



Understanding Gaps in Uptake in State Weatherization Programs in  
Bennington County

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## **Introduction:**

A leader in national climate and energy policy, Vermont has committed to an ambitious set of goals to transform the state’s energy and environmental footprint by 2050. In the “2022 Vermont Comprehensive Energy Plan”, the state sets a goal of lowering energy usage 30% by 2050 through a series of conservation methods, including weatherizing 80,000 homes by 2020 and 120,000 by 2030.<sup>1</sup> In Bennington County, current energy goals reflect this statewide ambition. The “Bennington County Regional Energy Plan” calls for the county to phase out fossil fuels entirely and lower energy usage 50% by 2050.<sup>2</sup> Yet there is also an awareness that in order to reach its goals, the state must seek equitable avenues. Vermont has some of the highest energy costs in the country. These high expenditures, while management for wealthy residents, disproportionately affect those of low to moderate income (LMI) who spend a greater share of their income on energy. Meanwhile, programs intended to lower costs remain inaccessible for LMI residents. Even programs that are targeted towards these communities are limited by unforeseen challenges. Thus, efforts to lower residential energy usage must also take care to reach LMI households and help alleviate the economic pressure.

This report will seek to analyze whether current programming has helped to increase LMI weatherization projects as intended. We will explore this topic for two reasons. Weatherization is Vermont’s primary strategy for lowering thermal energy usage, meaning that its uptake, especially by vulnerable communities, is essential to meeting state goals. Meanwhile, weatherization carries significant environmental and financial benefits that LMI residents oftentimes miss out on. Understanding why uptake remains elusive for LMI households is crucial for ensuring that energy goals are achieved in an equitable fashion.

In this report, first, available data from the American Community Survey will be used to diagnose disparities in energy access and costs among Bennington County households. Next, we will outline current weatherization offerings, making note of incentives, costs and savings, and uptake. Afterwards, the report outlines potential barriers to access, before exploring recommendations for overcoming them. In doing so, this report will offer tools for developing multi-stakeholder approaches to supporting low-income access to weatherization services in Bennington County.<sup>3</sup>

## **Vermont/Bennington Energy Profile**

As previously mentioned, Vermont experiences relatively high fuel costs. According to the 2020 American Community Survey (ACS), statewide, the estimated average annual energy

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Vermont Department of Public Service, *2022 Comprehensive Energy Plan*, January 2022, [https://publicservice.vermont.gov/sites/dps/files/documents/2022VermontComprehensiveEnergyPlan\\_0.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/2022VermontComprehensiveEnergyPlan_0.pdf), 156

<sup>2</sup> Bennington County Regional Commission, *Bennington County Regional Energy Plan*, March 2017, [http://www.bcrvt.org/uploads/1/1/1/8/111899771/brcenergyplan\\_march2017.pdf](http://www.bcrvt.org/uploads/1/1/1/8/111899771/brcenergyplan_march2017.pdf), 43.

<sup>3</sup> The individuals interviewed for this report include Ann Lawless, Northeast Kingdom Outreach at HEAT Squad, Melanie Paskevich, Director of Operations at HEAT Squad, Marc Therrien, Weatherization Program Director at BROCC, Laurie Fielder, VGreen Program Director at VSECU, and Gabrielle Malina, Director at VLITE.

cost is approximately \$2902.20.<sup>4</sup> In Bennington County, the estimated average annual energy cost is slightly higher, at \$2949.00.<sup>5</sup> Not only that, but costs range dramatically from a couple hundred dollars to over ten thousand dollars a year.

To better understand the effect of these costs, we can use the metric known as energy burden. This statistic calculates total energy cost as a percentage of total household income.<sup>6</sup> This demonstrates how great a strain energy costs are on household financial stability. Statewide, the energy burden is about 10.3%, while in Bennington County, it is an average of 12.1%.<sup>7</sup> This also ranges on a town-by-town basis, with Landgrove and Peru experiencing the lowest burden, and Bennington the highest.<sup>8</sup> According to the Vermont Low Income Trust for Electricity (VLITE), an energy burden greater than 10% is considered fuel poverty.<sup>9</sup> This means that statewide and in Bennington County, many residents are living in fuel poverty.

#### Energy Inequity:

This burden is not shared equally among Vermont and Bennington County residents. While wealthy households can manage the high fuel costs, low to moderate income households are much more burdened by these expenditures. As a result, LMI households experience significantly higher energy burdens than their wealthy neighbors. An analysis of 2020 ACS data indicates that although county residents in the bottom 20% of income earners spend the least on energy, they have the highest energy burden.

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<sup>4</sup> U.S. Census Bureau, 2020 American Community Survey 5-year Estimates Microdata, generated by Josh Kirschner; using data.census.gov <<https://data.census.gov/cedsci/>>

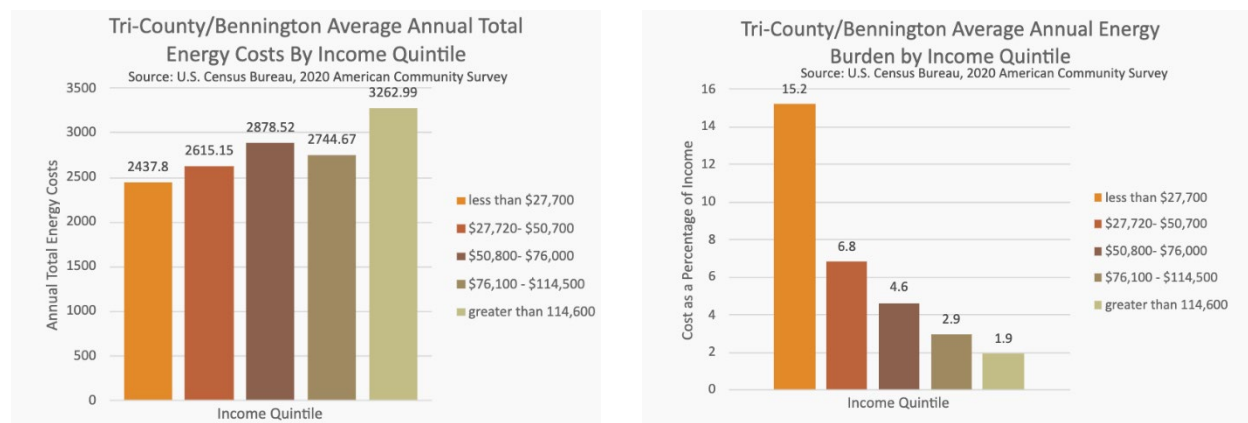
<sup>5</sup> U.S. Census Bureau, 2020 American Community Survey 5-year Estimates Microdata; Census microdata allows users to use individual observations to conduct cross-tabulations and other forms of data analysis. However, given the small population size of Vermont and Bennington County, microdata is only available at a Tri-County level rather than for a single county or town. Those three counties are Bennington, Rutland, and Addison. Statistics generated using this data will be referred to as “Tri-County” estimates. Given the relative similarities between the three counties, for the purpose of this report, I assume that county-level estimates are consistent with tri-county level estimates and can be generally equated.

<sup>6</sup> Kelly Lucci and Justine Sears, *Vermont Energy Burden Report*, Efficiency Vermont, 2019, 5.

<sup>7</sup> U.S. Census Bureau, 2020 American Community Survey 5-year Estimates Microdata.

<sup>8</sup> Lucci and Sears, 30-36.

<sup>9</sup> The Energy Security and Justice Program of University of Vermont Law School, *Energy Costs and Burden in Vermont: Burdensome for Whom? (The University of Vermont, 2014)*, 3.

Figure 1 – Estimated Annual Energy Spending and Estimated Annual Energy Burden<sup>10</sup>

As shown above, while the bottom quintile spends about 25% less on energy annually than the top 20%, they spend eight times more of their income on energy costs. This has serious financial implications for these households. With over 15% of their income going to energy, that is money diverted away from other necessities such as food, housing, and healthcare, while also stunting wealth generation and upward mobility.<sup>11</sup> Thus, state and local energy programming must be sure to specifically support LMI households and relieve energy burden.

### **Weatherization:**

#### Introduction:

In order to meet state energy and emissions goals, policymakers must take steps to lower usage in the thermal sector. Statewide, 50% of energy is used for heating, with 30% going specifically to residential heating.<sup>12</sup> Similarly, in Bennington County, residential heating accounts for roughly 32% of total energy spending.<sup>13</sup> Not only is the thermal sector energy intensive, but it is also heavily reliant on fossil fuels. Statewide, oil is the #1 home heating fuel, with propane and natural gas as #3 and #4 respectively. In Bennington County, 62.3% of households use oil, while 14.1% use propane and 2.1% use natural gas.<sup>14</sup> Given this, efforts must be made to make the residential thermal sector more energy efficient.

Weatherization is considered the primary strategy for lowering energy usage in the residential thermal sector. Weatherization includes all measures that are intended to make homes more energy efficient. This includes DIY projects such as installing LED lights or efficient appliances, as well as larger renovations to add insulation, finish basements, or install efficient

<sup>10</sup>U.S. Census Bureau, 2020 American Community Survey 5-year Estimates Microdata.

<sup>11</sup> Jennah Slayton, *Energy Inequity and Burden in Vermont*, (Energy Action Network, 2020) 5.

<sup>12</sup> Vermont Department of Public Service, 156, 158.

<sup>13</sup> Bennington County Regional Commission 23.

<sup>14</sup>U.S. Census Bureau, 2020 American Community Survey 5-Year Estimate, Table S2504; generated by Josh Kirschner using data.census.gov < <https://data.census.gov/cedsci/>>.

heating systems. All these measures can make home activity more efficient and conserve energy.

In 2007, Vermont established the goal to weatherize 120,000 homes by 2030, including 80,000 by 2020. According to the 2022 comprehensive energy plan, by 2020 the state had weatherized 31,535 homes, well below the intended goal.<sup>15</sup> Locally, Bennington County anticipates that weatherizing homes, and particularly older units, will help to lower thermal energy demand by 30%, although current trends may struggle to meet this goal.<sup>16</sup>

#### Benefits:

Home weatherization carries several benefits that makes it a highly effective tool in Vermont energy policy. First, there are obvious environmental benefits. By making homes more efficient, weatherization reduces the amount of fuel needed, thus lowering emissions. And, by installing renewable systems, such as wood or electric heating, weatherization further offsets the need for carbon-emitting fossil fuels. In 2021, the three weatherization assistance organizations in Bennington County, the Bennington Rutland Opportunity Council (BROC), HEAT Squad, and Efficiency Vermont, helped reduce emissions by over 3 million IBs of CO<sub>2</sub>.<sup>17</sup>

In addition, there are clear financial benefits Weatherized homes need less fuel, leading to lower costs and greater savings. Savings can range from a couple of hundreds of dollars to thousands annually, helping to lower energy burden by an estimated 10-30%.<sup>18</sup> In the long-term, energy efficiency measures can also better insulate household finances from the volatility of fossil fuels. Fuel prices can change dramatically from year to year, quickly upending household budgets and financial stability.<sup>19</sup> By making homes more efficient, weatherization can make households less dependent on fuels and less affected by changes in costs.

Finally, there are wide-ranging health benefits associated with weatherization. For instance, homes with poor insulation and ventilation may experience higher levels of asthma, upper respiratory illness, and certain cancers. In addition, residents living in poorly heated homes are more susceptible to illnesses such as pneumonia and the flu, cardiac events, strokes, and other life-threatening conditions. Finally, stress about heating and discomfort can damage a resident's mental health and contribute to anxiety and depression. Overall, weatherization

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<sup>15</sup> The Vermont Department of Public Service, 273.

<sup>16</sup> Bennington County Regional Commission, 44.

<sup>17</sup> Data provided by Melanie Paskevich, HEAT Squad Director of Operations; Vermont Department for Children and Families, *Performance Indicators for the Vermont Weatherization Assistance Program*, <https://dcf.vermont.gov/sites/dcf/files/OEO/Docs/Wx-Indicators-2022.pdf>, 2; Efficiency Vermont, EVT BCRC Report, Annual Savings; generated by Josh Kirschner.

<sup>18</sup> Data provided by Melanie Paskevich, HEAT Squad Director of Operations; Vermont Department for Children and Families, *Performance Indicators for the Vermont Weatherization Assistance Program*, <https://dcf.vermont.gov/sites/dcf/files/OEO/Docs/Wx-Indicators-2022.pdf>, 2; Efficiency Vermont, EVT BCRC Report, Annual Savings; generated by Josh Kirschner.

<sup>19</sup> University of Vermont Law School Institute for Energy and the Environment, *Low-Income Solar Ownership in Vermont: Overcoming Barriers to Equitable Access* (The University of Vermont Law School, 2018) 15.

can help improve health outcomes for residents and lower the frequency of illness, hospitalizations and premature death, while saving households \$24,757 in related costs over 10 years.<sup>20</sup>

### **Current Weatherization Offerings:**

#### *Low-Income Access:*

Vermont has worked to ensure that equity and low-income access remain a central component of its weatherization strategy. With the highest average energy burdens, low-income residents have the most to gain from reducing their fuel usage and lowering costs. Weatherization may be especially effective for these households as they are more likely to use less efficient fuels and heating systems.<sup>21</sup> At the same time, LMI households typically are excluded from major weatherization efforts on account of the expense. Although the precise value is dependent on house size, conditions, and project scope, according to the Vermont Office of Economic Opportunity, the average cost of a weatherization project is about \$9,500.<sup>22</sup> This cost is inaccessible for many residents in the area.

As a result, the state has paid specific attention to supporting LMI weatherization programs. Of the 80,000 homes the state hoped to weatherize by 2020, 20,000 were expected to be low-income.<sup>23</sup> Meanwhile, the state government has funneled a significant amount of funding into LMI weatherization programs to reduce the costs. In their budget for the 2023 fiscal year, the legislature approved an unprecedented \$45 million to help weatherize 3,000-4,000 low-income households, and another \$35 million to subsidize 8,000-9,000 moderate-income projects.<sup>24</sup> These funds are being used to support state programs and organizations that focus on LMI weatherization. In this section, we will explore some of the current offers and their success in reaching LMI households.

#### *Vermont Weatherization Assistance Program/ BROOC:*

The Vermont Weatherization Assistance Program (WAP) is a federally funded program run by the Office of Economic Opportunity. Through this program, income-qualifying Vermonters receive free “comprehensive” weatherization services. This includes an energy audit and a full-scale home renovation worth an average of \$9,500.<sup>25</sup> The state administers this program by funneling resources to five community action agencies around the state--local organizations that offer services for low-income residents.<sup>26</sup> For Bennington County, the

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<sup>20</sup> Vermont Department of Health, *Weatherization + Health: Health and Climate Change Co-Benefits of Home Weatherization in Vermont*, December 2018, [https://www.healthvermont.gov/sites/default/files/documents/pdf/ENV\\_CH\\_WxHealthReport.pdf](https://www.healthvermont.gov/sites/default/files/documents/pdf/ENV_CH_WxHealthReport.pdf).

<sup>21</sup> Slayton, 7-8.

<sup>22</sup> *Performance Indicators for the Vermont Weatherization Assistance Program*, 3.

<sup>23</sup> Vermont Department of Health, iii.

<sup>24</sup> Ben Edgerly Walsh, “Climate Investments FY '23,” Vermont Public Interest Research Group, July 1, 2022, <https://www.vpirg.org/victories/climate-investments-fy-23/>.

<sup>25</sup> *Performance Indicators for the Vermont Weatherization Assistance Program*, 3.

<sup>26</sup> “Weatherization Assistance Program,” Weatherization Assistance Program | Department for Children and Families (Department for Children and Families), accessed August 1, 2022, <https://dcf.vermont.gov/benefits/weatherization>.

community action agency is the Bennington Rutland Opportunity Commission (BROC). In 2021, BROC conducted 79 free weatherization projects for low-income residents in Bennington County, saving households an average of \$586.40, roughly 28.7% of spending.<sup>27</sup>

#### *Heat Squad:*

HEAT Squad is a program of NeighborWorks of Western Vermont, a community non-profit that supports affordable, sustainable housing in the Southwestern Region of Vermont. As part of this mission, HEAT Squad offers low-cost weatherization assistance for households of all incomes. First, a company representative conducts a home energy audit, producing a report offering recommendations for potential weatherization projects, making note of costs and savings. Once the audit is completed, HEAT Squad puts households in contact with trusted local contractors and helps with project management. Once the renovation is complete, they then help households claim state rebates and incentives.<sup>28</sup> Since beginning operations in Bennington County in 2014, they have conducted 500 audits and 200 projects, saving households a total of \$200,000 annually (about 1,000/household).<sup>29</sup>

HEAT Squad also provides low-cost services for income-qualifying residents. Eligible households receive a discounted audit price of \$50 rather than \$150, and additional subsidies through partnering institutions. This includes the Efficiency Vermont Home Performance rebate, as well as rebates from the Vermont Low Income Trust for Electricity (VLITE), which include \$1,500 off weatherization projects and up to \$2000 off the cost of a single zone heat pump.<sup>30</sup> Of the 200 projects completed, 60%, or 120 households, were considered low-income.<sup>31</sup>

#### *Efficiency Vermont:*

Efficiency Vermont (EVT) is Vermont's largest "efficiency utility", an entity created by the Public Utilities Commission to offer energy efficiency services for households and businesses. Through this mandate, EVT offers energy-saving programs and rebates to encourage certain efficiency measures, including weatherization. The organization also offers expanded incentives and additional programming to help income-qualifying Vermonters save on energy.

One important program is the "Home Performance with ENERGY STAR" (HPES) rebate. This incentive helps cover the cost of home weatherization projects, making them more affordable. As of July 2022, if a homeowner uses a contractor within EVT's "Efficiency Excellence Network", EVT will cover 75% of the cost of a project, with a maximum payout of

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<sup>27</sup> Vermont Department for Children and Families, *Performance Indicators for the Vermont Weatherization Assistance Program*, <https://dcf.vermont.gov/sites/dcf/files/OEO/Docs/Wx-Indicators-2022.pdf>

<sup>28</sup> "Heat Squad Energy Audits: By NeighborWorks of Western Vermont," HEAT Squad, April 15, 2022, <https://www.heatsquad.org/>.

<sup>29</sup> Data provided by Melanie Paskevich, HEAT Squad Director of Operations.

<sup>30</sup> "Helping Northeast Kingdom & Bennington County Save Energy," accessed August 1, 2022, <https://www.heatsquad.org/wp-content/uploads/2022/04/vtlite.pdf>.

<sup>31</sup> Data provided by Melanie Paskevich, HEAT Squad Director of Operations.

\$2,000. For LMI households, EVT will cover 75% of the cost up to \$5,000.<sup>32</sup> In Bennington County, 63 Home Performance rebates were claimed in 2021, making a total of 216 since 2019.<sup>33</sup>

EVT also offers a suite of free or low-cost services specifically for income-qualifying residents to lower their energy bills and weatherize their homes. These include offering free or low-cost efficient appliances, replacing energy intensive products, and conducting free home energy visits/consultations.<sup>34</sup> Since 2019, EVT has installed thousands of appliances in LMI households around the county and has conducted 32 home visits.<sup>35</sup>

#### *Vermont State Employees Credit Union:*

The Vermont State Employees Credit Union (VSECU) is a financial institution active state-wide and in Bennington County that has worked to offer accessible, attractive financing options for energy efficiency measures. The organization's "VGreen Suite" includes loan options with flexible payment periods and discounted rates for funding home weatherization projects.<sup>36</sup>

One loan program of note is the Home Energy Loan. Coordinated by Efficiency Vermont, VSECU is one of three financial institutions that offers the Home Energy Loan. This program is specifically targeted towards helping LMI households afford energy efficiency projects by offering generous lines of credit with accessible, attractive conditions. Through the program, borrowers can take out a loan of up to \$20,000 with a payout period of up to 15 years. Moreover, income qualifying households (those who make less than \$90,000), are eligible for 0% interest on a 5-year loan.<sup>37</sup> Since the program was taken on by EVT in 2019, VSECU has distributed 1,384 Home Energy Loans statewide, of which 375 (27.1%) were for low-income households, and 626 (46.2%) were for moderate-income households.<sup>38</sup> In Bennington County, since November 2021, VSECU has granted 13 Home Energy Loans, 5 to low-income households and 3 to moderate income residents, each with an average amount of \$10,300.<sup>39</sup>

#### *Uptake:*

##### Methods and Limitations:

While each organization has reported the number of households served, it may also be helpful to put these statistics into greater context to better understand program efficacy. One way of doing this is by comparing the number of households served to the number of

<sup>32</sup> "Home Performance with Energy Star," Home Performance with ENERGY STAR | Efficiency Vermont, accessed August 1, 2022, <https://www.encyvermont.com/rebates/list/home-performance-with-energy-star>.

<sup>33</sup> Efficiency Vermont, EVT BCRC Report, Annual Savings; generated by Josh Kirschner.

<sup>34</sup> "Energy Bill Reduction," Energy Bill Reduction | Efficiency Vermont, accessed August 1, 2022, <https://www.encyvermont.com/services/income-based-assistance/energy-bill-reduction>.

<sup>35</sup> Efficiency Vermont, EVT BCRC Report, Annual Savings; generated by Josh Kirschner.

<sup>36</sup> Laurie Fielder, Vgreen Program Director, in conversation with author, 11 July 2022.

<sup>37</sup> "Home Energy Loan," VSECU, May 4, 2022, <https://www.vsecu.com/personal/green-loans/home-energy/>.

<sup>38</sup> VSECU, *VSECU 2021 Annual Report*, <https://www.vsecu.com/files/2021-Annual-Report.pdf>, 15-16.

VSECU, *Annual Report 2020*, <https://www.vsecu.com/files/2020-Annual-Report.pdf>, 12;

VSECU, *The 2019 VSECU Annual Report*, <https://www.vsecu.com/files/2019-Annual-Report.pdf>.

<sup>39</sup> Data provided by Laurie Fielder, Vgreen Program Director.



households eligible. Using 2020 ACS data and each program’s eligibility criteria, we can estimate the number of households in Bennington County that qualify for low-income services, giving us quantitative insight into the reach of these programs. Before doing so, it is important to note the limitations of this approach. First, by comparing the number of households served to those eligible, the intention is not to condemn these programs or deem them failures; rather it is to highlight that there are continued barriers to access and outreach that will be explored later in this report. Secondly, given the limited cumulative data available, it may be difficult to truly ascertain how many eligible households have been reached over an extended period. Finally, while this is one quantitative estimate, there are several other metrics and methods of qualitative analysis that are not used. These other forms of analysis may offer more information about the success and impact of these programs that cannot be understood by looking specifically at relative uptake. As such, the purpose of this metric is simply to demonstrate the presence of an uptake gap that is likely the result of several factors, as explored later in this piece.

#### Results:

Table 1 – Estimated Number of Households Eligible for Each LMI Program Vs Actual Uptake<sup>40</sup>

	<b>Estimated # of Housheolds</b>	<b>Actual Households Reached</b>	<b>% Of total eligible</b>
<b>BROC</b>	4015	79 (in 2021)	1.96%
<b>HEAT Squad</b>	4400	300 audits ;120 renovations (since 2014)	6.8%; 2.7%
<b>EVT (HPES)</b>	5064	63 (2021); 218 (since 2019) *	1.2%; 4.3%
<b>EVT (IBA)</b>	4420		
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<b>Appliances</b>	4420	n/a**	n/a
<b>Home Visits</b>	4420	32 (since 2019)	.7%

\*These observations offered by EVT don’t distinguish income qualifying homeowners who get the added \$3,000 and those who get the baseline \$2000.

\*\*EVT data doesn’t establish how many households were served under the IBA efficient appliance program. Rather, there is data on the number of projects by category, including heating, cooking, and lighting. In Bennington County, since 2019, EVT has worked with residents on thousands of such projects, including 95,012 lighting measures and 1,818 for cooking and laundry measures.

Table 1 offers a side-by-side analysis of the estimated number of households eligible and those serviced by each provider. According to 2020 ACS data, an estimated 4,015

<sup>40</sup> 2020 American Community Survey 5-Year Estimates Microdata; Vermont Department of Children and Families, *Weatherization Assistance Program | Income Eligibility Guidelines*, <https://dcf.vermont.gov/sites/dcf/files/OEO/Docs/Wx-Income-Guidelines.pdf>; “Helping Northeast Kingdom & Bennington County Save Energy”; “Home Performance with Energy Star,”; “Energy Bill Reduction”.

households qualified for BROC's free, comprehensive weatherization services, while 79 households utilized the service in 2021, and 185 since 2019, accounting for 1.96% and 4.6% of those eligible, respectively. Separately, 4,400 households are eligible for discounted services and additional rebates through HEAT Squad. Since opening operations in Bennington County in 2014, HEAT Squad has conducted an estimated 300 audits and 120 renovations for LMI household. representing 6.8% and 2.7% of eligible residents. Looking at EVT, 5,064 households in Bennington County are eligible for the expanded \$5,000 HPES rebate, of which 63 were claimed in 2021 and 218 since 2019. And while these numbers don't differentiate between those who qualify for the expanded rebate and those who don't, assuming they all qualify, they represent 1.2% and 6.9% since 2021 and 2019, respectively. Looking at the EVT income-based assistance program, approximately 4,420 qualify for any of those services. Since 2019, 32 home visits have been conducted, accounting for .7% of eligible residents. Overall, while over a quarter of households in Bennington County are technically eligible for these cost-saving weatherization programs, few have accessed them.

### **Barriers to Uptake**

Despite state efforts to lower costs and make weatherization much more accessible, uptake remains slow. The following section explores some of the barriers to LMI uptake of weatherization programs. They range from issues that stem from poverty, supply-side failures, and an overly confusing program apparatus.

#### *Tenure Status:*

One of the most commonly identified barriers is tenure status. Homeownership can prove to be a significant limiting factor as renters are often barred from conducting weatherization measures. This is primarily because they face the "split incentive" phenomenon. Since renters don't own the building, they must defer to their landlord to make any renovations. The landlord is expected to pay the upfront cost, while the savings go to the tenants. Because the costs and benefits are separated, the landlord is disincentivized from carrying out the installation.<sup>41</sup> Thus, these households are unable to weatherize.

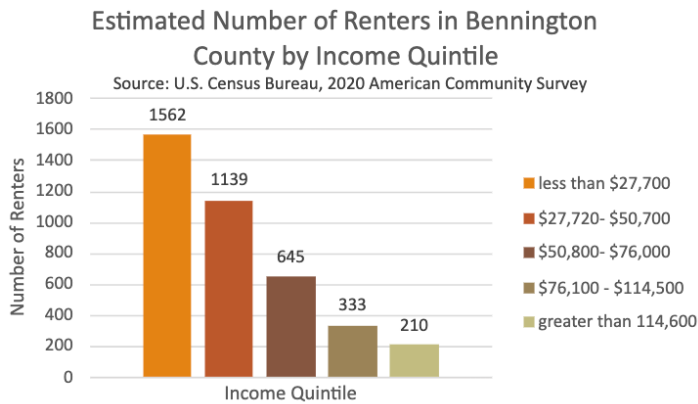
In Bennington County, 26.6% or roughly 3,886 households, are renters and are thus significantly limited in their energy efficiency options.<sup>42</sup> As Figure 2 demonstrates, this disproportionately affects low-income residents, who make up 1,562 households, or roughly 40.2% of renters.

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<sup>41</sup> Stephen Bird and Diana Hernandez, "Policy options for the split incentive: Increasing energy efficiency for low-income renters", *Energy Policy* 48 no.12 (2012): 506-514.

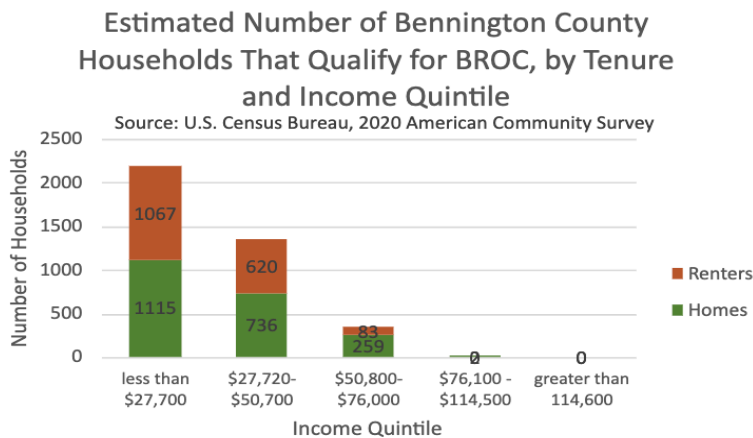
<sup>42</sup> U.S. Census Bureau, 2020 American Community Survey 5-Year Estimates Table DPO4; generated by Josh Kirschner using data.census.gov < <https://data.census.gov/cedsci/> >

Figure 2 – Estimated number of renters by Income Quintile<sup>43</sup>



The split incentive thus significantly limits the number of households that can access weatherization services. As Figure 3 illustrates, across income quintiles, renters make up a large portion of BROC qualifying households. Overall, 44.1% of BROC qualifying households are renters. This means that almost half of eligible residents cannot weatherize because of their tenure status, limiting efforts to expand weatherization.

Figure 3– Estimated Number of Households That Qualify for BROC by Tenure and Quintile<sup>44</sup>



It's important to recognize that while 44.1% of households are renters, 55.9% of residents are homeowners and should be able to weatherize. While tenure status disqualifies a large portion of eligible Vermonters, even among homeowners we are not seeing a significant uptake, suggesting that other factors are at play as well.

*Program Complexity and Customer Burden:*

Information Overload:

At the local and state level, there are many different entities, agencies, financial institutions, organizations, and service providers, each contributing to the weatherization effort

<sup>43</sup> 2020 American Community Survey 5-Year Estimates Microdata.

<sup>44</sup> 2020 American Community Survey 5-Year Estimates Microdata.

in specific ways. While it is good that the state has created such an expansive apparatus of options, customers across income brackets can quickly become inundated with the sheer volume of information and options: “The challenge is the variety of programs tailored to different households with different resources”<sup>45</sup>-- while it is good to have different services targeting different audiences, this poses a unique issue as customers can become overwhelmed. The difficulty of navigating the weatherization system and maximizing savings can quickly discourage households from getting involved.

#### Lack of Coordination:

Not only are there several different organizations contributing to LMI weatherization in tangential, overlapping, and intersecting ways, but they are all doing so largely independently of each other. And while there is coordination among the actors, when possible, the lack of systematic cohesion can create added confusion and complexity placed onto customers.

For instance, there are few efforts among the actors to differentiate themselves from each other and clarify their roles to the broader public. BROCC, for example, offers comprehensive weatherization services, but only for income qualifying residents. HEAT Squad works with all income levels, but only offers energy audits and project management, outsourcing the renovation to independent contractors. EVT administers incentives but does not conduct full audits or execute projects.<sup>46</sup> With scopes and services that overlap and some points and not others, it can become unnecessarily confusing for customers to differentiate these options, especially when there aren’t enough efforts by the organizations to help clarify. Not only is there little coordination in information, but there is no centralized system: “If we were truly all in this together in the same way, with the same rules, income guidelines, methods of doing audits, etc. It would be easier for the customer. But when does that ever happen!!”<sup>47</sup> Without standardized accounting and a uniform process, we are placing an added burden on customers to navigate different systems and compare incompatible metrics. Finally, while some organizations have collaborated with one another to create more streamlined, impactful opportunities, this has yet to be accomplished on a large scale or through a moral centralized platform. Without these efforts, customers may have to coordinate with several entities at once to maximize savings.

In this space, with limited standardized and coordination, customers are left to navigate among the various actors in order to piece opportunities together. To illustrate this, Figure 4 outlines the following hypothetical:

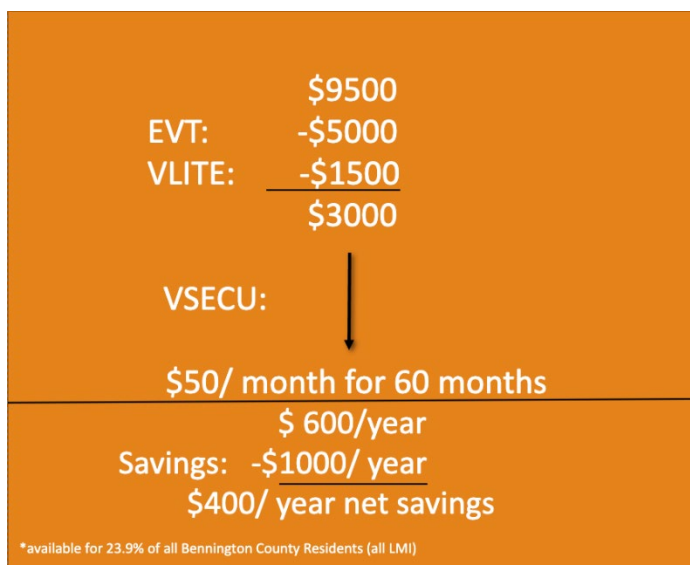
Figure 4 - Cost to a household for a \$9,500 HEAT Squad project, utilizing various incentives

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<sup>45</sup> Ann Lawless, HEAT Squad Northeast Kingdom Outreach, in an email exchange with the author, July 12, 2022

<sup>46</sup> Melanie Paskevich, Director of Operations, HEAT Squad, in conversation with the author, July 28, 2022.

<sup>47</sup> Lawless.



A homeowner contacts HEAT Squad to conduct an energy audit and gets an estimate of \$9,500 (the BROC average value). The homeowner can lower the out-of-pocket cost by over 2/3, down to \$3,000 if they coordinate with EVT and VLITE to access available rebates. From there, by financing with a Home Energy Loan through VSECU, the homeowner can pay \$50 a month for the project, rather than the full \$3000, a significantly more manageable cost. What's more, given the average annual savings from HEAT Squad is \$1,000, by utilizing the available resources, the homeowner can save \$400 in the first year. As this thought experiment demonstrates, significant savings are possible under the current system, but requires customers to know about all the relevant options and know how to properly utilize them to maximize savings, often requiring the involvement of several organizations. And although HEAT Squad, through its partnership with EVT and VLITE, helps to expedite this process, it still requires the homeowner to know this is an option. Overall, our current system involves so many different providers and types of entities with limited cohesion, that customers are left to piece together their own savings package.

#### Time and Energy:

Given the time and effort that is required to navigate this system, it is also important to remember that LMI households may already be overburdened and time restricted. In her piece for the Vermont Energy Action Network on low-income weatherization in Vermont's Northeast Kingdom, Tara Santi writes "For low and moderate-income households, attention may be on a number of other pressing concerns, such as job security or medical care. Given limits of time, mental energy, or income, people may settle for heating sources that satisfy their needs, even if an upgrade may save them money."<sup>48</sup> As she suggests, low-income residents must juggle their more immediate needs. They may be working long hours or several jobs to ensure that they can purchase food, pay rent, have insurance, etc. As such, they may have limited time or mental bandwidth that prevents them from considering a large-scale home renovation such as weatherization, especially when intense analysis of the options is necessary. Utilizing the

<sup>48</sup> Santi, 9.

programs available may require a level of time and attention that most LMI households may not have.

#### *Outreach:*

Although there may be a plethora of options, it is likely that many residents in Bennington County don't know what they are. Many of the service providers have struggled to build an outreach network in the region and may lack the capacity to do so. For example, while HEAT Squad has outreach representatives working on the ground in Rutland County and the Northeast Kingdom, they have no one on staff in Bennington County. In the absence of this person, the organization has struggled to establish itself in the community. Melanie Paskevich felt that if they had someone to be at events and connect with people in the area, demand would begin to pick up like it has in other regions around the state.<sup>49</sup> BROOC has a similar problem. Based primarily in Rutland County, the organization has struggled to generate a base in Bennington and has seen a lower uptake as a result.<sup>50</sup> The limited outreach infrastructure has hampered uptake, even with the options available.

Outreach has also struggled without a clear message targeted towards low-income residents. Although each organization offers general estimates, without clear information about the costs and savings associated with weatherization, it may be difficult to attract interest as people may not grasp the true benefits. Meanwhile, there is often cynicism about government supported projects and their efficacy, as well as a disdain for elitism that turns many residents off. And although there have been efforts to brand weatherization as something specifically beneficial and accessible for LMI households, these issues continue to persist.

#### *Financing:*

Although financing is a central component of lowering the cost burden, and despite the availability of credit, many LMI households may struggle to access this resource. Low-income customers are more likely to have poor credit: "The people that are less than positioned to utilize the credit are people with credit challenges...they've defaulted in the past or they've defaulted with us in the past."<sup>51</sup> Without a strong credit history, even generous lenders may be hesitant to take on risks, making many people ineligible.

Even when financing is an option, LMI households may be wary of taking on added debt. When discussing the popularity of NeighborWorks loans, Ann Lawless stated, "a lot of our customers are reluctant to take on financing...I think they prefer to do it out of savings and rebates vs. taking on more debt."<sup>52</sup> As she suggests, loans are not an attractive option for most customers. This is likely out of fears of overleveraging themselves -- they may be concerned that taking on credit will put them further into debt or give them fewer options if unforeseen costs arise. LMI households thus don't have the financial flexibility to access or justify financing.

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<sup>49</sup> Paskevich.

<sup>50</sup> Marc Therrien, Weatherization Program Director, BROOC, in conversation with the author, July 29, 2022.

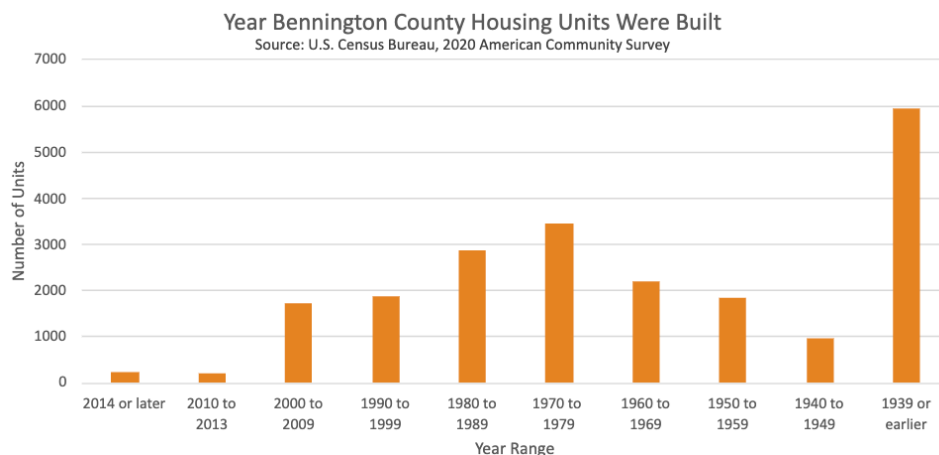
<sup>51</sup> Fielder.

<sup>52</sup> Lawless.

### Land Characteristics:

Like the rest of the state, Bennington County has an aging housing stock. In the region, 41% of homes were built before 1960, with 30% before 1940. Meanwhile, only 10% of homes were built after 2000.

Figure 5 - Number of homes in Bennington County Built Over Specific Ranges of Time<sup>53</sup>



This phenomenon poses a unique challenge. Not only are these houses in greater need of weatherization, but they may require a larger amount of work done. This includes greater insulation work, more fixtures, or new heating systems.<sup>54</sup> In addition, there may be more work required that doesn't fall under the umbrella of "weatherization". Asbestos and vermiculite removal are both projects that are required before weatherization measures can take place, but are not covered by certain incentives and programs, leaving households liable for thousands of dollars of renovation.<sup>55</sup> These additional projects cost added time and money, effectively pricing people out.

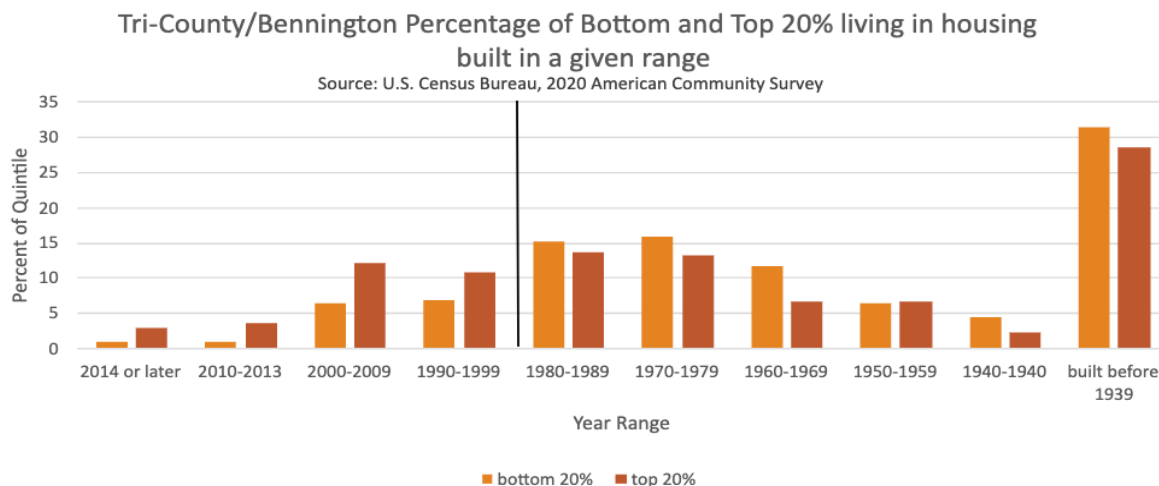
Figure 6 – Percentage of Bottom and Top 20% that Live in Housing from Each Year Range<sup>56</sup>

<sup>53</sup> U.S. Census Bureau, 2020 American Community Survey 5-Year Estimate, Table S2504; generated by Josh Kirschner using data.census.gov < <https://data.census.gov/cedsci/>>

<sup>54</sup> Tara Santi, *Increasing Energy Efficiency and Beneficial Electrification in Low-Income Households in the Northeast Kingdom*, (Energy Action Network, 2020),9.

<sup>55</sup> Gabrielle Malina, Executive Director, VLITE, in conversation with the author, June 28, 2022.

<sup>56</sup> 2020 American Community Survey 5-Year Estimates Microdata.



This is also an issue that disproportionately affects LMI households in the region. In figure 6, there are more low-income residents than wealthy residents living in houses built before 1990, while more high-income earners live in newer homes. This indicates that LMI residents often live in older, poorly maintained homes. This may be because older houses are less expensive, or a result of redlining and zoning<sup>57</sup> Because of this, LMI households are less likely to invest in weatherization as the project would more likely require additional, expensive work.

#### *Supply:*

In addition to lower-than-expected demand, several supply-side issues are also driving delays in weatherization. First, continued supply chain issues throughout the US and global economy are making it difficult to secure all the materials required to carry out weatherization projects. Meanwhile, rising prices have made available resources more expensive, pricing out certain interested households.

In addition to material shortages, Vermont and Bennington County are experiencing a contractor shortage. Between 2020 and 2021, the number of Vermonters working in energy efficiency fell between 8-9%.<sup>58</sup> According to a state working group led by Efficiency Vermont, this stagnation and decline in the energy efficiency industry is the likely result of several factors including working conditions, wages, the long-term sustainability of the industry, a lack of affordable housing in the state, and a general shift away from vocational training.<sup>59</sup> Without workers, providers are having trouble completing projects. According to Paskevich, although HEAT Squad has seen recent increases in demand, they are struggling with a workforce bottleneck: “Unfortunately we have a lack of contractors, and most are out with work until Dec[ember]/Jan[uary] so anyone getting an energy audit this summer most likely will not have

<sup>57</sup> “Unlocking Participation” <https://www.lowincomesolar.org/why-act/unlocking-participation/>.

<sup>58</sup> BW Research Partnerships, *2021 Vermont Clean Energy Industry Report*, [https://publicservice.vermont.gov/sites/dps/files/documents/Renewable\\_Energy/CEDF/Reports/2021\\_VCEIR\\_FIN\\_AL.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/Renewable_Energy/CEDF/Reports/2021_VCEIR_FIN_AL.pdf), 11-12.

<sup>59</sup> Laura Capps, *Weatherization Workforce Plan, October 1, 2021*, <https://www.efficiencyvermont.com/Media/Default/docs/white-papers/Weatherization-Workforce-Plan.pdf>.



their work done before winter.”<sup>60</sup> BROC has reported the same issue. While at times the organization had six to eight work crews, today, there is only one in the Bennington region.<sup>61</sup> Statewide, and here in Bennington County, in order to meet weatherization goals, the workforce would need to grow five-times its current size.<sup>62</sup>

### **Data:**

One final aspect that is hindering state and local weatherization efforts is simply the lack of accessible data surrounding the issue. First, it is difficult to obtain an accurate estimate of the number of projects that have been conducted in Bennington County. Although the State Comprehensive Energy Plan demonstrates progress statewide, there are no comprehensive statistics on a county-level scale. Rather, each service provider in Bennington County has its own data, which can then be reformatted and consolidated into larger regional estimates. This piecemeal approach makes it difficult to accurately ascertain progress. This is especially the case when each entity has its own form of accounting that may not be directly convertible. Meanwhile, much of the publicly available data has a limited timescale, meaning we are unable to grasp the rate of progress over time and map what has worked. Finally, many providers don't offer information on LMI access or service equity, making it hard to gauge how well we are reaching these individuals.

Second, there is little comprehensive information regarding the costs and savings associated with weatherization. While the finances of a weatherization project are specific to each project, there are few standardized, expected values or estimates savings associated with specific efficiency measures. Instead, each provider offers their own statistics, further confusing cost-benefit analyses. If we want to better advertise and support weatherization programs, we must be able to offer accessible information about the financial benefits.

Finally, there has been little analysis conducted to better inform outreach initiatives. Although the data likely exists, there has been little reporting done to better understand LMI households and the realities on the ground. There are no studies that estimate the number of residents in the region that qualify for low-income weatherization services, what types of services or measures they specifically need, or efforts to map underserved areas to better inform outreach. If we want to set goals for ourselves and better calibrate our efforts to more specifically target LMI households, we must have a better sense of who these residents are.

### **Recommendations:**

Having explored the benefits and drawbacks associated with current weatherization programs, this final section offers recommendations on how to improve these projects. These points are intended to help stakeholders and interested parties work together to overcome some of the existing challenges and develop new ways of including low-income residents in

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<sup>60</sup> Melanie Paskevich, Director of Operations, HEAT Squad, in an email to the author, July 26, 2022.

<sup>61</sup> Therrien.

<sup>62</sup> Raquel Smith, *Workforce Development in Vermont's Thermal Sector: Challenges and Opportunities for Meeting Vermont's 2030 Climate Goals*, August 2021, <https://www.eanvt.org/wp-content/uploads/2021/09/Raquel-Smith-Workforce-Development-Final-Report-EAN.pdf>.

weatherization projects. These recommendations were developed using case study analysis, available literature, and conversations with experts.

1) **Increase Coordination Among Stakeholders to Clarify Responsibilities and Maximize Savings:**

Vermont's high concentration of weatherization service providers is both helpful and harmful in improving low-income uptake. While it is good to have several actors performing and specializing in different aspects of weatherization, the process of weatherizing a home has become complex and unnecessarily time-consuming. In order to counteract this confusion and speed up the process, **service providers, policy makers, and other stakeholders must begin to identify ways to make the weatherization support apparatus more accessible and impactful for customers.**

First and foremost, we must encourage stakeholders and service providers to **collaborate to identify ways of streamlining and simplifying the weatherization options to shift burden away from customers and make participation simple.** This includes steps to make the apparatus more systematic and organized. Some measures include:

- a. **Convene the various providers and actors to establish differentiated responsibilities and objectives.** Stakeholders can coordinate with one another to clearly specify what service they each provide and for which audience. By working together, they can identify overlaps and work to differentiate themselves from each other in order to maximize outreach. These different objectives must then be effectively conveyed to the larger public.
- b. **Create a centralized, consistent system.** By getting each actor under one system of eligibility criteria, energy audit methods, weatherization success metrics, and savings estimates, we can make it simpler for customers to navigate the different options and work with several actors
- c. **Develop a regular, standardized form of reporting.** In collaboration with policymakers, towns, and other stakeholders, service providers should work to create a more uniform way of quantifying and communicating progress. By having consistent reporting, we can better understand the success of programs and explore persistent barriers. Moreover, by having standardized data on costs and savings, we can communicate clearer information to interested customers.
- d. **Identify areas for cross-collaboration and program development.** As Laurie Fielder stated, "To say you do what you do best, and we'll do what we do best and then where we meet in the middle is where can develop programs that... really get to those borrowers."<sup>63</sup> Organizations and stakeholders should identify areas of intersection and develop shared programs to create products that are more streamlined and leverage the resources of several entities to offer greater benefits to the customer.

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<sup>63</sup> Fielder.

In addition to internal structural change, service providers should **coordinate on public-facing work to make the system clearer and more customer friendly**. Actors should **develop and distribute materials that clearly articulate all the programs in a centralized, accessible format**.

- a. **Develop pamphlets or brochures.** Having physical materials to distribute in community spaces can help to clearly outline the different services available and their distinct benefits.
- b. **Flow charts or other diagrams.** These visuals can also help customers more easily make decisions based on their needs.
- c. **Promote and Support the *Green Savings Smart* program (GSS).** Green Savings Smart is a new pilot initiative run by the state and being run out of BROCC. The program offers financial and energy efficiency coaching for LMI households. GSS' team of financial coaches can help LMI households determine which options would be most impactful in generating savings. And by promoting financial literacy, these coaches can help their customers better navigate this decision-making process.

Finally, it is important **that LMI interests are represented throughout the process**. Oftentimes, programs intended to support low-income residents miss the actual needs and goals of these households. Thus, encouraging participation can maximize equity. This can be accomplished by **collaborating with other intersectional organizations that work with and support LMI communities such as non-profits, housing authorities, or community groups to identify continued barriers and develop new mechanisms of participation**.

## 2) Increase Outreach to Low-to-Moderate Income Households

Not only must we make the current weatherization model more effective, but we must ensure that these residents know about the options available to them. As such, stakeholders and project developers should **work with towns and organizations to develop and distribute materials targeted towards LMI communities that highlight the energy and financing options available**. Making more inclusive educational materials that offer comprehensive information on how projects work, the associated costs and savings, and available incentives, can better inform low-income residents and encourage participation. Stakeholders can also make sure to offer materials in other languages to support residents who are not native English speakers.

In addition, stakeholders should make efforts to better utilize **community-based, grassroots outreach methods**. Outreach that comes down from government bodies or companies may fail to adequately engage community members or make them feel included. This is especially the case given cynicism about new programs and a disdain for government elitism that has slowed other low-income programs in the region. Outreach can be more effective by collaborating with community organizations and utilizing existing grassroots networks. **Tabling or presenting at community events, working with community leaders, or promoting neighborhood demonstrations are all ways in which outreach campaigns can be more localized and engaging**. Meanwhile, **encouraging members of the community to take part in local outreach** can help expand the scope of the campaign and reach more people.

Finally, in the absence of established outreach infrastructure in the area, **we must encourage towns and energy committees to utilize existing networks and fill in this gap.** Local governments entities that are connected to the communities they represent. Thus, they are uniquely positioned to be on the ground promoting weatherization programs when service providers cannot do it. Through these elected officials, we can reach the existing networks. Town officials, for example, **can use town gatherings as opportunities to table, make presentations, or speak to residents about their options.** They can also utilize town resources to **launch outreach initiatives**, such as a *Weatherize Campaign*, to encourage and challenge their constituents to weatherize their homes.<sup>64</sup> By acting as a “trusted source messenger”, town officials can integrate weatherization into their communities.

### 3) Utilize State Resources to Promote Workforce Development and Ease the Bottleneck

Efforts to increase demand will only have minimal impact if we cannot work to ease the shortage of workers. Wait times of six months to a year slow progress and may hurt interest, as customers may become impatient. There must be greater efforts at the local and state levels to address the workforce shortage.

First, this involves **increasing state funding to support workforce development programs.** By investing in state programs, we can create more opportunities for vocational training and a quality education.

**We must also take steps to make weatherization careers more attractive.** This includes **raising the starting pay for state weatherization employees, with greater possibilities for raises.** The starting salary for a BROCC crewmember is \$20.60/hour.<sup>65</sup> If we increase the pay of state workers, we can push up the market salary and make weatherization more competitive in the job market. Raising pay can also generate greater value and respect for the profession, making it more attractive. **We also can better promote the benefits of this profession.** While the work may at times be difficult and uncomfortable, we must offset these perceptions with some of its benefits. Workers, for example, often express the satisfaction of helping families be more comfortable in their homes. Others enjoy the benefit of setting their own schedule and working for themselves. Raising these points can offset public perceptions.

We must also conduct **more aggressive outreach at schools and youth programs to promote a vocational career as a valid alternative to other professions.** By having developers and service providers come to schools and talk to kids about their work, we can better engage with them and ignite interest. We can also work with technical high school programs offered by the state Career and Technical Education Programs, such as Southwest Tech, to develop ways to expand offerings and better connect with interested students. This way, we can create more opportunities to expose students to vocational options and promote workforce development.

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<sup>64</sup> One limitation of this method is that some towns, particularly those in the region, may have limited capacity to conduct large-scale outreach campaigns. In this case, Regional Planning Commissions (RPCs) can step in and either offer logistical and administrative support to interested towns, or conduct their own outreach campaigns.

<sup>65</sup> Therrien.

While many of these solutions are long term and require cultural change, one action we can take to ease the bottleneck in the short term is to encourage and incentivize **contractors in tangential sectors (roofing, electrical systems, heating systems, etc.) to diversify their work and take on weatherization projects as well.** Already equipped with the general expertise required to conduct these renovations, these workers can quickly transition into weatherization and immediately expand the supply of workers. Thus, we must make efforts to promote the benefits of this business decision and explore state actions that can encourage them.<sup>66</sup>

#### 4) Explore Ways to Make Inroads with Income Qualifying Renters

Even if programs and outreach were improved, there is no guarantee that these efforts will reach restricted residents, particularly renters. Streamlining the process and offering more incentives may have little effect in overcoming the split incentive. To work around this issue, **policymakers must explore new programs and forms of social engineering to make inroads with this demographic.**

- a. The State and local non-profits can lead by example by **ensuring that public and subsidized housing developments are adequately weatherized for their tenants.** Vermont typically has greater influence over public and affordable housing developments than private landlords. Thus, the state can do more to make inroads in this area. At the state level, the Vermont Legislature and the Department of Children and Families can encourage local housing authorities and affordable housing agencies to conduct weatherization projects and offer added funding to support this cause. Here in Bennington, we can work with Shires Housing and the Bennington Housing Authority, two affordable housing organizations in the county, to ensure that tenants have access to these services and can access programming. Not only will this support renters in these developments, but it may also encourage private landlords to make improvements to their properties. . Thus, by leveraging state resources to weatherize affordable housing communities, we can reach more renters and establish a norm in the rental market.
- b. **Offer multi-family housing weatherization services by supporting the work of 3E Thermal in Bennington County.** 3E Thermal is an organization that works with landlords to conduct weatherization on developments and claim incentives to maximize savings. Originally based in Central Vermont, 3E Thermal has recently collaborated with the Department of Children and Families to bring its services statewide, now working with BROCC to come to the Bennington Region.<sup>67</sup> By helping the organization gain a foothold in the region, we can ensure that there is a weatherization option specifically targeted towards helping landlords and renters weatherize.
- c. **Support renters associations to help tenants bargain with landlords.** Renters unions are organizations of tenants that work together to advocate for collective needs. Like workers, tenants have greater power when they work together. By leveraging their collective strength, tenants can push their landlord to meet certain demands, including

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<sup>66</sup> Paskevic.

<sup>67</sup> 3ethermal, "About Us," 3E Thermal, February 15, 2018, <https://3ethermal.org/about-us/>.

building renovation and weatherization.<sup>68</sup> collective bargaining, can give renters the opportunities to negotiate with their landlords to conduct energy efficiency measures or share upfront costs, correcting power asymmetries and collective action problems.

**Conclusion:**

In its efforts to incorporate social equity into its energy goals, Vermont has been highly successful in creating programs and incentives that help make weatherization accessible and financially attractive for its low-income residents. Those in the bottom 20% of income earners have the opportunity to carry out large-scale home renovations at little or no cost to them, allowing them to reap the benefits that can significantly lower energy burden and ease financial strain. Yet, while the state has put an unprecedented amount of money into this issue, this strategy has not accounted for the non-financial barriers involved. Therefore, if we hope to bridge the gap in uptake, we must begin to factor these into our policies and make the system more accessible for the low-income residents we hope to support.

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<sup>68</sup> Will Parker, "To Bargain with Their Landlords, Renters Form Tenant Unions," The Wall Street Journal (Dow Jones & Company, January 22, 2022), <https://www.wsj.com/articles/to-bargain-with-their-landlords-renters-form-tenant-unions-11642860002>.

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