

Clean Heat Standard Equity Advisory Group
Tuesday, December 10, 12:30-3:00 PM ET
Agenda

Meeting Link: <https://cbi-org.zoom.us/j/87383177532>

Participant Agenda

12:30	Welcome & Review of agenda <ul style="list-style-type: none">• Initiate recording	Mia
12:35	Review and approval of 11/19/24 meeting minutes	Mia
12:40	Updates from TAG liaisons	Emily / Matt
12:45	Updates from the PUC	Dominic
12:50	Review Draft EAG Final Report	Mia
2:45	Public Comment	Ashira
2:55	Next Steps	Ashira
3:00	Close	Mia

Final Report of the Clean Heat Standard Equity Advisory Group

Executive Summary

This report is submitted by the Clean Heat Standard Equity Advisory Group, which was created under Act 18 of 2023. The Equity Advisory Group was charged with assisting the Public Utility Commission in developing a Clean Heat Standard that can equitably serve all Vermont customers. Throughout the process, 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 State, 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.

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Clean Heat Standard Equity Advisory Group Members

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Jen Myers of the Champlain Valley Office of Economic Opportunity, representing a community action agency with expertise in low-income weatherization, 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.

Legislative Directive

Act 18 Overview

Act 18 of 2023¹ establishes a framework for the Public Utility Commission (PUC, or the “Commission”) to design a Clean Heat Standard (CHS), which will be reviewed by the Vermont General Assembly in 2025. The CHS is a policy that seeks to reduce residential, commercial, and industrial greenhouse gas emissions that are primarily associated with the thermal energy, or heating, sector.

Act 18 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. The CHS focuses on promoting 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, which 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.”

¹ 30 V.S.A. § 8122

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 customers². Half of these credits must come from measures installed in homes of these customers, which can include measures such as heat pumps, heat pump hot water heaters, and weatherization.

Establishment of the Equity Advisory Group

The Clean Heat Standard Equity Advisory Group (EAG) was created under Act 18³ 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.”

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;*

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.”

³ 30 V.S.A. § 8129

- 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

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 Greenhouse gas (GHG) emissions reductions at a scale and pace sufficient to meet Global Warming Solutions Act (GWSA) requirements in a technology and fuel neutral way for the thermal sector.

The Vermont Department of Public Service’s Clean Heat Standard Potential Study Report prepared by NV5⁵ suggests that meeting the 2050 targets of the GWSA in the thermal sector is theoretically possible under the CHS framework. Having a plausible plan to meet GWSA targets will be necessary to meet Vermont’s legal obligations and avoid the uncertainty and high costs of potential litigation.

Addressing an inequitable status quo

The thermal sector in Vermont today is deeply inequitable. Low- and moderate-income Vermont households spend a higher percentage of their income on fuel and tend to use higher-cost fuels including kerosene, fuel oil, and propane. These fuels also face significant price volatility each year, making it hard for households with lower incomes to budget for heating costs. Meanwhile, Vermont’s higher income households tend to purchase more fuel, producing more emissions, but spend a much smaller percentage of their income on

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

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

heating. Higher income households are also more likely to have access to lower-cost heating solutions like natural gas, advanced wood heat systems, and electric heat pumps.⁶

Higher income households have a greater ability to access financing and tax benefits and therefore are better poised to make investments to reduce their fossil fuel use. A gradual transition away from fossil fuels is already occurring across our national and international economy, regardless of any policies that Vermont makes. Over the long term, without action, many low- and moderate-income Vermont households are at risk of being left behind using 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. Retail fuel providers obligated under a Clean Heat Standard will either pay the Default Delivery Agent (DDA) to meet their annual obligation or will be motivated to work directly with their customers to install and deliver fuel switching technology to avoid paying a noncompliance payment to the DDA.

If a credit market is robust and functions as intended, credits will hold monetary value that could be leveraged by obligated entities to drive down the cost of CHS eligible measures for customers and potentially reduce the cost of operation for obligated entities. This could encourage Obligated Parties to diversify their businesses to provide a suite of CHS eligible measure options to their customers, a source of economic growth in Vermont.

The development and implementation of statewide clean heat programs and measures by one or more DDAs could also produce benefits by offering statewide coordination of programs and services to households not readily served by Obligated Parties, by effectively serving segments of the market that are more expensive or more difficult to decarbonize.

The CHS also provides an additional source of programmatic revenue for 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 and 0.5% gross receipts tax on electricity, as well as variable federal and state supplemental funding. However, as the primary fuel source for space heating in the state shifts from fossil fuels to electricity, potentially accelerated by the CHS, revenue from fossil fuel sources is expected to decrease.

Within the CHS Draft Rule, the Commission stated the following regarding initial credit ownership: "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

⁶ [Energy Action Network](#). Annual Progress Report for Vermont, 2024.

owner of the measure attributes.”⁷ Under this determination, the WAP (if approved by the Commission) would be the initial owner of all CHS credits generated from eligible program activities. These credits collected by OEO as the entity administering the WAP will have a monetary value and can be sold to Obligated Parties looking to meet their annual credit requirement.

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, which should give them a higher value in a CHS marketplace. In practice this means that the WAP will 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

Increasing the pace of clean heat measures installed in homes under the CHS would provide tangible and direct benefits to Vermont households. These measures include installation of cold climate air, ground source and other heat pumps, weatherization, heat pump water heaters and solar hot water systems.⁸ In many households, this would decrease both 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.⁹ 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.¹⁰

Social benefits

Significant economic, health and environmental benefits could occur as a result of a Clean Heat Standard being implemented in Vermont. 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 2049.¹¹

Adopting clean heat measures will help reduce air pollution overall and improve indoor air quality in many Vermont homes. Poor indoor air quality has been linked to serious cardiovascular or respiratory diseases, especially in children and in older individuals. Households that heat or cook with fossil fuels or with wood are at higher risk of poor indoor air quality.¹² Vermont currently has one of the highest rates of asthma in the country.¹³

⁷ Draft CHS Rule 8.113(a)(1)

⁸ Act 18 § 8127(d)

⁹ [Vermont Department of Health](#), “Weatherization + Health in Vermont”, December 2018.

¹⁰ [Energy Action Network](#). Annual Progress Report for Vermont, 2024.

¹¹ [NV5](#), *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

¹² [Environmental Protection Agency](#), “Indoor Air Quality”, retrieved November 21, 2024.

¹³ [Vermont Department of Health](#), “Asthma in Vermont”, retrieved November 21, 2024.

Delivered CHS measures such as liquid biofuels and renewable natural gas may not provide the long-term direct benefits to households that installed measures do but would have the desired effect of readily reducing GHG emissions in the near-term by decarbonizing Vermont’s heating fuel supply.

Emissions reductions have been demonstrated to have economic benefits by decreasing health care costs, improving labor productivity, and reducing premature deaths, even in the short term and even at a state level.¹⁴

Potential Harms

Costs

The greatest potential harm from the CHS will come from its impact on fuel prices for Vermonters. The Obligated Parties that are responsible for generating clean heat credits are expected to pass on at least some portion of the costs of compliance to their fuel customers, who will ultimately experience any potential 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 early December 2024, the EAG had not received any official estimate of the likely costs of the CHS program,¹⁵ 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 very be 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 the 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 Fee¹⁶. Absent any supplemental funding to offset the increase in MOR price, LIHEAP recipients will see their total benefit reduced, resulting in a

¹⁴ [Shindell, Ru, et al.](#), “Temporal and Spatial Distribution of Health, Labor and Crop Benefits of Climate Change Mitigation in the U.S.,” Proceedings of the National Academy of Sciences. November 1, 2021.

¹⁵ 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.

¹⁶ 30 V.S.A. § 8124 (i)

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. 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 and kerosene will more heavily impact low-income households, who are more likely to use those fuel types.¹⁷

The Legislature should also investigate whether the CHS would increase or mitigate the fuel price volatility that many Vermonters already face, for those households that remain fossil fuel users.

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 use due to either cost of heat pumps or weatherization, or due to challenges with their homes that prevent installing these measures.

This aligns 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.¹⁸

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

¹⁷ [Energy Action Network](#). Annual Progress Report for Vermont, 2024.

¹⁸ [Efficiency Vermont](#), 2023 Vermont Energy Burden Report, August 2023.

they are 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, which has 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 measures¹⁹, this framework 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 includes a requirement for 8% of clean heat credits to be derived from measures installed in the homes of low-income households and 8% from 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.²⁰ 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 enabling repairs. This means that 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 State has made weatherization a priority, as it has proven financial and health benefits for households, in addition to its ability to reduce fuel use and emissions.²¹ However, weatherization is less cost-effective at reducing GHG emissions than other installed methods like heat pumps, which may limit its adoption under the CHS. While building science experts agree that it is best practice to weatherize a home before

¹⁹ Either directly themselves or through the Default Delivery Agent.

²⁰ This issue is discussed in detail later in the report.

²¹ [Vermont Department of Health](#), "Weatherization + Health in Vermont", December 2018.

installing a heat pump, there is no requirement or economic incentive to do so under the standard.

In considering the impact of the policy, the State should recognize activity that reduces greenhouse gas emissions but does not receive credit under a CHS will still occur. This includes the installation of more efficient fossil fuel-burning equipment or other home efficiency measures.

The State 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.

Workforce

The Vermont Department of Public Service’s Clean Heat Standard Potential Study Report prepared by NV5²² highlights the significant challenges that Vermont’s energy businesses face in attracting and retaining workers. This concern has also been echoed by EAG members with experience in the field and in conversations with Vermont’s Community Action Agencies that implement the Weatherization Assistance Program (WAP).²³

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.

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.²⁴

Ultimately, the State’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

²² NV5, *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

²³ [Notes from Clean Heat Standard \(CHS\) Conversation](#) with representatives from the Community Action Agencies and the Public Utility Commission on September 26th, 2024.

²⁴ [State of Vermont Joint Fiscal Office](#). Memorandum on Expedited Review Request – JFO #3147. May 1, 2023.

and moderate income who are not early participants in clean heat measures are not negatively impacted in their ability to afford heating fuel.”

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 Tool²⁵ particularly useful in identifying strengths, weaknesses, opportunities, and threats (SWOTs) related to the implementation of environmental transformation projects. 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 as well as actions and decisions the Commission and technical advisory group (TAG) may make when implementing the CHS. For example, while the *Guiding Principles* rubric generally assesses *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 scoring rubric on April 16, 2024, and made slight modifications to include more specific questions about transparency on May 28, 2024.²⁷

A copy of the Equity Rubric is available in Appendix A 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.

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

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.

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 of low 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 also 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 the case 23-2220-RULE where the Commission 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”.

On November 20, 2023, The Commission released an order announcing that the Vermont Public Utility Commission launched a website to boost accessibility of clean heat proceedings. On March 22, 2024, the Commission released a Notification of Information from the public engagement consultant about the first three public engagement meetings under Act 18. The hired public engagement consultant is from Vermont Partnership for Fairness & Diversity.

On October 1, 2024 the Commission released an Order Issuing Draft Rule and Setting Deadline for Comment. 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.

Clean Heat Standard public comment

Public Comment to EAG

The Clean Heat Standard EAG and the TAG hold public comment during their meetings. During EAG meetings, public comment has 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

Facilitated Commission Public Engagement Meetings

In the public meetings held by the Commission and facilitated by the public engagement contractor at Vermont Partnership for Fairness and Diversity held on April 17, May 7, and June 6, 2024. The Commission also held a Public Hearing Oct 30, 2024 on the general topic of the Clean Heat Standard and the draft rule that was released on October 1, 2024. There was a large attendance in comparison to the previous public meetings hosted by the Commission and the public engagement facilitator. According to the transcript, the meeting had 34 speakers from the public, with over 80 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 or 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 verses 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

Another method for the public to participate in the Clean Heat Standard proceeding, is through filing comments via ePUC on any topic at any time. There has been extensive public comment provided with the main themes being similar to those shared in the October 30, 2024 public hearing listed above.

Recommendations

The Clean Heat Standard Equity Advisory Group supports the Commission’s efforts on public engagement in this process, 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 the Act 18 more accessible to the public. Basic information about the complicated policy is vital to ensure that the public can offer informed comment. In May 2024, the Commission released this document on the Clean Heat Standard website.²⁸ 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, on the topics of community engagement sites and accessibility.

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

²⁸ [State of Vermont Public Utility Commission](#), “Overview of the Clean Heat Standard”, May 17, 2024, retrieved December 4, 2024.

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 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 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 language of the Clean Heat Standard, but in 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.²⁹ In the memo, the EAG emphasized the importance of creating a straightforward, transparent, and equitable credit transfer process within the Clean Heat Standard (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 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.

²⁹ [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.

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.³⁰ 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, 2024.³¹

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

³⁰ [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.

³¹ [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.

The Commission ultimately agreed with this recommendation in the Draft Rule, 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 memo³² regarding frontloading the credit requirements for low-and moderate income (LMI) households during the initial years of Clean Heat Standard implementation. 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 10, 2024, memorandum re: “Staff Straw Proposals on Credit Fulfillment Plans and Criteria, Non-Compliance and waiver process”, 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.

Memo on DDA RFP Recommendations – September 6, 2024

The EAG submitted recommendations regarding the Default Delivery Agent (DDA) for Vermont's Clean Heat Standard.³³ The EAG emphasizes the DDA's role in supporting

³² [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.

³³ [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.

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 proposes³⁴ expanding the definition of low- and moderate-income (LMI) credits to convey benefits to institutions serving LMI households. 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 organizations have 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.

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

³⁴ [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.

EAG Comments on Draft CHS Rule – October 30, 2024

On October 1, 2024, the Commission released the Draft Proposed Rule outlining prescribes the responsibilities of the Obligated Parties that the Commission would be charged with regulating under the Clean Heat Standard program.³⁵

EAG comments on the Clean Heat Standard draft rule³⁶ addresses several topics. 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 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 Children and Families, the Office of

³⁵ [Vermont Public Utility Commission](#), Draft Proposed Rule, in Case No. 23-2220-RULE, October 1, 2024.

³⁶ [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.

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.³⁷ 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 1940.³⁸ Vermont's rented homes tend to be older than its 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.³⁹

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 using inefficient electric resistance heat systems with high operating costs.⁴⁰

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.⁴¹ 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.

³⁷ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25036) [housingdata.org](https://www.housingdata.org)

³⁸ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25034, B25036) [housingdata.org](https://www.housingdata.org)

³⁹ [Freddie Mac](#), "Concentration of Aging Homes in Lower-Income Areas Underscores Need for Mortgage Innovation", February 17, 2021.

⁴⁰ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25117) [housingdata.org](https://www.housingdata.org)

⁴¹ [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 installed⁴² 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 Vermont's old housing stock presents for the widespread adoption of clean heat measures.

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.⁴³

Data collected by OEO on its experience with home weatherization can be used to 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 above 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.⁴⁴ 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

⁴² "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"

⁴³ [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

⁴⁴ [Environmental Protection Agency](#), "Protect Your Family from Asbestos-Contaminated Vermiculite Insulation", retrieved November 18, 2024.

harmful to human health if disturbed or encountered without proper personal protective equipment.

Buildings encountered as part of the WAP that have vermiculite present must have vermiculite abated before weatherization work can be completed.⁴⁵ The process for removal is extensive, with an average of \$16,000 to \$20,000 in required costs per attic abatement project,⁴⁶ and 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.⁴⁷

Overall, an estimated 159,500 Vermont homes were built between 1940 and 1989, 48% of the housing stock.⁴⁸ 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 liquid and gaseous heating fuel 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.⁴⁹ 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 may still exist in many of the over 85,000 Vermont homes built before 1939.⁵⁰ Knob and tube cannot handle heavier electrical loads required by modern appliances such as heat pumps. Additionally, 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.⁵¹

⁴⁵ [Vermont Office of Economic Opportunity](#), *VT TEC Manual Appendix G: Vermiculite Policies*, Retrieved December 5, 2024.

⁴⁶ G. Wilcox, Personal Communication, November 21, 2024. Based on reports from Weatherization Assistance Program Directors of costs encountered in recent projects.

⁴⁷ T. Broome-Smith Personal Communication, July 3, 2024.

⁴⁸ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25034, B25036) [housingdata.org](https://www.housingdata.org)

⁴⁹ [Center for Energy and Environment](#), "Dealing With Knob-And-Tube Wiring", March 17, 2023.

⁵⁰ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25036) [housingdata.org](https://www.housingdata.org)

⁵¹ G. Wilcox, Personal Communication, November 21, 2024. Based on reports from Weatherization Assistance Program (WAP) Directors of recent costs encountered in recent projects.

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 smaller electrical service ampacity (< 200A) 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 \$2,046.⁵² 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 are typically among the most challenging and costly barriers to overcome in the retrofit market. However, with Vermont's housing stock among the oldest in the nation, a host of more 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 is potentially significant. 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.⁵³

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.

⁵² A. Breen, personal communication, September 23, 2024

⁵³ 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.

Therefore, the ability of 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 new program for up to \$15,000 for home repairs for low and moderate income households.⁵⁴ Both programs are temporarily funded.

Otherwise, 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 2023 weatherization project that included air sealing and attic and basement weatherization cost \$12,836.⁵⁵ A single-zone ductless cold climate heat pump (CCHPs) can cost between \$6,000 and \$7,000 installed, while multi-zones CCHPs start cost more than \$16,000 and increase depending on the number of units.⁵⁶ Even a multizone system may not be adequate to heat and 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	\$12,836
Multi-zone CCHP	\$16,000
Total	\$48,882

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)⁵⁷, which significantly exceeds the 19,855 households that report that they primarily use electricity to heat their homes.⁵⁸ Some of the disparity could

⁵⁴ Efficiency Vermont, “Home Repair”, retrieved December 4, 2024.

⁵⁵ CITATION needed

⁵⁶ G. Wilcox, Personal Communication, November 21, 2024. Based on reports from Weatherization Assistance Program (WAP) Directors of recent costs encountered in recent projects.

⁵⁷ Energy Action Network, Vermont Energy Dashboard, retrieved November 13, 2024.

⁵⁸ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25117) housingdata.org. Includes homes that report using

result from CCHPs installed in commercial spaces or vacation homes. 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 2025.⁵⁹

Recommendations

Recommendation

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

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.

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.⁶⁰

⁵⁹ [State of Vermont Department of Public Service](#), “2024-2025 Heat Pump Study”, retrieved November 19, 2024.

⁶⁰ [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.

It is essential that discussions on the topic of climate change consider these communities. Extensive national research⁶¹ demonstrates that communities and individuals of color face increased health risks related to environmental hazards such as air and water pollution. 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.⁶² 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 \$48,725.⁶³ In addition, 22% of Black and 21% of American Indian and Alaska Native Vermonters experience poverty, twice the state's average rate.⁶⁴ 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. 72% of Black Vermont households rent their homes, compared to just 26% of white households.⁶⁵ 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, which is discussed in the Renters 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.⁶⁶ If costs related to housing rise

⁶¹ [Berberian, Gonzalez, and Cushing](#), "Racial Disparities in Climate Change-Related Health Effects in the United States". *Curr Environ Health Rep*. September 2022.

⁶² [The Center for American Progress](#), *Systematic Inequality: How America's Structural Racism Helped Create the Black-White Wealth Gap*. February 21, 2018.

⁶³ U.S. Census Bureau, American Community Survey, 5-Year Estimates 2018-2022 (Table S1903).

⁶⁴ [Public Assets Institute](#), *State of Working Vermont 2023*, February 2024.

⁶⁵ U.S. Census Bureau 2022 5-Year Estimates (Tables B25003A-G) via HousingData.org.

⁶⁶ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024.

significantly under the Clean Heat Standard, many members of these groups may face increased challenges to remain housed.

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.⁶⁷

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 that is 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 in order 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.

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 allow for increased inclusion in program development and outreach. And for all

⁶⁷ U.S. Census American Community Survey, 5-Year Estimates 2018-2022 (Table DP05).

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.

Recommendation

Select Default Delivery Agents(s) with experience and capacity for reaching New American and LEP households.

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, 2024,⁶⁸ 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, low-income households that often struggle with higher energy burdens and the ability to afford basic needs, 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 in their minds or desires 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 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.

⁶⁸ [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.

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.

It is estimated that there are 77,843 Vermont households earning at or below 60% of the Area Median Income (AMI), which is nearly one-third of all Vermonters.⁶⁹ At the state level, 60% of area median income is \$49,200 for a two-person household.⁷⁰ 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.⁷¹

Challenges

High Energy Burdens

Many of Vermont's low-income households face very high energy burdens, the percentage of a household's income that is 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%.⁷² Vermont households with lower incomes tend to use higher cost heating sources, including fuel oil and inefficient electrical resistance heat.⁷³

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%.⁷⁴ An estimated 60,413 Vermonters, or nearly 10% of the state's population, live in poverty.⁷⁵ It is estimated that high energy burdens can increase a household's risk of falling into poverty or experiencing prolonged poverty by 150-200%.⁷⁶ A

⁶⁹ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](https://www.census.gov/housingdata.org)

⁷⁰ [Vermont Housing Finance Agency](#), Maximum rent and purchase price affordability thresholds by income and household size, April 2024

⁷¹ [Vermont Housing Finance Agency](#), *2025 Vermont Housing Needs Assessment*. Prepared for the Vermont Department of Housing and Community Development, June 2024.

⁷² [U.S. Department of Energy](#), Low-income Energy Affordability (LEAD) tool, 2024

⁷³ [Energy Action Network](#), Annual Progress Report for Vermont, 2023.

⁷⁴ [U.S. Department of Energy](#), Low-income Energy Affordability (LEAD) tool, 2024

⁷⁵ U.S. Census Bureau: American Community Survey 1-year estimates, 2023 (Table S1701)

⁷⁶ Jeremiah Bohr and Anna C McCreery, "Do Energy Burdens Contribute to Economic Poverty in the United States? A Panel Analysis." *Social Forces*, 2019.

substantial body of research links lack of access to affordable heating to eviction, food insecurity, health risks, and poorer educational and career outcomes.⁷⁷

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.⁷⁸ 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.⁷⁹

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 electric.⁸⁰ Eligibility for LIHEAP is based on household income

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

⁷⁸ [Federal Reserve Bank of New York](#), The State of Low-Income America: Credit Access & Housing, January 2024.

⁷⁹ 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.

⁸⁰ Richard Giddings, Vermont Department for Children and Families, Presentation to the EAG, July 9, 2024.

(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 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. 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 participating fuel dealers can charge a customer receiving fuel assistance funds. It changes daily and is based on the average of 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 18,⁸¹ 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. 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

⁸¹ 30 V.S.A. § 8124 (i)

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.⁸²

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 auto qualified for all funding sources and are the priority for the program to serve.

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.⁸³

In FY 2023, WAP assisted 1,139 households, including 176 manufactured homes and 23 shelter units.⁸⁴ 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) are coming to an 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

⁸² Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](https://www.census.gov/housingdata.org)

⁸³ [3E Thermal](#), "VT Weatherization Assistance Program Income Eligibility Guidelines" retrieved December 4, 2024.

⁸⁴ [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

repairs and safety measures would prevent many low-income households from being able to receive weatherization if they had to pay for them as a prerequisite.

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.⁸⁵

Eligibility for other programs, including LIHEAP and ratepayer assistance offered through Green Mountain Power and Vermont Gas, is limited to household 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.⁸⁶ Meanwhile, the Weatherization Assistance Program (WAP), limits assistance to households at or below 80% AMI, with additional priority targeting for lower-income households.⁸⁷

This highlights 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.

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

⁸⁵ [Vermont Housing Finance Agency](#), Maximum rent and purchase price affordability thresholds by income and household size, April 2024.

⁸⁶ [Vermont Legal Aid](#), 185% Federal Poverty Level (FPL), 2024.

⁸⁷ [Vermont Weatherization Assistance Program](#), Income Eligibility Guidelines, July 01, 2024 – June 30, 2025.

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 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.

Recommendation

Continue to improve program and funding alignment

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.

Recommendation

Continue to increase WAP worker salaries

It makes the most sense to utilize existing programs that have sound practices, procedures, and quality assurance 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 in large result due to a minimum and 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.

Further increasing these wages could help with workforce, however this should be thought out first to fully evaluate effects and ramifications.

Workers need to be properly trained to perform good quality work that results in actual energy savings, and equipment needs to be purchased such as large crew trucks, that 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 is detrimental to the cause and has negative implications on programs and 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. This is 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 aren't prepared to fully transition, without facing additional financial hardship.

Recommendation
Increase fuel flexibility for LIHEAP recipients

Recommendation
Expand EAP assistance to other utilities

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, 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”.⁸⁸ There are an estimated 75,500 households between 60-120% AMI, representing 28% of all Vermont households.⁸⁹

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”. In response to the information request, existing low- and moderate-income programs in Vermont were integrated into one document that can be found in the April 30, 2024 EAG meeting materials.

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 an increase of rent 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.

There are assumptions that programs should 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.⁹⁰

⁸⁸ §8123(6)

⁸⁹ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](https://www.census.gov/housingdata.org).

⁹⁰ [Urban Institute](https://www.urbaninstitute.org/), “Financial Distress among American Families: Evidence from the Well-Being and Basic Needs Survey”, February 2019.

Eligibility gaps

Low-income is defined by statute 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 won’t be eligible for WAP and will have to resort to other methods of financing their clean heat measure, when 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 sometimes can add barriers to what resources that lower AMI group in the moderate-income sector has access to, as well as 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.⁹¹

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).⁹² 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, 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

⁹¹ [Efficiency Vermont](#), “Home Energy Loan”, retrieved December 5, 2024.

⁹² [Vermont Housing Finance Agency](#), “On-bill financing”, retrieved December 5, 2024.

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 real barriers for moderate income Vermonters in their transition to energy efficiency, fuel switching, or electrification, which contradicts the common assumptions that all moderate-income Vermonters have the resources to provide matching funds for services. A beneficial scenario under the Clean Heat Standard that would support moderate income Vermonters would be an increase of funding that could be directed toward incentives for installed clean heat measures such as weatherization and heat pumps. This increase of funding could lead to an increase in installed clean heat measures in moderate income households as clean heat measures become more affordable. At Efficiency Vermont, programs today that require a 10% income match for moderate income households require increased incentives to increase program numbers, increasing supply and demand. Increased incentives will reduce the upfront purchasing cost of a clean heat measure, making them more accessible.

The EAG recommends support in existing programs' work and additional efforts on ensuring 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 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 style="text-align: center;">Support and align existing programs</p>

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">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.⁹³

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 that will allow for more households and customers to be reached.

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

Renters and Landlords

Overview

Approximately 27% (or 72,636) of households in Vermont are renters.⁹⁴ 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.⁹⁵

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.⁹⁶

A significant majority of renter households, 77%, rely on fossil fuels for heating.⁹⁷ 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.⁹⁸ The remaining three quarters of renters may have any combination of water, heat, and electricity included or not included in their rent.

⁹³ [Efficiency Vermont](#), “How much money can you actually get in clean energy incentives?”, retrieved December 5, 2024.

⁹⁴ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25032) [housingdata.org](#)

⁹⁵ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25024) [housingdata.org](#)

⁹⁶ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](#)

⁹⁷ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25040) [housingdata.org](#)

⁹⁸ 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.

Challenges

High Energy Burdens

According to the Department of Energy’s Low-Income Energy Affordability Data (LEAD) tool⁹⁹, Vermont renters at 30% or below the AMI face an energy cost burden of up to 15%. 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 renters¹⁰⁰. LIHEAP has been discussed in detail previously in the section of this report on low-income households but 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

A separate 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 rental housing in Vermont was built in 1939 or earlier.¹⁰¹

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.¹⁰²

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.

⁹⁹ [U.S. Department of Energy, Low-income Energy Affordability \(LEAD\) Tool, 2024](#)

¹⁰⁰ Presentation from Richard Giddings, Director of Heating and Utility Assistance Programs, DCF-Economic Services to the Equity Advisory Group, July 9, 2024.

¹⁰¹ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25036) [housingdata.org](https://www.census.gov/housingdata.org)

¹⁰² 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.

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.¹⁰³ 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 unable or unwilling financially 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.¹⁰⁴ 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.¹⁰⁵ Subsidized housing serves Vermont's lowest-income households, with half of residents earning less than \$17,000.¹⁰⁶

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

¹⁰³ For example, [Efficiency Vermont's Heat Pump Water Heaters rebate program](#). Retrieved December 5, 2024.

¹⁰⁴ 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.

¹⁰⁵ [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.

¹⁰⁶ [Vermont Housing Finance Agency analysis](#) of HUD Low Income Housing Tax Credit (LIHTC) data, 2021.

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.¹⁰⁷ 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 Code¹⁰⁸ has some basic requirements for landlords to provide properly functioning heating systems and make the building 'weathertight'. 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 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."¹⁰⁹ 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, project implementation has proved difficult due to workforce constraints and has reached only a handful of the several hundred rental units identified.¹¹⁰ The Burlington weatherization ordinance website notes that, "[t]he city recognizes that long waiting lists currently exist for both qualified weatherization contractors and utility

¹⁰⁷ Vermont Housing Finance Agency, [Assessing energy rebates in Vermont affordable housing](#), September 2024.

¹⁰⁸ [Vermont Department of Public Safety](#), Vermont Residential Rental Housing Health & Safety Code, 2022.

¹⁰⁹ [Burlington Electric Department](#), "Burlington Minimum Housing Code Weatherization Ordinance", retrieved December 5, 2024.

¹¹⁰ [Lamon](#), "Workforce Shortage Imperils Burlington Weatherization Goals", Seven Days, November 13, 2024.

incentive programs. 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).¹¹¹ It is estimated that 30% to 40% of homes weatherized each year by WAP are renter occupied.¹¹² There are an estimated 50,833 total renter households under 80% AMI, equal to about 70% of all renters.¹¹³

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.¹¹⁴

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.¹¹⁵

Existing weatherization incentives outside of WAP are inadequate to cover the costs of additional upgrades to buildings that would allow weatherization and electrification projects to be implemented.

Vermont Housing Finance Agency (VHFA) offers a state-funded pilot on-bill financing program called the Weatherization Repayment Assistance Program (WRAP), which landlords can participate in with renter consent.¹¹⁶ The program is targeted to households between 80-120% AMI. The renter pays the program charge on the utility bill until they move and experiences the benefits of lower heating costs, at which time the next tenant takes over the charges on the utility bills. 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.

¹¹¹ [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.

¹¹² [2024 Report on Performance Indicators for the Vermont Weatherization Assistance Program](#)

¹¹³ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25118, B25119) [housingdata.org](https://www.housingdata.org)

¹¹⁴ This is a temporary program offered using federal ARPA funds.

¹¹⁵ Eligibility for WAP assistance varies by program source, but generally, 2/3 of units must be occupied by households earning 80% AMI or lower.

¹¹⁶ Additionally, WRAP is only available in properties with 4 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)¹¹⁷ offers grants or forgivable loans to rehabilitate existing vacant units, bring existing units into code compliance, or create small new multifamily units. 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 technology 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 weatherization program that pays for most or all of a landlord’s project costs should also be paired with 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.

¹¹⁷ [Vermont Agency of Commerce and Community Development](#). *Vermont Housing Improvement Program 2.0*. Retrieved October 23, 2024.

Recommendation

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

New window-based heat pump units are just beginning to become available to consumers. The units¹¹⁸ 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. These products are currently being tested in pilot projects by the New York City Housing Authority¹¹⁹ and Efficiency Vermont.¹²⁰

Portable heat pump technology has the potential to be transformative 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 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,¹²¹ the EAG recommended that a Clean Heat Standard framework accommodate window heat pumps as an eligible installed measure for low- and moderate-income households. 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. 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, additional action may be needed 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

¹¹⁸ [Gradient All-Weather 120V™ Window Heat Pump](#). Retrieved October 21, 2024.

¹¹⁹ [Grist](#), “How NYC’s public housing authority plans to transform the market for clean heat”, January 24, 2022.

¹²⁰ [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.

¹²¹ [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.

Vermont’s existing, varied housing stock. Requiring landlords to allow heat-pumps, while also 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.¹²² Vermont’s Residential Rental Housing Health & Safety Code requires habitable temperatures but does not have detailed rules about permitting or providing air conditioning.¹²³ 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 requirement to Vermont Residential Rental Housing Health & Safety Code</p>

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 being 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.¹²⁴ 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

¹²² [World Health Organization](#), *Heatwaves*. Retrieved October 23, 2024.

¹²³ [Vermont Legal Aid](#), Summer Heat, Air Conditioning and Rental Units. May 22, 2024. Retrieved October 23, 2024.

¹²⁴ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25024) [housingdata.org](https://www.housingdata.org)

MHs.¹²⁵ An estimated 13,373 Vermont MHs are owner-occupied (67%), 3,215 are renter-occupied (16%), and 3,453 are vacant or seasonal (17%).¹²⁶

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.¹²⁷ The remaining homes are on land outside parks that is either owned or leased by the resident.

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.¹²⁸ However, MHs often have fuel tanks located outside, and kerosene can withstand much colder temperatures than fuel oil.¹²⁹ Due to this 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 U.S. DOE Zero Energy Ready Home Manufactured Homes National Program 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 are estimated to be owner occupied and 1,300 are renter occupied.¹³⁰ 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.¹³¹

¹²⁵ U.S. Census Bureau: American Community Survey 5-year estimates, 2018-2022 (Table B25032) housingdata.org

¹²⁶ [Vermont Housing Finance Agency, 2025 Vermont Housing Needs Assessment](#). Prepared for the Vermont Department of Housing and Community Development, June 2024

¹²⁷ Vermont Department of Housing and Community Development, [2022 Vermont Mobile Home Parks Report](#)

¹²⁸ [Vermont Energy Action Network](#), Annual Progress Report 2024

¹²⁹ 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.

¹³⁰ [Vermont Housing Finance Agency, 2025 Vermont Housing Needs Assessment](#). Prepared for the Vermont Department of Housing and Community Development, June 2024.

¹³¹ [Development Cycles](#), *Sustainability Assessment of Affordable Mobile Home Parks in Vermont*. Prepared for the Vermont Housing & Conservation Board, January 2019.

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 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 feasible, but combustion-based heating may remain essential, as a shift to electric heat alone could pose substantial risks especially in older MHs that are poorly designed, have inadequate ductwork and therefore have larger heat loads that may be 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 pipe freezing. 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 systems¹³² offer a potential solution, their installation costs, including necessary electrical upgrades—can reach \$15,000, a price out of reach for many residents. 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 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 report¹³³ used Tax Department data to estimate that 23% percent of the homes surveyed in MHCs have an assessed value of less than \$10,000.¹³⁴ From this, it can be estimated that there are at least 4,600 mobile homes statewide¹³⁵ where the value of those units is likely less than the cost of most comprehensive weatherization and electrification measures. 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 less poor condition that will still face serious technical issues in rehabilitation. For these

¹³² <https://www.trane.com/residential/en/resources/glossary/dual-fuel-heat-pump/>

¹³³ [Development Cycles](#), *Sustainability Assessment of Affordable Mobile Home Parks in Vermont*. Prepared for the Vermont Housing & Conservation Board, January 2019.

¹³⁴ 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.

¹³⁵ 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)

4,600 households, there may be no practical way to pursue significant reduction in fossil fuel use.

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.¹³⁶ 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.¹³⁷

Financial challenges

The upfront costs associated with weatherization or upgrading to a clean heat system can be cost-prohibitive to MH residents. Available data on incomes of residents of manufactured homes is limited. 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.¹³⁸

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.¹³⁹ To upgrade individual units, oftentimes the park itself may 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 park-wide upgrades are pursued, costs are substantial, often reaching approximately \$1 million, making coordination with multiple stakeholders, including utility companies, park owners, and individual units, 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. MHs on rented land are often assumed to 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 a park 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.

¹³⁶ [Vermont Housing Finance Agency, 2025 Vermont Housing Needs Assessment](#). Prepared for the Vermont Department of Housing and Community Development, June 2024.

¹³⁷ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

¹³⁸ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

¹³⁹ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

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.

Under Act 18, with the implementation of the CHS, Obligated Parties can generate clean heat credits from replacing an older MH with a new, highly efficient model. However, a manufactured double wide home currently costs about \$173,000,¹⁴⁰ 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,¹⁴¹ and a small fraction of the 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. This means the MH community is almost exclusively dependent on the WAP for home repair and weatherization needs.

Problems related to deferred MH maintenance are encountered regularly by WAP staff. 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 issue can be fixed by the client. 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 help with

¹⁴⁰ [Vermont Housing Finance Agency](#), 2025 Vermont Housing Needs Assessment. Prepared for the Vermont Department of Housing and Community Development, June 2024.

¹⁴¹ G. Wilcox, Personal Communication, November 25, 2024.

limited home repair funding potentially available.¹⁴² 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 is a process which can take a long time because home repair services outside of WAP are usually implemented by volunteers or a small number of paid staff.

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,¹⁴³ 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.¹⁴⁴ 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 to work underway to support MHCs and MH residents in general, beyond 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.

Recommendation

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

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, it was indicated by Mary Houghton that some residents that are aware of WAP assume that they are not eligible. This emphasizes the need for more targeted

¹⁴² [Windham & Windsor Housing Trust](#), “Repair Your Home”, retrieved December 5, 2024.

¹⁴³ Office of Economic Opportunity, *Performance Indicators for the Vermont Weatherization Assistance Program*, January 28, 2022.

¹⁴⁴ [Report of the Mobile Home Task Force](#) to the Vermont Legislature, February 1, 2024

outreach and education around program offerings and technical assistance to navigate 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

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 State 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 state 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.

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.¹⁴⁵ 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 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.¹⁴⁶

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.¹⁴⁷ 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.¹⁴⁸ 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 or rented offices or shared facilities. The rest of the 20% of the small businesses employ up to 500 employees. As small businesses make up close to 98% of the commercial segment with a 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

¹⁴⁵ Vermont Agency of Commerce and Community Development, “Resources for Homeowners (Incl. Mobile Homes)”, retrieved November 26, 2024.

¹⁴⁶ [Energy Action Network](#), “Statewide GHG Emissions Dashboard”, VT Thermal emissions 1990-2021, retrieved December 2, 2024.

¹⁴⁷ [Energy Action Network](#), “Statewide GHG Emissions Dashboard”, VT Thermal emissions 1990-2021, retrieved December 2, 2024.

¹⁴⁸ [U.S. Small Business Administration](#), “2022 Small Business Profile – Vermont”, 2022.

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 represented by 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 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.¹⁴⁹

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,¹⁵⁰ 110 buildings in VT have achieved LEED certification through a combination of building standards, energy efficiency, and renewable energy measures. 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 segment accounts for 0.3 MMT of CO₂e/yr of emissions, representing an estimated 9% of Vermont's GDP with an employment of about 10% of

¹⁴⁹ [NV5](#), *Clean Heat Standard Assessment of Thermal Sector Carbon Reduction Potential in Vermont*. Prepared for the Vermont Department of Public Service. September 1, 2024

¹⁵⁰ [US Green Business Council](#), *LEED Directory*, retrieved December 2, 2024.

Vermont’s workforce.¹⁵¹ 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 widespread outreach, best practice sharing, and effective implementation, trade organizations that represent different groups of industries should be engaged in the design and implementation of the CHS.

Recommendation
Facilitate commercial and industrial participation in CHS implementation

The State should increase awareness in the commercial and industrial sector of the many energy financing opportunities that are available, 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.

Leverage the current US Treasury program, State Small Business Credit Initiative (SSBCI),¹⁵² to drive innovation in GHG emission reduction in small businesses in the areas of renewable energy, agriculture, manufacturing, and healthcare. 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.

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 either a regulated natural gas utility serving customers in Vermont, which currently includes only Vermont Gas Systems (VGS), or for

¹⁵¹ [Energy Action Network](#), “Statewide GHG Emissions Dashboard”, VT Thermal emissions 1990-2021, retrieved December 2, 2024.

¹⁵² [U.S. Department of the Treasury](#), “State Small Business Credit Initiative”, retrieved December 2, 2024.

other heating fuels, the entity that imports heating fuel for ultimate consumption within the State, or the entity that produces, refines, manufactures, or compounds heating fuel within the State for ultimate consumption within the State. This includes 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, 2024.¹⁵³ 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 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. 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

¹⁵³ [Vermont Public Utility Commission](#), Draft Clean Heat Standard Rule Companion Status Report, October 1, 2024.

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.

Recommendations

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Adjusting regulatory scope of included fuel sales</p>

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.

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.

<p style="text-align: center;">Recommendation</p> <p style="text-align: center;">Improve clarity, engagement, and enforcement among Obligated Parties</p>
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Implementation Recommendations

Ongoing Equity Review

Act 18 calls for the Equity Advisory Group (EAG) to dissolve upon the implementation of the Clean Heat Standard. It assigns the responsibility to assess equitable outcomes to the Commission through the process described in 30 V.S.A. § 8124(h)(3):¹⁵⁴

“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 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...”

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.¹⁵⁵

Additionally, the following facets of equity should be incorporated and considered in the implementation of the Clean Heat Standard.

Distributive Equity

In practice the Commission must first recognize principle of distributive equity by identifying uneven distribution of resources, disparities in living conditions and associated health impacts. In this way, Vermont’s frontline communities would be identified in the CHS context. Additional resources can then be appropriately targeted at those communities. Some of those methods include continued use of the EAG Equity Rubric, using affinity spaces, supporting and showing up at existing community hubs, increasing and leveraging existing resources and programs that communities may already be familiar with.

Procedural Equity

The Commission must practice procedural equity as part of the annual assessment of equitable adoption of clean heat measures. Providing 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

¹⁵⁴ 30 VSA § 8129(c)

¹⁵⁵ [Vermont Climate Council](#), Just Transitions Subcommittee, Guiding Principles for a Just Transition, August 2021.

equitable solutions that meet specific community needs. Policies must be made not just for impacted communities, but *with* impacted communities.

Contextual Equity

An equitable CHS outcome must take into context the most vulnerable communities in the state. It is important to recognize for example that people of color, mobile home communities and low-income communities are most vulnerable to any increase in energy costs and already experience some of the highest energy burdens in the state.

Corrective Equity

The Commission must be clear and transparent in its equity assessment after implementation and allow for a process of accountability. An example of this would be to create or include 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.

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 in the annual review and reporting process.

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 strategy be continued over time if the CHS is implemented. Such a comprehensive and all-encompassing market-based strategy to reduce thermal sector emissions has potential to dramatically shift the way Vermonters heat their homes and interact with the energy infrastructure that they depend on for survival during long Vermont winters. 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 in any potential marketplace equity issues or concerns that may arise over time.

The EAG recommends that regular public engagement by the Commission be funded and continue, particularly in the initial years of program implementation, to educate the public about how the CHS credit marketplace is intended to function and what the role of market actors and participants is under the new regulatory framework. 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 recommendations to the Legislature for changes where they don't have authority.

Ensure Consumer Protection

Since clean heat credits will hold monetary value in the CHS marketplace, the EAG

recommends that strong consumer protections be included in the CHS rules with the inclusion of language relating to the validity of CHS credit claims and consequences that may result from false claims. The Commission must closely assess whether customers are being provided with adequate information about the value of clean heat credits associated with projects in their homes. They 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 ombudsperson in the Clean Heat Standard, to support the public if there is concern or confusion around credit ownership, or other matters that impact the consumer in 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.

Appendix

A. Equity Rubric

B. EAG Memos to Public Utility Commission

C. Comments from Individual EAG Members