

Weatherization at Scale Recommendations in the Initial Climate Action Plan

Presented to the House Energy and Technology Committee

**By Christine and Donovan and Dave Farnsworth
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Vermont Climate Council's
Cross-Sector Mitigation Subcommittee**

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Presenters Today

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Senior Leader of the Consulting Division and Business Development Director, Vermont Energy Investment Corporation/VEIC, 2008-2019

Senior Fellow and Summer Internship Director, Energy Action Network, 2020-present

Chair, Board of Managers, Vermont Sustainable Jobs Fund' Flexible Capital Fund, 2015-present

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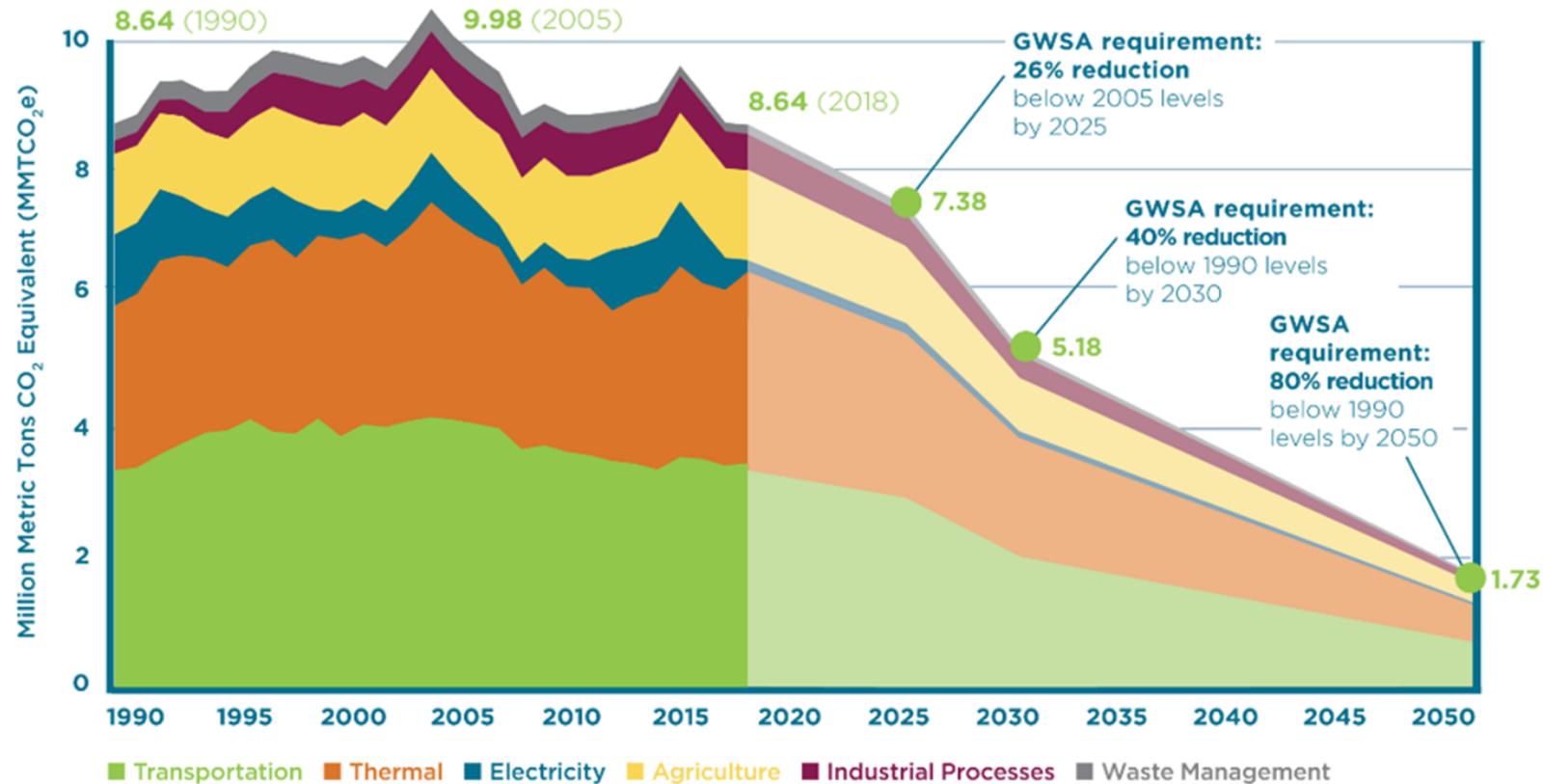
Department of Environmental Conservation, Air Quality and Climate Division

Purpose Today

- To respond to Chair Briglin's request to learn more about the Weatherization-at-Scale (WX) recommendations included in the Initial Vermont Climate Action Plan (CAP)
- To do this, we will:
 - Provide a brief overview of the Global Warming Solutions Act targets for the Thermal/Buildings Sector and some key factors about Vermont's building stock and demographics that were considered when developing recommendations for the CAP
 - Describe the process that was used to develop Thermal/Buildings recommendations for the CAP
 - Summarize the complete "portfolio" of Thermal/Buildings recommendations in the CAP
 - Describe and explain (in more detail) recommendations for a new Weatherization-at-Scale Initiative
 - Respond to questions and comments from Chair Briglin and committee members

What the Climate Action Plan Seeks to Achieve

Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, Vermont GHG Emissions Inventory and Forecast (1990-2017), 2021.

- Thermal/Buildings account for roughly 34% of GHG emissions and 35% of energy expenditures
- Majority of building stock is old with 25% of housing built before 1939
- New construction accounts for less than 1% of buildings each year
- Meeting GWSA targets will require **BOTH**:
 - Improving the efficiency of building stock & heating & cooling appliances; and
 - Lowering the carbon content of the fuels being used

Key Factors to Consider

- According to the VHFA, more than 35% of households (90,000) are burdened by housing costs, spending at least 30% of income on rent or mortgages, insurance, taxes, and utilities
- Of roughly 300,000 homes, about a quarter (80,000) are used or intended for renters. The median age of rental homes is 1964.
- 80% of renters are categorized as low income (per Efficiency Vermont and VHFA)
- One quarter of renters pay 30-49% of income for housing; another quarter pay 50% or more of income for housing (ie rent and energy bills)



Thermal/Buildings Process Used for the CAP

1. Reviewed the GWSA and models explaining the portion of GHG emissions resulting from energy used to heat, cool, and power our buildings
2. Reviewed prior Vermont climate action, housing, and demographic reports
3. Conducted public engagement activities, stakeholder meetings, a CEP/CAP technical workshop, and public presentations
4. Obtained input from experts in thermal energy use in buildings:

AIA-VT Policy Committee

Efficiency Vermont

Weatherization Providers

Weatherization at Scale Action Team

Clean Heat Standard Action Team

Advocates, and more ...



Thermal/Buildings Pathways in the CAP*



Pathway 1 –

Reduce energy use in buildings by at least 25% through cost-effective and affordable weatherization and energy efficiency improvements, as well through use and enforcement of energy codes

Pathway 2 –

Reduce building-related carbon emissions by reducing the carbon content of the fuels they use

* Quoted verbatim from the CAP

Pathway 1 – Strategies for reducing energy use in buildings by 25%



1. Develop and implement a multi-year statewide “Weatherization-at-Scale” initiative
2. Institute a new rental property efficiency standard (RPES)
3. Improve the energy performance of all new buildings in Vermont (through codes and code training and enforcement)

Pathway 2 – Strategies for reducing the carbon content of fuels



1. Implement a Clean Heat Standard
2. Transition the water heater market to devices that are controllable to help utilities manage their power grids at low cost

Weatherization-at-Scale Initiative



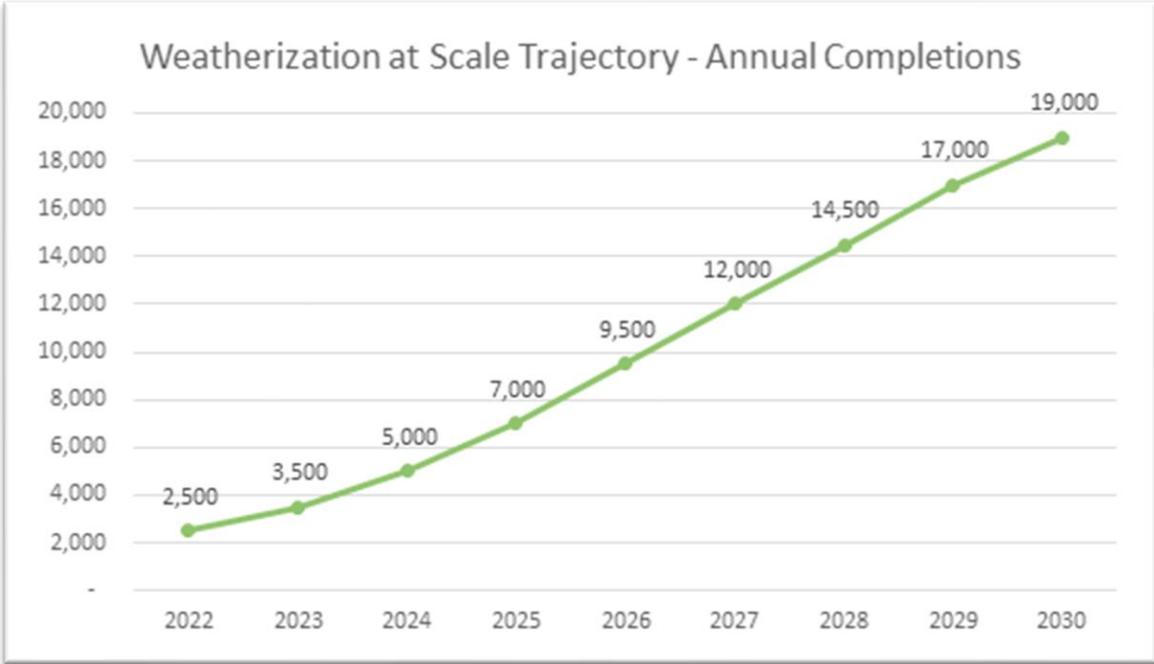
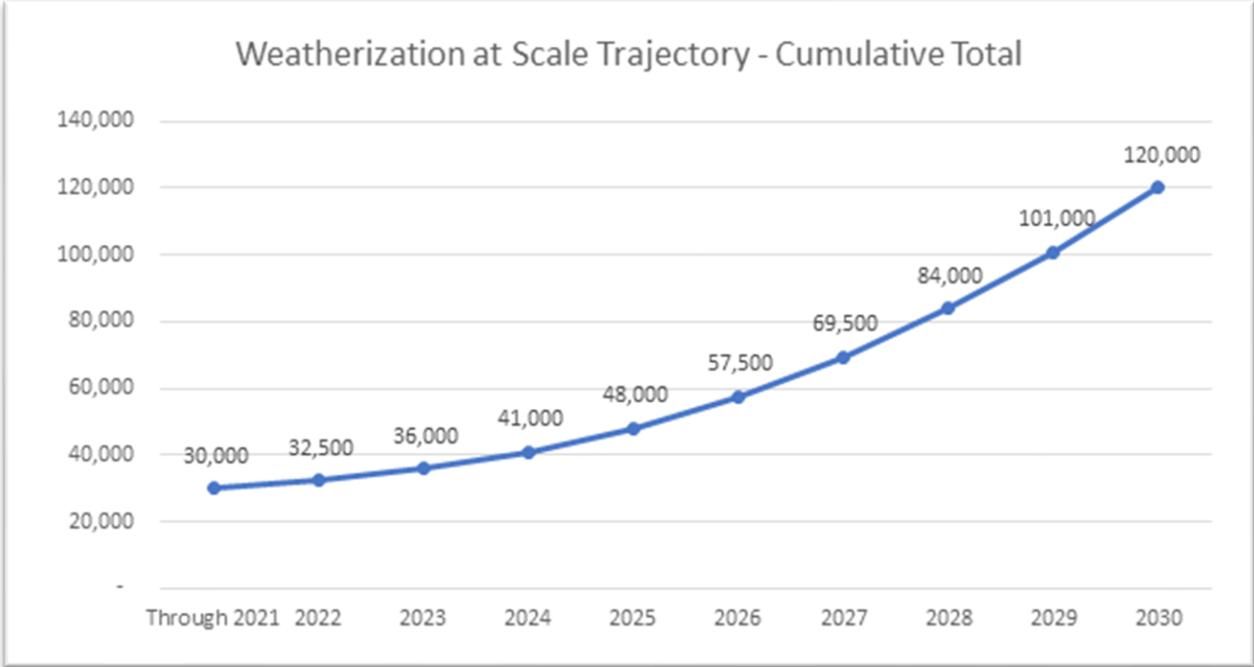
Note: Brighter colors (red, orange, and yellow) indicate warmer temperatures (more heat and infrared radiation) emitted

- A statewide, multi-year initiative that builds upon Vermont's 30+ years of expertise delivering weatherization and energy efficiency services through the:
 - Home Weatherization Assistance Program administered by OEO and delivered by 4 Community Action Agencies and the Northeast Employment Training Organization
 - Electric and gas utilities
 - Efficiency Vermont
 - Private contractors contracting directly with customers not through state or federal programs
- Currently, 2,000 homes are served per year, for a total of 30,000 homes to date
- The CAP indicates at least 90,000 additional homes need to be weatherized by 2030 to meet the GWSA reduction targets for Thermal/Buildings that year
- Continuation of "business as usual" will not achieve the GWSA target

Weatherization-at-Scale Network Action Team

- Also referred to as the “Weatherization Work Group” in the CAP
- “Mobilized to achieve an ambitious goal to weatherize every home of low-to-moderate income Vermonters by the end of the decade”
- A diverse group of over 30 stakeholders currently involved in all aspects of weatherization and energy efficiency programs, housing, finance, economic development, and workforce development
- Have been working together for more than a year to model and assess strategies for achieving their goals
- Led by:
 - Neale Lunderville, President and CEO, Vermont Gas Systems
 - Richard Faesy, Co-Principal, Energy Futures Group, Inc.

Weatherization-at-Scale Trajectories



Source: Vermont Pathways Analysis Report, Cadmus/Energy Futures Group, November 15, 2021

Workforce Needed to Achieve Weatherization Targets

	2023	2024	2025	2026	Cumulative
Total Weatherization Projects (Cumulative)	36,000	41,000	48,000	57,500	57,500
New Weatherization Projects (Annual)	3,500	5,000	7,000	9,500	25,000
Crews Needed (Assuming 11 projects completed per year by a crew of 5)	318	455	637	864	864
Crew Members Needed	1,590	2,275	3,182	4,318	4,318
Office Members Needed (Assuming 1 per 10 crew members)	159	228	318	432	432
Energy Auditors Needed (Assuming 90 completed per year per auditor)	39	56	78	106	106
TOTAL NEW WORKERS – CUMULATIVE	1,788	2,559	4,215	5,720	5,720
TOTAL NEW WORKERS – ANNUAL	510	771	1,616	1,505	N/A

Source: ARPA Recommendation from the Buildings/Thermal Co-Leads, Submitted by Christine Donovan and Dave Farnsworth to the Cross-Sector Mitigation Subcommittee, December 15, 2022

Note: Workforce estimates are rough, order-of-magnitude estimates that should be further vetted by workforce development specialists.

Funding Needed to Achieve the CAP Weatherization Targets and the Workforce Needed to Achieve the Targets

	2023	2024	2025	2026	Total
Total Weatherization Projects (Cumulative)	36,000	41,000	48,000	57,500	57,500
New Weatherization Projects (Annual)	3,500	5,000	7,000	9,500	25,000
ARPA Funding Recommended to Address Shortfall from Existing Funding Sources (eg WAP, RGGI, FCM, etc.)	\$300,000-\$4M	\$21- \$26M	\$37-\$44M	\$57-\$67M	\$115-\$140M
ARPA Funding Recommended to Expand Workforce to Meet Buildings/Thermal Sector GWSA Targets*	\$2 M	\$2 M	\$2 M	\$1 M	\$ 7 M
TOTAL ARPA FUNDING RECOMMENDED	\$2.3-\$6M	\$23-\$28M	\$39-\$46M	\$58-\$68M	\$122-\$147M

Source: ARPA Recommendation from the Buildings/Thermal Co-Leads, Submitted by Christine Donovan and Dave Farnsworth to the Cross-Sector Mitigation Subcommittee, December 15, 2022

Note: Workforce funding estimates are rough, order-of-magnitude estimates that should be further vetted by workforce development specialists (which the Thermal/Buildings Sector Co-Leads are not).

CAP Weatherization-at-Scale Policy and Legislative Recommendations*



1. Adopt legislative or administrative recommendations consistent with those set out by the Weatherization-at-Scale Working Group with the goal of weatherizing 90,000 additional homes by 2030 and allocate the funding needed to achieve the goal.

* Quoted verbatim from the Initial Vermont Climate Action Plan.

CAP Weatherization-at-Scale Policy and Legislative Recommendations*



2. Appoint a member of the administration to be responsible for coordinating executive agency weatherization workforce development efforts to: ensure the scaling up of workforce necessary to achieve the GWSA requirements; to increase coordination among the wide variety of public and private entities involved in worker recruitment, training, placement, and retention; and to avoid duplication of efforts across state government (enabling, cross-cutting action).

*Quoted verbatim from the Initial Vermont Climate Action Plan.

CAP

Weatherization-at-Scale Policy and Legislative Recommendations*



3. Authorize implementation of a plan for coordinating and enhancing energy and financial coaching services for Vermonters with low and moderate incomes who could benefit from the State's energy savings programs that is consistent with recommendations from the Energy Counseling Savings Work Group and their legislative report and allocate the funding to achieve the plan goals and objectives.

* Quoted verbatim from the Initial Vermont Climate Action Plan.

CAP

Weatherization-at-Scale Policy and Legislative Recommendations*



4. Through legislation, encourage electric and gas utilities to offer their customers on-bill financing tariffs.

* Quoted verbatim from the Initial Vermont Climate Action Plan.

Conclusion

- Thank you for your ongoing work on the House Energy and Technology Committee
- We hope this information is helpful as you consider your areas of focus and activity for this legislative session
- We welcome your comments and questions!

For Further Information

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