



Buildings and Thermal Task Group

Update for the Cross-Sector Mitigation Subcommittee

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Buildings and Thermal Task Group

Adam Sherman, Volunteer

Ben Bolaski, Vermont Public Service Department

Brian Woods, Vermont Agency of Natural Resources' Climate Action Office

Christine Donovan, Climate Action / Clean Energy Consultant

David Farnsworth, Regulatory Assistance Project

Jared Duval, Vermont Climate Council

Sam Lash, Central Vermont Regional Planning Commission

Melissa Bailey, Vermont State Energy Office, Co-Chair, CSMS

Richard Cowart, Regulatory Assistance Project, Co-Chair CSMS



Buildings and Thermal Task Group

Per the 2021 Initial Climate Action Plan (page 72):

Pathway: A high-level means to achieve greenhouse gas (GHG) emission reductions.

Strategy: A measurable activity – a benchmark – to achieve a pathway.

Action: An ‘operational’ task that the state will undertake to meet a pathway and a strategy within that pathway. Actions may be for existing or new policies, programs, projects, initiatives, plans, etc.

Note: *Task Group work and the approach used in the 2021 CAP confirm that pathways may also be needed for **complementary regulatory, legislative, or policy approaches** that **create the market conditions** needed to ensure uptake of measures that result in GHG emission reductions.*



Buildings and Thermal Task Group

The Task Group has developed Pathways and Strategies for:

- **Buildings**
- **Equipment used in buildings**
- **Fuels used in the equipment**
- **Cross-cutting issues**



Buildings (1/2)

Pathway 1

Reduce greenhouse gas emissions associated with buildings and facilities through cost-effective and affordable weatherization and energy efficiency improvements, as well as through use and enforcement of energy and electrical standards and codes.

Strategy 1

Ramp up implementation of the multi-year Weatherization (WX) at Scale Initiative to meet the scale and pace of residential and commercial weatherization that is *[used in the Vermont Pathways Model as]* necessary to meet the 2030 Global Warming Solutions Act emissions reductions requirements.

Actions:

- Ensure WX of X number of additional homes, and Commercial, Industrial, and Municipal buildings.
- Secure funding to eliminate barriers preventing WX in low- and moderate-income homes.
- Secure funding to WX municipal and public buildings.



Buildings (2/2)

Pathway 1

Reduce greenhouse gas emissions associated with buildings and facilities through cost-effective and affordable weatherization and energy efficiency improvements, as well as through use and enforcement of energy and electrical standards and codes.

Strategy 2

Strengthen state-wide building energy standards and fund code-related education and enforcement necessary to meet the 2030 and 2050 Global Warming Solutions Act emissions reductions requirements.

Actions:

- Regularly update residential building energy standard
- Regularly update commercial building energy standard
- Develop and fund Energy Code Circuit Rider initiative that provides code and enforcement assistance and training
- Implement recommendations from the *Act 47 Building Energy Code Study Committee* re:
 - Division of Fire Safety (Including residential/commercial building energy standards)
 - Office of Professional Regulation (Including contractor registry, certification and compliance with residential/commercial building energy standards)
 - Authorize Energy Efficiency Utility savings attribution for supporting residential/commercial building standards compliance



Equipment (1/4)

Pathway 2	Reduce greenhouse gas emissions by requiring new thermal equipment to meet emissions-based equipment standards.
Strategy 1	Institute a regulatory requirement for new thermal equipment sold in Vermont to meet a zero-greenhouse gas emissions standard. Action: adopt an appliance performance standard for new thermal equipment that emits minimal GHG emissions.
Strategy 2	Institute a regulatory requirement for new thermal equipment sold in Vermont to meet a zero-NOX [nitric oxide (NO) and nitrogen dioxide (NO₂)] emissions standard. Action: TBD
Strategy 3	Adopt a regulatory and/or performance-based approach that results in the use of lower global-warming-potential refrigerants in heat pumps sold in Vermont. Action: TBD



Equipment (2/4)

Pathway 3

Reduce greenhouse gas emissions by ensuring beneficial electrification of building space and water heating, with a focus on ensuring equitable access to cost-effective and affordable electrification by low- and moderate-income households.

Strategy 1

Encourage equitable adoption of electric heat pumps as replacements for fossil fuel heating and ensure access to beneficial electrification regardless of household income.

- Action**
- Develop a long-term sustainable funding source(s) to support beneficial electrification of low- and moderate-income (LMI) households
 - Adopt consumer protections to ensure that LMI households do not experience negative consequences (e.g., service disconnections or reduced access to federal or state fuel assistance support) resulting from increased electrification of space and water heating



Equipment (3/4)

Pathway 3

Reduce greenhouse gas emissions by ensuring beneficial electrification of building space and water heating, with a focus on ensuring equitable access to cost-effective and affordable electrification by low- and moderate-income households.

Strategy 2

Institute regulatory or performance-based approaches to transition the water heater (WH) market in Vermont and ensure the availability of WH models that can be managed by electric utilities.

Action
Adopt WH appliance standard with communications capability or responsive to an open communications standard ensuring that the water heater is capable of load management.



Equipment (4/4)

Pathway 3

Reduce greenhouse gas emissions by ensuring beneficial electrification of building space and water heating, with a focus on ensuring equitable access to cost-effective and affordable electrification by low- and moderate-income households.

Strategy 3

Encourage integration of electric WHs into Vermont’s electric system and the timely adoption of utility programs to ensure that electric water heating loads are directly managed or controlled through time-differentiated price signals.

Action

Adopt legislation directing all Vermont distribution utilities to adopt WH demand response programs, and to file electric water heating demand response tariffs for PUC review.



Fuels

**Pathway 4
(TBD)**

Reduce greenhouse gas emissions by reducing the greenhouse gas intensity of fuels used for thermal (Residential, Commercial, and Industrial) purposes.

Strategy

Implement a Clean Heat Standard.

Actions TBD



Cross-Cutting

**Pathway 5
(TBD)**

Recruit, train, and retain the workers and support the businesses necessary to implement Vermont's thermal sector energy transformation.

Strategy

Increase coordination among state agencies, workforce development entities, public education institutions, and employers to ensure the scaling up of the workforce needed to achieve Global Warming Solutions Act requirements. This will require a substantial ramp up in workforce recruitment, training, placement, and retention involving multiple public and private entities.

Action: Complete the development of the *WX Workforce Training Center* currently underway under the leadership of the Weatherization Workforce Training Center Steering Committee.



Cross-Cutting

**Pathway 6
(TBD)**

Elevate greenhouse gas (GHG) emissions reduction requirements and energy equity in electric, gas, and energy efficiency utility regulation.

Strategy

Expand and update regulated utility performance metrics to include GHG emissions reductions and energy burden reductions to more effectively achieve Vermont’s legal GHG reduction requirements and energy equity goals.

Action: TBD



Examples of Additional Topics to be Discussed

- Ensuring attention to opportunities for **increasing the efficiency of industrial processes** - thereby alleviating the need to electrify in the first place (for example, **increased attention to waste heat recovery**).
- Consideration of **alternative strategies and/or actions in the event the Clean Heat Standard** proposal under development by the Public Utility Commission and various Technical Advisory Groups is not approved by the Legislature (as required by law).
- Consideration of a **new utility rate approach** to ensure income-eligible utility customers do not experience an increase in total energy bills as a result of switching to electricity to help reduce GHG emissions from fossil heating and transportation fuels.
- Enhancements to **existing bill assistance programs** to ensure households are eligible to receive payment support for more than one fuel type.



Thank you for your feedback!