - o They use the Weatherization Assistant Audit Tool to develop spreadsheet analysis of actual energy conservation measure savings and health and safety expenditures.
- Illinois: The plan notes that the greatest challenge currently faced in the program is a lack of qualified contractors and field staff. They are using T&TA funds to plan how to expand the weatherization workforce and contractor pool. Steps include the following uses of T&TA funds.
 - o Training contractors.
 - o Reimbursing local agency employees for tuition at technical/trade schools or junior colleges in a field related to weatherization, energy efficiency, building science, and/or building trades.
 - Supporting the development of a high school student summer apprenticeship program to provide high school students technical skills in the building science profession and earn Building Performance Institute (BPI) credentials.
 - o They also may develop a list of backup agencies for each service territory to ensure that service is

provided across the state. The system will help when an agency is not completing jobs because they lost significant weatherization staff, have not been able to bring on sufficient contractors, or face other production issues.

- Indiana: They developed the Indiana Skills Verification (ISV) competencies in additional to BPI competency standards that are required for Weatherization Professionals. They also specify minimum training requirements for staff who work in clients' homes, auditors, quality control inspectors, preaudit inspectors, shell professionals, crew leaders, and mechanical staff.
- Iowa: They have developed several procedures to assess subgrantees and determine T&TA needs.
 - o Annual evaluations are used to identify technical training needs. This includes analysis of the energy savings achieved by each subgrantee.
 - The state office also uses a weatherization website as a way of providing technical assistance to the local agencies. In addition to containing statewide program information and materials, the website also contains examples of local agency internal management tools that other agencies may want to use.
- Kansas: They analyze air sealing effectiveness using data from pre- and post-blower door measurements. The information on each agency and weatherization auditor allows staff to identify significantly high and/or significantly low performers and determine where additional T&TA is needed.

E. WAP Leveraging

This section provides a review of WAP leveraging as documented by Minnesota and comparison states, and information, where documented, on when non-WAP funding sources must be spent according to WAP rules.

Minnesota's Energy Assistance Program transfers LIHEAP funds to WAP. These funds are not subject to the DOE average cost per unit limit.

Minnesota's policy manual states that funding sources can be combined on jobs with attention to policy differences in how the funds may be used. They provide examples of leveraging activities for which weather-ization funding may be used.

- Colorado's plans states that all leveraged funds must go into WAP and be used in accordance with WAP policies.
- Connecticut's plan states that the Department of Energy and Environmental Protection (DEEP) makes
 policy and regulatory decisions regarding the ratepayer funded, and utility administered residential
 low-income energy programs. The Home Energy Solutions-Income Eligible (HES-IE) Program serves
 the same population as WAP and cost-shares many measures reported on DOE WAP units. DEEP aims
 to align HES-IE with WAP to provide the best service for CT households.
- Indiana: The plan specifically states which funding sources can and cannot be combined. One unit can be counted as a completion in only two funding sources. Utility funding can be used to enhance WAP, including addressing deferral issues.
- Kansas: The plan states that LIHEAP funds are used according to DOE rules except for additional measures that are identified in their 2021 Procedures Manual.

The plan notes that non-federal funding that has increased the installation of health and safety measures and reduced the percentage of WAP funds spent on health and safety. However, a more recent move of these funds to address major deferral issues, such as roof repairs led to an increase in the percent of DOE WAP funds spent on health and safety.

Another note in the plan states that services can be prioritized to coordinate WAP funds with another funding source.

• Massachusetts: The plan notes that the utility funding is much greater than the DOE WAP funds. MA utilities contract directly with a lead agency that contracts with WAP subgrantees in multiple service areas.

MA's Low-Income Energy Affordability Network (LEAN) determines how to best coordinate services for households.

Each unit weatherized with utility efficiency program funds can receive up to the following.

- o \$5,250 for building shell efficiency measures.
- \$5,250 for heating system replacements (additional funds up to \$7,500 are available with a waiver)
- o Additional funds for electric baseload measures (primarily refrigerators and lighting improvements).

The utility funding may be used independently or in conjunction with DOE WAP funds. Utility-funded work can include the following.

- o Blower door guided air sealing
- Primary heating system replacement (all heating system work is done with a combination of funding from a LIHEAP funded heating system repair and replacement program and utility funding).
- o Attic, sidewall, perimeter, floor, ductwork or hydronic heating pipes insulation
- o Energy efficient lighting and other cost-effective electric baseload measures.

DOE funds are used primarily for shell measures because a LIHEAP-funded Conservation Set-Aside program, HEARTWAP, is available for heating system repairs, replacements, and maintenance. Subgrantees are required to use the HEARTWAP program and utility funds for necessary heating system work before using DOE funds.

Agencies are required to use WAP, HEARTWAP, and utility funds in a manner that serves the greatest number of low-income clients with weatherization and heating system assistance. All units that receive DOE WAP assistance must receive a cost-effective package consisting of building shell measures and heating system services. Subgrantees are encouraged to leverage landlord contributions, utility funds, and any other supplemental funding so that each unit receives a comprehensive package of energy efficiency measures.

• Missouri: Their plan states that the leveraged resources should expand energy efficiency services

and/or increase the number of DOE-eligible dwelling units weatherized.

- Nebraska: Their plan states that no leveraged funds were identified. They are working to create partnerships with utilities to enhance WAP. They aim to partner with utilities to provide funding for measures that do not have the required SIR or to address deferral issues.
- New York: Their plan states that must subgrantees put together a package of services to assist low-income clients as part of providing Program services.

They estimate that subgrantees will leverage approximately \$10.1 million in other funds in 2021, including \$5.7 million in owner contributions, which DOE excludes from its definition of leveraged funds.

New York Homes and Community Renewal (HCR) supports the following leveraging efforts.

- o New York transfers a portion of LIHEAP funding to WAP and expected that LIHEAP would provide more than 60 percent of NY WAP funding in 2020.
- NYSERDA low-income energy efficiency programs provide electric reduction measures such as energy-efficient appliance replacement, lighting replacement and retrofits, electric domestic water heater measures, cooling usage reduction, energy-efficient motor replacement and retrofit, and energy education activities.
- The New York State Housing Trust Fund is allocating up to \$7 million to target certain types of housing portfolios. The Weatherization Preservation Plus (P+) initiative will combine designated state funds for physical building improvements with WAP energy efficiency upgrades in buildings identified as needing deep, comprehensive retrofits.
- o New York's owner investment policy is expected to generate more than \$10 million in owner investments during Program Year 2020 (not considered leveraging by DOE).
- o The New York State Office of Temporary and Disability Assistance (OTDA), the State Office for the Aging, and local departments of social services and area aging agencies will be encouraged to continue to refer clients to subgrantees for priority service. This program reduces subgrantee overhead since some of the referred clients are considered categorically income eligible, since they have already been determined eligible for other programs such as HEAP and provides access to other programs administered by the two agencies.
- Subgrantees are encouraged to coordinate with OTDA's emergency heating repair/replacement program for HEAP clients. This work can reduce heating expenditures and address health and safety issues.
- HCR promotes coordination between Program subgrantees, state and local health departments and administrators of housing rehabilitation and lead hazard control programs to provide additional benefits to assisted households and may provide additional funding opportunities for subgrantees.
- o A pilot program targets smaller buildings owned by New York City Housing Authority in Brooklyn and Queens in conjunction with a demand-management program offered by Consolidated Edison

aims to reduce peak load.

- HCR's Office of Housing Preservation coordinates funding with the HCR Office of Community Renewal to provide comprehensive weatherization services and repair and rehabilitation work through the HOME Program. Local HOME Program Administrators are now required to coordinate with subgrantees when funding rehabilitation of income-eligible buildings. Those subgrantees will be asked to work with local HOME administrators to address health and safety conditions that cannot be addressed with Weatherization funds.
- New York's Interagency Task Force on energy needs (HCR, the Department of Public Service, OTDA, NYSERDA and the Governor's Office for Energy Finance) is developing strategies to utilize various funding streams in a coordinated, targeted fashion.
- HCR has instituted the RePower Mitchell-Lama program to identify and target high energy users in Mitchell Lama housing for WAP. The Mitchell Lama program provides affordable housing for middle-income residents.
- North Dakota: They recently allowed agencies to blend LIHEAP funds on DOE jobs. These jobs must follow all DOE rules. They aim to avoid deferrals and lower the cost per unit.
- Ohio: Their plan notes that subgrantees are encouraged to leverage and coordinate weatherization with housing rehabilitation and/or neighborhood revitalization efforts such as the Housing Assistance Grant Program, Utility Programs, or CHIP.

Annually, 15 percent of LIHEAP funds are transferred WAP and are spent under the DOE WAP rules. A few exceptions are made based on program funding needs. Ohio uses these funds to prevent many deferrals.

In Program Years 2018, 2019 and 2020 LIHEAP transferred 20 percent of funds for weatherization. They will seek a waiver request to allow 25 percent of the state's LIHEAP funds to be utilized towards the weatherization program in 2021. The amounts over the 15 percent are used to offset costs of the WAP and provide funding for health and safety related measures such as knob and tube wire replacement, minor roof repair, pest infestation, minor plumbing and ventilation measures to reduce the number of deferrals.

 Oregon states that Oregon Housing and Community Services (OHCS) administers funds from LIHEAP, the Bonneville Power Administration (BPA), the Petroleum Violation Escrow Program (PVE) funds, the Energy Conservation Helping Oregonians (ECHO) program, and any funds designated for low-income weatherization awarded to the state from legal settlements. WAP subgrantees also have funds from utility rebates and the State Home Oil Weatherization Program (SHOW). Utility rebates are not administered by OHCS.

Agencies are encouraged to use all available funding (including DOE) to perform energy audits and related activities on homes that will be weatherized under ECHO, NW Natural Low Income Energy Efficiency program (OLIEE), Cascade Natural Gas Oregon Low-Income Energy Conservation Program (OLIEC), BPA, SHOW, REACH and the AVISTA program. DOE funds used in any part of a completed weatherization project (single family, multifamily and shelters) are considered a DOE completion, regardless of the amount of DOE funds spent.

- Pennsylvania: WAP provides standard weatherization with LIHEAP and DOE funding and the LIHEAP Crisis Interface funded by LIHEAP that provides heating assistance to low-income families that have no heat or who are in imminent danger of not having heat.
- Washington: The Department of Commerce utilizes WAP funding to sponsor the Energy Project that leverages funding for WAP. The group's activities include technical assistance to local agencies, negotiating programs with local utilities, educating decision makers, evaluating and reporting progress, researching new approaches and best practices for providing service, consulting with national experts, and managing project resources to expand available resources and improve the energy efficiency of low-income homes.

The Energy Project works with interested local agencies to create a funding relationship with their smaller consumer-owned utilities. They also seek funding to support the repair and/or health and safety work needed to install energy measures.

Their work focuses on the following.

- o Evaluation, measurement, and verification of low-income and other utility-funded energy efficiency programs.
- o Application of cost tests to low-income energy efficiency programs.
- o Innovations such as decoupling or smart grid to benefit low-income households.
- o Monitoring utility performance in response to the Washington' renewable energy and energy efficiency portfolio standards.
- o Monitoring and participating in energy conservation program tariff filings.
- o Establishing stable, multi-year utility funding arrangements.
- o Intervening in utility rate cases filed with the Washington Utilities and Transportation Commission.
- o Increasing the support of low-income energy efficiency by consumer-owned utility customers of the Bonneville Power Administration.
- Wisconsin: Their plan notes that funds from other programs such as CDBG, HOME, some utility programs, or private foundation grants are generally not considered job cost reduction funds. Leveraged funds do not need to be recorded in their WAP system if the measure is paid in full with leveraged funds and performed independent from the weatherization job. For example, if a job is deferred due to a repair issue that will be addressed with CDBG funds, the job can remain in deferred status until the repair has been completed. After the deferral reason has been corrected the building status can be changed and the audit can be run without the corrected repair measure. If the SIR is greater than or equal to 0.8 the Agency may proceed with weatherization. Leveraged funds shall not be used to decrease the cost ("buy down") a measure.

III. State and Utility Low- and Moderate-Income Energy Efficiency Programs

This section provides a review of state and utility low- and moderate income (LMI) energy efficiency programs in Minnesota and the comparison states where data were available. Information was obtained from state and utility program plans and program websites.

A. Minnesota Utility Programs

This section provides information on LMI energy efficiency programs offered by investor-owned utilities (IOUs) as part of the Conservation Improvement Program (CIP). Information was obtained from the utilities' 2021-2023 triennial plans, with a focus on 2021 data. However, Minnesota's Energy Conservation and Optimization (ECO) Act of 2021¹⁸ requires the utilities to increase the amount spent on low-income weather-ization. Gas IOUs must spend one percent of gross operating revenue (GOR) (up from 0.4 percent); electric IOUs must spend 0.6 percent of GOR starting in 2024 (up from 0.2 percent); and municipalities and cooperative utilities will need to spend 0.2 percent on low-income programs (unchanged).

The ECO Act also provides for increased spending on pre-weatherization measures to improve health and safety. These measures will be determined by the Minnesota Department of Commerce.

Xcel Energy LMI Programs

Xcel's energy efficiency plan describes three LMI energy efficiency programs.

- Xcel Home Energy Savings Program (HESP): HESP is a home audit, weatherization, and appliance replacement program.
 - o Customers qualify if they have household income up to the greater of 50 percent State Median Income or 200 percent of the federal poverty level.
 - o Renters qualify using WAP guidelines for one-to-four-unit properties. Landlord contributions for two-to-four-unit properties may be required if the owner is not income-qualified for HESP.
 - o Program measures include insulation and air sealing.
 - o Appliance replacements include heat pumps for electrically heating homes with central AC and heat pump water heaters for homes with electric water heaters.
 - o Homes using natural gas may receive furnace/boiler tune-up or replacement and water heater replacement for old, inefficient equipment.
- Xcel Multi-Family Energy Savings Program: This program provides services to income-qualifying renters and building-wide projects in affordable housing. Measures include LEDs, refrigerator and freezer replacement, window/wall AC replacement, and mini-split air source heat pump replacement.
- Xcel Low-Income Home Energy Squad: This program directly installs moderate-impact low-cost measures including LEDs, thermostats, door weather-stripping, and water conservation and demand response measures.

¹⁸https://www.revisor.mn.gov/bills/bill.php?b=house&f=HF0164&ssn=0&y=2021

CenterPoint LMI Programs

CenterPoint provides five programs for LMI households.

- CenterPoint Low-Income Weatherization: This program allows WAP providers to assist additional households. The program is delivered by WAP agencies according to WAP criteria. WAP and utility funding are often used for different upgrades in the same home. Sometimes CPE provides standalone services when no WAP funding is used. The program may serve previous WAP customers who need heating replacement or other services. Because of the way this program is delivered, it is expected that the funding is included in the WAP resources described in the previous section.
- CenterPoint Rental Efficiency: This program engages with owners of one-to-four-unit buildings that serve low-income renters. Measures include air sealing, insulation, heating system repair and replacement, water heater replacement, thermostat replacement. Costs are split between CPE and building owners.
- CenterPoint Low-Income Free Heating System Tune-Up: This project provides free low-income furnace or boiler tune-ups and safety check services.
- CenterPoint Nonprofit Affordable Housing Rebates: This program provides incentives for energy efficiency measures in new construction and retrofit low-income housing projects in partnership with affordable housing nonprofit organizations.

o Prescriptive rebates are provided for HVAC equipment, water heating equipment, air sealing, insulation, and washers and dryers or performance path incentives based on a comparison to code by working with a RESNET Home Energy Rater.

o Performance based incentives range from \$2,500 for ten to 14 percent savings to \$14,000 for 40 percent or higher savings.

• CenterPoint Low-Income Multi-Family Housing Rebates: The program provides prescriptive rebates for heating, water heating, and cooking equipment.

Minnesota Energy Resources Corporation (MERC) LMI Programs

MERC's plan describes three LMI energy efficiency offerings.

- MERC Low-Income Weatherization Project: This program is provided through the CAP agencies who administer the program under WAP guidelines. Stand-alone services without leveraging can also be provided. The program includes weatherization services and emergency equipment replacement for defective furnace and water heating systems. Because of the way this program is delivered, it is expected that the funding is included in the WAP resources described in the previous section.
- MERC 4U2: This program provides weatherization services for customers just above the LIHEAP and WAP income eligibility criteria. The income eligibility threshold is 250 percent of the federal poverty level for single-family and at least 50 percent of units with income below 250 of the federal poverty level for two- to four-unit buildings.
 - o Services include audit, direct installation of measures, and comprehensive home services if needed.

- o Two contractor bids are required for the comprehensive installations.
- o For renters, landlords are responsible for 50 percent of the costs.
- MERC Low-Income Community Blitz: This project provides energy education and kit distribution to manufactured home park residents.
 - o Measures include water measures, window film, door weatherization, and reprogramming of the thermostat.
 - o There is no individual income verification.
 - o With workshops and door-to-door distribution, representatives are available to assist residents to install the measures.
 - o Heating system tune-ups can receive rebates up to \$70.

Great Plains Natural Gas LMI Programs

Great Plains offers four LMI energy efficiency programs.

- Great Plains Natural Gas Low-Income Weatherization: The program is provided by CAP agencies. Investments are up to \$1,800 per customer for customers up to 200 percent of the FPL and \$2,500 per customer for customers from 200 to 400 percent of FPL. Because of the way this program is delivered, it is expected that the funding is included in the WAP resources described in the previous section.
- Great Plains Natural Gas Emergency Furnace and Boiler Replacement: This program provides a maximum funding of \$3,500 per emergency for a furnace and \$5,000 for a boiler.
- Great Plains Natural Gas Tune-ups: This program provides a maximum of \$200 per tune-up.

Greater Minnesota Gas LMI Programs

Greater Minnesota Gas offers two LMI programs.

- Greater Minnesota Gas Home Audit Program: This program includes audit and direct installation of a programmable thermostat, low flow showerheads, faucet aerators, and weather stripping. Auditors will reprogram exist thermostats and lower thermostat settings on water heaters.
- Greater Minnesota Gas System Tune-Up Program: Customers can submit contractor invoices and proof of income for reimbursement by GMG.

Minnesota Power

• MP Energy Partners: The program measures include thermostats, dehumidifiers, refrigerators, freezers, and water measures.

Ottertail Power Company

• Ottertail House Therapy: This program provides weatherization services through CAP agencies. Because of the way this program is delivered, it is expected that the funding is included in the WAP resources described in the previous section. Table III-1 summarizes key data on the IOU CIP low-income energy efficiency programs. Programs that are shaded grey are expected to have the funding included in the WAP resources described in the previous section. However, these programs are described above and included in the table to provide a comprehensive picture of IOU LMI energy efficiency program support.

As noted above, the ECO Act of 2021 requires increased spending on IOU LMI programs. Per this Act, Xcel's electric LMI energy efficiency budget will increase to \$7 million and its gas budget will increase to \$2.8 million by 2024.

Table III-1

Minnesota Investor-Owned Utility

Low-Income Energy Efficiency Programs

Utility	Program Name	Program Type	Income Eligibility	Fuel	2021 Budget	2021 Production Goal
Xcel	Home Energy Savers (HESP)	Comprehensive			62 847 50	
Xcel	LI Home Energy Squad	Moderate impact, low-cost installation services	50% SMI/ 200% FPL	Electric Gas	\$2,847,59 2 \$1,794,10 7	5,410 1,012
Xcel	MF Energy Savings (MESP)		66% below 50% SMI		,	
CPE	LI <u>WX</u>	Weatherization	50% SMI/ 200% FPL	Gas	\$3,116,10 0	1,279
CPE	LI Rental Efficiency	Weatherization	<u>1-4 unit</u> buildings; 50% LI	Gas	\$306,100	151
CPE	LI Free Heating Tune-Up	Tune-up	Qualified rentals with LI	Gas	\$161,525	1,200
CPE	Nonprofit Affordable Housing Rebates	Prescriptive rebates or performance- based incentives	<u>1-4 unit</u> affordable housing	Gas	\$632,590	465
Utility	Program Name	Program Type	Income Eligibility	Fuel	2021 Budget	2021 Production Goal
CPE	LI MF Housing Rebates	Rebates for heating, water heating, and cooking equipment	5+ unit buildings with 66% LI HH	Gas	\$66,526	10
MERC	LI <u>Wx</u>	Wx and emergency furnace and water heater replacement	50% SMI/ 200% FPL	Gas	\$657,063	188
MERC	4U2	Comprehensive	250% FPL	Gas	\$969,141	463
MERC	LI Community Blitz	DIY Kit	Manufactured home parks	Gas	\$45,646	297
GPNG	LI WX	Comprehensive	400% FPL	Gas	\$103,196	37
GPNG	HVAC Replacement	Furnace/Boiler Replacement	200% FPL	Gas	\$70,229	17
GPNG	Tune-Up	HVAC Tune-up	200% FPL	Gas	\$1,032	5
GPNG	Hot Water Temp Setback	Temp Setback	200% FPL	Gas	\$O	15
GMG	Audit	Direct Install	50% SMI	Gas	\$32,100	10
GMG	Tune-up	HVAC Tune-up	50% SMI	Gas	\$1,550	10
MN Power	Energy Partners	Thermostats, appliances, and water measures		Electric	\$364,338	14,126
Otter Tail Power	House Therapy	LEDs and appliances		Electric	\$204,000	180

It was beyond the scope of this report to detail the current programs for all of Minnesota's Consumer-Owned Utilities (COUs). However, a 2017 APPRISE report characterized COU low-income CIP programs, and that summary is provided below.¹⁹ The COUs were required to spend 0.2 percent of their three-year gross operating revenues on low-income programs. They often work with aggregators to help them design, implement, and report on their programs. Most worked with WAP service providers on their low-income programs.

Table III-2

Minnesota Electric Consumer-Owned Utility

2014 Dedicated Low-Income Energy Efficiency Programs

Program Type	Number of COUs with Program	Total Low-Income Spending	Reported Units
Specialty Low-Income	84	\$1,725,341	15,322
Weatherization	24	\$372,781	129
Indirect Low-Income	6	\$35,547	121
All Programs	104	\$2,133,669	15,572

Six natural gas COUs reported low-income spending in 2014 and four of these COUs reported dedicate low-income programs.

Table III-3

Minnesota Gas Consumer-Owned Utility

2014 Dedicated Low-Income Energy Efficiency Programs

Program Type	Number of COUs with Program	Total Low-Income Spending	Reported Units
Specialty Low-Income	2	\$33,661	1,002
Weatherization	2	\$9,162	4
Indirect Low-Income	0	\$0	0
All Programs	4	\$42,823	1,006

¹⁹Low Income CIP Program Assessment. Process Evaluation of COU Programs. APPRISE Incorporated. 12/31/2017.

B. State and Utility Programs in Comparison States

This section provides information on state and utility programs in the 20 comparison states where data were available. Funding used in WAP and included in the previous section of this report is excluded if this is known or expected to be the case. New construction and pilots are also excluded if separately itemized.

Some of the key information shown in Table III-4 and context about those programs is as follows.

- Massachusetts: It is expected that all of some of the funding is included in the WAP funding shown in the previous section, but the overlap is unknown.
- New Jersey: There is a Comfort Partners program that is jointly administered by the utilizes and serves households below 250 percent of the federal poverty level statewide. All of the IOUs have introduced a Moderate-Income Weatherization program beginning in 2021 that will serve households between 250 and 400 percent of the federal poverty level.
- New York: NYSERDA and New York IOUs have aligned their programs for LMI households. In addition to the single-family and multi-family programs summarized in the table, they offer new construction, beneficial electrification, pilot programs, healthy homes programs, and outreach. Across these initiatives, 2021 LMI funding is budgeted at over \$122 million.
- Pennsylvania: Utilities are required to provide Low-Income Usage Reduction Programs (LIURP). The
 programs are targeted to participants in their required bill payment assistance programs with high
 energy usage. Each utility is required to conduct an annual impact evaluation of their LIURP using
 billing analysis to assess energy savings. This focus on savings (measured with billing data) is an important component in program improvement.
Table III-4

State and Utility Low- and Moderate-Income Energy Efficiency Programs

State	Program Administrator	Program Name	Income Eligibility	Budget	Production		
					Electric	Gas	Total
со	Energy Outreach Colorado*	CARE	80% AMI	\$12,791,567			
ст	Eversource	Home Energy Solutions	60% AMI	\$21,158,046	19,249	6,54 9	
	United Illuminated			\$1,745,000	2,846		
	CT Natural Gas			\$4,288,661		2,58 9	
	Southern CT Gas			\$3,059,847		1,72 6	
IL	Ameren	Income Qualified	80% AMI	\$20,861,156			33,77 0
	ComEd**	Income Eligible	80% AMI	\$125,305,07 0	35,678		
	Duke Energy IN	Neighborhood Energy Saver					
	NIPSCO	Income Qualified Wx					
IN	Indiana Michigan Power	Income Qualified Virtual Home Energy Checkup					
	Indianapolis Power & Light	In-Home Energy Assessment & Wx					
	Vectren	Neighborhood Wx					
	Mass Save**	Income Eligible	60% SMI	\$187,593,33 4			
MA		Enhanced Residential	60%-80% SMI				
мі	Consumers Energy	Helping Neighbors Program	200% FPL				
	DTE	Energy Efficiency Assistance Program	200% FPL				
мо	Ameren	Single-Family Low- Income Multi-Family Low- Income	80% AMI/ 200% FPL	\$7,560,000			
	Utility Consortium	Comfort Partners	250% FPL	\$45,930,000	5,985	5,70 0	
NJ	Atlantic City Electric	Moderate Income <u>Wx</u>	250%-400% FPL	\$1,550,964	160		

2021 Planned Budgets and Production

State	Program Administrator	Brogram Name	Income	Budget	Productio		
		Program Name	Eligibility	Budget	Electric	Gas	Total
	JCP&L			\$4,656,285	500		
	PSE&G						
	Rockland Electric			\$268,721			
	Elizabethtown Gas					510	
	NJ Natural Gas			\$2,283,306		100	
	South Jersey Gas					350	
NY	NYSERDA & Utilities	SF Homes	80% SMI	\$39,717,000			12,96 3
		MF Homes		\$22,418,000			2,973
он	<u>OH</u> Department of Development	Electric Partnership Program	150% FPL				
	AEP Ohio	GridSMART Community Assistance	200% FPL				
	Columbia Gas of Ohio	Warm Choice	150% FPL				
	Centerpoint	Home Energy Weatherization Program	300% FPL				
	Dominion Energy Ohio	Housewarming Program	200% FPL				
	FirstEnergy	Community Connections Program	200% FPL				
	Dayton Power & Light	Smart Energy Community Program	175% FPL				
	Energy Trust of OR	Savings Within Reach	60-120% AMI				
	Portland General Electric	Community Energy Project	50% AMI				
OR	Columbia River PUD	Low-Income Weatherization Assistance Program	60% SMI				
	Fuel Oil Dealers***	State Home Oil Weatherization (SHOW)		\$77,000			31
	PGE/PAC***	Energy Conservation Helping Oregonians (ECHO)		\$9.4 million			780
	PGE/PAC***	Oregon Multifamily Energy Program (OR- MEP)		\$1.7 million			1,208
	Bonneville Power Administration*	BPA Weatherization		\$1.3 million	170		

State	Program Administrator	Program Name	Income Eligibility	Budget	Production		
					Electric	Gas	Total
	NW Natural	Oregon Low-Income Energy Efficiency (OLIEE)					
	Cascade Natural Gas	Oregon Low-Income Energy Conservation (OLIEC)					
	<u>Avista</u>	Oregon Low-Income Energy Efficiency Program (AOLIEE)					
	Idaho Power	Weatherization Assistance Program					
	Duquesne	Low-Income Usage Reduction	200% FPL	\$2,409,000	3,100		
	Met-Ed			\$5,949,109	1,550		
	PECO			\$11,477,223	5,713	860	
	Penelec			\$8,014,841	2,330		
	Penn Power			\$4,460,856	865		
	PPL			\$16,198,862	5,700		
PA	West Penn			\$7,322,110	1,095		
	Columbia			\$7,320,352		749	
	NFG			\$2,609,065		291	
	Peoples			\$3,898,383		453	
	PGW			\$9,207,801		2,21 3	
	UGI			\$5,697,504		737	
VT	Efficiency VT	Targeted High Use Program					
	VT Gas	Enhanced Income Qualified Wx Rebate	80%-120% AMI				
WA	Energy Matchmaker#	WA Dept. of Commerce	200% FPL	\$1,300,000			300+
WI	Focus on Energy	LMI Program	80% AMI				

IV. Findings and Recommendations

This section summarizes findings from the research presented in this report and makes recommendations for Minnesota to consider in the expansion of their WAP, based on this research and findings from numerous other studies.

A. Key Findings

This study compared Minnesota's WAP and other low- and moderate-income (LMI) energy efficiency programs to those in 20 comparison states within the Midwest, Northeast, and West regions. While the available funding was not scaled to the number of LMI households, the research found that some of the comparison states had a greater percentage of leveraged resources and additional procedures to most effectively serve LMI households.

- Minnesota had 49 percent of their WAP funding from sources other than DOE. They ranked 16 out of 21 states analyzed for leveraged funding, with Massachusetts as the highest-ranked state at 94 percent of their WAP funding from non-DOE sources.
- Some of the comparison states reported significant activity to leverage additional WAP funding from utilities and other sources to fund health and safety investments and remediation of other deferral-causing issues. These included the use of WAP leveraging funding to assess how to develop and best use leveraged resources and working groups to support leveraging efforts.
- Comparison state WAP plans offer ideas for how Minnesota could use Training and Technical Assistance (T&TA) resources to improve their program, including innovation and Evaluation, Measurement, and Verification (EM&V). While Minnesota would face challenges to utility billing analysis due to their large number of utilities, such analysis is an important method to assess actual energy savings. Minnesota should consider how they could develop a data system to assist with this effort.
- While Minnesota's Conservation Improvement Program (CIP) provides a high level of investment in LMI energy efficiency, the new Energy Conservation and Optimization (ECO) Act of 2021²⁰ requires the utilities to increase the amount spent on low-income weatherization and provides for increased spending on pre-weatherization measures. This provides an opportunity for increased coordination with Minnesota's WAP.
- Other LMI energy efficiency programs in comparison states provide models for how Minnesota can effectively utilize additional LMI efficiency resources.

B. Recommendations

This section provides recommendations for Minnesota to consider in the expansion of their WAP and/or associated state-level LMI energy efficiency programs.

 Ramp-up Speed: When large amounts of funding become available for new or expanded programs, there is often an emphasis on quick implementation at large scale. This method of implementation expends significant resources in a manner that may not be most effective, as providers are learning how to implement the new program or scale up an existing program, and managers have yet to learn where program design tweaks may be needed. Even if the program is not new, a significant expansion of an existing program can overwhelm experienced program implementers and reduce the quality of program implementation, leading to results that do not match expectations.

Another approach is to pilot a few variations of the new design, collect needed data to assess program effectiveness, compare the impact of the pilots, and then adopt one or more designs that most successfully meet the program goals. Or in an expanded program, allow providers to ramp up at a speed in which they can continue to provide high-quality service delivery.

²⁰ https://www.revisor.mn.gov/bills/bill.php?b=house&f=HF0164&ssn=0&y=2021

- Sustained Funding: A one-time infusion of resources that must be spent within a short time also creates challenges and reduces potential impact. The 2009 American Recovery and Reinvestment Act of 2009 increased annual WAP funding from \$200 to \$250 million to \$5 billion and created challenges for the WAP network to hire and train staff and contractors. Such an expansion could be improved with lead time to ramp up the program and many years to achieve the goals of the expenditures. With current labor shortages, supply chain issues, increased material costs, and client hesitancy to have workers in their homes during COVID, the current environment may require an even longer ramp-up period.
- Service Delivery Model: Research conducted during the ARRA period found the following with respect to the ability of WAP agencies to scale up service delivery.

o WAP agencies that had a contractor-based approach were most successful in scaling up their operations. Because the economy was in a downturn, it was especially easy for them to find additional contractors to perform the work.

o WAP agencies that had a crew-based approach and were able to move to a contractor-based approach did well. They were able to do this by promoting crew members to supervisors to oversee private contractors' work.

o WAP agencies that had a crew-based approach and did not make an adjustment, had more difficulty scaling up.

Minnesota should assess the extent to which their agencies are working with contractors, but keep in mind that labor shortages at this time will present different challenges for a ramp-up.

• Health and Safety Expenditures: Many low-income households are either deferred or incompletely served by energy efficiency programs because of health and safety issues in the home that are too large for program funding to address. These homes may have large lost potential for energy savings. An expansion in program funding should include the ability to spend a significantly larger amount on health and safety remediation if the client is high energy user and has potential for large energy savings.

Minnesota's Energy Conservation and Optimization (ECO) Act of 2021 allows utilities to receive credit for pre-weatherization work and allows 15 percent of the spending for pre-weatherization. Also, starting in July 2021, the Commerce Department began allowing WAP funds to be used for removing insulation with asbestos and mold. The expansion should include leverage of CIP funds to enable energy efficiency in homes that previously could not be served. Comparison states provide examples for how increased leveraging can be achieved.

• Target Services to Savings Opportunities: When expanding services and attempting to serve all income-eligible households, it is important to ensure that program funds are spent effectively. Low-usage households will not provide savings opportunities and would be better served by other benefits that may include energy assistance, or solar-readiness services. High-usage homes should receive comprehensive services to achieve deep energy savings. One proposal that was put forth recommended the installation of a standard package of measures in every home without conducting an audit.²¹ This approach would waste resources by installing measures in homes that would not provide energy savings and by missing important opportunities in other homes. The weatherization process needs to assess each home and treat each home according to the opportunities that are present.

- Deferred Clients: If additional resources are made available for health and safety work and needed repairs, the program will have the ability to serve clients who were previously deferred because weatherization barriers were too significant to address with program funds. Some of these clients will now provide a good opportunity for energy savings, so they should be recontacted, reassessed, and treated where appropriate.
- WAP Guidelines: The Federal WAP Guidelines sometimes place restrictions on spending that make it difficult to provide services to households in need. This includes a restriction that the program cannot return to a home that was weatherized after 9/30/94, the percent of households in a multi-family building that must be income-qualified to serve the building, and limitations on health and safety spending (which may be needed to install weatherization measures). Additional MN WAP funding could be allocated to be spent outside WAP guidelines and meet these important needs. APPRISE's LI CIP research found that non-WAP service providers said inadequate funding for health and safety measures presents a significant barrier to treatment of some of the highest priority households, so this may be a particularly important target for increased funding.
- Multifamily Buildings: APPRISE MN LI CIP Research found that there may be additional opportunities to serve multi-family tenants in COU service territories. This could be a good opportunity for additional MN WAP spending.
- Electrification: The program should consider electrification in homes that require heating system replacement. This is an important step in including low-income households in decarbonization of the economy.
- Workforce Development: Significant increases in weatherization funding will require an expansion of the weatherization workforce. Funds should be made available to train new staff and contractors, with a focus on marginalized communities.
- Solar Assessments, Readiness, and Installations: A large increase in WAP funding should contribute to the development of renewable resources in low-income homes. Minnesota WAP could play several roles in this development.

o Solar Assessment: Energy auditors in Xcel's service territory have been trained to conduct a solar site assessment as part of their audit and develop a database of "solar possible" households. Additional WAP staff could be trained to conduct assessments of solar readiness in clients' homes when they perform the audit. They could then develop a list of clients who are solar-ready and a list of clients' needs to become solar-ready. This would provide a targeted list for additional solar installations and for solar readiness work.

o Solar Readiness: WAP could expand services to include roof repair, electrical system upgrades, and other repairs needed to make clients' home ready for rooftop solar.

²¹http://www.opae.org/2021/02/26/quickfacts-results-of-ncaf-wap-relief-program-survey/

- Solar Installations: Minnesota piloted Solar Into WAP which combined DOE funds with Xcel Energy Solar Rewards Income Qualified incentives. The Pilot expected to have 15 installations completed by the end of Program Year 2020. They plan to increase solar in Xcel's territory and discuss solar support with additional utilities. MN could use additional funding to speed up this implementation.
- Moderate-Income Households: Programs have been developed in New York and New Jersey to provide no-cost energy efficiency services to moderate-income households. With additional funding, Minnesota could also consider providing services to this market segment that is often underserved by market-rate energy efficiency programs.

Appendix B: Interview Protocol

Background and Introduction

Thank you for participating in this interview.

The goal of this project is to analyze case studies of how to effectively leverage Weatherization Assistance Program funding with other programs, consider new sources of capital for weatherization, and to understand how programs address barriers to broadening the reach of and services provided by weatherization programs.

This research is being led by Gabe Chan and Elise Harrington from the University of Minnesota and is funded by the Minnesota Department of Commerce. The findings from this research will be used to inform recommendations on expanding Minnesota's weatherization program.

Questions

- 1. Can you tell us about your role in [state's] weatherization program?
- 2. How has your state's weatherization program changed over time?
- 3. We are interested in examining experiences with past efforts to expand weatherization programs. Is there a specific period in time that stands out to you when your state's weatherization program expanded or changed?]
 - a. What were the goals for expanding weatherization assistance during this period?
 - b. How did you structure your weatherization expansion? For example, did you implement any pilots, rely on any analysis, etc.?
 - c. What funds were used during this expansion?
 - d. How did you build capacity to expand weatherization?
 - e. What lessons did you learn during this expansion of weatherization?
- 4. Thinking more generally about expanding weatherization, in your experience...
 - a. What are the best practices for expanding weatherization access to
 - i. multifamily homes?
 - ii. manufactured homes?
 - iii. in homes that were previously weatherized?
 - iv. homes that have been deferred?
 - b. What are the best practices for addressing the challenges of pre-weatherization?
 - c. What are the most promising opportunities to leverage additional funds with weatherization?

- 5. How have you measured success of weatherization programs?
 - a. [If not already mentioned] How have you considered measuring equity in weatherization access?
 - b. Do you currently have or are you considering measures that include non-energy benefits?
- 6. Do you have any final recommendations for a state like Minnesota that is exploring options for expanding weatherization access?