



Final Report of the Clean Heat Standard Equity Advisory Group to the Vermont Legislature

January 7, 2025

Executive Summary

Act 18 of 2023 created the Equity Advisory Group and charged it with assisting the Public Utility Commission in developing a Clean Heat Standard to equitably serve all Vermonters. For over a year, the Equity Advisory Group heard concerns from Vermonters about the potential costs of the Clean Heat Standard. While official fuel price increase estimates were not available to the Equity Advisory Group at the time of preparing this report, the Clean Heat Standard as currently designed is likely to increase fuel costs, and therefore increase the energy burdens of low and moderate income Vermonters, at least in the short term. Over the longer term, the Clean Heat Standard may help many households reduce their dependence on expensive and price-volatile fossil fuel heating. This would provide direct economic benefits as well as substantial social benefits to all Vermonters due to reduced emissions. However, many disadvantaged communities, including Vermonters of Color, low income households, moderate income households, renters, and residents of mobile homes, face significant challenges in accessing clean heat measures in their homes. Without additional intervention from the Legislature, these households will struggle to experience the benefits available under the Clean Heat Standard while bearing a disproportionate share of the costs. Substantial investments in companion programs will be necessary to ensure an equitable implementation of the Clean Heat Standard for all Vermonters.

This report was adopted unanimously by the Clean Heat Standard Equity Advisory Group on January 7, 2025.

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Note on Recommendations

Recommendations on solutions to promote equity in the Clean Heat Standard are provided throughout the section on *Clean Heat Standard Impacts* (starting pg. 23), broken down by the demographic group that those recommendations are intended to support, and includes additional content on why the Equity Advisory Group feels those recommendations are needed. These recommendations are also listed in Appendix A.

In addition, the Section on *Recommendations for Implementing the Clean Heat Standard* (starting pg. 59) describes how the Clean Heat Standard should be implemented procedurally to ensure equity.

Clean Heat Standard Equity Advisory Group Members

Mia Watson, Chair, *Vermont Housing Finance Agency*

Chris Trombly, Vice Chair, *Vermont State Housing Authority*

Ben Bolaski, *Vermont Department of Public Service*

Matt Cota, *Meadow Hill Consulting, representing the Vermont Fuel Dealers Association*

John Mandeville, *Central Vermont Council on Aging*

Pike Porter

Emily Roscoe, *Efficiency Vermont*

Sriram Srinivasan

Geoff Wilcox, *Vermont Office of Economic Opportunity*

Jen Myers of the Champlain Valley Office of Economic Opportunity served on the Equity Advisory Group (EAG) through October 2024 and then resigned due to taking another position. The Commission declined to appoint another member to replace her in the short time remaining. She participated in drafting the report but did not vote on accepting the final document.

Acknowledgements

The EAG would like to thank Ashira Pelt of the Consensus Building Institute for facilitating the work of the group, Dominic Gatti at the Public Utility Commission for coordination between the EAG and the Public Utility Commission, and Casey Smith, Housing Fellow at the Vermont Housing Finance Agency, for assistance in drafting the final report. We would also like to thank all the members of the public who took the time to comment on our work.

Legislative Directive

Clean Heat Standard Overview

Act 18 of 2023 established a framework for the Public Utility Commission (PUC, or the “Commission”) to design a Clean Heat Standard (CHS), for review by the Vermont General Assembly in 2025.¹ The CHS seeks to reduce residential, commercial, and industrial greenhouse gas emissions that are primarily associated with the thermal energy, or heating, sector.

The CHS is a response to Vermont's legal obligations under the Global Warming Solutions Act (GWSA) of 2020, which mandates emissions reduction targets for the state by 2025, 2030, and 2050. Approximately a third of Vermont’s emissions come from fossil fuel-based heating, hot water, and cooking. The CHS seeks to transition the state away from carbon-intensive heating methods to cleaner, lower-carbon alternatives. Using clean heat credits, the CHS promotes energy-efficiency improvements, sustainably sourced biofuels, and new heating systems that use electricity or sustainably sourced biofuels through a system of clean heat credits. Obligated parties, the entities that import fossil fuels into the state, are required to meet greenhouse gas reduction targets by acquiring and retiring these credits, which are earned by implementing approved measures that reduce emissions.

Equity Considerations in Act 18

Act 18 states that “The Clean Heat Standard shall be designed and implemented to enhance social equity by prioritizing customers with low income, moderate income, those households with the highest energy burdens, residents of manufactured homes, and renter households with tenant-paid energy bills. The design shall ensure all customers have an equitable opportunity to participate in, and benefit from, clean heat measures regardless of heating fuel used, income level, geographic location, residential building type, or homeownership status.”

To help ensure equitable implementation of the CHS, Act 18 requires obligated parties to obtain and retire at least 16% of the clean heat credit requirement from low income customers and another 16% from low or moderate income customers.² Half of these credits must come from measures installed in their homes, which can include measures such as heat pumps, heat pump hot water heaters, and weatherization.

¹ 30 V.S.A. § 8122

² Under Act 18, a customer with low income is defined as “a customer with a household income of up to 60 percent of the area or statewide median income, whichever is greater, as published annually by the U.S. Department of Housing and Urban Development or a customer who qualifies for a government-sponsored, low income energy subsidy.” A customer with moderate income is defined as a “customer with a household income between 60 percent and 120 percent of the area or statewide income, whichever is greater, as published annually by the U.S. Department of Housing and Urban Development.”

Establishment of the Equity Advisory Group

The Clean Heat Standard Equity Advisory Group (EAG) was created under Act 18 to “assist the Commission in developing and implementing the CHS in a manner that ensures an equitable share of clean heat measures are delivered to Vermonters with low income and moderate income and that Vermonters with low income and moderate income who are not early participants in clean heat measures are not negatively impacted in their ability to afford heating fuel.”³

Act 18 directed the Commission to appoint up to 10 members to the EAG, including at least one representative from the Department of Public Service, the Department for Children and Families’ Office of Economic Opportunity, a community action agency with expertise in low income weatherization, a community action agency with expertise in serving residents of manufactured homes, Efficiency Vermont, the Vermont Association of Area Agencies on Aging, individuals with socioeconomically, racially, and geographically diverse backgrounds, renters, rental property owners, the Vermont Housing Finance Agency, and a member of the Vermont Fuel Dealers Association.

The statutory duties of the EAG include:

- 1) *Providing feedback to the Commission on strategies for engaging Vermonters with low income and moderate income in the public process for developing the Clean Heat Standard program;*
- 2) *Supporting the Commission in assessing whether customers are equitably served by clean heat measures and how to increase equity;*
- 3) *Identifying actions needed to provide customers with low income and moderate income with better service and to mitigate the fuel price impacts calculated in section 8128 of this title;*
- 4) *Recommending any additional programs, incentives, or funding needed to support customers with low income and moderate income and organizations that provide social services to Vermonters in affording heating fuel and other heating expenses;*
- 5) *Providing feedback to the Commission on the impact of the Clean Heat Standard on the experience of Vermonters with low income and moderate income; and*
- 6) *Providing information to the Commission on the challenges renters and residents of manufactured homes face in equitably accessing clean heat measures and recommendations to ensure that renters and residents of manufactured homes have equitable access to clean heat measures.*

The Commission appointed members of the EAG on November 16, 2023. The EAG began meeting on November 29, 2023. Since that time, the EAG has met twice monthly as a full group and has had many meetings of smaller working groups dedicated to addressing various duties of the EAG. All meetings of the EAG have been open to the public and have recordings available on the Commission’s website.⁴

³ 30 V.S.A. § 8129

⁴ [Vermont Public Utility Commission](#), “Clean Heat Standard,” retrieved November 25, 2024.

Benefits, Harms, and Limitations of the Clean Heat Standard

Potential Benefits

Meeting Legal Mandates

At its core, the Clean Heat Standard (CHS) was designed to provide a mechanism to deliver thermal sector greenhouse gas (GHG) emissions reductions at a scale and pace sufficient to meet Global Warming Solutions Act (GWSA) requirements.

The Vermont Department of Public Service's Clean Heat Standard Potential Study Report prepared by NV5 suggests that meeting the 2050 targets of the GWSA in the thermal sector is technically possible under the CHS framework if Vermont sees a significant increase in the clean energy workforce, especially weatherization workers.⁵ However, the Potential Study also highlights challenges associated with equitable implementation of the Clean Heat Standard.

Addressing an Inequitable Status Quo

The thermal sector in Vermont is not currently equitable. Vermont's higher income households tend to purchase more fuel and produce more emissions but spend a smaller percentage of their income on heating.⁶ Higher income households are more likely to have access to lower cost heating solutions like natural gas, advanced wood heating systems, and electric heat pumps.⁷ Finally, higher income households have a greater ability to access financing and benefit from tax incentives. Conversely, low and moderate income Vermont households spend a higher percentage of their income on fuel and tend to use higher-cost fuels like kerosene, fuel oil, and propane. The price of these fuels is volatile, making it hard for these households to budget for heating costs. Over the long term, without action, many of these low and moderate income households are at risk of remaining dependent on these increasingly expensive fossil fuels.

Expansion of Efficiency Programs

In theory, the creation of a market for clean heat credits could enable new sources of revenue to fund the installation and delivery of clean heat measures aimed at achieving GHG emission reduction targets in Vermont's thermal sector.

The purchase of clean heat credits by obligated parties from programs installing clean heat measures in homes could create new long-term funding streams for existing programs and potential new programs developed by the DDAs. This would allow for the expansion of existing programs to complete additional incremental projects. To avoid asymmetries and inefficiencies

⁵ [NV5](#), *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

⁶ [U.S. Department of Energy](#), Low-income Energy Affordability (LEAD) tool, 2024

⁷ [Energy Action Network](#). Annual Progress Report for Vermont, 2024.

in the Clean Heat Standard market, the creation of new statewide programs by the DDA should avoid duplicating existing programs within the state.

Additional revenue would particularly benefit low income programs such as the Weatherization Assistance Program (WAP) administered by the Office of Economic Opportunity (OEO), which serve the most energy burdened low income Vermonters. Currently the WAP is funded by a two cents per gallon tax on heating fuel oil, propane, and kerosene, a 0.75% gross receipts tax on natural gas and coal, 0.5% gross receipts tax on electricity, as well as variable supplemental federal and state funding. However, as the primary fuel source for space heating in the state shifts from fossil fuels to electricity, potentially accelerated by the CHS, WAP revenue from fossil fuel sources is expected to decrease.

The CHS would add supplemental funding for the WAP because, as described in the Commission's Draft Rule, "if the measure is implemented at no cost to a participant under a program authorized by the Commission, the entity administering the program will be the initial owner of the measure attributes".⁸

While the amount of revenue that could be generated from the sale of these credits is still unknown, credits related to measures installed in low income homes are expected to be more expensive and difficult to obtain,⁹ which are expected to give them a higher value in a CHS marketplace. In practice this means that the WAP might potentially generate a sustained revenue stream of thousands of CHS credits on an annual basis, which can be reinvested in new projects serving low income Vermonters.

Direct Benefits for Households Installing Clean Heat Measures

Direct benefits for households installing clean heat measures include decreased fossil fuel use and heating costs. Weatherization would reduce the total energy required to adequately heat the home - increasing affordability - while also providing health benefits and increased comfort for occupants.¹⁰ The installation of the cold climate heat pump systems can provide homes with a more efficient and affordable source of energy, as well as cooling in the summer months.¹¹

However, increasing the pace of installed clean heat measures will be limited to workforce constraints, and will only be able to be incrementally installed based on workforce development.

In addition, in certain areas of the state, such as those served by relatively lower cost natural gas or electric utilities with higher rates, operating and maintenance costs of heat pumps will be higher than fossil alternatives. Care is necessary to ensure that costs of energy do not *increase* due to the Clean Heat Standard.

⁸ [Vermont Public Utility Commission](#), Draft Proposed Rule, 8.113(a)(1), in Case No. 23-2220-RULE, October 1, 2024.

⁹ This is suggested in the NV5 Potential Study. [NV5](#), *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024.

¹⁰ [Vermont Department of Health](#), "Weatherization + Health in Vermont", December 2018.

¹¹ [Energy Action Network](#). Annual Progress Report for Vermont, 2024.

Societal Benefits

Significant economic, health and environmental benefits could occur as a result of measures implemented pursuant to the Clean Heat Standard. The NV5 Potential Study suggests that despite the significant overall costs of the program, the CHS would be expected to generate at least \$1.03 billion in net societal benefits by 2049.¹² Most of the measured societal benefits accrue from the value placed on greenhouse gas emissions reductions globally, using the Societal Cost of Carbon adopted by the Vermont Climate Council.

Potential Harms

Costs

The most common concern around harms the EAG has heard from the public is related to costs. The EAG expects that obligated parties generating clean heat credits are expected to pass on most, if not all, of the costs of compliance to their fuel customers, who will ultimately experience the financial burden of the CHS. Since low and moderate income customers tend to spend a higher percentage of their incomes on heating, higher fuel prices have a disproportionate impact on the households with the least ability to absorb the costs.

At the time that this report was finalized in mid-December 2024, the EAG had not received any official estimate of the likely costs of the CHS program,¹³ nor had it seen any final prediction of how the program costs would potentially impact home fuel prices. Not having this data available has been a significant barrier in the EAG's ability to assess the impact of the CHS.

Through comments made directly to the EAG and public comments to the Commission, the EAG heard a deep concern about the CHS from many Vermonters. In the absence of trustworthy cost estimates, there has been substantial fear about the unknown impact of the program on heating affordability for low and moderate income households. The EAG heard from many commenters that any increase in fuel prices would be very difficult to shoulder. Many commenters, especially those living on fixed incomes or paycheck to paycheck, worried about their ability to remain in their homes.

The CHS will particularly impact very low income households receiving benefits from the Low-Income Home Energy Assistance Program (LIHEAP). LIHEAP assistance is based on the Margin-Over-Rack (MOR) pricing, or the fixed price participating fuel dealers can charge a customer receiving fuel assistance funds. Under Act 18, the MOR price will be subject to any potential clean heat fee.¹⁴ Absent any supplemental funding to offset the increase in MOR price, LIHEAP recipients will see their total benefit reduced, resulting in a decrease in total household thermal

¹² NV5, *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

¹³ The NV5 Potential Study suggested the overall costs of all the measures required by the CHS, but not how those costs would be mitigated by existing state and federal funding or taking into account measures already being adopted by households without additional incentives.

¹⁴ 30 V.S.A. § 8124 (i)

load that LIHEAP is able to offset for recipients. Not only may LIHEAP recipients experience higher fuel costs along with other fuel customers, but LIHEAP dollars will not go as far in supporting these households. Issues related to LIHEAP are discussed in detail in the section of the report on Low Income Households, but the urgency of supporting the LIHEAP program under the CHS deserves special attention.

Before implementing the CHS, the Legislature must obtain and assess fuel price increase estimates. The Legislature should review these estimates in relation to existing fuel prices and understand the percentage cost increase for each fuel type. The Legislature should pay particular attention to any outsized projected price increase for specific fuel types. Higher price increases in fuel oil, kerosene, and propane will more heavily impact low income households, who are more likely to use those fuel types.¹⁵

The Legislature should also investigate whether the CHS would increase or mitigate the fuel price volatility that many Vermonters already face.

Unequal Access to Clean Heat Measures

While the CHS can provide many households with better access to clean heat measures, the EAG heard public comments from many Vermonters who felt that they could not easily reduce their fossil fuel use, due to either cost of heat pumps or weatherization, or due to challenges with their homes that prevent installing these measures.

These comments align with the research conducted by the EAG for this report. Many groups, including but not limited to, households in older homes, renters, households in mobile homes, and low and moderate income households, face significant financial and structural obstacles to reducing fossil fuel use in their homes. The challenges for each individual group and recommendations for overcoming these barriers are described later in this report.

Many commenters also worried about the reliability of electricity to heat their homes during the winter months, and feared for the future reliability of Vermont's electrical grid as more electrification occurs. These concerns may prevent many households from choosing to install clean heat measures.

The benefits of the CHS also risk being unevenly distributed throughout the state, if historic patterns of clean heat technology adoption persist. The Vermont towns with the highest energy burdens, which tend to have lower average household incomes, have had significantly less adoption of cold-climate heat pumps and other efficient technologies to date than higher income towns.¹⁶

These problems will not be solved solely through more funding for existing programs potentially available under the CHS. The equity of a CHS rests on the ability to deliver the benefits of clean heat measures to disadvantaged households to outweigh the higher costs these households are

¹⁵ [Energy Action Network](#). *Annual Progress Report for Vermont, 2024*.

¹⁶ [Efficiency Vermont](#), *2023 Vermont Energy Burden Report*, August 2023.

likely to face. The State will need to make a concerted effort to meet Vermonters where they are and ensure that the current gaps in access to clean heat measures are addressed.

Limitations

The Clean Heat Standard (CHS) is a market-based approach, and market-based approaches have inherent limitations in reaching disadvantaged communities and vulnerable households. By requiring the obligated parties, which are for-profit importers of fossil fuels, to deliver clean heat measures,¹⁷ the CHS will likely encourage the adoption of the least expensive measures for obtaining greenhouse gas (GHG) reductions. While a least-cost approach could help contain costs of the program, and potentially limit fuel price increases for customers overall, it has significant challenges in its ability to provide benefits to all Vermont households.

Although Act 18 requires 8% of clean heat credits to be derived from measures installed in the homes of low income households and 8% from measures installed in the homes of low or moderate income households, any additional measures installed in these homes are economically disincentivized. Low and moderate income households generally have less capacity to take on debt for projects than higher income households. Installing clean heat measures in low and moderate income homes will require larger incentives or, in some cases, will require the project to be fully paid for by another entity. This is expected to increase the cost of producing clean heat credits associated with these households. Therefore, obligated parties are likely to pursue lower-cost credits from biofuels and renewable fuels where possible, producing no more than the minimum amount of credits required in the homes of low income households.

Lower income households are also more likely to live in older homes, which often need significant repairs or upgrades to allow weatherization work or a heat pump installation to proceed.¹⁸ The CHS, as currently laid out in Act 18, only permits credits to be generated from activities deemed to reduce thermal emissions. Therefore, no direct economic value can be derived from ancillary repairs. Consequently, few obligated parties will pay for home repairs unless there is such a shortage of low income-related credits that it becomes necessary to allow those projects to occur.

Measures most likely to be produced under the CHS also may not align well with Vermont's other policy goals. The Vermont Climate Council has made weatherization a priority in the state's Climate Action Plan.¹⁹ Weatherization has proven financial and health benefits for households, in addition to its ability to reduce fuel use and emissions.²⁰ However, while building science experts agree that it is best practice to weatherize a home before installing a heat pump, there is no requirement or economic incentive to do so under the standard.

¹⁷ Either directly themselves or through the Default Delivery Agent.

¹⁸ This issue is discussed in detail later in the report.

¹⁹ [Vermont Climate Council](#), *Initial Vermont Climate Action Plan*, December 2021.

²⁰ [Vermont Department of Health](#), "Weatherization + Health in Vermont", December 2018.

The Legislature should recognize that the CHS does not create credits for all greenhouse gas reduction activity in the thermal sector. For example, replacing inefficient fossil fuel heating equipment with high efficiency units does not generate credits.

The Legislature and state agencies must plan accordingly to ensure that its climate policy goals can be achieved while not leaving Vermont’s low income households and disadvantaged communities behind. Instead, the State must center these communities in policy and funding decisions.

Workforce

The Vermont Department of Public Service’s *Clean Heat Standard Potential Study Report* prepared by NV5 highlights the significant challenges that Vermont’s energy businesses face in attracting and retaining workers.²¹ This concern has also been echoed by EAG members with experience in the field and in conversations with Vermont’s Weatherization Agencies that implement the Weatherization Assistance Program (WAP).²²

The *Potential Study* suggests that reaching Vermont Global Warming Solutions Act (GWSA) targets under the CHS will not be possible without a significant increase in the clean energy workforce, especially weatherization workers. This rapid increase in the weatherization workforce over such a short period of time is unlikely to occur in Vermont’s already tight labor market.

Vermont policymakers are well aware of these challenges and have developed a Weatherization Workforce Plan in 2021. State efforts to grow the weatherization workforce include an in-progress project to launch a new Weatherization Training Center using a grant from the Department of Energy.²³

Ultimately, the Legislature’s adoption of the Clean Heat Standard must be contingent on its confidence that the workforce will expand quickly enough to carry out the projects required to meet GWSA goals.

Clean Heat Standard Design Process

Equity Framework

In its initial meeting, the EAG identified the need to more specifically define the term “equity” in order “to assist the Commission in developing and implementing the Clean Heat Standard in a manner that ensures an equitable share of actions are delivered to Vermonters with low income and moderate income and that Vermonters with low income and moderate income who are not

²¹ [NV5](#), *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

²² [Notes from Clean Heat Standard \(CHS\) Conversation](#) with representatives from the Community Action Agencies and the Public Utility Commission on September 26th, 2024.

²³ [State of Vermont Joint Fiscal Office](#). “Memorandum on Expedited Review Request – JFO #3147”, May 1, 2023.

early participants in clean heat measures are not negatively impacted in their ability to afford heating fuel.”²⁴

The EAG also recognized that the CHS might create unintended harmful consequences, including, but not limited to, those identified in 30 V.S.A. § 8127(h), and the EAG agreed that the CHS must recognize and mitigate the environmental burdens identified in the environmental justice statute found in 3 V.S.A. § 6002(2).

EAG members individually and collectively reviewed equity and environmental justice tools, policy statements, climate action plans, and scoring rubrics from locales around the country and found the City of Austin Texas Climate Equity Tool particularly useful in identifying strengths, weaknesses, opportunities, and threats (SWOTs) related to the implementation of environmental transformation projects.²⁵ The Vermont Climate Council, Just Transitions Subcommittee published the *Guiding Principles for a Just Transition*,²⁶ which has a similar scoring rubric to the Austin scoring rubric. The EAG found that the Austin scoring questions were more specific and more useful in evaluating potential clean heat measures and decisions the Commission and Technical Advisory Group (TAG) may make when implementing the CHS. For example, while the *Guiding Principles* rubric generally assesses abstract *burdens* and *impacts*, the Austin rubric identifies *health, accessibility, cultural preservation*, and other specific areas of concern. Like the Austin rubric, the EAG scoring rubric poses specific questions decision makers should ask themselves when analyzing potential clean heat measures, actions, and policy decisions.

The EAG adopted the EAG Equity Rubric on April 16, 2024, and made slight modifications to include more specific questions about transparency on May 28, 2024.²⁷

The Commission and the TAG reviewed the Equity Rubric, and the Commission included a copy for review when it released the Order Issuing the Draft Rule,²⁸ to welcome feedback on the equity impacts of the draft rule. However, the EAG is not aware of any instance to date where the rubric has informed the decision-making processes of the Commission or the TAG.

A copy of the Equity Rubric is available in Appendix B of this report.

Review of Public Engagement Process

Statutory Requirement of Public Engagement

Section 6(c) of Act 18 required the Commission to engage in robust public engagement to inform the design and implementation of the Clean Heat Standard.²⁹

²⁴ 30 V.S.A. § 8129

²⁵ [City of Austin](#), “Austin Climate Equity Plan,” September 2021. Retrieved December 4, 2024.

²⁶ [Vermont Climate Council](#), Just Transitions Subcommittee, *Guiding Principles for a Just Transition*, August 2021.

²⁷ [Vermont Public Utility Commission](#), *Clean Heat Standard Equity Advisory Group Equity Rubric*, May 30, 2024.

²⁸ [Vermont Public Utility Commission](#), *Order Issuing Draft Rule and Setting Deadline for Comments - Notice of 10/7/24 Workshop and 10/30/24 Public Hearing*, in Case No. 23-2220-RULE, October 1, 2024.

²⁹ 30 V.S.A. § 8122

Act 18 requires that:

(1) The Commission shall allow any person to register at any time in the Commission’s online case management system, ePUC, as a participant in the Clean Heat Standard proceeding. All members of the Equity Advisory Group shall be made automatic participants to that proceeding. All registered participants in the proceeding, including all members of the Equity Advisory Group, shall receive all notices of public meetings and all notices of opportunities to comment in that proceeding.

(2) The Commission shall hold at least six public hearings or workshops that shall be recorded and publicly posted on the Commission’s website or on ePUC. These meetings shall be open to everyone, including all stakeholders, members of the public, and all other potentially affected parties, with translation services available to those attending.

(3) The Commission also shall provide at least three opportunities for the submission of written comments. Any person may submit written comments to the Commission.

Act 18 also required the hiring of a third-party consultant with expertise in equity, justice, and diversity to design and conduct public engagement. This role was tasked with facilitating public comment for the purposes of:

- (1) Supporting the Commission in assessing whether customers will be equitably served by clean heat measures and how to increase equity in the delivery of clean heat measures;*
- (2) Identifying actions needed to provide customers with low income and moderate income with better service and to mitigate the fuel price impacts calculated in 30 V.S.A. § 81;*
- (3) Recommending any additional programs, incentives, or funding needed to support customers with low income and moderate income and organizations that provide social services to Vermonters in affording heating fuel and other heating expenses; and*
- (4) Providing information to the Commission on the challenges renters face in equitably accessing clean heat measures and recommendations to ensure that renters have equitable access to clean heat measures.*

Additionally, the statute describes the process for widespread public notice of work and meetings. Act 18 requires the Commission to include a notice of language assistance services and arrange for language assistance to be provided to members of the public as requested for the public meetings.

Procedural Context of Commission-led Public Engagement Work

On September 8, 2023, the Commission released a Request for Proposals for a public engagement facilitator, in which it described the work of the public engagement facilitator as, “The primary responsibility of the public engagement facilitator will be to design and conduct public engagement related to the recently enacted Clean Heat Standard legislation, bringing expertise in equity, justice, and inclusion to this process. The Commission and the facilitator will incorporate the Guiding Principles for a Just Transition into the public engagement process.”³⁰

³⁰ [Vermont Public Utility Commission](#), *Request for Proposals for a Public Engagement Facilitator for the Vermont Public Utility Commission*, September 8, 2023.

On November 20, 2023, The Commission announced that it had launched a website to boost accessibility of clean heat proceedings.³¹ On March 22, 2024, the Commission released a Notification of Information from the Vermont Partnership for Fairness & Diversity, the public engagement consultant about the first three public engagement meetings under Act 18, to be held from April through June of 2024.³²

On October 1, 2024, the Commission released an Order Issuing Draft Rule and Setting Deadline for Comment.³³ As statutorily required, the public had over 30 days of notice to respond to the draft rule.

Public Engagement Subgroup of the EAG

In May of 2024, the Clean Heat Standard Equity Advisory Group determined that a subgroup should be formed to share with the Commission EAG member's best practices on public engagement. The subgroup first met on May 6, 2024, and continued to meet three more times until July 2024.

The group produced a memo that was for the Commission and EAG awareness, where the group shared member organization experiences and best practices in public engagement. The group also drafted potential questions for the Commission to ask the public in public outreach and engagement. This list was brought to the full EAG and further worked on there. The document was shared with the Commission on May 28th, 2024, and is included in Appendix D.

Clean Heat Standard Public Comment

Public Comment to EAG

The Clean Heat Standard EAG and the TAG hold public comment periods during their meetings. During EAG meetings, public comments have been provided on the following topics:

- A request for added opportunity for public comment
- Concerns around the inclusion of biomass in the Clean Heat Standard
- The price impact of the Clean Heat Standard and how it interacts with the LIHEAP and existing programs
- Market disruption potential related to frontloading LMI credits and the specific concerns about constraints related to serving LMI populations
- Support for the Clean Heat Standard
- Using existing programs like those offered through Vermont's Energy Efficiency Utilities (EEUs) as a model for effective energy conservation

³¹ [Vermont Public Utility Commission](#), "Clean Heat Standard", retrieved December 11, 2024.

³² Vermont Public Utility Commission, "Clean Heat-Public Engagement Consultant - public engagement meetings under Act 18", retrieved December 11, 2024.

³³ [Vermont Public Utility Commission](#), *Order Issuing Draft Rule and Setting Deadline for Comments - Notice of 10/7/24 Workshop and 10/30/24 Public Hearing*, in Case No. 23-2220-RULE, October 1, 2024.

Facilitated Commission Public Engagement Meetings

Public meetings organized by the Commission and facilitated by the public engagement contractor at Vermont Partnership for Fairness and Diversity were held on April 17, May 7, and June 6, 2024. The Commission also held a public hearing on October 30, 2024, on the general topic of the Clean Heat Standard and the draft rule that was released on October 1, 2024. The October hearing was better attended than prior sessions had been. According to the transcript, the hearing had 34 speakers identified as members of the public, with over 80 total attendees.

Some key themes identified from public participation include, but are not limited to:

- Concerns around the inclusion of biofuel and biomass as clean heat measures due to health and environmental impacts
- Concerns and questions around funding this program
- The need for more public engagement
- Concerns around what this program will cost Vermonters
- Support for a focus on weatherization and electrification measures
- Concerns around assumptions in Carbon Intensity (CI) scoring as it relates to biogenic emissions and land use changes.
- Questions around the Commission’s process for assessing the harmful consequences of the program
- Acknowledgment of workforce constraints in many of the sectors involved in the Clean Heat Standard
- Weighing of a Clean Heat Standard versus an alternative tax or fee
- Concerns around Vermonters being left behind in the Clean Heat Standard
- Concerns about not being able to afford heat, or unable to install or receive a clean heat measure due to various reasons.

Filed public comment via ePUC

The public was also able to participate in the Clean Heat Standard proceeding by filing comments to the case on any topic at any time. Extensive public comments similar to those shared in the October 30, 2024 public hearing have been submitted via ePUC.

Recommendations

The EAG supports the Commission’s efforts on public engagement with the limited time and resources available during the duration of this regulatory process.

Early in the design process, the EAG urged the Commission to provide a plain language overview of the Clean Heat Standard to make it more accessible to the public. Basic information about the complicated policy is vital to ensure that the public can offer informed comments. In May 2024, the Commission released a plain language overview of Act 18 on the Clean Heat Standard website.³⁴

³⁴ [Vermont Public Utility Commission](#), “Overview of the Clean Heat Standard,” May 17, 2024, retrieved December 4, 2024.

The EAG recommends that the Commission, and the Legislature, as appropriate, continue to provide clear, accessible descriptions of the Clean Heat Standard as it evolves and is implemented.

As mentioned above, the EAG subgroup on public engagement wrote a memo on best practices related to public engagement. Some of those best practices are described below for potential future Clean Heat Standard public engagement work.

Community engagement sites that have worked best for member organizations of the subgroup are places where people will not need to take additional time out of their day to attend. The group also noted the importance of in-person engagement. Some of the locations of public engagement mentioned include location where older Vermonters gather (i.e., senior centers, meal sites for Meals on Wheels), food banks, community centers, libraries, and manufactured home sites. These locations are already places people go to, which can minimize the resources that many need to use to access these public engagement events.

The group discussed the importance of affinity spaces, and how they can help ensure safety and accessibility to varying groups of people and communities in Vermont. In these affinity spaces, we discussed leveraging and empowering existing community leaders to share information. Other recommendations related to accessibility in public engagement include focus groups and listening sessions.

The group discussed interpretation of the Clean Heat Standard. This discussion included ensuring widespread public understanding of clean heat measures, such as heat pumps, and having skilled interpreters available to explain both the language of the Clean Heat Standard and its technical jargon. The group agreed that translation of materials to a third grade reading level is standard practice in equitable translation.

The EAG acknowledges that there are public engagement recommendations spread throughout this report, which highlights the importance of public engagement in working with the various demographics described in this report.

Summary of the Equity Advisory Group Memos to the Public Utility Commission

Memo on Credit Ownership – April 17, 2024

The EAG wrote and filed a memo to the Commission on April 17, 2024, on the topic of credit ownership.³⁵ In the memo, the EAG emphasized the importance of creating a straightforward, transparent, and equitable credit transfer process within the CHS. The EAG agrees with the Commission staff's recommendation that end-use customers should receive all clean heat credits for installed measures. However, the EAG urges clarification of the term “customer(s)” to delineate who qualifies, particularly in complex ownership situations like financing arrangements and landlord-tenant dynamics. The EAG is concerned that customers may not

³⁵ [EAG comments Staff Proposal re Initial Ownership of Clean Heat Credits](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, May 22, 2024.

have adequate knowledge of their credits' value to negotiate effectively with installers, highlighting a potential power imbalance between individual customers or small businesses and larger obligated parties. To enhance customer empowerment, the EAG proposes that the Commission require comprehensive disclosures from installers and deliverers, including estimated greenhouse gas reductions, the number of credits generated, approximate monetary value, energy cost savings, and any relevant health disclosures. Generally, the Commission should prioritize making as much data available as possible to assist customers in negotiations.

For delivered measures, the EAG advocates similar information disclosures and insists that at a minimum, important details about the CHS, alternative technologies, financial assistance options, greenhouse gas reductions, the number of credits, their potential value, and related health disclosures should be shared. The EAG views credit ownership as a crucial aspect of the Clean Heat Standard, carrying significant implications for equity and affordability.

Credit Ownership Follow-up Memo – May 17, 2024

On May 17, 2024, the EAG wrote and filed a second follow up memo on the topic of credit ownership.³⁶ The EAG cautions against alternative systems where credit ownership could reside with entities providing financing or rebates, fearing this would diminish equity and complicate ownership determinations, especially when multiple parties are involved in funding a single project. The EAG group suggests that any transfer of credit ownership should hinge on clear contract negotiations and be supported by comprehensive information to guide property owners' decision-making.

WAP Credit Ownership Addendum to 5/17 memo – May 17, 2024

While a majority of EAG members favored keeping initial credit ownership with property owners, including in cases where the installed clean heat measures are funded and installed by programs providing 100% of incentive costs such as those delivered through the Vermont Weatherization Assistance Program (WAP), three members of the EAG disagreed with this ownership structure and submitted a dissenting opinion memo on May 17, 2024.³⁷

The dissenting memo recommends that programs that provide 100% of incentive costs (such as WAP) retain initial CHS credit ownership for CHS credits generated from WAP investments. The three members who signed this memo; Benjamin Bolaski, Geoff Wilcox and Chris Trombly representing VT Department of Public Service, State of Vermont Office of Economic Opportunity, and Vermont State Housing Authority respectively, noted in their dissenting memo that this ownership structure would minimize administrative burden and mesh well with existing policies. Administrative burden is currently a challenge for existing low income weatherization programs, and therefore, any additional requirements for these programs will create a barrier to completing incremental projects as efficiently as possible. They also noted that this credit ownership structure would be a source of new revenue to programs providing

³⁶ [EAG comments Staff Proposal re Initial Ownership of Clean Heat Credits](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, May 22, 2024.

³⁷ [EAG comments Staff Proposal re Initial Ownership of Clean Heat Credits](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, May 22, 2024.

100% incentive costs and more equitably serve Vermonters as a result of expanded services reaching a greater number of program participants annually.

The Commission ultimately agreed with this recommendation in the Draft Rule,³⁸ stating that in pre-approved programs where projects are implemented at no cost to participants, the credit is initially owned by the organization paying for the project.

Memo on LMI Credit Frontloading – August 9, 2024

On August 9, 2024, the Equity Advisory Group (EAG) submitted a memo regarding frontloading the credit requirements for low and moderate income (LMI) households during the initial years of Clean Heat Standard implementation.³⁹ Act 18 states that the Commission should attempt to front-load credit obligations for LMI households to the extent reasonably possible.

The memo emphasizes the need for prioritizing LMI households, who experience the highest energy burdens in Vermont, in light of potential future heating fuel cost increases tied to CHS compliance by obligated parties. However, the memo also acknowledges potential challenges to frontloading LMI requirements. Challenges identified include limited workforce capacity for contractors installing clean heat measures and higher anticipated cost to acquire LMI credits. The EAG notes that these factors could make obligated party compliance more challenging and inadvertently raise heating costs for consumers.

The Commission's July 2024, memorandum re: "Staff Straw Proposals on Credit Fulfillment Plans and Criteria, Non-Compliance and waiver process",⁴⁰ asserted the creation of five separate CHS credit categories that a Default Delivery Agent (DDA) could deliver on behalf of an obligated party. The EAG supports the Staff proposal to have five unique credit categories, as it would allow LMI credit market activity to be more closely tracked to help inform any future increase or decrease in obligated party LMI requirements.

To inform decisions about credit frontloading, the EAG highlights the necessity for further understanding of current levels of LMI market activity and costs associated with LMI credits versus market-rate credits. Based on existing data, the EAG found insufficient grounds to assert that frontloading LMI targets is "reasonably possible." However, it encouraged ongoing evaluation and suggested that any increase in obligations should be modest at first, allowing for adjustments without destabilizing the market.

The memo recommends revisiting the topic of frontloading during the second triennial Default Delivery Agent (DDA) budget and planning process but urges the Commission to consider moderate increases if emerging data shows feasibility.

³⁸ [Vermont Public Utility Commission](#), Draft Proposed Rule, 8.113(a)(1), in Case No. 23-2220-RULE, October 1, 2024.

³⁹ [EAG Memo on LMI CHS Credit Frontloading](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, August 9, 2024.

⁴⁰ [Vermont Public Utility Commission](#), *Request for Comments on Staff Straw Proposal on Credit Fulfillment Plans and Criteria, Non-Compliance and Waiver Process*, July 10, 2024.

Memo on DDA RFP Recommendations – September 6, 2024

The EAG submitted recommendations regarding the Default Delivery Agent (DDA) for Vermont's Clean Heat Standard.⁴¹ The EAG emphasizes the DDA's role in supporting populations disproportionately affected by cost increases associated with the potential clean heat fee, which could include renters, low and moderate income households, and those living in older homes. The memo encourages the Commission to assess applicants based on their experience addressing diverse needs, including financing plans for clean heat measures and outreach to limited English proficiency communities.

Additionally, the EAG recommends that the Commission require DDA applicants to have a Diversity, Equity, and Inclusion (DEI) Plan for their organization to promote equitable service delivery, and to have a plan and capacity to effectively deliver measures statewide, especially in historically underserved rural areas of Vermont, ensuring comprehensive support for all impacted populations.

Memo on LMI Credit Characterization – September 17, 2024

The EAG proposes expanding the definition of low and moderate income (LMI) credits to convey benefits to institutions serving LMI households.⁴² Current legislation requires that credits be derived from measures benefiting LMI households; however, many essential service organizations, such as shelters and food shelves, are excluded. This exclusion places financial burdens on these institutions without providing relief from a potential increase in fuel costs. To enhance social equity under the CHS, the EAG recommends that the requirement of low and moderate CHS credits be expanded to allow for credits derived from organizations serving LMI individuals. However, to be eligible under the proposed expanded definition, the EAG recommends that the category must also be tailored narrowly to avoid the dilution of direct benefits to LMI Vermonters. To be eligible for the proposed expanded definition, the EAG suggests that the definition includes the following parameters:

- a) Measures are installed in or delivered to a property owned or rented by a nonprofit organization.
- b) The property must be used to deliver essential services to low or moderate income individuals or households.
- c) The organization has a primary purpose to serve low- or moderate-income households or individuals and currently receives state or federal funding to provide services to low or moderate income individuals or households.

The EAG notes that although adding a new definition to the facet of the CHS framework has the potential to increase complexity of the program overall, this would be another voluntary pathway for obligated parties to obtain LMI credits and does not increase their compliance burden under the CHS.

⁴¹ [EAG DDA RFP Recommendations](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, September 6, 2024.

⁴² [EAG Memo on LMI Credit Characterization](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, September 17, 2024.

The Commission did not include a pathway for LMI credits to be conveyed to LMI-serving institutions in the Draft Rule.

EAG Comments on Draft CHS Rule – October 30, 2024

On October 1, 2024, the Commission released the Draft Proposed Rule outlining the responsibilities of the Obligated Parties that the Commission would be charged with regulating under the Clean Heat Standard program.⁴³

EAG comments on the Clean Heat Standard draft rule address several topics.⁴⁴ The EAG emphasizes the necessity for the Commission to adhere to its statutory obligations, as outlined in 30 V.S.A. § 8127 (h), regarding the assessment of potential harms and consequences tied to clean heat measures. The EAG notes that it is essential that the final CHS Rule incorporates a structured process for evaluating harmful consequences, implementing standards to mitigate them, and ensuring that any clean heat measures resulting in detrimental impacts do not qualify for clean heat credits.

The EAG notes that the current definition of LMI installed clean heat measures risks excluding newer technologies, such as portable heat pump units. Specifically, portable heat pump costs and shorter expected life spans could lead to difficulties in classifying them as LMI installed measures under the current definition. Thus, reevaluating the definition of LMI installed measures is crucial to promote equitable access to clean heat technologies for rentals, manufactured homes, and households with specific electrical or layout challenges. The EAG also notes that if these portable technologies are sanctioned as eligible measures, the ownership of credits and related financial benefits should be allocated to renters if they make the investment, not the property owner.

The EAG recommends that the Commission specify how LMI credits should be awarded in multifamily buildings with units of varied income levels, which is not clear in the Draft Rule. Having clear guidelines to address multifamily buildings will help encourage adoption of clean heat measures for renters.

The EAG recommends aligning CHS rules with pre-existing Weatherization Assistance Program (WAP) policy by adopting a 25% threshold for income attestation/verification within multifamily dwellings, which would alleviate administrative burdens for Obligated Parties and help minimize the impacts of the split-incentive problem faced by low and moderate income renters. The draft CHS rule suggests income attestation is needed from every participating household to determine the measure group. This could result in convoluted administrative demands if income verification is already being verified by existing programs such as the WAP. The EAG questions the necessity of duplicating income verification through additional income attestations, advocating instead for leveraging existing verification processes to reduce administrative burdens and mesh well with existing policy. In closing, the EAG also advocates for better coordination between the Commission, the Public Service Department, the Department of

⁴³ [Vermont Public Utility Commission](#), Draft Proposed Rule, in Case No. 23-2220-RULE, October 1, 2024.

⁴⁴ [EAG Comments on CHS Draft Rule](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, October 30, 2024.

Children and Families, the Office of Economic Opportunity, and other relevant state agencies to create a process to streamline income verification.

Clean Heat Standard Impacts

Homes Unable to Implement Clean Heat Measures

Overview

Vermont has an estimated total of 335,514 homes.⁴⁵ The median Vermont home was built in 1974, older than the national median year of 1977. Over a quarter of Vermont housing units were built before 1940.⁴⁶ Vermont's rented homes tend to be older than homes occupied by homeowners, with over 34% of the rental stock built before 1940. Older homes are more likely to be occupied by lower-income households and concentrated in lower income neighborhoods.⁴⁷

Currently, nearly 41% of Vermont homes are primarily heated with fuel oil or kerosene, fossil fuels that tend to be more price volatile and expensive than other fuel sources, and that tend to be used in older homes. Over 36% of households use propane or natural gas, and 13% use wood. Only an estimated 19,855 households, or 7.4% of Vermont homes currently heat with electricity, and this category includes homes that use heat pumps as well as homes that use inefficient electric resistance heat systems with high operating costs.⁴⁸

Many of Vermont's older homes and buildings will need significant upgrades to reduce their energy consumption or fuel switch. However, challenges can arise when older buildings are structurally complex or have not been maintained properly because of the cost or time associated with maintenance and capital investments.

Assessing the energy efficiency of Vermont's housing stock and its readiness for electrification can be challenging from the limited available data. Vermont's recent Housing Needs Assessment estimates that at least 19,637 occupied Vermont homes have potentially serious quality issues.⁴⁹ This is undoubtedly the lower end of potential estimates of the homes that will struggle to adopt clean heat measures like weatherization and heat pumps.

⁴⁵ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25036) [housingdata.org](https://www.housingdata.org)

⁴⁶ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25034, B25036) [housingdata.org](https://www.housingdata.org)

⁴⁷ [Freddie Mac](#), "Concentration of Aging Homes in Lower-Income Areas Underscores Need for Mortgage Innovation," February 17, 2021.

⁴⁸ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25117) [housingdata.org](https://www.housingdata.org)

⁴⁹ [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

Challenges

Vermont's older housing stock presents significant challenges for the adoption of measures eligible for clean heat credits particularly when considering installed⁵⁰ CHS measures. Deferred maintenance issues can prevent upgrades from being completed and increase the overall cost of building upgrades. Additional context is needed to better understand the challenges and barriers that impede the widespread adoption of clean heat measures in Vermont's old housing stock.

The Vermont Office of Economic Opportunity (OEO) Weatherization Assistance Program (WAP) serves Vermont households with incomes at or below 80% of Area Median Income (AMI). There are an estimated 65,000 households in Vermont that live in a home built before 1979 and have a household income less than 80% of AMI, which may be WAP-eligible.⁵¹

Data collected by OEO on its experience with home weatherization can illustrate how often some of these common health and safety barriers are encountered in the Vermont housing stock. Some of the health and safety barriers listed below are more difficult and costly to remedy than others.

Vermiculite insulation

Vermiculite is a naturally occurring mineral that was used for decades to insulate millions of homes across America. The insulation, often sold under the brand name Zonolite, has a pebble-like texture and often has a shiny grey - gold-silver color, very similar in appearance to the mineral perlite which can be bought in bags at garden supply stores. The product was very popular in the construction industry because it is fire resistant, lightweight and can be easily poured out of a bag into wall cavities or spread across an attic flat quickly and efficiently compared to other insulation products that were used throughout the mid-late 20th century.

Vermiculite is still used in many commercial applications today, however Zonolite vermiculite mined in Libby, Montana from the mid-1940's to 1990, which accounted for the majority of the vermiculite used in homes during that period, has been found to contain hazardous asbestos. Asbestos has serious health risks, including lung disorders and cancer.⁵² Not all vermiculite contains asbestos or originates from the Zonolite mine, but the U.S. Environmental Protection Agency (EPA) advises that one should assume that vermiculite insulation does contain asbestos. EPA recommends that vermiculite insulation be left undisturbed unless professionally remediated. Vermiculite is particularly hazardous because it is "friable" or easily distributed into the air. For this reason, vermiculite found in homes across Vermont must always be treated as hazardous and harmful to human health if disturbed or encountered without proper personal protective equipment.

⁵⁰ "Installed measures as defined in act 18- "require capital investments in homes, have measure lives of 10 years or more, and are estimated by the Technical Advisory Group to lower annual energy bills."

⁵¹ [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

⁵² [Environmental Protection Agency](#), "Protect Your Family from Asbestos-Contaminated Vermiculite Insulation," retrieved November 18, 2024.

Buildings with vermiculite present must have vermiculite abated before weatherization work can be completed by WAP.⁵³ The process for removal is extensive, with an average of \$16,000 to \$20,000 in required costs per attic abatement project,⁵⁴ and it often causes significant delay in the completion of a weatherization project. Of the 4,386 units weatherized by the WAP in Vermont since July 1st, 2020, 6% or 272 units were found to have vermiculite present.⁵⁵

Overall, an estimated 159,500 Vermont homes were built between 1940 and 1989, 48% of the housing stock.⁵⁶ While many of these homes may never have had vermiculite insulation or have since been remediated, the 85,314 homes built before 1940 may have also had vermiculite added during renovations at some point between 1940 and 1989. While the precise number of homes at risk cannot be known without additional sampling across the wider housing stock, thousands of Vermont homes will likely need vermiculite abatement before weatherization can occur.

Inadequate electrical infrastructure

Full decarbonization of the thermal sector will require shifting from heating with liquid and gaseous fuels to thermal end use equipment powered by electricity. This will require the electrical infrastructure in homes and businesses around the state to be safe, reliable and adequately sized to enable this transition.

Many residential buildings in Vermont do not have the existing electrical infrastructure in place to facilitate the adoption of fuel switching clean heat measures such as heat pumps. This includes homes that have knob and tube wiring which does not meet modern electrical safety codes.⁵⁷ While this style of electrical wiring was phased out in the 1940's in favor of safer and more reliable forms of wiring, knob and tube wiring may still exist in many of the over 85,000 Vermont homes built before 1939.⁵⁸ Knob and tube cannot handle heavier electrical loads required by modern appliances such as heat pumps. Live knob and tube wires must be completely removed before weatherization can occur, as they pose a fire hazard around insulation. Full replacement of knob and tube wiring can commonly cost \$13,000 to \$15,000 for each project.⁵⁹

In homes built after knob and tube wiring was phased out in the 1940's, the adequacy in size of electrical service plays an outsized role in enabling the electrification of heat loads. Homes with

⁵³ [Vermont Office of Economic Opportunity](#), *VT TEC Manual Appendix G: Vermiculite Policies*, Retrieved December 5, 2024.

⁵⁴ G. Wilcox, Personal Communication, November 21, 2024. Based on reports from Weatherization Assistance Program Directors of encountered in recent projects.

⁵⁵ T. Broome-Smith Personal Communication, July 3, 2024.

⁵⁶ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25034, B25036) [housingdata.org](https://www.housingdata.org)

⁵⁷ [Center for Energy and Environment](#), "Dealing With Knob-And-Tube Wiring," March 17, 2023.

⁵⁸ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25036) [housingdata.org](https://www.housingdata.org)

⁵⁹ G. Wilcox, Personal Communication, November 21, 2024. Based on reports from Weatherization Assistance Program (WAP) Directors of costs encountered in recent projects.

less than 200A electrical service may have difficulty electrifying heat and hot water loads without a service and electric panel upgrade.

Data collected by Efficiency Vermont in 2022-2023 and shared with the Department of Public Service indicates that the average cost of electric panel and service upgrades to enable fuel switching measures such as heat pumps and heat pump water heaters to be installed was \$2,046.⁶⁰ It is very likely that low income households in Vermont would have difficulty paying this additional upfront cost without support from a program such as the WAP.

Other home repair needs

In the context of eligible clean heat measures, vermiculite and knob and tube wiring are typically among the most challenging and costly barriers to overcome in home retrofits. However, with Vermont's housing stock among the oldest in the nation, a host of other common barriers such as lead paint, roof leaks, septic system issues, improper ventilation, mold, combustion failures on gas, oil and propane appliances, and other structural deficiencies in homes across Vermont regularly present challenges to the successful installation and delivery of clean heat measures.

To overcome these common barriers, upfront capital expenditure is needed to ensure completion of successful projects. The level of need for remediation of common barriers across Vermont's housing is potentially extensive. Of the more than 4,000 households weatherized by the WAP in Vermont between July 1st, 2020, and June 30th, 2024, 28% required an additional home repair related investment to complete the project.⁶¹

WAP also regularly encounters complex client challenges in the homes they visit, including mental health challenges, hoarding, pest issues, and other unsanitary home conditions. In Vermont's most vulnerable households, significant social services support that goes beyond what is typically thought of for weatherization work is necessary to prepare the home and the household to successfully reduce their fossil fuel use.

Lack of sustained funding for enabling home repairs

As previously noted in this report, under the CHS framework established in Act 18, the value of clean heat credits is directly tied to the emissions reductions that the measures create. No direct economic value can be derived from enabling repairs, and this likely means that few Obligated Parties seeking to obtain credits will pay for costs related to home repairs unless there is such a shortage of low income-related credits that it becomes necessary to allow those projects to occur.

Therefore, households whose homes need enabling repairs or updates will be dependent on other state funding sources, which have historically been limited. Currently, WAP has access to home repair funding under the American Rescue Plan Act (ARPA), and Efficiency Vermont has a

⁶⁰ A. Breen, personal communication, September 23, 2024

⁶¹ Considering that the WAP offers statewide weatherization services to eligible low income clients living in all types of homes including traditional single-family homes, manufactured homes and multi-family buildings it is not unreasonable to use WAP statistics as a proxy for the overall statewide housing stock.

new program for up to \$15,000 for home repairs for low and moderate income households.⁶² Both programs are temporarily funded.

Besides these resources, home repair funding has historically been limited in scope and offered through a patchwork network of housing agencies and social service agencies, but never at the scale needed to address the needs of Vermont’s housing stock.

High costs of full decarbonization

Even without home repairs, the costs of comprehensive weatherization and cold climate heat pumps can be considerable.

Efficiency Vermont reports that the average recent weatherization project that included air sealing and attic and basement weatherization cost \$12,599.⁶³ A single-zone ductless cold climate heat pump (CCHPs) can cost between \$5,550 and \$7,500 installed, while multi-zones CCHPs typically cost at least \$16,000 and increase depending on the number of units.⁶⁴ Even a multizone system may not be adequate to heat an entire home, depending on its size and configuration.

The table below represents the costs that could be reasonably encountered in a full home electrification project in an older single-family home:

Measure	Estimated Expected Cost
Vermiculite remediation	\$18,000
Electrical panel upgrade	\$2,046
Comprehensive weatherization	\$12,599
Multi-zone CCHP	\$16,000
<i>Total</i>	<i>\$48,645</i>

Source: Weatherization Assistance Program reports, Efficiency Vermont

Limitations in using heat pumps as a primary heating source

The Energy Action Network reports that as of 2022, 47,959 homes had adopted cold climate heat pumps (CCHPs),⁶⁵ which significantly exceeds the 19,855 households that report that they primarily use electricity to heat their homes through that period, according to Census data.⁶⁶

⁶² [Efficiency Vermont](#), “Home Repair,” retrieved December 4, 2024.

⁶³ E. Roscoe, Personal Communication, December 21, 2024. Based on reports from Efficiency Vermont program managers on costs encountered in recent projects.

⁶⁴ G. Wilcox, Personal Communication, November 21, 2024. Based on reports from Weatherization Assistance Program (WAP) Directors of costs encountered in recent projects.

⁶⁵ [Energy Action Network](#), *Vermont Energy Dashboard*, retrieved November 13, 2024.

⁶⁶ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25117) [housingdata.org](#). Includes homes that report using solar energy.

Some of the disparity could result from CCHPs installed in commercial spaces or vacation homes, not reflected in the Census data. However, the large difference in the data suggests that even when cold climate heat pumps are being installed in homes, many households are still not using them as a primary heating source.

It is unclear why adoption of CCHPs has not displaced fossil fuel use in more Vermont homes. Anecdotal reports cite challenging home configurations that limit access to some parts of the home, cost savings not realized from electricity compared to some fuels, and consumer uncertainty about cold weather performance. The Department of Public Service is currently studying this issue through 2025.⁶⁷

Recommendations

For the many reasons described above, home repair issues will prevent many Vermonters from reducing their reliance on fossil fuels, especially for low-income households. Funding for home repairs is unlikely to come from the Clean Heat Standard model and must be provided through other programs funded by the State.

Recommendation

Provide increased and sustained funding for home repair programs that serve all of Vermont's housing stock.

These repair programs should be provided through existing program delivery models as much as possible to reduce administrative complexity and must be tailored to meet the unique needs of all housing types, particularly the rental stock and manufactured homes. Home repair needs for those sectors are discussed in greater detail in those sections of this report.

Vermonters of Color, Indigenous Vermonters, and New Americans

Overview

Vermonters of Color, Indigenous Vermonters, and Vermont's New American, immigrant, and first-generation population is an amorphous collection of Vermonters who come from many different backgrounds, language groups, and socioeconomic circumstances. It is also a comparatively small, although growing, group of Vermont residents. Non-white Vermonters account for 9% of the state's population, and foreign-born residents make up 3% of the population.⁶⁸

It is essential that discussions on the topic of climate change consider these communities. Extensive national research demonstrates that communities and individuals of color face

⁶⁷ [Vermont Department of Public Service](#), "2024-2025 Heat Pump Study", retrieved November 19, 2024.

⁶⁸ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024. The percentages of non-white and foreign-born Vermonters include overlapping groups.

increased health risks related to environmental hazards such as air and water pollution.⁶⁹ These communities are vulnerable to climate-related impacts due to historic disinvestment in minority neighborhoods. Americans of Color have also faced decades of racist policies including lending discrimination, which have led to a significant racial wealth gap.⁷⁰ A lack of generational household wealth may add financial challenges and barriers for Vermonters of Color to invest in home projects that reduce greenhouse gases.

Challenges

The impacts of the Clean Heat Standard on Vermonters of Color require the understanding of other current challenges of this demographic.

Income Barriers

Vermonters of Color are more likely to have lower incomes than white Vermonters. The median household income for white Vermont households is \$74,499, compared to \$52,736 for Black households and \$48,725 for American Indian and Alaska Native Vermonters.⁷¹ In addition, 22% of Black and 21% of American Indian and Alaska Native Vermonters experience poverty, twice the state's average rate.⁷² Any issues that impact low income and moderate income Vermont households under the Clean Heat Standard, as discussed in the sections on low and moderate-income households in this report, will be disproportionately felt by households of color.

Housing

Vermonters of Color are also more likely to rent than own their home. Seventy-two percent of Black Vermont households rent their homes, compared to just 26% of white households.⁷³ Vermont's American Indian and Alaska Native, Asian, multiracial, and Hispanic populations also have lower rates of homeownership compared to white households. Any issues that impact renters, discussed in the Renters and Landlords section of the report, will also disproportionately impact Vermont's non-white households.

Black, Hispanic, and Native American Vermont households face higher housing insecurity, demonstrated by a higher incidence of homelessness among these groups. Black Vermonters comprised nearly 8% of the people experiencing homelessness in Vermont in 2023, despite representing 1.2% of the state population.⁷⁴ If costs related to housing rise significantly under the Clean Heat Standard, many members of these groups may face increased challenges to remain housed.

⁶⁹ [Berberian, Gonzalez, and Cushing](#), "Racial Disparities in Climate Change-Related Health Effects in the United States." *Curr Environ Health Rep*. September 2022.

⁷⁰ [The Center for American Progress](#), *Systematic Inequality: How America's Structural Racism Helped Create the Black-White Wealth Gap*. February 21, 2018.

⁷¹ U.S. Census Bureau, American Community Survey, 5-Year Estimates 2018-2022 (Table S1903).

⁷² [Public Assets Institute](#), *State of Working Vermont 2023*, February 2024.

⁷³ U.S. Census Bureau 2022 5-Year Estimates (Tables B25003A-G) via [HousingData.org](#).

⁷⁴ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024.

Language Barriers and Cultural Exclusion

New Americans include recent arrivals to Vermont from other countries, as well as their children and family members. New Americans come from a variety of countries and regions, but slightly over half of Vermont’s foreign-born population is non-white. Overall, 45% of Vermont’s Black population and 65% of Vermont’s Asian population is foreign-born.⁷⁵

New Americans may face additional challenges under the Clean Heat Standard due to barriers of language or cultural exclusion. Cultural exclusion can limit opportunities to share experiences, ask questions, and access needed services. Residents without legal citizenship may be ineligible for or reluctant to engage with programs that offer clean heat services but will still experience any fuel cost increases under the CHS. Vermonters with Limited English Proficiency (LEP) may not be able to receive information or education about the Clean Heat Standard if information or education is not presented in a language accessible to them. It may also be particularly difficult for LEP Vermonters to work with Vermont’s contractor workforce to make emissions-reducing home improvements.

Recommendations

It will be important to address the language and cultural exclusion barriers for LEP Vermonters. There are translation and interpretation services through both the US Committee on Refugees and Immigrants (USCRI) and the Office of Racial Equity and Community Inclusion at Champlain Valley Office of Economic Opportunity (CVOEO). These services can be obtained as a fee for service arrangement.

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Make translation services and plain language descriptions readily available throughout public outreach processes during CHS implementation</p>
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Efficiency Vermont, the statewide Energy Efficiency Utility in Vermont, uses an online video language services technology for in field translation, and an over the phone translation service in their call center to communicate with Vermonters with various language backgrounds. Efficiency Vermont has found that these services are critical to reach all Vermonters fairly. To address these barriers, it will be necessary to budget adequate funding to provide ample translation and interpretation services at all stages of the implementation of the Clean Heat Standard.

<p style="text-align: center;">Recommendation</p> <p>Select Default Delivery Agents(s) with experience and capacity for reaching New American and LEP households.</p>
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Creating and supporting existing safe spaces for cultural inclusion is important in outreach to all Vermonters. There should be multiple avenues for Vermonters to share their experiences and concerns, several of which should be in affinity spaces that are comfortable and easily accessible for the participants. For these reasons, affinity spaces

⁷⁵ U.S. Census American Community Survey, 5-Year Estimates 2018-2022 (Table DP05).

allow for increased inclusion in program development and outreach. And for all Vermonters, it is important to provide information in a plain language format with well-explained concepts and clear vocabulary. Existing and additional programs under the Clean Heat Standard should continue to, and begin to, support affinity spaces to better reach Vermonters in program outreach.

The Default Delivery Agent (DDA) will be an important resource for serving many of the populations that are expected to be disproportionately impacted by increased costs related to the Clean Heat Standard. In comments submitted on September 6, 2024,⁷⁶ the EAG asked the Commission to require that proposals for potential DDAs include a description of the entity's experience with, and plan for serving, disadvantaged groups, including households with Limited English Proficiency (LEP).

Services offered by the DDA(s) to households under the Clean Heat Standard should be accompanied by targeted outreach to Vermont's New American communities, with translated resources available or translation services available at all stages of the program, from initial advertising to application.

To support these groups, the EAG also encouraged the Commission to require organizations seeking to become a DDA to have a diversity, equity, and inclusion (DEI) plan or equivalent organizational framework. Such a plan should include clearly defined goals and actions that increase diversity, equity, and inclusion in all areas of the organization and its work.

Low-Income Households

Overview

As Vermont assesses the feasibility of implementing a Clean Heat Standard to reduce thermal sector GHG emissions, the Legislature must consider the low-income households that often struggle with higher energy burdens and the ability to afford basic needs. These households face unique challenges in the pursuit of emission reductions and decarbonization.

Low-income households often do not have the financial means to weatherize or transition to efficient electric options for space and water heating. Reducing emissions is also rarely a priority as they face the many challenges of living as a low-income person in Vermont. Without adequate support to transition low-income households away from fossil fuel dependency and without direct financial assistance to help pay for existing thermal energy costs through the transition, many low-income households may experience housing instability, creating further social and economic problems.

One of the core challenges Vermont will face if the Clean Heat Standard is implemented is balancing the need to decarbonize home heating systems with the immediate need to provide heating support to those who cannot afford it.

⁷⁶ [EAG DDA RFP Recommendations](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, September 6, 2024.

It is estimated that there are 77,843 Vermont households earning at or below 60% of the Area Median Income (AMI), nearly one-third of all Vermonters.⁷⁷ At the state level, 60% of area median income is \$49,200 for a two-person household.⁷⁸ Due to its high homeownership rate, Vermont has a larger number of low-income homeowner households than low-income renter households, but renter households are more likely to have low incomes than homeowners. Low-income households are also more likely to have older members, to be non-white, and to live in manufactured homes than households with higher incomes.⁷⁹

Challenges

High Energy Burdens

Many of Vermont’s low-income households face very high energy burdens, defined as the percentage of a household's income spent on energy costs, including electricity, heating, and transportation. An energy burden of 6% or above is considered high by the U.S. Department of Energy, however, Vermont households earning 30-60% of the state AMI have an average energy burden of 11%. For households earning 30% or below the AMI, the average energy burden is 24%.⁸⁰ Vermont households with lower incomes tend to use higher cost heating sources, including fuel oil and inefficient electrical resistance heat.⁸¹

Having a high energy burden makes it very difficult for households to afford other essential expenses. Energy burdens for households experiencing poverty in Vermont are particularly high, with households earning less than 100% of the Federal Poverty Line (FPL), facing an energy burden of 31%.⁸² An estimated 60,413 Vermonters, or nearly 10% of the state’s population, live in poverty.⁸³ It is estimated that high energy burdens can increase a household’s risk of falling into poverty or experiencing

Average annual fuel costs for households at 200% of the Federal Poverty Line (FPL) by Heating Fuel Type	
Fuel Type	Average Annual Energy Cost
Utility Gas	\$2,250
Propane	\$4,226
Fuel Oil	\$4,097
Wood	\$4,037
Source: U.S. Department of Energy, Low-income Energy Affordability (LEAD) tool, 2024	

⁷⁷ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) housingdata.org

⁷⁸ [Vermont Housing Finance Agency](#), Maximum rent and purchase price affordability thresholds by income and household size, April 2024

⁷⁹ [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

⁸⁰ [U.S. Department of Energy](#), Low-income Energy Affordability (LEAD) tool, 2024

⁸¹ [Energy Action Network](#), Annual Progress Report for Vermont, 2023.

⁸² [U.S. Department of Energy](#), Low-income Energy Affordability (LEAD) tool, 2024

⁸³ U.S. Census Bureau: American Community Survey 1-year estimates, 2023 (Table S1701)

prolonged poverty by 150-200%.⁸⁴ A substantial body of research links lack of access to affordable heating to eviction, food insecurity, health risks, and poorer educational and career outcomes.⁸⁵

In addition to the data, the Equity Advisory Group has heard public comments from many Vermonters struggling to afford basic living expenses, including heat. While any higher heating costs under the Clean Heat Standard will be experienced by all Vermonters heating with fossil fuels, the impact will be felt the most by the state's low income households.

Financial

Low income households tend to have less access to credit to finance home improvements and tend to be unable or very reluctant to take on any additional household debt.⁸⁶ These households will require deep financial assistance for heating costs, weatherization services, or heating system upgrades. In most cases, the cost for this will have to come from somewhere other than their own finances.

LIHEAP

The Low Income Home Energy Assistance Program (LIHEAP) is a federally funded program designed to support low income households with heating costs. This program is administered by the Economic Services Division (ESD) of Vermont's Department for Children and Families. The financial assistance provided by this program helps lower the energy burden for eligible households by reducing the cost of their primary heating source. This assistance is especially critical for households that use expensive sources of heat including oil, propane, and kerosene.⁸⁷

Of all LIHEAP recipients, 53% heat with oil and kerosene, 19% with propane, 11% with natural gas, 12% with wood and pellet stoves, and 5% with electricity.⁸⁸ Eligibility for LIHEAP is based on household income (185% of the FPL) and size, with priority given to those with the lowest incomes and highest energy burdens.

The program is available to both homeowners and renters. About 21% of recipients own their homes, 50% rent and pay for all utilities, and 27% rent and pay for some utilities.

Households that are approved for LIHEAP are also eligible for free weatherization services through the Weatherization Assistance Program (WAP) administered by the Office of Economic Opportunity (OEO). In addition to heating assistance and weatherization, OEO offers crisis support for households facing immediate heating emergencies. This program is available to

⁸⁴ Jeremiah Bohr and Anna C McCreery, "Do Energy Burdens Contribute to Economic Poverty in the United States? A Panel Analysis." *Social Forces*, 2019.

⁸⁵ Jeremiah Bohr and Anna C McCreery, "Do Energy Burdens Contribute to Economic Poverty in the United States? A Panel Analysis." *Social Forces*, 2019.

⁸⁶ [Federal Reserve Bank of New York](#), *The State of Low-Income America: Credit Access & Housing*, January 2024.

⁸⁷ These sources are also carbon intensive and produce higher emissions than some alternatives. Propane is less carbon intensive than oil and kerosene but more expensive per unit of heat or BTU.

⁸⁸ Richard Giddings, Vermont Department for Children and Families, Presentation to the EAG, July 9, 2024.

households that are receiving seasonal heating fuel assistance as well as households that earn up to 200% of the FPL. The program receives approximately 36,000 applications per year.

It is projected that approximately 18,500 households will receive a LIHEAP benefit in FFY2024. The full season benefit for each household for FFY2024 is projected to be around \$897, a reduction from the prior year of about \$600 from the prior year. This award only covers a portion of a household's heat load, and the exact dollar amount awarded depends on the household's primary fuel type. In the 2023-2024 heating season, on average LIHEAP only covered 28% of household heating costs.

LIHEAP funding is based on the Margin-Over-Rack (MOR) pricing, or the fixed price that participating fuel dealers can charge a customer receiving fuel assistance funds. It changes daily and is based on the average rack price in four different terminal locations (Albany, Burlington, Portsmouth and Springfield, MA). Oil heat, kerosene, and propane dealers can choose whether to participate in the fuel program under the terms and conditions established by the State of Vermont. Many fuel dealers choose not to participate.

Under Act 18, the clean heat fee will be added to the price per gallon paid for by the state of Vermont when administering the Fuel Assistance Program.⁸⁹ The law states that the Margin Over Rack [price] (MOR) "shall reflect the Default Delivery Agent credit cost established by the Commission." Absent any supplemental funding to offset the increase in MOR price, LIHEAP recipients will see their total benefit reduced, resulting in a decrease in total household thermal load that LIHEAP is able to offset for recipients.

Not only may LIHEAP recipients experience higher fuel costs along with other fuel customers, but LIHEAP dollars will not go as far in supporting these households. The higher the compliance fee, the more regressive this policy will be for the LIHEAP program.

Weatherization Assistance Program

In Vermont, many low income households face significant challenges when it comes to heating, cooling, and maintaining their homes in a safe, dry, and durable condition. Existing assistance programs, such as Weatherization Assistance Program (WAP), aim to provide support, but they serve only a fraction of the population in need. It is estimated that there are 105,724 Vermont households that earn 80% or less of the state AMI, with 77,843 below 60% or below.⁹⁰

Eligibility for the WAP is determined by county, household size, and varying income requirements. Different income guidelines between state and federal weatherization funds can cause complexity when qualifying applicants, but those receiving fuel assistance are automatically qualified for all funding sources and are given priority for WAP.

⁸⁹ 30 V.S.A. § 8124 (i)

⁹⁰ Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](https://www.housingdata.org)

Current funding sources for the WAP Program include a Department of Energy (DOE) grant, the ARPA-SFR Fund, and the Home Weatherization Assistance Program (HWAP) fund. DOE funded project income eligibility is 200% of the FPL or below. For HWAP and ARPA-SFR WAP projects, income eligibility is the greater of the 80% AMI or the 80% State Median Income (SMI). Though households that earn between 61% and 80% of the AMI as determined by the Department of Housing and Urban Development are eligible, priority is given to those at 60% or below.⁹¹

In FY 2023, WAP assisted 1,139 households, including 176 manufactured homes and 23 shelter units.⁹² The average investment was \$11,869 per household. Currently the wait list varies by Community Action Agencies offering WAP, between two months to one year. However, households with children, elderly, and other vulnerability criteria that are served more quickly.

The WAP must meet the demands of households that not only need energy efficiency improvements and weatherization services, but that also require home repair services must be remediated before any weatherization work can move forward. The scope of services for the core WAP program has remained constant through the years. However, with the addition of federal one-time American Rescue Plan Act State Fiscal Recovery (ARPA-SFR) funding for home repairs, vermiculite remediation, installation of cold climate heat pumps, heat pump water heaters, and of EPA certified wood and pellet stoves has created a more complex but holistic program for WAP clients in recent years. Currently, the program does have more home repair and vermiculite funding than ever before, however these one-time funds (through ARPA-SFR) will end in the next year.

For many households, the only feasible way to complete these necessary health and safety improvements is if they are entirely funded by the WAP. Even when weatherization services are provided at no cost, the additional costs associated with these preliminary home repairs and safety measures would prevent many low income households from accessing weatherization services.

Eligibility Gaps

Eligibility for energy-related assistance targeted at low income households depends on location, program guidelines, and household size. The CHS definition of a low income household for the purpose of low income credit requirements is 60% or below of the AMI, which is \$49,200 for a family of two.⁹³

Eligibility for other programs, including LIHEAP and ratepayer assistance offered through Green Mountain Power and Vermont Gas, is limited to households earning 185% or less of the Federal Poverty Line (FPL). For 2024, 185% of the FPL is \$37,814.00 for a household of two.⁹⁴ The

⁹¹ [3E Thermal](#), "VT Weatherization Assistance Program Income Eligibility Guidelines" retrieved December 4, 2024.

⁹² [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

⁹³ [Vermont Housing Finance Agency](#), Maximum rent and purchase price affordability thresholds by income and household size, April 2024.

⁹⁴ [Vermont Legal Aid](#), 185% Federal Poverty Level (FPL), 2024.

Weatherization Assistance Program (WAP), limits assistance to households at or below 80% AMI, with additional priority targeting for lower income households.⁹⁵

Program	Low Income Eligibility Threshold	Annual 2024 income limit (for two-person household)
Clean Heat Standard	60% AMI	\$49,200
Low Income Home Energy Assistance Program (LIHEAP)	185% of FPL	\$37,814
Energy Assistance Program (EAP) – GMP and VGS	185% of FPL	\$37,814
Weatherization Assistance Program (WAP)	80% of AMI	\$65,500

These differences highlight the challenges related to varying income eligibility requirements. Vermont households typically categorized as low income for the purposes of state programs may not be eligible for fuel assistance, while other households between 60-80% AMI that are eligible for WAP would not be eligible for low income credit generation under the CHS.

Recommendations

If Vermont moves forward with implementing the Clean Heat Standard as its primary strategy to achieve the thermal sector greenhouse gas emissions reductions necessary to meet the legal obligations of the GWSA and 10 V.S.A. § 578, it is crucial to ensure that the CHS does not disproportionately burden low income households. To ensure the welfare of low income Vermonters, affordability must be considered as paramount in the pursuit of thermal sector GHG emissions reductions.

To address long-term funding challenges, Vermont needs to consider a comprehensive approach to merging and coordinating state and federal programs that serve low income households. When temporary federal funds, such as the ARPA-SFR grant, run out, the state will still have access to HWAP and DOE WAP program funds. However, Vermont will face a

Recommendation

Continue to improve program and funding alignment

⁹⁵ [Vermont Weatherization Assistance Program](#), Income Eligibility Guidelines, July 01, 2024 – June 30, 2025.

funding cliff, and it will be necessary to "braid" different funding sources together to maintain an adequate level of support for weatherization and heating assistance.

Any new funds available under the CHS will also need to be integrated into existing programs with the least possible duplication of services, oversight, and burden on participants.

It makes the most sense to utilize existing programs that have sound practices, procedures, and quality assurance systems integrated, before starting new programs from scratch. The WAP program has been able to ramp up by 35% the amount of funds spent, homes weatherized, and number of crew workers employed in the past two years. This was largely due to a minimum prevailing wage that the State WAP office required of the Weatherization Agencies. The current minimum wage for a new crew worker is \$22.98 an hour plus a minimum 42.5% fringe benefit rate.

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Continue to increase WAP worker salaries</p>
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Further increasing these wages could help with workforce, however, should be carefully modeled to fully evaluate effects and ramifications on the existing workforce and Vermont's labor force as a whole.

Workers must be properly trained to perform good quality work that results in actual energy savings. WAP equipment needs to be purchased, such as the large crew trucks which currently can take over six months for a dealer to find or make to provide to a buyer. New funding should be provided in a manner that takes this into account, including a long-term sustainability plan. Ramping up and down WAP funding has negative impacts on workforce retention as well as program results.

When a low income household can add a secondary heating system, such as a cold-climate heat pump, LIHEAP funding should be available to cover two heat sources. Providing assistance for two fuel sources currently not permitted under federal LIHEAP rules but could be advocated for by State leaders. Currently, households receiving assistance for fossil fuel heating systems may be discouraged from using electric heat pumps to avoid higher out-of-pocket costs, as LIHEAP benefits are generally lower for electric heat systems. Expanding LIHEAP coverage to include two primary heating sources will help encourage reduced use of fossil fuels for households that are not prepared to fully transition, without facing additional financial hardship.

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Increase fuel flexibility for LIHEAP recipients</p>

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Expand EAP assistance to other utilities</p>
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The Energy Assistance Program (EAP) offers a 20-25% discount on monthly bills for low income households who enroll. The program is supported by a charge on all ratepayer bills, and coordinated through the Department for Children and Families(DCF). Currently, the EAP is only offered through offered through Green Mountain Power (GMP) and Vermont Gas Systems (VGS). The State could explore the feasibility

of this program being offered at other utilities, which could help encourage adoption of heat pumps in low income households as well as reducing overall energy burdens overall.

A sustainable source of funding and an increase in the number of energy efficiency coaches who can guide Vermonters, particularly those with low incomes, is essential to guide customers through the available programs and incentives. This work is currently being done at the Community Action

Agencies. This hands-on support is vital to guide low income households through the complicated process of home weatherization and other projects. An expansion of the role that energy efficiency coaches act as both financial coaches and energy experts would help residents take full advantage of incentives such as those available through the Inflation Reduction Act. The need for energy efficiency coaches also speaks to the importance of reducing overlap for programs that offer energy and efficiency assistance. Streamlining of programs could reduce confusion and increase participation in existing programs.

Recommendation

Sustained support for consumer navigation services

Moderate Income Households

Overview

Act 18 describes a customer with moderate income as “...a customer with a household income between 60 percent and 120 percent of the area or statewide median income, whichever is greater, as published annually by the U.S. Department of Housing and Urban Development”.⁹⁶ There are an estimated 75,500 households between 60-120% AMI, representing 28% of all Vermont households.⁹⁷

On September 20, 2023, the Commission released an order requesting information “...regarding existing programs, incentives, and funding that currently support customers with low income and moderate income to afford heating expenses, transition to beneficial electrification for heating, reduce fossil fuel consumption for heating, and install weatherization measures”.⁹⁸

In response to the information request, existing low and moderate income programs in Vermont were integrated into one document that can be found in Appendix E of the report.

⁹⁶ §8123(6)

⁹⁷ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) housingdata.org.

⁹⁸ [Vermont Public Utility Commission](#), *Order Requesting Information About Existing Heating and Weatherization Programs*, in Case No. 23-2220-RULE, October 1, 2024.

Challenges

Financial challenges

As with other demographics covered in this report, moderate income Vermonters overlap with other demographics, including renters. Renters are often locked out of clean heat benefits, as they do not hold the decision of installing a clean heat measure where they reside. If an owner of a rental unit does install a clean heat measure, the renter may be financially impacted by a rent increase to help the owner pay for a clean heat measure.

Vermont additionally has a severe housing shortage that affects moderate income customers. When a moderate-income Vermonter does become a homeowner, they are often unable to provide matching funds of any amount, even if they have the appreciating asset of a home.

Efficiency programs typically require moderate income households to hold some financial burden of an energy transition when receiving an incentive due to their financial status and ability to do so. This assumption is a gap in existing programs as some moderate-income households are not financially able to bridge that gap of investment to receive an incentive for their clean heat measure or energy transition. Many moderate income households live paycheck to paycheck and do not have capacity to take on significant additional expenses, even if those investments may help save money over time.⁹⁹

Eligibility gaps

Low income is in the CHS as less than 60% AMI, while moderate income is defined by statute as 60 to 120% AMI. However, 60 to 80% AMI is eligible for the State's low income Weatherization Assistance Program ("WAP"). The remaining 80-120% AMI of moderate income households will not be eligible for WAP and will have to resort to other methods of financing their clean heat measure, even though existing programs in the state tend to require some sort of matching funds for this group, as explained above.

A moderate-income customer may fall below the moderate income threshold multiple times in a few years, which makes income brackets complex and can add barriers to what resources that lower AMI group in the moderate-income sector has access to. This also creates customer confusion. Market rate customers will likely transition faster and might not face the cost barriers that the lower percentages of AMI in that moderate income bracket will.

Limits to moderate-income adoption of weatherization

The State has attempted to encourage more financing opportunities for moderate income households. Vermont has an existing Home Energy Loan program that offers 0% interest financing for low and moderate income Vermonters.¹⁰⁰

⁹⁹ [Urban Institute](#), "Financial Distress among American Families: Evidence from the Well-Being and Basic Needs Survey," February 2019.

¹⁰⁰ [Efficiency Vermont](#), "Home Energy Loan," retrieved December 5, 2024.

A State pilot initiative that was created in 2022 to address the financing gap for moderate income Vermonters is the Weatherization Repayment Assistance Program (WRAP).¹⁰¹ WRAP is an on-bill program targeted at households below 120% AMI. The program combines financing with utility rebates to reduce or eliminate the upfront cost of weatherization projects. Participants repay the costs over time on their natural gas or electric bill.

Vermont Housing and Finance Authority (VHFA) works with Efficiency Vermont, other EEU's, and distribution utilities to manage the financing program. This program has been extended through 2025 but has had a slow uptake from customers to date. The program has experienced challenges related to lack of clean payment history used for underwriting, lack of funds for enabling home repairs, complex projects, and a persistent contractor shortage.

When working with moderate income customers, program administrators have found it difficult to get commitment to weatherization even when long term savings are clear. All the other challenges in the weatherization space exist for these customers, and the barriers are not dissimilar to the barriers that low income Vermonters' experience in their energy transition.

Customer confusion

One potential challenge of the Clean Heat Standard for moderate income Vermonters is increased frustration with navigating complex programs. This is already a significant challenge in efficiency programs currently offered. If there are too many programs and competing opportunities that are not strategically aligned and communicated to the public, there is increased potential for negative experiences in navigating these opportunities and programs.

Recommendations

There are significant barriers for moderate income Vermonters in their transition to energy efficiency, fuel switching, or electrification, which contradicts the common assumption that all moderate-income Vermonters have the resources to provide matching funds for services.

An increase of funding that could be directed toward incentives for installed clean heat measures such as weatherization and heat pumps could support moderate income Vermonters transition to clean heat measures. Increased incentives will reduce the upfront purchasing cost of a clean heat measure, making them more accessible.

The EAG recommends supporting existing programs where possible and increasing efforts to ensure that customers have support in navigating the Clean Heat Standard. Support can include assistance in choosing which clean heat measure to implement, ensuring a customer is not missing an important efficiency upgrade, and support in choosing trusted contractors and equipment with safety and quality control. has concerns related to moderate income Vermonters, and all customers, having support in choosing which clean heat measure to implement, how to avoid missing important efficiency upgrades, and choosing contractors and

Recommendation

Support and align existing programs

¹⁰¹ [Vermont Housing Finance Agency](#), "On-bill financing," retrieved December 5, 2024.

equipment with quality and safety control. Market transformation activities funded through the Clean Heat Standard would provide support for low and moderate income Vermonters to ensure quality, safety, and prevent customer confusion in the market. These types of activities are important to provide a statewide consistent experience of low and moderate income Vermonters navigating clean heat projects that will reduce customer confusion.

<p style="text-align: center;">Recommendation</p> <p>Improve customer communication and reduce consumer confusion</p>
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Communication around different programs, territories served, varying incentive rates for low income versus moderate income households, is critical to lowering customer confusion and increasing customer participation. Strategically aligning programs to ensure consistent statewide long-term experience is important

to customer participation of all programs. To support customer navigation of existing programs, Efficiency Vermont has an incentive calculator that you can use to determine which incentives you qualify for, as an example of the type of work that is needed to prevent customer confusion.¹⁰²

Workforce development is a barrier in reaching more households with installed clean heat measures. Workforce development funding and support in the Clean Heat Standard could support moderate income Vermonters that work in workforce development by creating a stable working environment versus an instable burst of funding for these clean heat projects will allow programs to reach more households and customers.

<p style="text-align: center;">Recommendation</p> <p>Increase workforce development to serve moderate income customers</p>

Renters and Landlords

Overview

Approximately 27% (or 72,636) of households in Vermont are renters.¹⁰³ Vermont renters live in a variety of housing types, not limited to multifamily structures. An estimated 17,029 renter households or 23% of renters live in single family homes, and 3,215 (4%) live in manufactured homes.¹⁰⁴

Vermont renters tend to have disproportionately lower incomes, with 51% of them (approximately 36,711 households) earning at or below 60% of the Area Median Income (AMI), and 80% earning below 120% of AMI.¹⁰⁵

¹⁰² [Efficiency Vermont](#), “How much money can you actually get in clean energy incentives?,” retrieved December 5, 2024.

¹⁰³ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25032) [housingdata.org](#)

¹⁰⁴ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25024) [housingdata.org](#)

¹⁰⁵ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](#)

A significant majority of renter households, 77%, rely on fossil fuels for heating.¹⁰⁶ Data on which Vermont renters pay for which utilities is limited, but Census data indicates that only about 23% of renters (16,447 households) have all utilities included in their rent.¹⁰⁷ The remaining three quarters of renters may have any combination of water, heat, and electricity included or not included in their rent.

Challenges

High Energy Burdens

According to the Department of Energy's Low-Income Energy Affordability Data (LEAD) tool, Vermont renters at 30% or below the AMI face an energy cost burden of up to 15%.¹⁰⁸ For those earning between 30% and 60% of AMI, the energy burden can reach up to 7%. An energy burden of 6% or above is considered high.

Seventy-seven percent of the households receiving fuel assistance from the Low-Income Home Energy Assistance Program (LIHEAP) are renters.¹⁰⁹ LIHEAP has been discussed in detail previously in the section of this report on Low Income households, but any impacts to the program under the CHS will have a disproportionate impact on renters. In the 2023-2024 heating season, 50% of all LIHEAP households rented and paid for all utilities, and 27% were renters with another utility arrangement.

Technical Challenges

An earlier section of this report discusses the technical challenges of weatherizing and electrifying Vermont's existing housing stock, and many of these challenges are also found in rental homes. Over 33% of the rental housing stock in Vermont was built in 1939 or earlier.¹¹⁰

There is a wide range of technical expertise among property owners. Moreover, some rental property companies own hundreds of units, and some landlords only own a single unit. Implementing clean heating systems in rental housing is challenging in large part due to the diversity and complexity of the rental housing stock. Different housing types require different programs and approaches to implementing new technologies. For example, many of Vermont's renters live in older single-family homes that have been converted to multi-family structures with floor plans that can make it difficult to install mini-split heat pumps.¹¹¹

¹⁰⁶ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25040) housingdata.org

¹⁰⁷ U.S. Census Bureau: American Community Survey 1-year estimates, 2022 (Table B25069). It is likely that a significant portion of these households with utilities included in rent reside in subsidized housing, particularly senior housing, where this practice is more common.

¹⁰⁸ [U.S. Department of Energy, Low-income Energy Affordability \(LEAD\) Tool, 2024](#)

¹⁰⁹ Presentation from Richard Giddings, Director of Heating and Utility Assistance Programs, DCF-Economic Services to the Equity Advisory Group, July 9, 2024.

¹¹⁰ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25036) housingdata.org

¹¹¹ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25032). Determining the physical character of buildings from survey data is difficult, however there are 25,627 renter households or 35% of all renters that live in smaller multifamily buildings with between two and four apartments.

To minimize greenhouse gas emissions, new construction can and should be designed around electrified systems. However, these systems are more complex and can require greater long-term costs due to skilled maintenance needs. These increased developer's project costs reduce the incentive to install clean heating systems.

Financial Challenges

Rental property owners and tenants face similar challenges to homeowners when it comes to adopting clean heat measures. These include large upfront costs, the complexity of retrofitting, and the need for specialized systems. However, landlords and renters face additional impediments that homeowners do not. The split-incentive problem, which recognizes that landlords may not see the societal or economic benefits of upgrading heating systems when the tenant pays the heating bills, is one such impediment. Another is that some efficiency programs are not available for rental properties.¹¹² Unless crafted correctly, low and moderate income renters may not realize any benefits of the CHS, though they may still be burdened with higher fuel costs.

Just as there is a wide range of technical expertise among landlords, so too is there a wide range of financial capacity. Those with only a few rental units may not have the borrowing capacity or cash on hand to finance expensive heating system upgrades or replacements that rental property owners with dozens or hundreds of units might have. Some landlords have made significant efficiency investments in their properties, while others are financially unable or unwilling to make these investments.

Renters responsible for paying their heating expenses separately from rent often face challenges in reducing their fossil fuel use due to what is commonly called the *split incentive*: the benefits of energy efficiency upgrades like reduced utility costs and greater comfort are enjoyed by tenants, but the costs of making these investments are incurred by landlords, who do not directly benefit from savings.¹¹³ This misalignment of financial costs and benefits can discourage landlords and tenants from investing in efficiency improvements that would reduce overall carbon emissions and utility costs in rental properties.

Special Considerations for Subsidized Affordable Housing

Approximately 14,670 renter households, or 18% of all Vermont renters, live in multifamily subsidized affordable housing.¹¹⁴ Subsidized housing serves Vermont's lowest income households, with half of residents earning less than \$17,000.¹¹⁵

¹¹² For example, [Efficiency Vermont's Heat Pump Water Heaters rebate program](#). Retrieved December 5, 2024.

¹¹³ Hynek, Levy and Smith, "[Follow the Money](#)": [Overcoming the Split Incentive for Effective Energy Efficiency Program Design in Multi-family Buildings](#). American Council for and Energy-Efficient Economy, 2012.

¹¹⁴ [Vermont Directory of Affordable Rental Housing](#), September 2024 via housingdata.org. These include buildings developed with public funding subsidies, such as Public Housing, HUD's HOME Program, HUD Community Development Block Grants, USDA Rural Development, the Low-Income Housing Tax Credit (LIHTC), and other programs with rental affordability long-term or permanent affordable rent restrictions attached to the apartment unit.

¹¹⁵ [Vermont Housing Finance Agency analysis](#) of HUD Low Income Housing Tax Credit (LIHTC) data, 2021.

While these subsidized rentals and their associated utilities cannot exceed established federal limits designed to keep housing affordable, many of the households living in subsidized housing still face significant financial burdens. Affordable housing property owners face their own split incentive challenges: they cannot raise limits on rent beyond modest annual approved increases, and they rely heavily on scarce housing funding subsidies to make energy investments for which they may not see a full return on.

The energy-related investments needed to construct new apartments in line with Efficiency Vermont's High-Performance track (required for projects funded by Vermont Housing Finance Agency and Vermont Housing & Conservation Board) is estimated to cost over \$62,000 per multifamily unit.¹¹⁶ However, Efficiency Vermont is restricted to offering rebates based on savings achieved beyond code, meaning that with each code update, it becomes more difficult to demonstrate the savings and recover costs. Affordable housing developers receive only up to \$3,700 per unit from Efficiency Vermont to cover additional costs beyond basic code, leading to an estimated gap of \$1.8 million in upfront costs for an average affordable housing project.

Minimal Rental Code Enforcement

Vermont's Residential Rental Housing Health & Safety Code has some basic requirements for landlords to provide properly functioning heating systems and make the building 'weathertight'.¹¹⁷ When a code violation is suspected, tenants must appeal to their landlords to make repairs, and if they do not, the tenant must report a violation to the Division of Fire Safety. This can be a challenging process for tenants in a tight rental market, who may fear retaliation or non-renewal of the lease. Even when landlords properly follow the Health & Safety Code, there is no obligation to help limit the fuel consumption or fuel costs of their tenants.

In Burlington, the recently passed Minimum Housing Code Weatherization Ordinance "is designed to ensure that rental properties are also properly weatherized to keep tenants warm in the winter, cool in summer, and reduce costs, while helping the city achieve its net zero energy goals."¹¹⁸ It should be noted that Burlington's net zero energy goals are to reduce and eventually eliminate fossil fuel use in the thermal and ground transportation sectors, not to reduce greenhouse gasses. This municipal ordinance applies to high energy use rental buildings and is enforced by the Department of Permitting & Inspections (DPI) to ensure compliance.

Currently, no statewide ordinance or enforcement mechanism exists to ensure adequate weatherization in rental properties. Though Burlington has a strong policy and enforcement process in place, ordinance implementation has proved difficult due to workforce constraints and has reached only a handful of the several hundred rental units identified.¹¹⁹ The Burlington weatherization ordinance website notes that, "[t]he city recognizes that long waiting lists currently exist for both qualified weatherization contractors and utility incentive programs.

¹¹⁶ Vermont Housing Finance Agency, [Assessing energy rebates in Vermont affordable housing](#), September 2024.

¹¹⁷ [Vermont Department of Public Safety](#), Vermont Residential Rental Housing Health & Safety Code, 2022.

¹¹⁸ [Burlington Electric Department](#), "Burlington Minimum Housing Code Weatherization Ordinance," retrieved December 5, 2024.

¹¹⁹ [Lamdin](#), "Workforce Shortage Imperils Burlington Weatherization Goals," Seven Days, November 13, 2024.

Temporary waivers can be granted if the owner can document that they are formally on a waiting list with a BPI contractor or a utility program.”

Other Policy and Funding Programs and Gaps

The most effective program for assisting renters and overcoming the split incentive in Vermont is the Weatherization Assistance Program (WAP).¹²⁰ It is estimated that 30% to 40% of homes weatherized each year by WAP are renter occupied.¹²¹ There are an estimated 50,833 total renter households under 80% AMI, equal to about 70% of all renters.¹²²

Currently, buildings with low income tenants are eligible for WAP to fully cover cost-effective weatherization measures and heat pumps after any required health and safety upgrades and repairs are paid for by the landlord, which can be prohibitively expensive.¹²³

However, WAP only serves renters or properties with tenants at or below 80% AMI. An estimated 21,803 Vermonters or 30% of renters are above this threshold and would not qualify for WAP services. Moreover, households that otherwise are income eligible may live in buildings that primarily include higher income households, which excludes these buildings from multi-family WAP eligibility.¹²⁴

Existing weatherization incentives outside of WAP are inadequate to cover the costs of additional upgrades to buildings necessary to allow implementation of weatherization and electrification projects.

Vermont Housing Finance Agency (VHFA) offers a state-funded pilot on-bill financing program called the Weatherization Repayment Assistance Program (WRAP), which renters can participate in with landlord consent.¹²⁵ The program is targeted to households between 80-120% AMI. The renter experiences the benefits of lower heating costs and pays the program charge on the utility bill until they move. When the tenant moves out, the next tenant takes over the charges on the utility bill. There has been a slow program uptake overall, especially among renters. It may be difficult to make the case for renters to invest in a property they do not own, even if they can save on costs.

¹²⁰ [Weatherization Assistance Program \(WAP\)](#) – Program that provides funding for home energy efficiency upgrades to low-income households, helping to reduce energy costs, improve comfort, and lower carbon emissions.

¹²¹ [2024 Report on Performance Indicators for the Vermont Weatherization Assistance Program](#)

¹²² U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](#)

¹²³ This is a temporary program offered using federal ARPA funds.

¹²⁴ Eligibility for WAP assistance varies by program source, but generally, two-thirds of units must be occupied by households earning 80% AMI or lower.

¹²⁵ Additionally, WRAP is only available in properties with four or fewer units. [Vermont Housing Finance Agency](#), “WRAP: Frequently Asked Questions,” Retrieved October 24, 2024.

Recommendations

In addition to investing in the state’s Weatherization Assistance Program (WAP), as discussed previously, the State should explore investments in weatherization and home repair programs that can benefit renters that are not income-eligible for WAP.

The Vermont Housing Improvement Program (VHIP) offers grants or forgivable loans to rehabilitate existing vacant units, bring existing units into code compliance, or create small new multifamily units.¹²⁶ Rehabilitation projects can include weatherization improvements, but it is not the primary purpose of the program.

The State could explore expanding VHIP or creating a similar program to include projects that primarily include weatherization or incorporate other clean heat technologies like heat pumps. In any program, combining assistance for home repairs and weatherization may help encourage landlords to address the comprehensive needs of a unit.

Recommendation

Expand weatherization programs targeted to moderate income renters, using existing programs where possible

Recommendation

Pair substantial state investments in rental properties with tenant protections to limit displacement

Any State-funded weatherization program that pays for most or all of a landlord’s project costs should also include restrictions to prevent tenant displacement as a result of the improved property. Receiving a 10-year forgivable VHIP loan requires the landlord to rent the unit at or below HUD Fair Market Rent for the area for at least 10 years. Similar investments in

weatherization outside of WAP could be tied to a similar compliance agreement.

Beyond grants, overcoming the upfront costs of extensive building upgrades may require additional financing options, incentives, and financial support for home repairs, code compliance requirements, and electric service upgrades. These options could include requirements to ensure that only landlords who demonstrate financial need or lower income or moderate-income tenants receive favorable rates, though such restrictions will limit adoption. Low- and zero-interest loans could ease the financial burden of repairs ancillary to weatherization such as removing vermiculite and electric wire and panel upgrades, and these incentivized rate programs could require that landlords rent to tenants meeting low and moderate income definitions.

¹²⁶ [Vermont Agency of Commerce and Community Development](#). *Vermont Housing Improvement Program 2.0*. Retrieved October 23, 2024.

New window-based heat pump units are just beginning to become available to consumers. The units can be self-installed in a standard single or double-hung window and standard outlet, include cold-climate heating capacity, and currently retail for \$3,800.¹²⁷ These products are currently being tested in pilot projects by the New York City Housing Authority,¹²⁸ and Efficiency Vermont.¹²⁹

Recommendation

Incentivize adoption of window unit heat pumps and create companion regulations to allow renters to access technology

Portable heat pump technology has the potential to be transformative in their ability to reach households that cannot easily install traditional heat pumps, especially renters. A renter could use a window unit heat pump to reduce their fossil fuel use and save money while living in a rented home and then take the equipment with them when they move. State incentives for portable heat pumps could help overcome the split incentive and encourage more equitable adoption of clean heat measures.

In its feedback to the Commission on Clean Heat Standard Draft Rule, the EAG recommended that the CHS framework accommodate window heat pumps as an eligible installed measure for low and moderate income households.¹³⁰ The EAG also recommended that credit ownership rules be revisited if window heat pumps are considered eligible clean heat measures. Section 8.113(a)(1) of the Draft Rule states that for installed measures “the individual or entity that owns the building in which the measure is being implemented is the initial owner of the measure attributes created by the implementation of that measure.”

The EAG recommends that if a renter purchases a portable window heat pump, the ownership of the credit and any potential related financial benefit from transferring it to an obligated entity, should belong to the renter, not the property owner.

Currently, portable heat pump technology is still largely untested, and the energy savings and long-term reliability of the equipment must be verified for use in state incentive programs. However, if it proves to deliver long-term benefits to customers, the EAG recommends that the Legislature incentivize this technology, and especially for rental households.

If window heat pumps are effective and become common, the Legislature may need to take additional action to ensure renters have access to window unit heat pumps. Landlords often prohibit renters from using window unit air conditioners in lease agreements. Banning window units often result from landlords’ valid concerns about property damage and safety. However, these restrictions could be a serious roadblock to widespread adoption of heat pumps in Vermont’s existing, varied housing stock. Requiring landlords to allow heat-pumps, while also

¹²⁷ [Gradient All-Weather 120V™ Window Heat Pump](#). Retrieved October 21, 2024.

¹²⁸ [Grist](#), “How NYC’s public housing authority plans to transform the market for clean heat,” January 24, 2022.

¹²⁹ [Efficiency Vermont](#), “Take control over your heating and cooling—for free: Enroll in a pilot program to test an exciting new technology for renters”. Retrieved October 24, 2024.

¹³⁰ [EAG Comments on CHS Draft Rule](#). Published to the Vermont Public Utility Commission Case: 23-2220-RULE - Proceeding to design the potential Clean Heat Standard, October 30, 2024.

requiring professional installation and limiting landlord liability could resolve this potential complication.

Finally, as extreme heat events become more common, access to cool spaces is essential to reducing heat-related illness and death.¹³¹ Vermont’s Residential Rental Housing Health & Safety Code requires habitable temperatures but does not have detailed rules about permitting or providing air conditioning.¹³² Access to cooling equipment, from either a traditional air conditioner or a heat pump, is increasingly necessary for equitable climate adaptation.

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Add basic weatherization requirements to Vermont Residential Rental Housing Health & Safety Code</p>
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If the State wishes to reduce greenhouse gasses from rental properties and overcome the split incentive problem, it may need to go beyond its current practice of offering financial incentives to landlords and consider creating clear requirements. At a minimum, the State could explore ways to update building codes for heating, cooling, and weatherization systems to better align with our greenhouse gas reduction goals.

This may well be difficult to enforce within the State’s current complaint-based system and lack of rental registry, which leaves most rental homes in the state uninspected and the current code often unenforced. The City of Burlington’s weatherization ordinance has faced significant challenges, and workforce shortages are felt statewide. The State could consider phasing in weatherization requirements over time to give landlords ample opportunity to secure contractors.

However, despite these significant challenges, the status quo is all but guaranteed to leave renters behind as Vermont transitions away from fossil fuels. A significant realignment of State policy will be necessary to ensure that renters can receive the benefits of a Clean Heat Standard.

Mobile Home Residents

Overview

There are an estimated 20,041 mobile or manufactured homes (MHs) statewide, which represents 6% of all the state’s housing stock.¹³³ The terms “mobile home” and “manufactured home” are often used interchangeably for homes built in factories before being transported to their final site. Of Vermont homes occupied year-round, 8% are MHs.¹³⁴ An estimated 13,373

¹³¹ [World Health Organization](#), *Heatwaves*. Retrieved October 23, 2024.

¹³² [Vermont Legal Aid](#), Summer Heat, Air Conditioning and Rental Units. May 22, 2024. Retrieved October 23, 2024.

¹³³ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25024) [housingdata.org](#)

¹³⁴ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25032) [housingdata.org](#)

Vermont MHs are owner-occupied (67%), 3,215 are renter-occupied (16%), and 3,453 are vacant or seasonal (17%).¹³⁵

Approximately one third of MHs are located in manufactured home communities (MHCs) or parks across the state, and of those homes, roughly 90% of them are owned by the residents.¹³⁶ The remaining homes are on land outside parks that is either owned or leased by the residents.

Challenges

Reliance on kerosene

Vermonters who live in MHs disproportionately use kerosene for heating. Kerosene is one of the most expensive, price volatile, and carbon-intensive heating fuels.¹³⁷ However, MHs often have fuel tanks located outside, and kerosene can withstand much colder temperatures than fuel oil.¹³⁸ Due to the reliance on outside storage and to structural limitations in MHs, described below, these residents have limited alternative fuel choices if faced with higher heating costs under the CHS.

Technical challenges

Modern manufactured homes built to the U.S. DOE Zero Energy Ready Home Manufactured Homes National Program standards are highly energy efficient and can accommodate heat pumps and water heaters for fossil-free heating and cooling. However, old MH are often leaky, inefficient, and present significant challenges for decarbonization.

Minimum health and safety requirements for all new manufactured homes were first established in 1974. Homes built before that point were unregulated and may not have been constructed properly or to a high efficiency standard or may have become structurally unsound in the intervening years. There are an estimated 4,000 to 5,000 MHs in Vermont built prior to 1979, or up to a quarter of the state's MH stock. Of these 3,300 MHs are estimated to be owner occupied and 1,300 are renter occupied.¹³⁹ A 2019 survey of Vermont's affordable mobile home parks found that approximately 25% of the homes were estimated to be in substandard condition due to age or other quality concerns.¹⁴⁰

Many mobile homes face structural and technical limitations that make clean heat technologies, such as heat pumps, challenging or impractical to install. Common issues include outdated electrical systems, and specific heating needs to prevent frozen pipes. MHs typically lack

¹³⁵ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024

¹³⁶ Vermont Department of Housing and Community Development, [2022 Vermont Mobile Home Parks Report](#)

¹³⁷ [Vermont Energy Action Network](#), Annual Progress Report 2024

¹³⁸ The gel point of petroleum products is the temperature at which the liquids thicken to the point that they no longer be can be pumped through fuel lines.

¹³⁹ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024.

¹⁴⁰ [Development Cycles](#), *Sustainability Assessment of Affordable Mobile Home Parks in Vermont*. Prepared for the Vermont Housing & Conservation Board, January 2019.

basements and often have exposed water pipes running underneath. This configuration requires heat from below, whereas ductless electric heat pumps distribute warm air from above, potentially leading to frozen pipes and severe structural damage. For these existing homes, ducted heat pumps may be a feasible heating source, but supplemental combustion-based heating may remain essential, as a shift to electric heat alone could pose substantial risks. Older MHs that are poorly designed, have inadequate ductwork and therefore have larger heat loads that may be particularly difficult to maintain with a cold climate heat pump (CCHP) alone.

Where fuel switching is feasible, it is crucial to pair it with weatherization efforts to safeguard against freezing pipes. Technical guidelines for upgrading heating in mobile homes are distinct from those for traditional homes, and existing systems are often incompatible with a switch to new fuels. While dual-fuel heating systems offer a potential solution, their installation costs, including necessary electrical upgrades, can reach \$15,000, a price out of reach for many residents.¹⁴¹ Beyond financial and technical constraints, space limitations can further hinder the installation of heat pump systems.

There are three possible pathways to decarbonize mobile homes. The first pathway is weatherization, where the MH thermal envelope is air sealed and insulated to reduce heat loss and overall heat load required to maintain adequate temperature in winter. Another pathway is heating system conversion paired with weatherization. If technically feasible, an existing MH fossil fuel heating system can be replaced with an eligible clean heat measure such as a ducted heat pump or dual fuel heating system, in addition to weatherization efforts. A more comprehensive pathway is the complete replacement of the MH. This option is best when weatherization and/or heating system replacement are not technically feasible or where the cost to do so would warrant replacement as an alternative.

Existing homes that cannot support new investments

A 2019 report from the Vermont Housing & Conservation Board used Tax Department data to estimate that 23% percent of the homes surveyed in MHCs have an assessed value of less than \$10,000.¹⁴² From this, it can be estimated that there are at least 4,600 mobile homes statewide where the value of those units is likely less than the cost of most comprehensive weatherization and electrification measures.¹⁴³ This is a strong signal that there are at least that many mobile homes that cannot support new investments. That figure is conservative, as there are certainly homes in relatively better condition that will still face serious technical issues in rehabilitation. For these 4,600 households, there may be no practical way to pursue significant reduction in fossil fuel use.

¹⁴¹ <https://www.trane.com/residential/en/resources/glossary/dual-fuel-heat-pump/>

¹⁴² [Development Cycles](#), *Sustainability Assessment of Affordable Mobile Home Parks in Vermont*. Prepared for the Vermont Housing & Conservation Board, January 2019. Homes in MHCs do not have land owned associated with them, so this accounts for just the value of the physical unit. MHs on owned land outside of MHCs would be difficult to separate from the value of that land.

¹⁴³ Out of the 20,041 estimated MH statewide according to 2022 ACS. U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25024) [housingdata.org](https://www.housingdata.org)

In addition to high energy burdens and barriers to transitioning to clean heat systems, many MHCs are in flood prone areas, leaving these residents vulnerable to home destruction and displacement. Currently, there are 809 lots situated within a flood hazard zone, making up 11% of all homes in parks.¹⁴⁴ Investing in energy efficiency in homes at very high risk of flood damage does not make financial sense, however, moving existing homes can be costly. In addition to costs of transporting the home itself, site preparation to place the MH home frequently costs more than \$20,000 per lot.¹⁴⁵

Financial challenges

The upfront costs associated with weatherization or upgrading to a clean heat system can be cost-prohibitive to MH residents. There is limited available data on the incomes of mobile home residents. Residents of MH and MHCs tend to have lower incomes than other Vermont households. An income survey across 15 MHCs found that 60% of the residents earned at or below 50% of Area Median Income (AMI) and 84% earned at or below 80% of AMI.¹⁴⁶

Homes in MHCs face additional challenges. MHCs are predominantly privately owned. The 2024 Mobile Home Task Force Report to the Legislature found that aging park infrastructure is the greatest risk to long term mobile home park sustainability.¹⁴⁷ To upgrade individual units, the park itself may often require community level investments, including electrical service. This can lead to a split incentive, where the park owner may not invest in upgrades that would primarily benefit individual lot renters. In cases where MHCs pursue park-wide upgrades, costs are substantial, often reaching approximately \$1 million, making coordination with multiple stakeholders, including utility companies, park owners, and individual residents, is complex. It can also be difficult to access the funding required for these projects.

For individual MH owners on rented land, it can be challenging to access financing for upgrades or MH replacement. Many financial institutions require land ownership for mortgage or refinancing eligibility. Interest rates available for financing new mobile homes are high, and without property ownership, residents face challenges accessing affordable financing options. Lending guidelines often assume that MHs on rented land depreciate while mobile homes on owned land would allow residents to build equity for at least the land itself. Many of the older homes in MHCs examined by the Mobile Home Task Force were valued at around \$15,000 to \$20,000, and these low values would discourage large financial investments in the home.

Replacing MHs with newer, more efficient models is not viable for most low income Vermonters. Absent deep financial assistance, the cost of these new efficient mobile homes is not affordable for most. Many people live in mobile homes because they are significantly less expensive to purchase or rent than other types of buildings. These households cannot afford additional monthly bills for a new or higher mortgage or do not have access to credit.

¹⁴⁴ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024.

¹⁴⁵ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

¹⁴⁶ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

¹⁴⁷ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

Under Act 18, obligated parties can generate clean heat credits by replacing an older MH with a new, highly efficient model. However, a new manufactured double wide home currently costs about \$173,000,¹⁴⁸ making it doubtful that many Obligated Parties will choose manufactured home replacement as a credit-generating activity, beyond what is already funded by other sources.

Additionally, even if improvements or replacements are low-cost or free, any increases in the value of the MH could lead to increased tax burden for residents.

Limitations to existing assistance programs

The Weatherization Assistance Program (WAP) served 221 mobile homes in 2024 to date, about 27% of the single-family homes supported by the program,¹⁴⁹ and a small fraction of Vermont's MH stock that is estimated to require weatherization.

In cases where residents do receive WAP services, funding is a limiting factor. Currently, the WAP can complete comprehensive weatherization services for residents of MHs, however with additional sustainable sources of funding, more could be done to reduce dependence on fossil fuel and overall energy burden for MH residents, including upgrading ductwork and electrical to enable the installation of ducted heat pumps or dual fuel furnace systems.

Inadequate funding specifically for home repair is also a limiting factor, especially for MH. Many private weatherization contractors do not serve the MH community. This is largely because most MH residents qualify for WAP services and lack the resources to pursue weatherization on their own. Consequentially, the MH community is almost exclusively dependent on the WAP for home repair and weatherization needs.

WAP staff regularly encounter problems related to deferred MH maintenance. Without home repair funds to remedy deferred maintenance issues, comprehensive weatherization in some cases cannot occur. If the WAP is unable to serve a client due to a home repair issue that current funding is unable to address, that client is "deferred" by the program until the client can address the issue. Many clients are unable to afford home repairs themselves, therefore a WAP deferral means the issue either goes unaddressed completely further exacerbating harmful outcomes for the residents, or the client turns to another organization such as a local housing trust who may or may not be able to provide them with limited home repair funding potentially available.¹⁵⁰ If the client can resolve the issue that caused them to be deferred by WAP on their own, then they will be eligible for WAP services once again. This process can take a long time because home repair services outside of WAP are usually implemented by volunteers or a small number of paid staff.

¹⁴⁸ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024.

¹⁴⁹ G. Wilcox, Personal Communication, November 25, 2024.

¹⁵⁰ [Windham & Windsor Housing Trust](#), "Repair Your Home", retrieved December 5, 2024.

In recent years OEO has adopted a “zero deferral” policy in recognition that addressing non-energy related issues that otherwise prevent weatherization is a critical equity policy.¹⁵¹ This zero deferral policy could be in jeopardy without a long-term sustainable source of funding dedicated to addressing home repair needs and other non-energy related issues.

Recommendations

Recommendation

Adopt recommendations of the Mobile Home Task Force

The EAG spoke with Gayle Pezzo and Mary Houghton, residents of MHCs and members of the Mobile Home Task Force.¹⁵² In addition to speaking personally to the many challenges encountered by many MH residents in reducing fuel use, they spoke to the work of the Task Force. They encouraged policy makers to adopt the

recommendations already made by the report and continue the work underway to support MHCs and MH residents in general, beyond their energy needs.

To ensure equitable outcomes for MH residents, the CHS must take a comprehensive approach that integrates social, economic, and environmental priorities. All Vermonters, regardless of housing type, should have the opportunity to participate in the CHS. This requires addressing common barriers for the MH stock, including high upfront costs, limited technical knowledge, and gaps in information about available resources. The CHS should be designed to prevent undue burdens on low and moderate-income residents, with careful monitoring to identify and address potential unintended consequences, such as increased fuel costs or displacement risks tied to energy retrofits. Transparency and accountability are essential, with mechanisms in place for tracking and reporting equity outcomes, allowing for continuous assessment to keep equity goals on course.

Effective outreach is key to raising awareness of clean heat benefits, especially among MH residents who may face unique challenges in understanding or accessing these programs. Though some residents in a park referenced by Gayle Pezzo of the Mobile Home Task Force have utilized WAP, Mary Houghton indicated that some residents assume that they are not eligible. This emphasizes the need for more targeted outreach, education around program offerings and assistance navigating the programs. Tailored educational initiatives that clearly communicate the cost savings and environmental benefits of clean heat technologies can empower residents to make informed choices. Additionally, MHCs can enhance residents' readiness to apply for project funding through WAP or other programs.

Recommendation

Ensure fair access, participation, and support for mobile home residents

¹⁵¹ Office of Economic Opportunity, *Performance Indicators for the Vermont Weatherization Assistance Program*, January 28, 2022.

¹⁵² [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

Recommendation

Providing technical assistance and building community partnerships

Many mobile home residents may need expert guidance to navigate the complexities of clean heat measure installations. Providing dedicated technical assistance and support services will help these communities overcome technical challenges and ensure successful adoption of clean heat solutions. By

partnering with local organizations and community groups, outreach and assistance efforts can be made culturally relevant, linguistically accessible, and more effective in reaching mobile home residents. Leveraging existing community networks can maximize engagement and make the CHS transition smoother and more inclusive.

The Legislature should also engage MHCs to conduct a thorough assessment of electrical infrastructure in MHCs to identify and address any deficiencies that may hinder the adoption of clean heat technologies. Upgrading infrastructure will ensure that mobile home communities can support the increased demand for electricity associated with clean heating systems.

Recommendation

Leverage existing programs supporting mobile home residents

Where possible, the Legislature should build upon existing statewide programs and resources to support the implementation of the CHS for mobile home communities. This includes leveraging the infrastructure and expertise of organizations involved in energy efficiency, weatherization, and affordable housing initiatives.

The Legislature should also allocate dedicated or supplemental funding to bolster the Weatherization Assistance Program (WAP), specifically targeting resources to support MH residents in accessing and implementing clean heat measures. This funding will facilitate the retrofitting and upgrading of mobile homes to improve energy efficiency and reduce heating costs.

Wherever possible, communities and individuals should have ownership and control over clean heat projects and the associated clean heat credits. This can empower local communities, promote self-sufficiency, and ensure that the benefits of the clean heat credits are reinvested locally.

Recommendation

Expand funding for manufactured home replacement

The State of Vermont has housing funding resources available for manufactured home replacement through Vermont Housing & Conservation Board and Vermont Housing Finance Agency.¹⁵³ Though there are incentives available for households below 80% AMI, and possible support for downpayment assistance, through state

housing nonprofits, applicants will generally need to secure mortgages through the USDA’s Rural Development program or other lenders for the replacement home. Depending on a resident’s

¹⁵³ Vermont Agency of Commerce and Community Development, “Resources for Homeowners (Incl. Mobile Homes)”, retrieved November 26, 2024.

financial capacity, securing funds could be difficult. Substantial subsidization of these purchases will be necessary to serve households in MH that cannot access weatherization or fuel switching.

Commercial, Industrial, and Other Nonresidential Customers

The Clean Heat Standard will have impacts on Vermonters outside of households, including businesses, nonprofit organizations, municipalities, and schools. The non-household thermal sector makes up an estimated 48% of GHG emissions, with the commercial segment representing roughly 35%, and the industrial segment representing roughly 13% of total thermal emissions. For both segments, the primary fossil fuels used are fuel oil, fossil (natural) gas, propane, and wood.¹⁵⁴

Commercial and Small Business Segment

The commercial thermal sector accounts for 0.9 MMT of CO₂e/yr emissions representing an estimated 35% of total emissions.¹⁵⁵ Within the commercial segment, fossil gas, fuel oil, propane as sources of emissions make up the major type of fossil fuels used with 43%, 26%, and 25%, respectively.

Vermont small businesses with fewer than 500 employees account for 60% of the state's total employment.¹⁵⁶ The small business segment is represented by about 79,000 businesses, with roughly 80% of these businesses owned and operated by a sole proprietor. Many sole proprietor-operated businesses are likely to have a home office, rented offices, or shared facilities. The remaining 20% of the small businesses employ up to 500 employees. As small businesses make up close to 98% of the commercial segment with a wide variety of industry sectors, it may also present unique challenges in implementing any universal CHS installed and delivered measures due to the complexity and shared infrastructure of commercial buildings. Additionally, because the RCI sector emissions are reported without the granular data needed to assess specific segments within commercial and industrial sectors, it would be difficult to determine what emissions reduction potential exists in these specific segments.

Small businesses are included in various industry sectors, including professional services, retail, construction, healthcare services, public administration, manufacturing, and distribution. In implementing the CHS, a focused effort on opportunities for electrification of large facilities, including retail, office space, and services, has potential to reduce a significant amount of GHG emissions in the thermal sector. Cold climate heat pumps (CCHP) installed to date for commercial applications represent only about 10% of total installations in VT over the last 6 years. For many commercial and industrial businesses with core infrastructure for buildings for

¹⁵⁴ [Energy Action Network](#), “Statewide GHG Emissions Dashboard”, VT Thermal emissions 1990-2021, retrieved December 2, 2024.

¹⁵⁵ [Energy Action Network](#), “Statewide GHG Emissions Dashboard”, VT Thermal emissions 1990-2021, retrieved December 2, 2024.

¹⁵⁶ [U.S. Small Business Administration](#), “2022 Small Business Profile – Vermont”, 2022.

processing and warehouse operations, typical solutions such as air source heat pumps are not effective in replacing traditional space heating systems powered by fossil fuels. In these cases, innovative and customized solutions will be required to reduce GHG emissions.

Efficiency Vermont offers rebate programs to small businesses to replace fossil fuel-based heating systems with pellet-based boilers that are cost effective and sustainable. The Inflation Reduction Act offers specific incentives for the adoption of renewable power generation to industries that currently use fossil fuels for power generation as well as for processing applications. In tandem with custom solutions for electrification, increased use of renewable natural gas and other clean fuels such as renewable diesel in the commercial and industrial sectors also represents an option for emissions reduction potential in these sectors as identified in NV5’s greenhouse gas emission reduction potential study commissioned by the Vermont Department of Public Service.¹⁵⁷

Several new commercial buildings in Vermont have benefited from solar panel installations that enable renewable energy use and reduce overall electricity-related GHG emissions. Through the Green Business certification program, 110 buildings in VT have achieved LEED certification through a combination of building standards, energy efficiency, and renewable energy measures.¹⁵⁸ However, this type of GHG reduction is accessible only to businesses that are willing to do significant renovation of existing buildings and/or commit to new building infrastructure.

Industrial Segment

The industrial/manufacturing sector employs 10% of Vermont’s workforce, represents an estimated 9% of Vermont’s GDP, and produces 0.3 MMT of CO₂e/yr of emissions.¹⁵⁹ Chittenden County has Vermont’s largest concentration of manufacturing jobs, with 40% of jobs. Vermont’s manufacturing segment includes various industries, including specialized manufacturers such as GlobalFoundries, Onlogic, GE Aviation, and traditional forestry, mining, and agriculture products-based manufacturers.

Recommendations

To facilitate effective implementation of the CHS in the commercial and industrial sectors, leaders in these sectors should be given the opportunity to consult with the Legislature. The State should increase awareness in the commercial and industrial sector of the many energy financing opportunities available,

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Facilitate commercial and industrial participation in CHS implementation</p>
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¹⁵⁷ [NV5](#), *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

¹⁵⁸ [US Green Business Council](#), *LEED Directory*, retrieved December 2, 2024.

¹⁵⁹ [Energy Action Network](#), “Statewide GHG Emissions Dashboard”, VT Thermal emissions 1990-2021, retrieved December 2, 2024.

and support businesses in applying for funding. A comprehensive approach to incorporating all available opportunities can reduce costs and improve adoption of clean heat measures.

Recommendation

Leverage energy funding opportunities targeted to commercial and industrial sectors.

Programs such as green business certification (LEED certification and other energy certification programs) with loan support from banks, can be leveraged in partnership with commercial real estate companies to address GHG emission reduction initiatives.

Vermont can also leverage the current U.S Treasury’s State Small Business Credit Initiative (SSBCI) to drive innovation in GHG emission reduction in small businesses in the renewable energy, agriculture, manufacturing, and healthcare sectors.¹⁶⁰ The Vermont Economic Development Authority (VEDA) has submitted three different applications to the federal program with the intent to get capital funding for around \$50 million.

Vermont should also integrate CHS implementation with available funding from the Inflation Reduction Act (IRA) available through 2033 for energy efficiency programs in commercial buildings and alternative energy generation for industrial processes.

Obligated Parties

Overview

Under Act 18, the Obligated Parties are entities that import heating fuel for ultimate consumption within Vermont or are entities that produce, refine, manufacture, or compound heating fuel within the state for ultimate consumption within the state. This includes Vermont Gas Systems (VGS) and fuel importers and dealers of various sizes throughout Vermont. fuel importers and dealers of various sizes throughout Vermont.

Challenges

Ensuring Equity Among Obligated Parties

The Equity Advisory Group reviewed concerns raised by the Public Utility Commission about obligated parties in the Draft Clean Heat Standard Rule Companion Status Report issued on October 1, 2024.¹⁶¹ The regulatory framework proposed under the CHS introduces significant challenges, particularly for the hundreds of small, locally owned businesses that may become obligated parties under a potential CHS. Unlike larger energy providers or public utilities, these businesses lack familiarity with the Commission’s complex regulatory processes. This could create inequities amongst energy providers by placing smaller entities at a competitive disadvantage. The CHS could disproportionately impact small businesses, many of which are family-owned operations with limited resources. These businesses, which primarily serve rural

¹⁶⁰ [U.S. Department of the Treasury](#), “State Small Business Credit Initiative”, retrieved December 2, 2024.

¹⁶¹ [Vermont Public Utility Commission](#), Draft Clean Heat Standard Rule Companion Status Report, October 1, 2024.

communities, face significant challenges associated with compliance. A CHS could favor larger energy corporations over smaller suppliers, potentially destabilizing Vermont's competitive fuel market.

Operational Challenges and Timelines

As of December 2024, the cost of compliance credits is still undetermined, posing challenges for obligated parties preparing for potential enactment. The Proposed Rule assumes many obligated parties will rely on the Default Delivery Agent (DDA) to meet obligations. If this is accurate, the DDA fee needs to be established at least nine months before implementation. This advance notice is critical for businesses offering fixed-price programs, which Vermonters of all income levels depend on for winter fuel price stability. Uncertainty in credit costs could undermine the effectiveness of such programs. Obligated parties require clear guidance and adequate lead time to account for compliance costs. Without this, small businesses may face unanticipated penalties or expenses they cannot absorb, potentially leading to market exits. Such disruptions could reduce consumer choice, drive consolidation by larger corporations, or jeopardize access to essential heating services, particularly in rural areas.

The CHS Draft Rule requires fuel dealers to report sales and develop compliance plans within tight timeframes.¹⁶² All fuel suppliers, not just obligated parties, are required by Act 18 to report sales data by June 30th every year. Under a potential CHS, the Commission will determine credit obligations and require compliance plans 31 days later, on August 1. This compressed timeline creates administrative challenges for both the Commission and the regulated entities. Smaller businesses may need help aligning their operations with these requirements, which undermines their ability to participate effectively in the clean heat marketplace envisioned by Act 18.

Accountability and Market Loopholes

The CHS's reliance on prior-year sales data to calculate credit obligations creates a significant enforcement gap. Fuel wholesalers and retailers with no fixed assets in Vermont can enter the marketplace in October and avoid compliance fees by exiting in April. This undermines the CHS's intent and disadvantages long-standing local businesses, which bear the entire burden of compliance. Enhanced enforcement mechanisms are necessary to close this loophole and ensure a level playing field.

¹⁶² [Vermont Public Utility Commission](#), Draft Proposed Rule, 8.113(a)(1), in Case No. 23-2220-RULE, October 1, 2024.

Recommendations

Under Act 18, "heating fuel" includes all fuel sales in the Residential, Commercial, and Industrial (RCI) sectors. This broad definition unnecessarily extends CHS obligations to hardware, garden supply, and convenience stores that sell small quantities of propane and kerosene. These canisters of fuel are most often used for cooking fuel or emergency heat. Excluding these sales from CHS requirements would significantly reduce the number of regulated entities, alleviating some administrative burdens for the Commission. It will also remove an unnecessary regulatory burden from these community stores and ensure greater access to these essential commodities for Vermonters.

Recommendation

Adjust the regulatory scope of included fuel sales

Recommendation

Improve clarity, engagement, and enforcement among obligated parties

The CHS framework, as proposed, risks destabilizing Vermont's heating fuel market by creating uncertainty around compliance costs, imposing disproportionate burdens on small businesses, and lacking effective enforcement measures. These challenges could lead to market exits, reduced competition, and higher costs for consumers. To

address these risks, the Commission should prioritize regulatory clarity, equitable enforcement, and mechanisms to support small businesses in adapting to a potential CHS. A predictable and transparent regulatory structure is essential to maintaining a competitive market that serves low and moderate income Vermonters, particularly those living in rural areas of the state.

Recommendations for Implementing the Clean Heat Standard

The section below describes how the Clean Heat Standard should be implemented procedurally to ensure equity. Recommendations on complementary programs or other policy suggestions to promote equitable implementation for specific groups are provided throughout the section on *Clean Heat Standard Impacts* (starting pg. 24). These recommendations are also listed in Appendix A.

Ongoing Equity Review

Act 18 calls for the EAG to dissolve when the initial clean heat standard rules are adopted.¹⁶³ It assigns the responsibility to assess equitable outcomes to the Commission through the process described in 30 V.S.A. § 8124(h)(3):

"On or before January 15 of each year following the year in which the rules are first adopted under this chapter, the Commission shall submit to the standing committees a

¹⁶³ 30 VSA § 8129(c)

written report detailing the implementation and operation of the Clean Heat Standard. This report shall include an assessment on the equitable adoption of clean heat measures required by subsection (d) of this section, along with recommendations to increase participation for the households with the highest energy burdens...”

The EAG believes that the Clean Heat Standard framework does not yet adequately address the equitable adoption of clean heat measures.

To ensure that the Commission’s annual written report is robust, comprehensive, and meaningful the EAG recommends that the Commission formally collaborate with the Climate Council’s Just Transitions Subcommittee and the Environmental Justice Advisory Council. The Commission’s annual review and reporting process should use the equity rubric created by the EAG, and it should evaluate the CHS in light of harmful consequences, including but not limited to those identified in 30 V.S.A §8127(h), as well as the environmental burdens identified in 3 V.S.A §6002(2).

Ensuring equitable outcomes is essential to the success of Act 18, and therefore the EAG recommends that equity work and assessments of the Clean Heat Standard be funded, implemented, and continued throughout the existence of the program.

However, any equity assessment and work that is completed must *proactively* center equity in the body of work rather than simply *reactively* measure it. This approach is recognized by the Vermont Climate Council Just Transitions Subcommittee.¹⁶⁴

The Commission must be clear and transparent in its equity assessment after implementation and allow for a process of accountability by, for example, using a set of pre-existing metrics by which progress toward equitable outcomes could be measured, and actions could be taken to improve disparities as they arise. The EAG recommends using the Equity Rubric it developed to review future decisions made to implement the CHS.¹⁶⁵

Ongoing and Iterative Public Engagement

Given the compressed schedule and short amount of time that Act 18 provided to the Commission for conducting a public engagement strategy to hear from citizens and stakeholders across the state on a very complex but comprehensive thermal sector emissions reduction strategy, the EAG recommends that ongoing public engagement continues over time if the CHS is implemented.

Such a comprehensive and all-encompassing market-based strategy to reduce thermal sector emissions has the potential to dramatically shift the way Vermonters heat their homes. This shift will not come without some disruption, and it is important that the public have opportunities to engage with State regulators to have questions answered and aid in the resolution of any potential marketplace equity issues or concerns that may arise over time.

¹⁶⁴ [Vermont Climate Council](#), Just Transitions Subcommittee, Guiding Principles for a Just Transition, August 2021.

¹⁶⁵ [Vermont Public Utility Commission](#), *Clean Heat Standard Equity Advisory Group Equity Rubric*, May 30, 2024. See Appendix C.

The Commission must provide local communities and stakeholders – including obligated parties - the opportunity to collaborate on an ongoing basis with the Commission and provide input to ensure the policies that directly affect them have equitable solutions that meet specific community needs. Policies must be made not just for impacted communities, but *with* impacted communities.

The EAG recommends that regular public engagement by the Commission be funded and continued, particularly in the initial years of program implementation, in order to educate the public about how the CHS credit marketplace is intended to function and the role of market actors and participants. Most importantly, the Commission should gather feedback on aspects of the policy that are working or not working so that the Commission can make changes or recommend changes to the Legislature.

Ensure Consumer Protection

Since clean heat credits will hold monetary value, the EAG recommends that strong consumer protections be included in the CHS rules including language relating to the validity of CHS credit claims and consequences that may result from false claims. The Commission must closely assess whether customers receive adequate information about the value of clean heat credits associated with projects in their homes. It must ensure that the credit marketplace is operated transparently and fairly for all participants. The Department of Public Service, in their function as the ratepayer advocate, might be the neutral party in the clean heat standard, to support the public with concerns or confusion regarding the clean heat standard market. The EAG acknowledges the importance of this role, and that there needs to be clarity and streamlined information that is distributed to the consumer around how the registration process works to claim a clean heat credit, and who to contact to resolve issues.

Conclusion

The Equity Advisory Group reiterates its concerns that, absent significant policy changes, the potential benefits of the Clean Heat Standard will not be experienced by many of the most vulnerable Vermonters.

In its companion report to the Draft Rule released in October 2024, the Public Utility Commission suggested that establishing a clean heat credit marketplace may not be feasible in a single small state like Vermont and expressed concerns about available funding to enact the program.¹⁶⁶ The Commission reported that it intends to provide alternative proposals to meet Vermont's greenhouse gas emission reduction goals for the thermal sector, which may include a new thermal energy benefit charge and clean fuel programs. The details of potential alternative proposals were not available to the EAG at the time this report was drafted in December 2024, and reviewing such details and exceeds the scope of its duties under Act 18.

¹⁶⁶ [Vermont Public Utility Commission](#), *Draft Clean Heat Standard Rule Companion Status Report*, October 1, 2024.

For any programs that it might enact to promote thermal emissions reductions, the Legislature must obtain and closely consider the total estimated impacts on fuel prices and ensure that these costs can reasonably be borne by low and moderate income Vermont households.

The Legislature must also reevaluate how it has historically approached investments in emissions reductions, ensuring that our inequitable past does not continue into the future. This includes dismantling the many barriers to clean heat measure adoption discussed throughout this report and ensuring that deep and sustained investments are made in programs that can effectively reach disadvantaged communities.

Appendix A: List of Recommendations

Recommendations on solutions to promote equity in the Clean Heat Standard are provided throughout the section on Clean Heat Standard Impacts, broken down by the demographic group that those recommendations are intended to support, and include additional content on why the Equity Advisory Group feels those recommendations are needed. These recommendations are also listed below.

- Homes Unable to Implement Clean Heat Measures
 - a. Provide increased and sustained funding for home repair programs that serve all of Vermont’s housing stock.
- Vermonters of Color, Indigenous Vermonters, and New Americans
 - a. Make translation services and plain language descriptions readily available throughout public outreach processes during CHS implementation.
 - b. Select Default Delivery Agents(s) with experience and capacity for reaching New American and with Limited English Proficiency (LEP) households.
- Low Income Households
 - a. Continue to improve program and funding alignment.
 - b. Continue to increase Weatherization Assistance Program worker salaries.
 - c. Increase fuel flexibility for LIHEAP recipients.
 - d. Expand EAP assistance to other utilities.
 - e. Sustained support for consumer navigation services
- Moderate Income Households
 - a. Support and align existing programs.
 - b. Improve customer communication and reduce consumer confusion.
 - c. Increase workforce development to serve moderate income customers.
- Renters and Landlords
 - a. Expand weatherization programs targeted to moderate income renters, using existing programs where possible.
 - b. Pair substantial state investments in rental properties with tenant protections to limit displacement.
 - c. Incentivize adoption of window unit heat pumps and create companion regulations to allow renters to access technology.
 - d. Add basic weatherization requirements to Vermont Residential Rental Housing Health & Safety Code.
- Mobile Home Residents

- a. Adopt recommendations of the Mobile Home Task Force.
 - b. Ensure fair access, participation, and support for mobile home residents.
 - c. Providing technical assistance and building community partnerships.
 - d. Leverage existing programs supporting mobile home residents.
 - e. Expand funding for manufactured home replacement.
- Commercial, Industrial, and Other Nonresidential Customers
 - a. Facilitate commercial and industrial participation in CHS implementation.
 - b. Leverage energy funding opportunities targeted to commercial and industrial sectors.
- Obligated Parties
 - a. Adjust the regulatory scope of included fuel sales.
 - b. Improve clarity, engagement, and enforcement among Obligated Parties.

Appendix B: Additional Comments from Individual Equity Advisory Group Members

These additional comments are solely the opinions of individual Equity Advisory Group Members and do not represent the Equity Advisory Group as a whole.

Vermont has the third oldest population of any state, with Maine being first and New Hampshire second. This translates into approximately 185,000 Vermonters who are 60 or older, about 30% of the state's population. This demographic is growing and will continue to do so for the next several years before finally leveling off.

I have attached an analysis of details for this demographic which many may find useful.

Approximately 2/3rds of Vermonters 60 and older are retired or otherwise out of the labor force. 60% of retired Vermonters receive 50% of their income from social security and 25% rely on social security only. This means that a very large number of our older citizens are entirely or substantially reliant on fixed sources of income. 82% of Vermonters 60 and up own their own homes. According to the attached document, even with no mortgage costs, these owners are paying 30% or more of their income on monthly ownership costs. About 40% of LIHEAP benefits go to households with at least one resident 60 or older.

It seems clear that any substantive increase in heating costs for this demographic is simply not affordable. The estimated increase in heating fuel costs is not supportable for this group. For those depending on LIHEAP this is an even bigger issue as, by definition, they are low-income households to begin with, and it is highly unlikely that the LIHEAP benefit would be increased enough to offset the fuel cost increase.

The other side of the initiative, changing an existing heating system to one not using fossil fuels, is an even bigger issue. I can provide an anecdotal example to illustrate this.

I am 75 years old and continue to work a full-time job by choice. This means that, although I am by no means low income eligible, I am a long way from being wealthy.

My wife and I live in a 1,900 sq. ft., Queen Anne Victorian built in 1890. We have taken steps to upgrade the insulation the last several years and the house is relatively well insulated with double-pane windows throughout and 18" of cellulosic fiber blown into the attic. For 15 years we had been heating with a Harman wood pellet fired forced air furnace. For various reasons, chief among them the increased difficulty at my age to be lugging 40 lb. bags of pellets around (retrofitting to a silo/auger system was not feasible), and the chore of ongoing weekly maintenance and even more in-depth maintenance after every ton of pellets had been through it during the heating season, caused us to want to change to a different heating system. Our first choice was a ducted heat pump system. I had estimated that this was going to cost us about \$12,000. I received three estimates from three reputable HVAC contractors, all of which came in at around \$21,000. This was higher than I had originally thought, as we were including a back-up heating coil as part of the system, and they were going to have to add additional ductwork to get the system to work efficiently. At first, we were going to bite the bullet and do it, but then came the kicker. We discovered that we were going to have to upgrade the house's electric service from 100 amps to 200 amps which was going to cost an additional \$11,000 for the electrician and an additional sum to pay our electric utility to upgrade the line to the house. This would drive the total cost up to over \$32,000. This was simply considerably more than we could afford, especially as there was no

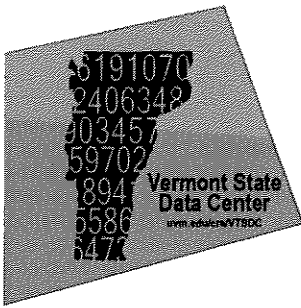
guarantee that our heating costs would be reduced over what we had been paying for wood pellets. We chose instead to install a new, ultra-high efficiency propane furnace at a cost of \$11,000, which in this last heating season, cost us considerably less than what we had been paying for wood pellets.

I include this to demonstrate that it is simply not going to be feasible and affordable for many, if not most, older Vermonters to change their heating systems from one burning fossil fuels to heat pump systems even with rebates or other subsidies. At the moment, the rebate from Efficiency Vermont is \$600 and the Federal tax credit is 30% of the cost with a maximum credit of \$2,000. I know, because I just had a heat pump domestic hot water system installed, and net of rebates and tax credit, it still cost me \$4,400.

And then there are renters. About 18% of Vermonters 60 and older rent. 48% are spending 30% or more of their income on rent. If their landlords end up paying the increased cost per gallon for heating fuel or, alternatively, change to heat pump systems, that cost is going to be passed on to their renters, creating an insupportable rent hike. Yes, part of these costs may be offset by subsidies, but I am dubious about the subsidies being enough to make a real difference.

Respectfully submitted,

John T. Mandeville
Executive Director
Central Vermont Council on Aging



65+ Elders in Vermont

From the Vermont State Data Center

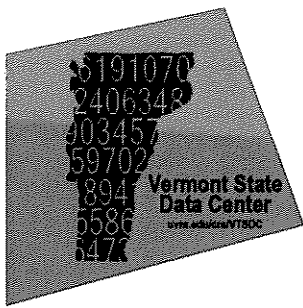
Source: 2011 & 2021 American Community Survey

- In 2021 about 133,173 Vermonters were 65 years or older, or about **20.6%** of all Vermonters.
 - In 2011 about **14.9%** of Vermonters were 65 years old or older.
- In 2021 **22.0%** of 65+ Vermonters were in the labor force.
- The average income/earnings for the 65+ population in Vermont in 2021 was about **\$59,180**.
- **9.1%** of Vermonters 65 years or older were at or below the poverty level in 2021.
 - In 2011 about **7.0%** of 65+ Vermonters were at or below the poverty level.

65+ Renters in Vermont	2011	2021
Percent renting	19.5%	18.7%
Median gross rent	\$667	\$889
Gross rent 30% or more of household income	50.3%	51.4%

65+ Homeowners in Vermont	2011	2021
Percent owning	80.5%	81.3%
Median monthly owner costs (no mortgage)	\$608	\$714
Monthly owner costs 30% or more of household income	37.3%	29.3%

- **18.7%** of Vermonters 65 or older rent their home, with a median gross rent of **\$889** in 2021.
 - For **51.4%** of renters, rent consumed 30% or more of their household income.
- **81.3%** of 65+ VT'ers own their home, with median monthly costs of about \$714 (those without a mortgage).
 - For **29.3%** of these owners, monthly housing costs were 30% or more of their household income.
- The median home value for homes owned by 65+ Vermonters in 2021 was **\$268,200**.
- In 2021, about **11,169** 65+ males and **23,635** 65+ females lived alone in Vermont.
 - In total, **34,804** 65+ Vermonters lived alone in 2021, about **26.1%** of the 65+ population.
- **2.3%** of 65+ VT'ers lived with grandchildren under 18 years of age and **0.3%** were responsible for their grandchildren in 2021.
- **58.9%** of 65+ Vermonters were married, **18.2%** were widowed and **15.9%** were divorced.
- In 2021 about **5,083** 65+ Vermonters lived in group quarters such as, but not limited to, care facilities.
- **29.2%** of Vermonters over 65 years of age have a disability



60+ Elders in Vermont

From the Vermont State Data Center

Source: 2011 & 2021 American Community Survey

- About 183,157 Vermonters were 60 years or older in 2021. About **28.4%** of all VT'ers.
 - In 2011 about **21.8%** of Vermonters were 60 years old or older.
- **33.5%** of Vermonters 60 years or older were in the labor force in 2021.
- The average income/earnings for the 60+ population in 2021 was about **\$71,769**.
- **9.0%** of Vermonters 60 years or older were at or below the poverty level in 2021.
 - In 2011 about **6.7%** of 60+ Vermonters were below the poverty level.

60+ Renters in Vermont	2011	2021
Percent renting	18.7%	17.7%
Median gross rent	\$671	\$874
Gross rent 30% or more of household income	51.0%	48.3%

60+ Homeowners in Vermont	2011	2021
Percent owning	81.3%	82.3%
Median monthly owner costs (no mortgage)	\$611	\$724
Monthly owner costs 30% or more of household income	34.5%	27.5%

- In 2021 **17.7%** of 60+ Vermonters rented their home. Their median gross rent was **\$874**.
 - For **48.3%** of 60+ renters, rent consumed 30% or more of their household income.
- **82.3%** of 60+ VT'ers owned their home in 2021, with median monthly owner costs of \$724 (those without a mortgage).
 - For **27.5%** of owners, monthly housing costs were 30% or more of their household income in 2021.
- The median home value for homes owned by Vermont's 60+ homeowners was \$266,600 in 2021.
- In 2021 about 71,431 60+ Vermonters lived alone. This was about 39% of the 60+ population.
- **61.2%** of 60+ Vermonters are currently married, **14.1%** are widowed and **16.7%** are divorced.
- **2.4%** of 60+ VT'ers lived with grandchildren under 18 years of age and **0.4%** were responsible for their grandchildren in 2021.
- **25.3%** of Vermonters over 60 years have a disability.

The **Vermont State Data Center**, funded through the Agency of Commerce and Community Development:

- Coordinates with the U.S. Census Bureau on local data collection and feedback processes to ensure efficient and accurate VT data production;
- Represents Vermont data producers and users at the Federal level;
- Provides technical assistance to VT data users in accessing and using Census data, and;
- Conducts outreach and education that facilitates data-driven research, administration, planning and decision-making.

January 7, 2025

Legislators and Public Utilities Commissioners,

These comments are my own and do not necessarily represent others on the EAG.

The Clean Heat Standard (CHS) is remarkable in a few unique ways: it includes a legislative check-back clause, it encourages robust public input and allows any interested individual to register as a participant in the CHS proceedings, and it recognizes that there very well may be harmful consequences resulting from its adoption. No other statute that I am aware of includes these public considerations. Thank you for including them. I ask that whatever final version of the CHS you adopt include similar language to encourage public participation and acknowledge potential harms.

I'd like to recognize several members of the public who not only provided thoughtful, well reasoned concerns about the costs, health and environmental harms that the CHS would create, but also often provided alternative solutions to meet the goals of reducing greenhouse gasses in the thermal sector. Before taking any position on this or any future legislation related to thermal sector greenhouse gas reductions, please read the comments submitted by Laura Haight, Thomas Weiss, John McCormick, Ray Albrecht, and Nicholas Persampieri. Please also review the report the PUC provided to the Legislature over four years ago in response to *Act 62 of 2019*.¹

The CHS, I believe, is an experiment the legislature was correct to start, but an experiment which the legislature must now end. Many of you who have followed the proceedings, who have witnessed colleagues lose their legislative seats for supporting the CHS, recognize, and perhaps always knew, that the CHS is both too complicated and too expensive for already energy-burdened Vermonters. An early draft of S.5, inaptly named the "Affordable Heat Act," included this revision:

It shall ~~minimize adverse impacts to~~ enhance social equity by prioritizing customers with low income and moderate income and those households with the highest energy burdens.

Deleting the reference acknowledging the adverse economic impacts, and instead suggesting the CHS promotes social equity—this one example edit might be the most concise impetus for constituent anger over the CHS.

The original EAN white paper suggests that a "market-based program" can both reduce greenhouse gasses and lower the costs of clean heat measures such as heat pumps.² This belief that a market-based CHS will lower costs was reiterated by one its most vocal proponents at a recent PUC workshop.³ In the 1990's, a principle author of the EAN white paper argued, incorrectly, that deregulating the utility industry would lower costs for consumers.⁴ Too many low- and moderate-income Vermonters cannot currently afford to house their families or heat their homes, and the legislature should not assume that invisible hands and market-forces are going to correct this imbalance. The contractor adage "good, cheap, quick, pick two" holds true for the CHS as well, and if the Paris Agreement and the Vermont GWSA are to have any effect we must choose "quick." Reducing our greenhouse gasses is going to be expensive, and the legislature must find a more direct method than this CHS to ensure that the cost is borne by those who can afford it. Not by chance, the wealthier among us also have the largest carbon

1 https://puc.vermont.gov/sites/psbnew/files/doc_library/act-62-final-report-amendment-020321.pdf

2 <https://eanvt.org/wp-content/uploads/2021/12/CHS-Final-December-16-2021-copy.pdf>

3 <https://youtu.be/pZoF3ZVxmUg?si=i1mchxXd0JjVcC5I&t=3152>

4 <https://vtdigger.org/2023/02/22/annette-smith-true-believers-are-driving-vermonts-climate-plans/>

footprint, so redirecting money from the wealthy to reduce Vermont's thermal sector greenhouse gases will both enhance social equity and minimize adverse economic impacts on low- and moderate-income Vermonters

In addition to expressing concerns about costs, members of the public and organizations like the Northeast States for Coordinated Air Use Management (NESCAUM), and the Conservation Law Foundation (CLF) expressed concerns about the health and environmental harms that the CHS would create.

The most recent draft of CHS Technical Advisory Group (TAG) *Health Impacts and Considerations for the Clean Heat Standard* lists these bullet points:

Based on a 2022 VDH analysis using the EPA Co-Benefits Risk Assessment (COBRA) tool:

- 97% of the monetizable health impact from residential heating emissions in Vermont is attributable to wood fuel combustion.
- The monetizable health impact of residential wood heating in Vermont is \$105M-\$238M (about 30x greater than for all other residential fuels combined).
- Pollution from wood heating is associated with 10-22 early deaths (about 20x greater than for all other residential fuels combined).
- Cancer risk from wood heating pollution is 2.5 per million (about 20x greater than for all other residential fuels combined).
- Replacing fossil fueled heating with wood heating, especially cordwood, would likely have a harmful impact on human health due to increased emissions of multiple air pollutants. The magnitude depends on what type of wood heating equipment and fuel is used and what is being replaced.

The final TAG *Health Impacts* was not available before the EAG report submission deadline; however, because the TAG memo is based on the Vermont Department of Health 2022 analysis,⁵ the health costs related to wood combustion are unlikely to change between the draft version, cited here, and the yet-to-be-published final version available later this year.

Like the TAG *Health Impacts* memo, final version of the TAG's *Technical Resource Manual (TRM)*, was not available in time for this report. TAG members have been very thoughtful and considered thus far and I have hope that it will draft a TRM that leads to actual reductions in thermal sector greenhouse gasses without shifting and increasing greenhouse gasses onto and in the agricultural and forestry sector. However, in my opinion, the TAG is too heavily represented by the biofuel industry and under represented by climate scientists, so I want to warn the legislature that depending on the final version of the TRM, which the TAG is basing in part on the California Air Resource Board (CARB) Low Carbon Fuel Standard (LCFS), the final CHS TRM could result in calculated paper reductions in greenhouse gases without any actual corresponding reductions in greenhouse gasses. Environmental organizations have recently sued California over the LCFS,⁶ and Vermont will see similar suits if the TRM does not accurately recognize the emission factors of wood and biofuels.

I leave you with several additional recommendation to help lower consumer costs, reduce carbon emissions, promote carbon storage, and reduce health harms:

5 VDH_WoodHealth_June29_2022.pdf

6 <https://earthjustice.org/press/2024/environmental-justice-group-sues-california-agency-over-flawed-low-carbon-fuel-standard-changes>

- Update the Use Value Appraisal program to allow land owners enrolled in the UVA to opt out of required periodic logging if they choose.
- Quickly enact legislation that will stop the Worcester Range and Telephone Gap logging projects, which will log over ten-thousand acres, including over 800 acres of old-growth forests and emit hundreds of thousands tons of CO₂.
- Acknowledge the enormous health harms and the \$105M-\$238M annual health costs associated with wood-combustion in the thermal sector, and repeal legislation and funding that incentivizes wood-combustion and “advanced wood heating” systems.
- Require that the Department of Public Service to acknowledge and include the negative health impacts, the monetized health costs, and estimated number of premature deaths that its plans for increased wood-combustion would create in its next *Vermont Comprehensive Energy Plan*.
- Electricity from wood-combustion is both more polluting and more expensive than readily available alternatives. McNeil, the single largest source of Vermont greenhouse gases, for example, lost over \$4,700,000 for electric rate payers in 2023 and over \$8,000,000 in 2024.⁷ If you are serious about reducing costs for Vermonters, repeal legislation that subsidizes and incentivizes energy from Ryegate and McNeil, and pass legislation that prohibits all new biomass electric plants.
- Increase legislative transparency by requiring all introduced bills identify the individual author or authors of the bill. Who actually authored the CHS? Legislators in house and senate subcommittees stated that the Affordable Heat Act was drafted by the Vermont Climate Council while climate councilors at council meetings advised that the legislature drafted the AHA. The answer would help shed light on the loopholes found in the CHS that so angered your constituents.
- Increase taxes on fossil fuels, including natural gas, and redirect that money to LIHEAP and weatherization programs for low and moderate income households.

Pike Porter
EAG member

⁷ <https://www.burlingtonelectric.com/wp-content/uploads/Joint-Owner-Meeting-Packet-120224.pdf>

Appendix C: Clean Heat Standard Equity Advisory Group Equity Rubric

Clean Heat Standard Equity Advisory Group

Equity Rubric

Adopted April 16, 2024

Revised May 28, 2024

Preamble:

Whereas the Climate Council Just Transitions Subcommittee drafted the [Guiding Principles for a Just Transition \(Guiding Principles\)](#) in August 2021; and

Whereas the *Guiding Principles* advises that “[s]tudies continue to show that low-income communities, indigenous peoples, and black and other communities of color are among those who are particularly vulnerable to the impacts of climate change”; and

Whereas low- and moderate-income and historically marginalized, disadvantaged and under- served communities include Indigenous communities; people of color; new Americans; mobile home communities; renters, including subsidized housing renters; communities near electric plants, fuel-manufacturing plants, and fracking sites; and rural and floodplain communities; and

Whereas Vermonters have also been historically marginalized or may be marginalized due to language barriers, gender inequality, LGBTQ status, socioeconomic status, education level, employment status, disability, immigration status, religious beliefs, culture, or incarceration history; and

Whereas the *Guiding Principles* were drafted to help guide the Climate Council and its subcommittees ensure that strategies to reduce greenhouse gas emissions...benefit and support all residents of the State of Vermont fairly and equitably”; and

Whereas the *Guiding Principles* defined equity to include distributive equity which “*starts by recognizing disparities in the allocation of resources, health outcomes, the inequities in living conditions and lack of political power place frontline / impacted communities at greater risk. Distributive equity strategies target resources to adaption and mitigation affecting the communities and populations most impacted*”; and

Whereas the *Guiding Principles* defined equity to include Procedural equity; which is “*often referred to as equitable planning and implementation. Equitable planning and implementation require that communities have a meaningful opportunity to participate. Policymakers must collaborate with communities to learn about their perspectives so that solutions meet community needs. Equitable planning focuses on the local level and ensures that local communities have the opportunity to provide input on policies that directly affect them;*” and

Whereas the *Guiding Principles* defined equity to include Contextual equity which “*ensures that mitigation and adaption strategies take into account that low-income communities, black communities, indigenous communities and people of color, and people with disabilities, amongst others, are often more vulnerable to climate change. Contextual equity ensures that the development of mitigation and adaption strategies at statewide and local levels take these disparities into account;*” and

Whereas the *Guiding Principles* defined equity to include Corrective Equity which “*ensures that mitigation and adaption strategies provide communities with clear processes to hold the state accountable to its commitments to pursue equity;*” and

Whereas the Clean Heat Standard was enacted in May, 2023; in order to help “meet the greenhouse gas emission reductions required by the GSWA”; and

Whereas the Clean Heat Standard established the Equity Advisory Group to assist the Public Utility Commission “in developing and implementing the Clean Heat Standard in a manner that ensures an equitable share of actions are delivered to Vermonters with low income and moderate income”; and

Whereas the Clean Heat Standard directs the Commission to “biennially assess harmful consequences that may arise in Vermont and elsewhere from the implementation of specific types of actions and shall set standards or limits

to prevent those consequences”; and

Whereas these harmful consequences include but are not limited to “environmental burdens as defined in 3 V.S.A. § 6002, public health, deforestation or forest degradation, conversion of grasslands, increased emissions of criteria pollutants, damage to watersheds, or the creation of new methane to meet fuel demand”; and

Whereas these consequences have a disproportionate harmful consequence on low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters; and

Whereas among the duties of the Equity Advisory Group is “supporting the Commission in assessing whether customers are equitably served by actions and how to increase equity”; and

Whereas the *Guiding Principles* is meant to ensure that disenfranchised populations are not unduly impacted by emissions transformation projects including proposed actions under the Clean Heat Standard; and

Whereas the *Guiding Principles* was not drafted specifically to evaluate potential eligible actions, but the *Guiding Principles* does provide a rubric that the Equity Advisory Group can build upon; and

Whereas the EAG dissolves upon the implementation of the Clean Heat Standard, though equitable actions are needed after the dissolution of the Equity Advisory Group;

Therefore, the Equity Advisory Group offers this rubric to:

1. to assist the Commission in developing and implementing the Clean Heat Standard in a manner that ensures an equitable share of actions are delivered to Vermonters with low and moderate incomes;
2. to assist the Commission in assessing whether proposed actions will equitably serve all Vermonters;
3. for adoption by the Technical Advisory Group to assist the Technical Advisory Group to evaluate proposed actions through an equity lens.

Instructions:

Step	Action
1	Prepare Draft Policy <ul style="list-style-type: none">• Develop the draft policy that needs to be assessed.
2	Complete the Equity Rubric <ul style="list-style-type: none">• Multiple individuals with diverse perspectives should fill out the rubric independently to ensure a comprehensive evaluation.• For each section of the rubric, check the appropriate box (Harm, Neutral, Benefit) for each question.• If the box for "Harm" is checked, provide detailed justification, and suggest possible revisions to mitigate the harm.
3	Identify and Address Harmful Impacts <ul style="list-style-type: none">• Based on the completed rubrics, identify any potential harmful impacts of the proposed policy, and discuss as a group.• Modify the draft policy to eliminate or mitigate identified harms.• Ensure transparency about the potential impacts and consider steps to mitigate them if the policy is implemented.
4	Finalize Policy Recommendations with Equity Considerations <ul style="list-style-type: none">• Incorporate the equity considerations into the final policy document.• Clearly document how the equity assessment influenced the policy revisions.• Include specific measures to monitor and ensure equitable outcomes during implementation.

Clean Heat Standard - Equity Rubric

1. Health <i>The proposed action should improve health (physical and mental) outcomes for low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters. The strategy upholds the fundamental human right to safe, clean, healthy and adequate air, water, land, and housing.</i>	Harm	Neutral	Benefit
1. Does the proposed action reduce air pollution (CO2 and other greenhouse gasses, PM 2.5, Ozone, VOC, NOx, etc.) and reduce asthma and other respiratory-related hospital visits?			
2. Does the proposed action extend the expected longevity and/or quality of life for populations experiencing health disparities?			
3. Does the proposed action reduce stress, anxiety, and depression, and improve mental health?			
4. Does the proposed action help restore or protect ecosystem health (air, land, water, soil)?			

Overall response to these questions with justification:

Clean Heat Standard - Equity Rubric

2. Affordability <i>The proposed action should lower and stabilize costs related to home heating as well as basic living needs (housing, food, utilities, healthcare, transportation, etc.) for low- and moderate- income and historically marginalized, disadvantaged and under-served Vermonters.</i>	Harm	Neutral	Benefit
1. Does the proposed action prioritize low- and moderate-income Vermonters?			
2. Is the proposed action affordable to residents, and/or does the proposed measure offer inclusive financing strategies that prioritize the most income-burdened populations? (be specific about whether you're financing through an organization or the city, etc)			
3. Does the proposed action reduce energy cost burdens and the number of families that are cost-burdened by housing including utilities?			
4. Does the proposed action generate burdens (including financial, and health costs), either directly or indirectly, onto others including communities of color or low-income populations? If yes, are there opportunities to mitigate these impacts?			
5. Are grants available for low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters to access the proposed action and/or does it offer these Vermonters inclusive financing at favorable rates?			
6. Will low- and moderate-income and historically marginalized, disadvantaged and under- served Vermonters lose fuel subsidies as a result of the proposed action?			

Overall response to these questions with justification:

Clean Heat Standard - Equity Rubric

3. Accessibility <i>The proposed action should remove barriers and promote access for low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters.</i>	Harm	Neutral	Benefit
1. Does the proposed action expand access to actions for low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters?			
2. Does the proposed action remove barriers that might prevent individuals in low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters from benefiting fully if the action were implemented as communicated?			
3. Does the proposed action increase access to eligible actions for households living in manufactured homes and/or manufactured home communities?			
4. Does the proposed action increase access to eligible actions for renter households?			
5. Is the proposal action expressed in clear language accessible to all Vermonters?			

Overall response to these questions with justification:

Clean Heat Standard - Equity Rubric

4. Just Transition <i>The proposed action should ensure economic justice so that low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters are prioritized in the benefits of the action and are protected from any potential negative consequences.</i>	Harm	Neutral	Benefit
1. Does the action support low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters through workforce development, and contracting opportunities?			
7. Does the proposed action prioritize low- and moderate-income Vermonters?			
2. Does the proposed action create local opportunities for livable wage jobs for low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters			
3. Does the proposed action place responsibility on institutions and businesses to address historical disparities in contributing to climate change?			

Overall response to these questions with justification:

Clean Heat Standard - Equity Rubric

5. Community <i>The proposed action should elevate the voices of low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters by developing and strengthening the skills, abilities, and resources that a community needs to survive, adapt, and thrive.</i>	Harm	Neutral	Benefit
1. Does the proposed action engage and continue to empower low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters in a meaningful, authentic, and culturally appropriate manner? Does it respect community- based knowledge and is it based on community identified needs and input/feedback?			
2. Does the proposed action help build community capacity through funding, educational opportunities, and/or other resources?			
3. Does the proposed action include a plan to respond comprehensively to protect impacted workers?			
4. Does the proposed action support low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters through workforce development, contracting opportunities?			
5. Does the proposed action create local opportunities for livable wage jobs for low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters?			
6. Does the proposed action help foster the building of effective, long-term relationships and trust between diverse communities and businesses and institutions?			

Overall response to these questions with justification:

Clean Heat Standard - Equity Rubric

6. Accountability <i>The proposed action should ensure that all Vermonters, including low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters can hold governments and institutions accountable for equitable implementation.</i>	Harm	Neutral	Benefit
1. Is the proposed action based on verifiable science unbiased by politics, lobbying, corporate sponsorship, or precedential decisions?			
2. Does the proposed action meet the intended thermal requirements of the building it serves?			
3. Does the proposed action have provisions to ensure ongoing collection of data (that can be disaggregated by race/ethnicity/income) and public reporting of data? Can this data be validated qualitatively by community members?			
4. Does the proposed action have clear markers of short-term and long-term success as well as timelines for meeting markers of success? If so, what are the mechanisms we will utilize to ensure that goals are met (successful implementation and enforcement)?			
5. Does the proposed action address consequences if goals are not met? Is there a process for those impacted by the action to express grievances or satisfaction and to ensure that concerns are met?			
6. Is the proposed action adequately funded to achieve its designed goals?			
7. Is the decision-making process for the proposed action clear, honest and transparent?			
8. Are potential harms of the proposed action clearly identified and disclosed?			
9. Are those that will benefit from the proposed action clearly identified and disclosed?			

Overall response to these questions with justification:

Clean Heat Standard - Equity Rubric

7. Cultural Preservation <i>The proposed action should deliberately and respectfully honor cultural relevance and history to maintain cultural heritage from the past and present for the benefit of all generations.</i>	Harm	Neutral	Benefit
1. Does the proposed action acknowledge/respect/honor the culture, historic assets, and traditions of low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters?			
2. Does the proposed action improve social cohesion (engagement and connection within/to the community) among low- and moderate-income and historically marginalized, disadvantaged and under-served Vermonters?			
3. Does the proposed action’s decision-making processes go beyond dollars and cents to address shared values and cultural differences in order to support implementation?			

Overall response to these questions with justification:

Appendix D: Equity Advisory Group Memos to the Public Utility Commission

May 22, 2024

Ms. Holly Anderson, Clerk
Vermont Public Utility Commission
112 State Street
Post Office Drawer 20
Montpelier, Vermont 05620-2701

Re: **23-2220-RULE**– EAG comments on Staff Proposal: Initial Ownership of Clean Heat Credits

Dear Clerk Anderson,

Attached are three memos encompassing the Equity Advisory Group's response to the straw proposal created by the Vermont Public Utility Commission ("Commission") Staff on credit ownership issues ("Staff Proposal: Initial Ownership of Clean Heat Credits"). These memos were previously submitted individually to Commission Staff over a series of several weeks but are combined here to be submitted to the Commission docket to be available to the public.

Sincerely,

A handwritten signature in cursive script that reads "Mia Watson".

Mia Watson, Chair
On behalf of the Clean Heat Standard Equity Advisory Group

April 17, 2024

Ms. Holly Anderson, Clerk
Vermont Public Utility Commission
112 State Street
Post Office Drawer 20
Montpelier, Vermont 05620-2701

Re: **Case No. 23** – EAG comments on Staff Proposal: Initial Ownership of Clean Heat Credits

Dear Clerk Anderson,

The Equity Advisory Group (EAG) for the Clean Heat Standard (CHS) proceeding (Case No.23) has reviewed the straw proposal created by the Vermont Public Utility Commission (“Commission”) Staff on credit ownership issues (“Staff Proposal: Initial Ownership of Clean Heat Credits”) and wishes to provide feedback on matters to consider as the Commission continues its rulemaking. EAG members urge the Commission to make the process for credit transfers as simple, transparent, and fair as possible for parties involved in clean heat credit generating activities.

EAG members agree with Commission staff that for installed measures, end-use customers should be awarded all clean heat credits. However, the term “customers” should be clarified. In this context, it appears to mean “individual(s) or businesses who *own the building or property* in which the equipment is being installed”. However, the Commission Staff should confirm that this definition matches their intent in the proposal, and this definition should be made as clear as possible in final rules. This will help to avoid ambiguity in circumstances, for example, in which a third party or parties are financing the purchase, a third party is purchasing equipment for a project, or situations with a landlord-tenant relationship in which the tenant is the fuel customer, but the landlord is purchasing or owns installed equipment.

The Commission Staff proposal asserts that “customer credit ownership will give customers negotiating power in their contractual agreements with their installer or deliverer, which could result in an exchange of incentives for the credit, likely reducing the cost of the clean heat measure to the customer.”

However, this statement assumes that customers will have sufficient knowledge of the value of their credits to inform their negotiations. This cannot be presumed based on the information Staff are currently proposing to be provided to credit owners. Individuals and

small business owners will have a significant knowledge imbalance compared to obligated parties seeking to obtain and maximize the value of credits.

In addition to the proposal from Commission Staff that the Commission could require “installers or deliverers to provide Commission-approved information about the Clean Heat Standard program, alternative technologies and fuels, and information about what programs are available to help pay for measures”, EAG members suggest that the Commission consider providing the following information:

- Estimated greenhouse gas emissions reductions generated from installation of measures.
- The number of clean heat credits generated from the measures.
- Information on the monetary value of the credits generated from the measures.
- Estimated energy cost savings generated from installation of the measures.
- Health disclosures related to the installed measures (if any).

In developing these recommendations, EAG members debated the feasibility of additional disclosures, and acknowledge that the Commission will need to assess whether this additional information above is readily available at the time of a measure installation or credit transfer. In particular, the value of credits is expected to fluctuate, and may be unclear at the time of installation. However, if the Commission is serious about empowering customers, it should strive to provide as much information as practically possible to aid customers in their negotiations.

To that end, the Commission should consider what information the Commission itself could make available to consumers and the public as it designs a marketplace. EAG members have also suggested that the Commission explore establishing a permanent ombudsperson position to help customers navigate credit transactions.

EAG members continue to discuss issues of credit ownership for delivered measures. However, the EAG recommend that at a minimum, delivered fuels generating clean heat credits also be accompanied by information disclosures, to the extent practical, including:

- Commission-approved information about the CHS Program.
- Alternative technologies and fuels
- Information about programs available to help pay for measures.
- Estimated greenhouse gas emissions reductions generated from delivered fuels
- The number of clean heat credits generated from the measures.
- Information on the monetary value of the credits generated from the measures.
- Health disclosures related to the delivered fuels (if any).

The EAG sees issues of credit ownership as one of the most important elements of the Clean Heat Standard, with significant equity and affordability implications, and expects to continue to provide feedback to the Commission as the CHS framework is developed.

Sincerely,

A handwritten signature in black ink that reads "Mia Watson". The signature is written in a cursive, flowing style.

Mia Watson, Chair

On behalf of the Clean Heat Standard Equity Advisory Group

May 14, 2024

Ms. Holly Anderson, Clerk
Vermont Public Utility Commission
112 State Street
Post Office Drawer 20
Montpelier, Vermont 05620-2701

Re: **Case No. 23** – EAG comments on Staff Proposal: Initial Ownership of Clean Heat Credits

Dear Clerk Anderson,

The Equity Advisory Group (EAG) for the Clean Heat Standard (CHS) proceeding (Case No.23) has continued to review the straw proposal created by the Vermont Public Utility Commission (“Commission”) Staff on credit ownership issues (“Staff Proposal: Initial Ownership of Clean Heat Credits”) and wishes to provide additional feedback on matters to consider as the Commission continues its rulemaking.

The EAG reiterates its position that credit ownership for installed measures should originate with the owner of the property in which the measure is being installed. This should be the framework even though in many cases, the credit may be immediately thereafter traded to an entity offering financing or incentives.

A system that has credits belonging to the property owner can provide an additional incentive for pursuing greenhouse gas-reducing improvements to their property. Another type of ownership system, for example, one in which the entity providing financing or rebates or otherwise induces the project to occur, will be less equitable and more complicated. This approach would reduce or eliminate negotiating power for low- and moderate-income households to potentially obtain better pricing for these improvements. In addition, since projects may have multiple parties offering financing or incentives, determining who “induces” the project could potentially be complex and create disputes about ownership. In the view of the EAG, transfer of credit ownership should be a matter of contract negotiation, one that is well-supported by information provided to the property owner to aid their decision-making.

The EAG discussed a general waiver of this principle in the final rules if another entity entirely pays for a project, particularly for the Weatherization Assistance Program (WAP). However, other members feel that it may be simpler to have all ownership for installed measures originate with property owners and have WAP recipients sign an agreement transferring their credits to the WAP agency or the Vermont Office of

Economic Opportunity (OEO). In recognition of continued differences of opinion, some members of the group plan to submit additional comments on this issue, which will be added to this memo when distributed to PUC Staff.

EAG members feel that the ownership structure for installed measures proposed above, with property owners initially owning credits, should be the same during the early action period and the full CHS implementation. EAG members acknowledge that retroactively seeking consent to obtain credits from property owners may represent a significant logistical challenge. Nevertheless, it would be inequitable to treat property owners differently during different phases of the CHS implementation.

The EAG felt it was important to provide as much feedback on credit ownership as possible by the May 17th deadline requested by the Commission Staff. However, EAG members still have unresolved questions about issues related to credit ownership, particularly for delivered measures. The EAG anticipates continuing to discuss these issues and providing feedback to the Commission as the CHS framework is finalized.

Sincerely,

A handwritten signature in black ink that reads "Mia Watson". The signature is written in a cursive, flowing style.

Mia Watson, Chair

On behalf of the Clean Heat Standard Equity Advisory Group

Re: Case No. 23-2220-RULE

Dissenting opinion: Recommending that Vermont Home Weatherization Assistance Program (WAP) retain initial Clean Heat Standard (CHS) credit ownership

On March 25, 2024, the Public Utility Commission (“Commission”) shared a straw proposal on Clean Heat Credit Ownership. The Commission requested feedback from the Clean Heat Standard Equity Advisory Group (“EAG”) on the proposal by May 17, 2024.

By a vote of 4-3-3 with 1 abstaining and 2 absent, the EAG has taken the position that credit ownership for installed measures should originate with the owner of the property where clean heat measures are being installed. The motion as voted on included the option for individual members to file addendums. This opinion from the full EAG is discussed in further detail in the memo sent from the full EAG in response to the document titled: “Staff Proposal: Initial Ownership of Clean Heat Credits.” This memo should be considered an addendum to the memo authored by the full EAG.

For the reasons articulated below, the signed members of this dissent advocate that programs that provide 100% of the incentive cost – with zero financial contribution from the customer – should retain initial ownership of the Clean Heat Credit. This treatment of programs will better promote equity in design of the Clean Heat Standard (“CHS”). The only known program in the State that would currently qualify for such treatment is the Vermont Home Weatherization Assistance Program, administered by the State of Vermont Office of Economic Opportunity (“OEO”). This treatment of programs will better promote equity in design of the Clean Heat Standard (“CHS”). For the purposes of this memo, we use WAP as the specific example, but issues raised below could also theoretically apply to any program(s) that provide 100% incentive costs to customers.

Background

To provide a framework for this document, it is helpful to refer to § 8121 of Act 18 which says:

...it is the intent of the General Assembly that the Clean Heat Standard be designed and implemented in a manner that achieves Vermont’s thermal sector greenhouse gas emissions reductions necessary to meet the requirements of 10 V.S.A. § 578(a)(2) and (3), minimizes costs to customers, protects public health, and recognizes that affordable heating is essential for Vermonters. It shall enhance social equity by prioritizing customers with low income and moderate income and those households with the highest energy burdens.¹

The Intent of Act 18 in many ways summarizes why programs that provide 100% of the incentive cost to participants should retain initial ownership of the Clean Heat Credits. Such programs minimize cost for participants. In the case of the WAP, health and safety regulations

¹ Vt. Stat. Ann. tit. 30, § 8121.

are built into the program, energy savings average 29.7% per household² and program participants are prioritized on a level of need basis, with those most in need prioritized for service first.

Energy Burden and Accessibility to other programs

Currently, WAP is the only existing program to exclusively serve low-income households and cover program costs at 100% with zero contribution required on behalf program participants³ ~~for~~ and as a result, many low-income Vermonters do not have the financial means necessary to access other energy efficiency programs that require applicants to make a financial contribution. For many low-income Vermonters, the only way to benefit from installed clean heat measures may be through a program such as WAP that covers 100% of the cost of services. Customers of the WAP make no monetary contribution to the cost of their Project and have no expectation of a value created by the CHS. Moreover, even if they received credit, they would derive little value from the credit itself, as they are unlikely to participate in a clean heat credit marketplace where they could monetize the credit. The credit would most likely go unused.

New revenue stream to spur program growth

The Equity Advisory Group was established in part “...to assist the Commission in developing and implementing the Clean Heat Standard in a manner that ensures an equitable share of clean heat measures are delivered to Vermonters with low income...”⁵ The WAP receiving initial credit ownership for all CHS measures installed as part of WAP activities would ensure that an equitable share of installed clean heat measures go to low-income Vermonters, because it would create a new revenue source for the WAP which could then be reinvested to expand their services, serving more of the most vulnerable Vermonters. for the WAP from the sale of WAP generated CHS credits to obligated parties, would ensure funding for the WAP into the future. This will increase equitable access to CHS measures for low-income Vermonters for years to come.

Compatibility with existing program administration

If the owner of a property where clean heat measures were installed as part of WAP activities were to receive initial credit ownership, WAP would receive no CHS credits from the investments that the program made in those properties without administering the transfer of credits from these property owners to WAP. This would represent a heavy administrative burden for WAP staff. The WAP completed weatherization services at 1,139 homes in state

² <https://legislature.vermont.gov/assets/Legislative-Reports/Annual-Weatherization-Leg-Report-Jan-2024.pdf>.

³ Review of a recently compiled spreadsheet of all the existing heating and weatherization programs that exist today in Vermont supports this. <https://puc.vermont.gov/document/eag-meeting-materials/04302024>.

⁴ (“Vermont Energy Burden Report” (EVT), 2019).

⁵ tit. 30, § 8129(a).

fiscal year 2023.⁶ With such a large number of clients receiving WAP services annually, the resources that would be needed to facilitate the transfer of CHS credit ownership from thousands of individual Vermont property owners to WAP could be significant.

Granting the WAP initial credit ownership for CHS credits generated from WAP investments would eliminate the need for thousands of credit ownership transactions between WAP and its clients annually, and the newly created CHS credit market could be integrated into this long standing and important program while minimizing new administrative burdens and costs.

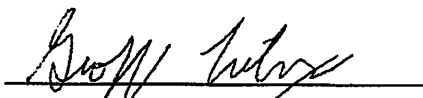
Conclusion

Giving initial CHS credit ownership to programs that provide 100% of incentive costs (such as the WAP) aligns with the stated intent of Act 18. This ownership structure would mesh well with existing policies and procedures, by minimizing administrative burden and costs. This simplifying of initial credit ownership also would provide new revenue to programs that provide 100% of incentive costs and more equitably serve Vermonters as a result of expanded services reaching a greater number of program participants annually.

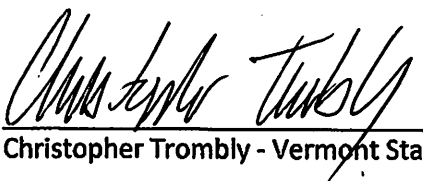
Thank you for your consideration.

By: /s/ Benjamin Bolaski

Benjamin Bolaski, Thermal Energy Program Specialist
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620
(802) 261-7036



Geoff Wilcox - State of Vermont Office of Economic Opportunity



Christopher Trombly - Vermont State Housing Authority

⁶ <https://legislature.vermont.gov/assets/Legislative-Reports/Annual-Weatherization-Leg-Report-Jan-2024.pdf>.

May 28, 2024

The Equity Advisory Group (EAG), pursuant to their statutory direction to “[provide] feedback to the Commission on strategies for engaging Vermonters with low income and moderate income in the public process for developing the Clean Heat Standard program” (30 V.S.A. § 8129(a)(1)), respectfully submit the following memo for consideration by the Commission’s Public Engagement Facilitator.

Questions for the public

The purpose of this memo is to provide the Commission and its consultant with information on experiences and best practices in public engagement from the Clean Heat Standard EAG subgroup on public engagement. Most directly, the EAG submits a few questions for the Public Engagement Facilitator to consider using in upcoming public engagement sessions.

The highest priority questions the EAG believes the public engagement facilitator should ask are:

- What has been your experience heating and cooling your home?
- Have you made any changes or wish to make any changes to your home to reduce your heating costs and to reduce your use of fossil fuels?
 - If so, what barriers have you faced?
 - If not, what would you need to help you implement clean heat measures (such as home efficiency improvements/weatherization, electrification of heating appliances, and/or using lower carbon-intensity liquid/gas heating fuels)?
- Are you worried about an increase in your heating costs in the future? If so, why?

The EAG also identifies the following questions as worthwhile prompts in understanding the reality people face in heating and cooling their homes. The EAG believes these questions would be better suited to private conversations – rather than in public meetings – that inform the Public Engagement Facilitator’s work and the Commission’s understanding:

- What percentage of your income do you estimate you spend on home energy costs? What are you now using to heat your home?
- Many people do not actually know how they heat their homes - especially renters.
 - Do you rent?
 - What is it costing you annually to heat your home?
 - Do you receive any kind of subsidy to heat/cool your home?
- What is your biggest concern about your home?
 - What is your biggest monthly cost?
 - Have you ever gone without heat?
 - In the summer, have you ever faced concerns about heat?
 - What issues might you face if the CHS goes into effect?

May 28, 2024

The subgroup that focused on this issue also discussed two topics – community engagement sites and accessibility – that they wanted to share their thoughts on. These blurbs are meant to convey some of the considerations the EAG feels are important. The group acknowledges that the Commission does not have unlimited time and resources that may allow for some of these best practices to be utilized but felt it was still useful to share this memo of best practices for the Commission and the Facilitator’s awareness.

Community engagement sites

Community engagement sites that have worked best for member organizations of this subgroup are places where people will not need to take additional time out of their day to attend. The group also noted the importance of in-person engagement. Some of the locations of public engagement mentioned include locations of aging communities (i.e., senior centers, meal sites for Meals on Wheels), food banks, community centers, libraries, and manufactured home sites. These locations are already places people go to, which can minimize the resources that may need to be used to access these public engagement events.

Accessibility

The group discussed the importance of affinity spaces and how they can help ensure safety and accessibility to varying groups of people and communities in Vermont. In these affinity spaces, we discussed leveraging and empowering existing community leaders to share information. Other recommendations related to accessibility in public engagement include focus groups and listening sessions. The group discussed the interpretation of the Clean Heat Standard. This discussion included the best practice of taking steps back to ensure widespread public understanding of clean heat measures, such as heat pumps, and having skilled interpreters not only in the language of the Clean Heat Standard but in technical jargon. The group agreed that translating materials to a third-grade reading level is standard practice in equitable translation. CVOEO noted that they have proficient interpreters.

August 9, 2024

Via ePUC

Ms. Holly Anderson, Clerk
Vermont Public Utilities Commission
112 State Street
Montpelier, Vermont 05620-2701

Re: **23-2220-RULE**, Proceeding to Design the Potential Clean Heat Standard, EAG Memo on LMI Credit Frontloading

Dear Clerk Anderson,

The Equity Advisory Group (EAG) for the Clean Heat Standard (CHS) submits the following memo on the topic of Low-and Moderate Income CHS credit frontloading. While Commission Staff did not specifically request comments on the topic of LMI Equitable Distribution in the recent Staff Straw Proposal on Pacing – Part I, the EAG wishes to provide feedback on the matter to consider as the Commission continues its rulemaking.

Topic:

Frontloading of credit obligations under the Clean Heat Standard (CHS) credits to ensure low and moderate income (LMI) households in Vermont are prioritized to the greatest extent possible during initial years of CHS implementation.

Background:

LMI households in Vermont are the most energy burdened in the state¹. As a result of this, the LMI population in Vermont is expected to be disproportionately affected by any increases in heating fuel costs associated with adoption and implementation of the CHS.

Section 8124(d)(2) of Act 18 establishes that:

“of their annual requirement, each obligated party shall retire at least 16 percent from customers with low income and an additional 16 percent from customers with low or moderate income. For each of these groups, at least one-half of these credits shall be from installed clean heat measures that require capital investments in homes, have measure lives of 10 years or more, and are estimated by the Technical Advisory Group to lower annual energy bills.”

Furthermore, section 8124 (d)(3) of Act 18 also specifies that:

“The Commission shall, to the extent reasonably possible, frontload the credit requirements for customers with low income and moderate income so that the greatest proportion of clean heat measures reach Vermonters with low income and moderate income in the earlier years.”

¹ <https://www.encyvermont.com/Media/Default/docs/white-papers/2019%20Vermont%20Energy%20Burden%20Report.pdf>

Discussion:

Frontloading the LMI credit requirement in the early years of the CHS could prove to be difficult. Limited workforce capacity and higher anticipated cost to acquire LMI credits could cause an increase in overall program compliance costs and slow overall progress towards GWSA targets. An increase in costs for obligated entities has the potential to accelerate increases in heating fuel costs, as those costs may be passed on to end consumers.

However, frontloading of CHS LMI credits would have the desired effect of serving a greater portion of the LMI population in the early years of CHS implementation, helping to mitigate potential economic harm caused by increases in heating fuel costs and promoting equitable implementation of the CHS. Policies that increase costs of heating fuel are inherently regressive because the percentage of income that lower income households spend on energy would increase more than higher income households ².

There remain many unknowns about the available clean heat workforce and overall costs associated with the CHS program. Implementing the frontloading of LMI credits may be challenging in the initial outset of the program. Therefore, a framework to allow for the Commission and the DDA(s) to specifically target programs and incentives at the LMI community are needed to more readily facilitate future increases to obligated party yearly LMI credit retirement targets. Creating distinct LMI credit categories is one such approach that helps facilitate a more equitable CHS credit marketplace from the outset.

Five Unique Credit Categories:

The Commission's July 10, 2024, memorandum re: "Staff Straw Proposals on Credit Fulfillment Plans and Criteria, Non-Compliance and waiver process", assert the creation of five separate CHS credit categories that a DDA could deliver on behalf of an obligated party. The five credit categories differentiate credits derived from low income, moderate income and non-LMI/market - rate participants. Within both the low-income and moderate-income credit categories, there is further delineated between generic measures and low-installed measures³.

The EAG supports the Staff proposal of having five unique credit categories, as it would allow LMI credit market activity to be more closely tracked to help inform any future increase or decrease in obligated party LMI requirements.

The EAG acknowledges that the five-credit framework will add a layer of complexity to the CHS framework. Any increased complexity increases the burden on obligated parties, the Commission and the Default Delivery Agent (DDA), which should be avoided as much as possible in the design of the framework.

However, given the fact that credits generated from installed measures, particularly from low-income households, are required under Act 18 and expected to cost significantly more to produce

² <https://www.mass.gov/doc/memo-on-obligated-entities/download>

³ Installed measures defined as "capital investments in homes, 10-year measure lives, lower annual energy bills"

than the credits from generic sources, having distinct categories of credits appears necessary to set credit values that reflect the variance in costs.

Obligated party compliance with current LMI credit annual retirement requirements could also be more clearly tracked because market activity would be taking place within a unique and separate marketplace from the market -rate credits, eliminating confusion as to what type of credits are being transferred in any given transaction.

Specific CHS program incentives or bonuses offered to obligated parties could be better designed and implemented because specific conditions of the LMI credit market would be identified through the tracking of each of the four LMI credit marketplaces. Additionally, the five separate credit categories would allow the Commission, through the triennial DDA budget and planning process, to toggle up or down credit category pricing to incentivize or disincentivize certain outcomes. As an example, the DDA could propose a decrease in the low-income installed measure credit price to incentivize increased obligated party investment in that specific credit category, while leaving all other credit category prices unchanged. In effect it would allow for the DDA to have greater control over CHS market activities and would allow for more prescriptive actions to be taken to ensure LMI Vermont households receive an equitable share of CHS market activity annually.

Unknown information:

Assuming that the above framework with five distinct credits will be part of the final CHS framework, the following information will be important to inform a decision on frontloading obligations:

- The percentage of low and moderate installed measures currently being produced relative to all clean heat measures
- The percentage of low and moderate delivered measures currently being produced relative to all clean heat measures
- The expected cost of low and moderate installed credits
- The expected cost of generic credits

Understanding how many LMI credits are being produced under current conditions is essential to understanding whether frontloading is reasonably possible. If the number of credits that would be available under current conditions is substantially lower than the obligated 32%, increasing that requirement further is more likely to be unfeasible. Similarly, understanding the cost to deliver low income installed credits relative to generic credits will be essential to predicting the impact on the market and on fuel prices.

Recommendations:

There are several key variables that are still unknown that will be needed to make an informed decision on increasing annual LMI credit obligations.

At this point in time, the EAG believes that there is insufficient information to determine whether frontloading the LMI targets in the earliest years of the program is “reasonably possible”.

However, both the language “shall” under Act 18 and the overall need to promote greater equity in implementation makes it imperative that the Commission continue to review this issue and seek ways to increase LMI targets once more is known.

The PUC should consider the following when timing is appropriate to reassess the issue:

- The percentage increase in frontloaded LMI credits could be approached moderately, for example, increasing from 16% to 18%, rather than doubling or otherwise dramatically increasing obligations. A small increase in obligations may be possible without destabilizing the market and would still produce additional benefits for LMI households.

The EAG recommends that the Commission revisit the question of frontloading no earlier than the second triennial DDA budget and planning process. However, the Commission should not be discouraged from pursuing moderate frontloading of LMI obligations in the initial framework and first triennial DDA budget should data emerge to support its feasibility.

Thank you for your consideration.

Sincerely,

Ben Bolaski

On behalf of the Clean Heat Standard Equity Advisory Group

September 6, 2024

Via ePUC

Ms. Holly Anderson, Clerk
Vermont Public Utilities Commission
112 State Street
Montpelier, Vermont 05620-2701

Re: **23-2221-INV**, Investigation into the Clean Heat Standard Default Delivery Agent Costs and Quantities, EAG Memo on DDA RFP Recommendations

Dear Clerk Anderson,

The Equity Advisory Group (EAG) for the Clean Heat Standard (CHS) submits the following memo on the topic of DDA RFP Recommendations.

The Default Delivery Agent (DDA) will be an important resource for serving many of the populations that are expected to be disproportionately impacted by increased costs related to the Clean Heat Standard. The EAG encourages the Commission to ask that proposals for the DDA include a description of the entity's experience with, and plan for serving, the following groups:

- Renters
- Low-income households
- Moderate-income households
 - Does the organization plan to offer financing or connect households to financing opportunities to encourage increased installation of clean heat measures?
- Manufactured homes
- Households living in older homes
 - Does the organization have experience working with contractors on installed measures?
 - Does the organization have a plan for serving homes in need of significant repair, and connecting those households with available resources supporting enabling upgrades?
- Households with Limited English Proficiency (LEP)
 - Does the organization have a Language Access Plan (LAP) or other plan to provide translated materials and/or translated materials to serve individuals with LEP?
 - Does the organization have experience in community outreach, particularly among First Generation or immigrant communities?
- Vermonters of color
- Small businesses and industrial and commercial entities

Since the Commission is permitted under Act 18 to select more than one DDA, it may be possible that the DDAs will be sector-specific and not all applicants would have a plan to serve

all these demographic groups. However, in this case, the Commission should carefully review applicants to ensure that the selected DDAs jointly have the capacity and experience to serve all the impacted populations described above.

To support these groups and an equitable implementation of the CHS overall, EAG encourages the Commission to require that DDA(s) have a DEI Plan or equivalent organizational framework. Such a plan should include clearly defined goals and actions that increase diversity, equity, and inclusion in all areas of the organization and its work.

Finally, although Act 18 requires that the DDA offer statewide services, the Commission should review applicants to ensure that the entity has sufficient experience and capacity to effectively serve the entire state of Vermont, including rural areas that have historically experienced underinvestment.

Thank you for your consideration.

Sincerely,

/s/ Benjamin Bolaski

On behalf of the Clean Heat Standard Equity Advisory Group

September 17, 2024

Ms. Holly Anderson, Clerk
Vermont Public Utility Commission
112 State Street
Post Office Drawer 20
Montpelier, Vermont 05620-2701

Re: **23-2220-RULE**, Proceeding to Design the Potential Clean Heat Standard, EAG Memo on LMI Credit Characterization

Dear Clerk Anderson,

The Equity Advisory Group (EAG) for the Clean Heat Standard (CHS) submits the following memo on the topic of defining Low-and Moderate Income CHS credits to convey benefits to institutions serving low and moderate income (LMI) households. While Public Utility Commission Staff did not formally request comments on this topic, the EAG wishes to provide feedback on the matter to consider as the Commission continues its rulemaking.

Background:

Act 18 of 2023 requires that “Of their annual requirement, each obligated party shall retire at least 16 percent from customers with low income and an additional 16 percent from customers with low or moderate income. For each of these groups, at least one-half of these credits shall be from installed clean heat measures that require capital investments in homes, have measure lives of 10 years or more, and are estimated by the Technical Advisory Group to lower annual energy bills.”

However, there are many households that do not purchase their own fuel but nevertheless could ultimately feel the impacts of higher fuel costs expected under the Clean Heat Standard. One primary example of this is shelters for individuals or families experiencing homelessness. There are also institutions that directly serve but do not house low-income households, such as community food shelves.

These institutions provide essential services to low- and moderate-income households, but, in the interpretation of the EAG, would not be eligible for generating LMI-specific CHS credits under the current language of Act 18. This would require these organizations to shoulder the financial burdens from expected fuel cost increases under the CHS, reducing their ability to provide services, without a clear pathway to receive additional benefits beyond what any business could potentially expect to experience from the transfer of their credits to obligated entities under the CHS.

The recently released Thermal Sector Carbon Reduction Potential Study prepared by NV5 has raised significant concerns that the percent total cumulative annual lifecycle emissions reduction potential from low-income households falls short of the statutory target of 16 percent. Expanding the pool of potential credit-producing projects while maintaining a clear link to activities that serve the essential needs of these households may offer greater flexibility to achieve the equity goals of Act 18.

Recommendation:

The EAG feels that in order to enhance social equity under the CHS, the definition of low and moderate CHS credits should be expanded to allow credits derived from the types of organizations described above. However, this category must also be tailored narrowly. Allowing too wide a definition of an LMI-serving institution could ultimately divert resources from benefiting LMI households.

The EAG proposes the following components of a definition of these eligible institutions:

LMI credits may be derived from:

- a) *Measures installed in, or delivered to, property owned or rented by a nonprofit organization.*
- b) *The property must be used to deliver essential services to low- or moderate-income individuals or households.*
- c) *The organization has a primary purpose to serve low- or moderate-income households or individuals and currently receives state or federal funding to provide services to low or moderate-income individuals or households.*

The EAG acknowledges that part b) of the above framework may be difficult to define or verify. Part c) allows for confirmation that the entity is legitimately offering services and is not merely self-proclaimed to serve LMI households. However, removing part b) could conceivably expand the definition of LMI-serving institutions to include schools and hospitals. While those institutions do often receive targeted funds to provide services to low- and moderate-income individuals, this is not the primary purpose for these institutions, and expanding the definition to such a large extent would likely dilute the intended benefits to low and moderate-income households.

The Public Utility Commission, or the Legislature, as appropriate, should review this language and adjust as necessary to preserve the intent. The Legislature may choose to provide a list of acceptable state or federal funding sources to help narrow down a list of appropriate services.

Although adding a new facet of the CHS framework has the potential to increase complexity of the program overall, this is a voluntary pathway for obligated parties to obtain LMI credits and should not increase their compliance burden under the CHS.

October 30, 2024

Via ePUC

Ms. Holly Anderson, Clerk
Vermont Public Utilities Commission
112 State Street
Montpelier, Vermont 05620-2701

Re: **23-2220-RULE**, Proceeding to Design the Potential Clean Heat Standard, EAG Comments on Clean Heat Standard Draft Rule

Dear Clerk Anderson,

The Equity Advisory Group (EAG) for the Clean Heat Standard (CHS) submits the following Comments on the Clean Heat Standard Draft Rule.

Consequences and Harms of Clean Heat Standard

The rule fails to acknowledge the Commission’s statutory requirements to assess the harmful consequences and potential harms of clean heat measures identified in 30 V.S.A. § 8127 (h).

(h) Review of consequences. The Commission shall biennially assess harmful consequences that may arise in Vermont or elsewhere from the implementation of specific types of clean heat measures and shall set standards or limits to prevent those consequences. Such consequences shall include environmental burdens as defined in 3 V.S.A. § 6002, public health, deforestation or forest degradation, conversion of grasslands, increased emissions of criteria pollutants, damage to watersheds, or the creation of new methane to meet fuel demand.

The final CHS Rule must include a process for assessing the harmful consequences of proposed and implemented clean heat measures, for remediating such harms, and for ensuring that clean heat measures that do create harmful consequences do not continue to be eligible for clean heat credits. This is especially important given that the equity advisory group will no longer exist upon adoption of the CHS.

8.103(8)(A) Definitions – Installed measures

Section § 8124 (d)(2) of Act 18 defines low and moderate income installed measures as follows:

“... installed clean heat measures require capital investments in homes, have measure lives of 10 years or more, and are estimated by the Technical Advisory Group to lower annual energy bills.”¹

¹ <https://legislature.vermont.gov/Documents/2024/Docs/ACTS/ACT018/ACT018%20As%20Enacted.pdf>

In prior discussions on clean heat measures and credit ownership, the EAG had implicitly assumed that installed measures would be generally equivalent to capital investments in homes. However, the EAG has been discussing how new window-based heat pump units, as seen in [pilot projects from the New York City Housing Authority](#) and [Efficiency Vermont](#), may challenge that assumption.

Portable or window heat pumps are small-sized heat pumps utilizing the same technology as traditional non-portable heat pumps and would therefore appear to be included as a type of clean heat measure under Draft Rule Section 8.103(8). However, while these units would be ‘installed’ in a window, and offer savings to lower energy bills (pending approval by the Technical Advisory Group), as laid out under Section 8.101(29), this technology could fail to meet the definition of a “Qualified capital investment” and the definition of “have measure lives of 10 years or more” given the relatively low cost and short duration warranty for the unit².

However, this section also speaks to the intent to ensure “Equitable distribution of clean heat measures”. Portable heat pump technology has the potential to promote equity by reaching households that cannot easily install traditional heat pumps, including renters, customers living in manufactured homes, or those living in homes with layout or electrical system challenges. Using a definition of “installed measure” reliant on capital investment and having a measure life of 10 years or more, may inadvertently reduce access to low- and moderate-income households.

Revisiting the definition of installed measures may also impact Section 8.113(a)(1) of the Draft Rule, which states that for installed measures “the individual or entity that owns the building in which the measure is being implemented is the initial owner of the measure attributes created by the implementation of that measure.”

While the EAG supported that credit ownership definition in initial feedback on credit ownership to the Commission, it may need to be revisited if portable technology is permitted as an eligible installed measure. If a renter purchases a portable window heat pump, the ownership of the credit and any potential related financial benefit from transferring it to an obligated entity, should belong to the renter, not the property owner.

Currently, portable heat pump technology is still largely untested. However, if it can be proven to deliver long-term benefits to customers, the EAG recommends that the Commission – or the Legislature, as applicable – consider revising the definition of installed measures, or creating an avenue where the definition may be revised in the future.

8.103(14) Definitions – Customer

² Advanced thermostats and faucet aerators are also discussed in the [Public Service Department Thermal Sector Carbon Reduction Potential Study](#) as potential measures but not explicitly itemized in Act 18 or the Draft Rule Section 8.103(8). These measures may also fail to qualify as qualified capital investments with measure lives of 10 years or more, depending on how this is defined and how they are implemented in projects.

Section 8.103(8)(A) of the Draft Rule states that “When a landlord is the recipient of a clean heat measure, the tenant(s) may be considered a customer for the purpose of determining the measure group.”

The EAG requests clarification on how the customer will be determined for measure group A and B (Section 8.103(27) (A-B)) in multifamily properties. In most buildings, households of different income levels will live in different units throughout a building. Some measures, such as weatherization, may be difficult to attribute to individual units. The EAG is unclear how credits generated from installed measures that benefit entire multi-family properties will be divided into the various measure groups.

To provide clarity, reduce complexity and encourage implementation of clean heat measures in multifamily properties, the EAG suggests that the Commission revisit the definition of “Customer with low income” and “Customer with moderate income”. to allow entire buildings to be considered a low- or moderate-income dwelling. Attribution of clean heat credits to each individual unit within a multifamily property, would require income verification forms to be collected from each individual unit within the building for the purpose of measure group determination. This would be overly administratively burdensome.

The Weatherization Assistance Program (WAP) has existing policy which sets a threshold for when an entire multifamily building can be counted as eligible for WAP services. This threshold requires that a minimum percentage of units within the building are verified as income eligible through the program. The minimum percentage ranges from between 25% to 66% depending on the funding source. The EAG recommends that the CHS rules align with existing WAP policy for multifamily income eligibility requirements at the 25% threshold level. In practice, an obligated party would only need to acquire low-income attestation forms from 25% of the households within a multifamily building for the entire building to count as low-income. This would reduce complexity, administrative burden and mesh well with existing policy.

The EAG supports the adoption of the proposed minimum LMI threshold for multifamily buildings as stated above. However, the EAG also notes that it could have the unintended consequence of classifying market rate households in multifamily buildings that meet the minimum percentage threshold as low- or moderate-income households. Therefore, the EAG recommends that the Commission at the end of the triennial update should ensure low-income residents of multifamily residences are being equitably served by the Clean Heat Standard and that if adopted, any distortionary effects of the proposed minimum LMI percentage threshold are minimized.

8.108 – Clean Heat Measure Group

Section 8.103(b) of the Draft Rule states “For Group A, B, C, or D clean heat measures, the person or entity registering the measure, as described in Section 8.111 of this rule, must file an attestation form signed by the customer that states that the customer meets the criteria as a

customer with low income or a customer with moderate income. The attestation form is available on the Commission's website.”

The EAG questions whether obtaining customer attestation of income is necessary if rigorous verification of income is already being performed for the purposes of compliance with other programs.

This will be most important for the Weatherization Assistance Program (WAP), which the EAG assumes would be the initial owner of clean heat credits produced under that program, based on Section 8.113(a)(2) of the Draft Rule related to measures implemented at no cost to the participant. Adding an attestation form on top of extensive verification adds complexity and costs with no evident benefits to participants.

The option to provide verification instead of attestation may also be relevant for the construction of new subsidized affordable housing. The owners of buildings developed with subsidies from the U.S. Department of Housing and Urban Development (HUD) or the Low-Income Housing Tax Credit (LIHTC) are required to reserve units at rents affordable for low-income households and verify compliance for extended periods of time, however the unit may not yet be occupied by the eligible household at the time that the measure is installed and verified.

In addition, for group D and E measures (Section 8.103(27)), entities that plan to meet their obligations through delivered renewable fuels may plan to source low- and moderate-income customers through existing programs such as the Low-Income Home Energy Assistance Program (LIHEAP) or the Energy Assistance Program (EAP) for Vermont Gas Systems customers.

Under the Draft Rule Section 8.113(a)(3), these credits are already owned by the fuel deliverer, and therefore, an attestation in this case would not be used to release credits, only confirm the income level, which would be already known. Allowing these obligated entities to leverage existing sources of verification could reduce administrative burden. It may also encourage more fuel deliverers to enroll in LIHEAP, providing a benefit to low-income households.

If this suggestion is adopted, the Commission and the Department of Public Service should consider coordinating with the Department of Children and Families Office of Economic Opportunity and other relevant state agencies to create a process for streamlining verification of income for credits.

Thank you for your consideration.

Sincerely,

/s/ Benjamin Bolaski

On behalf of the Clean Heat Standard Equity Advisory Group

Appendix E: Combined Information on Existing Heating and Weatherization Programs

Program 30	As-to-Water Heat Pump Rebate	Efficiency Vermont administrators program. Co-funded with ODP for installations within ODP territory.	Rebate	As-to-Water Heat Pump	\$1,000 per ton up to \$2,000 rebate per ton funded by ODP.	NA		Customer	Customer	Open	Tier 3 incentive	ODPREV	10-20	This rebate is not qualified on income eligibility, but low income and moderate income customers can participate.	
Program 31	Central Source Heat Pump Rebate	Efficiency Vermont administrators program. Co-funded with ODP for installations within ODP territory.	Rebate	Central Source Heat Pump systems	\$3,100 per ton up to \$5,100 per ton funded by ODP.	NA		Customer	Customer	Open	Tier 3 incentive	ODPREV	10-20	This rebate is not qualified on income eligibility, but low income and moderate income customers can participate.	
Program 32	Heat Pump Water Heater Rebate	Efficiency Vermont administrators program. Co-funded with ODP for installations within ODP territory.	Rebate - issued either as a point-of-sale discount when provided by a participating manufacturer, or as a check when applied for post-purchase	Heat Pump Water Heaters	\$300-\$500 depending on model. -\$50 as a point-of-sale discount for certain water heaters in effect as a post-purchase sale discount	NA		Contractor/Customer	Contractor/Customer	Open	Tier 3 incentive	ODPREV	400-600	This rebate is not qualified on income eligibility, but low income and moderate income customers can participate.	
Program 33	Induction Cooktop Rebate	ODP	Rebate	Induction cooktops and ranges	\$200	NA	ODP territory	Must be replacing fuel/oil powered cooktop/range	Customer	Open	Tier 3 incentive	ODP	200	This rebate is not qualified on income eligibility, but low income and moderate income customers can participate.	
Program 34	Joint Heat Pump Rebate Program	Efficiency Vermont and Snow Electric	Rebate	Heat pumps	\$250	Yes, low income customers can qualify for a \$200 rebate.	Point of Sale	The low income program is a pilot program and closed annually.	Contractor	Contractor	Annually	Efficiency Vermont and Snow Electric	Yes	1	
Program 35	Joint Wood and Pellet Stove Rebate Program	Efficiency Vermont and Snow Electric	Rebate	wood and pellet stoves	400	Yes an additional \$250 rebate	Point of Sale		Contractor	Contractor	Annually	Efficiency Vermont and Snow Electric	Yes	0-2	
Program 36	Storm Window/Insert Rebate	Snow Electric	Rebate	window inserts	\$100	No	Rebate		Customer	Customer	Annually	Snow Electric	Yes	0-15	
Program 37	Residential Equipment Replacement	Vermont Gas Systems, Inc.	Utility	High Efficient Furnaces, Boilers, and Water Heaters, Smart Thermostats	\$100-\$400, with rebate amount varying based on technology	All	Vermont Gas customers	Must achieve or exceed minimum efficiency thresholds	Midstream (install rebate at participating distributor)	Midstream (install rebate at participating distributor)	Ongoing	Ratepayer through Energy Efficiency Charge	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	2000	
Program 38	Residential Equipment Replacement	Vermont Gas Systems, Inc.	Interest rate buydown	High Efficient Furnaces, Boilers, and Water Heaters, Smart Thermostats	0% financing up to 3 years through Green Mountain Credit Union	Low & moderate income households, market rate at 5.50%	Vermont Gas customers	Must achieve or exceed minimum efficiency thresholds	Homeowner	Homeowner	Ongoing	Ratepayer through Energy Efficiency Charge	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	500	
Program 39	Low Income Assistance Program	Vermont Gas Systems, Inc. Distribution Utility	Discount	Utility Bill Credit	The Low Income Assistance Program provides a 20 percent discount on natural gas bills for qualified residential customers.	Qualifying income must be less than 35 percent of the Federal poverty level.	Eligibility is determined by the Vermont Department for Children and Families (DCF)	Owner/tenant on utility bill	For an application or additional information about eligibility, call the DCF Energy Assistance Office at 800-775-5555 https://old.vermont.gov/energy/energy-efficiency	Ongoing	Ratepayer through LIAP	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	1800		
Program 40	Switch and Seal	Vermont Gas Systems, Inc. Distribution Utility	Purchase and installation of heat pump water heaters	Heat Pump Water Heaters	Pending income requirements, maximum to \$5,000	Customers with annual household income less than 120 percent of Vermont's low median income will be eligible for the Switch & Seal program. Households earning less than 80 percent of area median income will receive 100% of the equipment and installation costs up to a program cap of \$2,000 per household. Households earning less than 120 percent of area median income will receive 50% of the equipment and installation costs up to \$4,000 including electrical work.	Vermont Gas customers or household member's utility	Existing electric resistance or combination water heater	Homeowner	Homeowner	Ongoing, limited to funding	Grant from VT Department of Public Service	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	100	In development; co-administered with EDC, BTD and VEC, with area partners.
Program 41	VFA Manufactured Home Replacement Program with Vermont Affordable Housing Tax Credits	Vermont Housing Finance Agency (VHFA)	Tax credits	Manufactured homes	Provides a 5% second mortgage to help buyers meet down payment requirements and reduce monthly payment costs. Loans are \$27,500 for single family models and \$35,000 for Zero Energy Modular Homes. Buyers need to contribute \$2,500 in down payments.	Households earning up to 120% of area median income (AMI) for a home purchase.	Statewide	Available through individual applicants through Champlain Housing Trust statewide, or to nonprofit owners of manufactured home communities	Homebuyer, developer	Homebuyer, developer	None	State	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	Program maxes out VFA assets Vermont Affordable Housing Tax Credits to fund the replacement of existing about 30 households per year. Demand exceeds capacity. Champlain Housing Trust receives roughly 200 applications per year for its program.	
Program 42	Vermont Housing Development Program	Vermont Housing Finance Agency (VHFA)	Tax credits, loans	Weatherization, heating and cooling systems	Varies	Household earning between 0%-120% of AMI (most at or below 80% AMI)	Statewide	Housing developments with long-term affordability restrictions	Developer	Developer	None	Federal, state	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	Varies	VHFA offers state and federal tax credits and bond-funded loans to support the development and rehabilitation of affordable rental and homeownership housing. These projects are built to ENERGY STAR high performance building energy standards. Although VHFA does not directly administer energy rebates to these projects, it has a role in coordinating these funds for projects. In addition, the EECU rebates do not fully subsidize all costs for weatherization or other efficiency investments. Therefore, there may be currently unaccounted for costs that could be eligible to generate clean heat credits.
Program 43	Tier II	WEC	bonus incentives for income eligible replaced EV and new PHEV	EV, PHEV	\$700 in addition to \$500 self-allocation base for new EV		WEC service territory #1 towns		member or car dealer	member or car dealer	RES 2012	WEC	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program		
Program 44	ACIR with WEC	WEC and WEC separately	provides monthly discount on electric bill to income eligible member households for 5 years of \$45/month	electricity discount	approximately \$2,700 per DCU eligible household over 60 months		WEC service territory #1 per DCU towns		member	member	depends on funding source (5 years)	federal	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	not on WEC website yet	140
Program 45	Pathway 2.0	WEC with VUTE funding	full replacement of electric service entrance and related safety improvements in an income qualifying WEC household	200 amp service entrance and related safety improvements	varies \$4k - \$6k range by date	FPL	WEC service territory #1 towns	income eligibility determined by Capstone	contractor hired by Capstone	contractor hired by Capstone	13/15/2025	VUTE grant award	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	10	
Program 46	Vermont Low Income Homeownership Assistance Program at OVED	Champlain Valley Homeownership Services/ Assistance Program at OVED	Direct service	comprehensive "white board" energy assessment, state-of-the-art building diagnostics, and full service energy efficient retrofits.	\$15,300 is the average job cost average	80% Area Median Income or 200% of Federal Poverty level	Champlain, Franklin, Addison, and Grand Isle counties	Waiting list is weighted for certain criteria	homeowner	homeowner	n/a	Federal and state	https://www.oved.org/	200-200 on waiting list	
Program 47	Vermont Fuel Assistance Program	Families	Direct service	Oil heat, propane, kerosene, wood, wood pellets, coal, and natural gas	varies by year	less than 100% of the federal poverty level based on household size	Vermont	NA	customer	customer	ongoing	federal	https://www.vermont.gov/business/energy/energy-efficiency/energy-efficiency-program	2.5 0-0	
Program 48	weather program	and	direct service	weather	\$400.00	n/a	Vermont	n/a	neighbor/tenant	neighbor/tenant	ongoing or phase	donations OED, LIAP	kickstart. etc.	5-6	
Program 49	program	and	direct service	weather	\$400.00	n/a	Vermont	n/a	neighbor/tenant	neighbor/tenant	ongoing or phase	donations OED, LIAP	kickstart. etc.	5-6	