

How to improve heat pump installation and use in Vermont

March 30, 2026



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Vermont Heat Pump Action Plan

Gaps & Opportunities in heat pump adoption

Kelly Lucci & Phil Bickel

Who we are

- The nation's first Energy Efficiency Utility
- We help Vermont transition to more affordable, low carbon energy
- We work through statewide engagement, education, incentives, and support for our clean energy workforce
- 8-time winner of the Environmental Protection Agency's ENERGY STAR "Partner of the Year" award



In case you missed us
last time...

A quick primer on
Vermont's statewide
heat pump program

Efficiency Vermont supports the entire heat pump market supply chain



Manufacturers



Supporting designs for heat pumps



needed for Vermont's cold climate



Partners

Sharing offers & processing rebates for utilities & weatherization partners



Customers

Easy-to-navigate programs, consistent offers & technical support

Nearly every heat pump installed in Vermont over the last decade:

- has met Efficiency Vermont's standard for electric efficiency; and
- has the ability to meet customers' heating needs - even in our cold climate.



Distributors & Retailers

Ensuring rebate-eligible heat pumps with cold climate performance are available



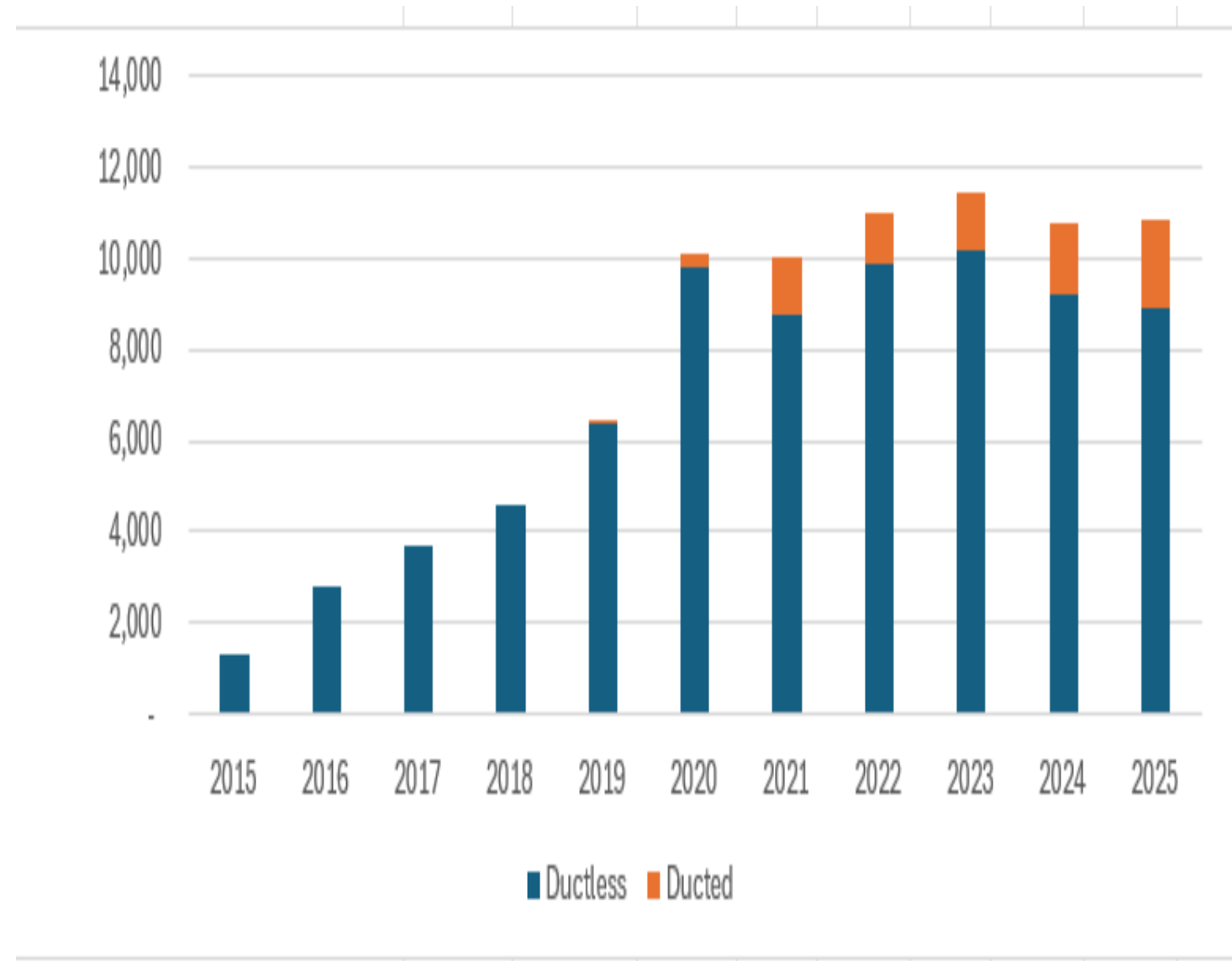
Workforce

Outreach, trainings & info sharing to contractors, installers & the Efficiency Excellence Network

Minimum Coefficient of Performance of 1.75 at 5° F

A decade+ of heat pump adoption

- Collaboration with HP manufacturers to design “cold climate” capabilities
- HP midstream rebate piloted in 2015
- HP rebate expanded to include ducted HPs in 2019
- Partnership with electric utilities to offer joint rebate since 2021
- Statewide partnerships to increase impact, awareness, and growth
- Sustained customer engagement helped a new technology gain rapid adoption



Key Findings

Customer Satisfaction

Customers report high satisfaction with heat pumps, reflecting reliability and comfort benefits – but many are not using their heat pumps for heating as much as they could.

Adoption Barriers

High upfront costs, limited contractor availability, and outdated housing infrastructure hinder full adoption.

Need for Intervention

Targeted efforts are needed to overcome technical and behavioral barriers for year-round heat pump use.

Vermont Heat Pump Market Assessment

Residential Market

March 2025

Efficiency
Vermont

20 Winooski Falls Way
Winooski, VT 05404



The 2025 VT Heat Pump Action Plan

Evolving the Program

Consumer Education

Now and ongoing:

- Customers who have already installed heat pumps; and
- Those who might consider installing heat pumps in future

Contractor Engagement

In 2026:

- Enhanced trainings on best practices for system design & installation
- Financial incentives & support to enable whole home system design and modeling of fossil fuel offset

Whole Home Rebate

In 2027:

- Offer new rebates for “whole home” projects designed to offset the majority of the fossil fuel heating usage, in partnership with electric utilities
- Continue to support the most electrically-efficient units at point of sale and through existing supply chain partners

Customer Education

Focus on **usage**, **maintenance**, and **myth-busting**:

- Proper sizing
- System design & maximizing heating performance
- Installation Quality
- Long-term performance

Engagement with customers who have already installed heat pumps – and those who might consider installing heat pumps

Create a detailed checklist to guide Vermonters in their conversations with contractors

Leverage direct mail, email and social media channels



Contractor Engagement



Support contractors through **training**, **tools**, and **financial incentives** to move towards installations that are designed to enable whole home heating

Efforts underway throughout 2026, in preparation for 2027 launch of whole home incentive

Contractor engagement and feedback on what supports are most needed and helpful is critical

New whole home incentive

Will support a range of electrified space heating measures (ducted, ductless, air to water), based on achieving a minimum level of modeled fossil fuel offset (amount TBD)

Tiered incentives, providing increased support for low- and moderate-income customers

Will layer onto the existing upstream rebate (which will now focus on electric efficiency)

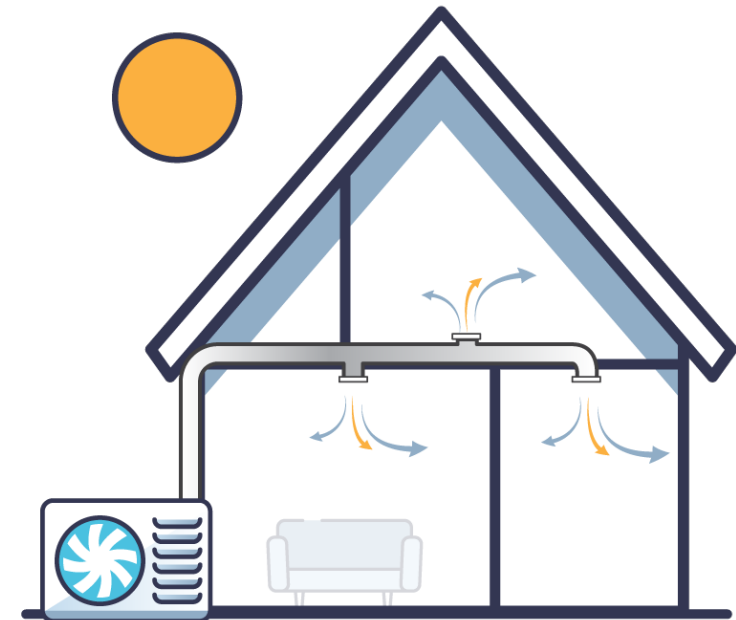
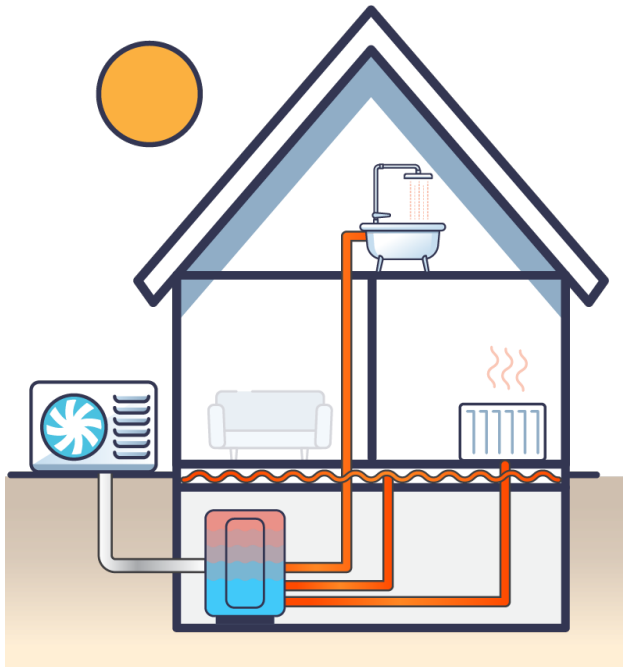
Coordination with electric utilities is critical, since we expect it can be partially funded through Tier 3, enabling customers to access multiple incentives through one process



Innovation & Accessibility

Continue tracking and **integrating developments in heat pump technology**, ensuring increasing accessibility for customers:

- With varied home configurations
- Who rent their homes
- Of low and moderate income



Promoting Complementary Actions

Support and promote – but don't require – complementary actions such as home **weatherization** and **integrated controls**

These actions help ensure customer benefits are maximized, and help decrease system-wide costs to the electric grid



Evolving the Program

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Questions?

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NET ZERO ENERGY
BURLINGTON VERMONT



Building GIANTS

(Grid-edge Integrated & Aggregated Network of Thermal Storage)

Nate Gunesch

DOE Fellow at Burlington Electric Department



Who is BED?

- Municipal utility in Burlington, VT
- ~21,000 customers
- ~50 MW winter peak
- ~65 MW summer peak
- 100% renewable power supply
- Generation assets, distribution, and energy efficiency

2030 VISION

Make Burlington a Net Zero Energy city by eliminating fossil fuel usage across the electric, thermal, and ground transportation sectors by strategically electrifying, managing demand, realizing efficiency gains, and expanding local renewable generation while increasing system resilience.



Who is BED?



- ~60% of our customers are renters
- ~98% of our customers are also VGS customers



My old apartment!

...age across the electric, thermal, and ground transportation sectors by
...ns, and expanding local renewable generation while increasing system



What is Building GIANTS?

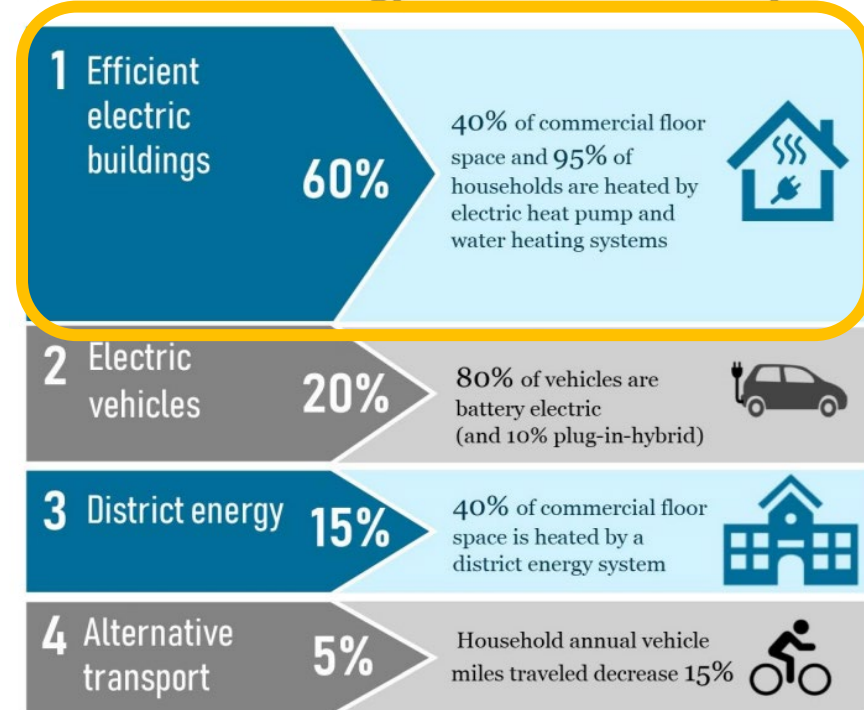
- U.S. DOE GRIP Grant
- Promoting *Flexible Load Management of Distributed Energy Resources*
- Program has both “Residential” and “C&I” elements

Promoting *adoption* through *optimization*.

NET ZERO ENERGY BURLINGTON VERMONT

Reducing and eventually eliminating fossil fuel use in the heating and ground transportation sectors

4 Fossil Fuel Energy Reduction Pathways





Why are we doing this?

Resilience and affordability...

- Avoiding the costs of capacity
 - ISO-NE
 - VELCO
 - T&D
- Mitigating the risks of extreme peaks



Why are we doing this?

Resilience and affordability...

- Avoiding the costs of capacity
 - ISO-NE
 - VELCO
 - T&D
- Mitigating the risks of extreme peaks

...equals heat pump adoption!

- Lowering the cost of electrification
 - Less inflationary pressure on rates
 - Targeted end-use rates for electrification
 - Cost competitiveness with NG



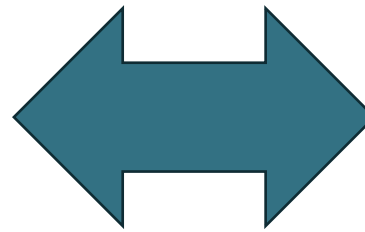
Put another way...



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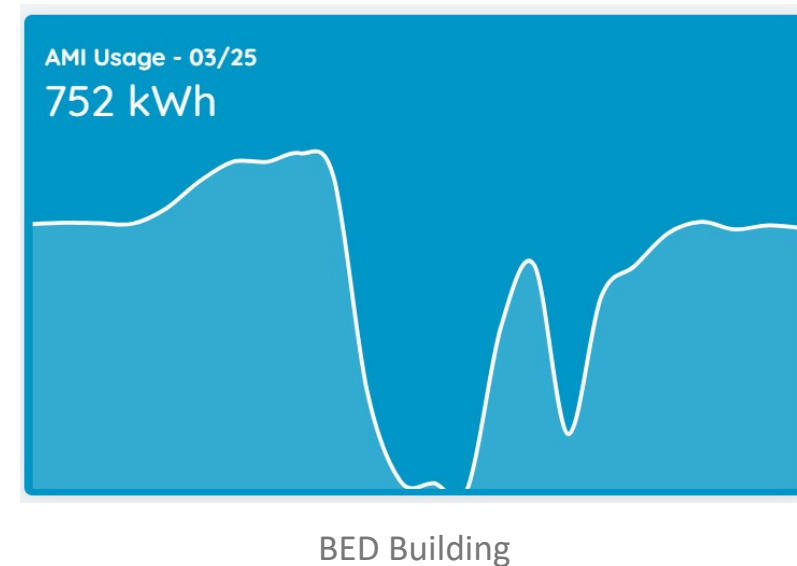
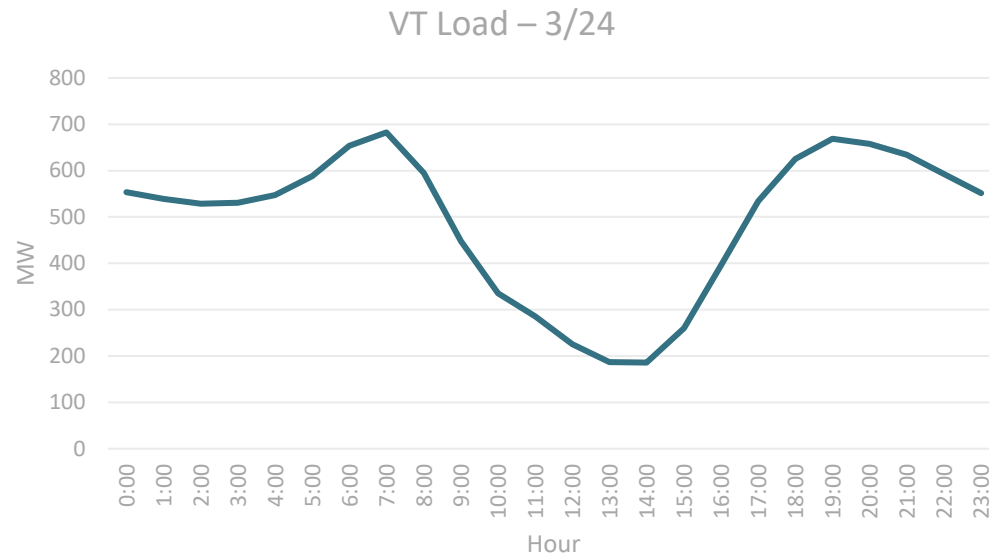


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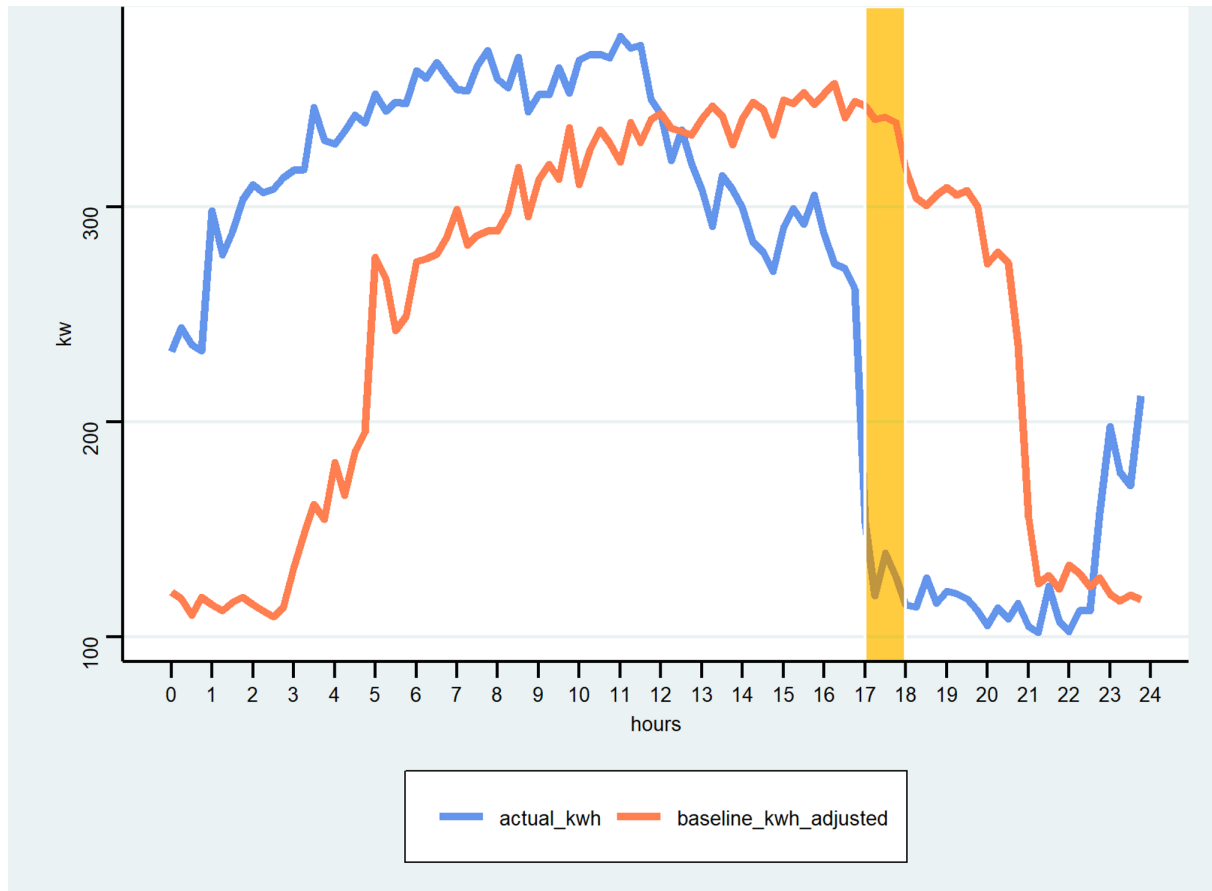
How it works – the economics:

FLM *shifts* load from the most expensive, carbon-intensive time of day to periods when renewable energy saturation is much higher.





How it works – the economics:



A C&I customer...but you get the idea!



How it works – the technology:

We install wireless heat pump controllers and home energy monitors in participants' homes. Then, we remotely request set-point adjustments and track heat pump demand.





What's next for us?

- From pilot to program
- From in-house tools to enterprise solutions
- Quantifying performance
 - Cost effectiveness
 - Resilience
 - Avoided emissions through FLM + electrification
- Developing an “electrified heating” rate



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Promoting *adoption* through *optimization*

Efficiency Maine and Whole Home Heating

Highlights and Lowlights

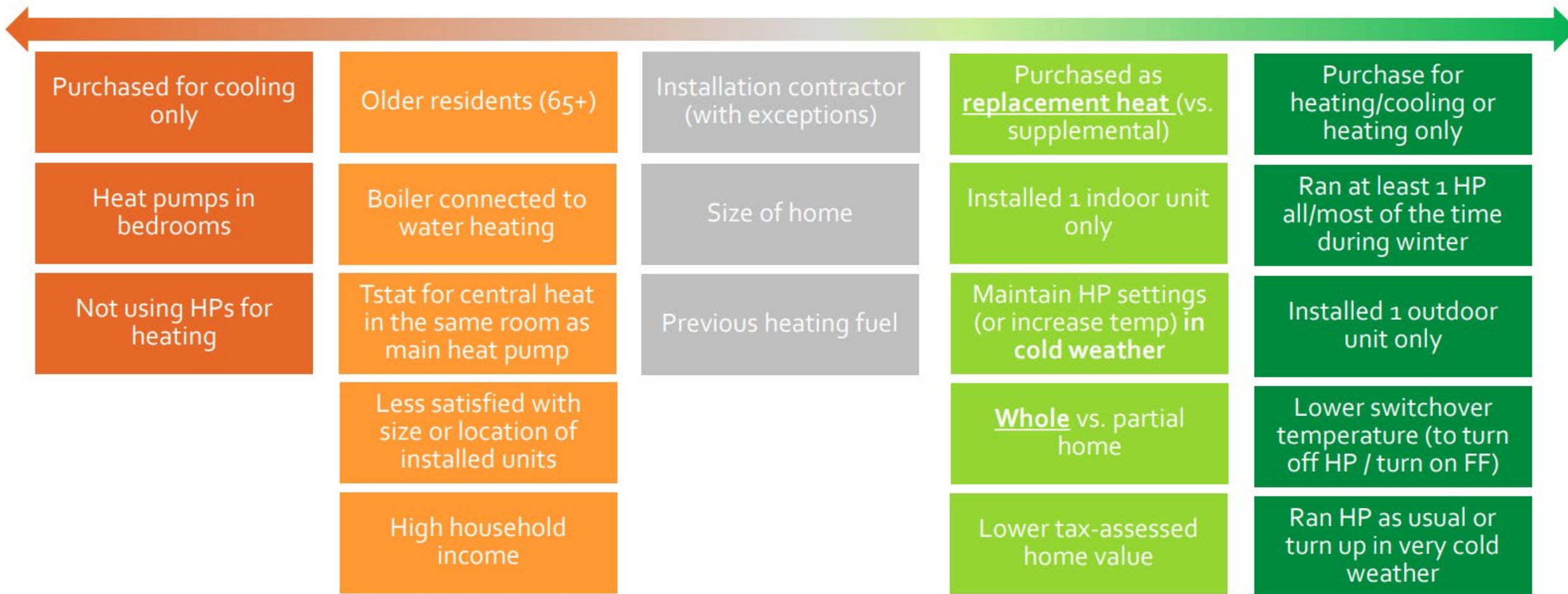
Legacy Supplemental HP Rebate - 2023 Survey Findings:

Purchase Intent and Behaviors Were Strongly Correlated with Higher Utilization Per Unit

Strong correlates of low HP utilization

Neutral / no relationship

Strong correlates of high HP utilization



Key Findings Regarding Transition to Whole-Home HP

- **New rebate requirement of whole-home HP design is driving greater displacement of fossil fuels.** As expected, compared to Legacy Supplemental Rebate, more WHHP Rebate – 2025 Survey respondents replaced fossil fuel systems with heat pumps.
- **Heat pump utilization is more consistent across conditions.** On both average winter days and very cold days, WHHP Rebate respondents are more likely to rely primarily on their heat pumps, while reliance on fossil fuels and wood has declined.
- **Distribution of heat from heat pumps has improved.** WHHP Rebate respondents report more indoor units and higher coverage of area served by heat pumps. Better heat distribution is a predictor of customer comfort and utilization of heat pumps.
- **Customer satisfaction of heat pumps remains high.** WHHP Rebate respondents report slightly higher satisfaction compared to Legacy Supplemental Rebate respondents.
- **Customer confidence in heat pumps being primary heating systems is high.**

The “Five Levers” Critical to Success

1. Offer Motivating incentives
2. Make the program Easy
3. Market the program
4. Support all players: manufacturers, distributors, installers
5. Continuously Improve

Lessons Learned

1. Offer Motivating incentives

- Pay rebates to either HO or installer
- Pay rebates QUICKLY

2. Make the program Easy

- Low/Moderate/Any same program, same claim form
- No prerequisites
- Sized (3 possibilities) as primary heating designed for specific location
- If we don't NEED it we don't collect it

3. Market the program

- One phone number
- Reimburse contractors 50% on their own program marketing
- Cross promote other efficiency measures
- Highlight benefits to customers, NOT technology

Lessons Learned con't

4. Support all players: manufacturers, distributors, installers

- Get out into the field and talk to top performers/develop relationships
- Rank database search by top performers so customers get customer service (positive peer pressure)
- Installer Support Team

5. Continuously Improve

- Change program immediately when improvement is needed
- QA 25% of all projects
- Trust but verify



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Regional Context: New England Heat Pump Accelerator

March 30, 2026



Agenda

01

New England Heat Pump Accelerator
Overview

02

Potential Regional Impacts on HP
Installation Quality and Use

03

What Vermonters Can Do



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New England Heat Pump Accelerator Overview



What is the Heat Pump Accelerator?

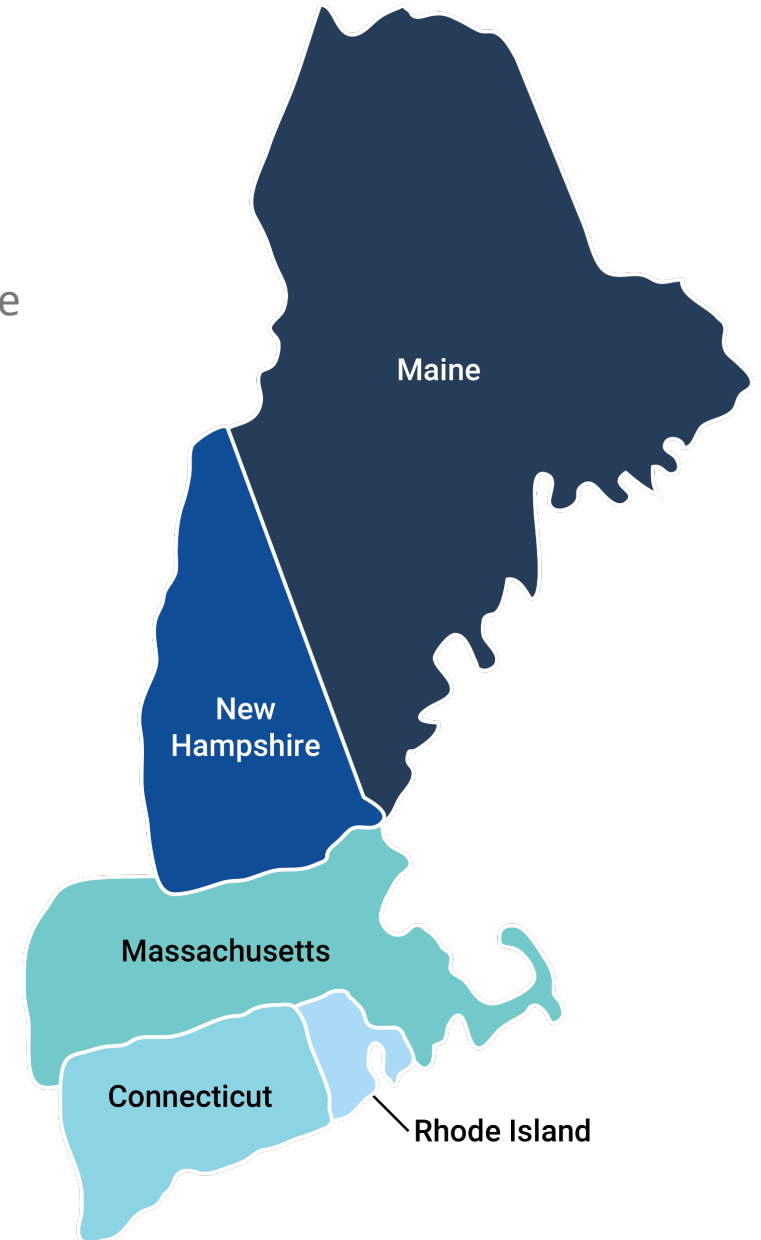
A coalition of five New England States (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island) are implementing a \$450 million regional program funded by the EPA's Climate Pollution Reduction Grant Implementation Grants. The Connecticut Department of Energy & Environmental Protection (DEEP) was the lead applicant.

The program will leverage a multi-state market to accelerate the adoption of the heat pumps (HP) in residential homes

- Cold-climate air source heat pumps (ASHP)
- Heat pump water heaters (HPWH)
- Ground-source heat pumps (GSHP)

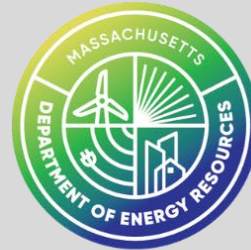
Goals

- Overcome systemic barriers to electrification
- Make HPs standard practice in HVAC & water heating
- Raise HP sales: 65% of HVAC/WH sales by 2030, 90% by 2040
- Deliver long-term greenhouse gas (GHG) reductions for the region



Governance Structure

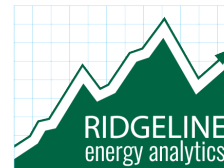
Coalition States / Advisory Council*



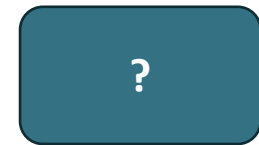
Regional Conveners



Regional Implementer*



Regional Evaluator



Overview of Program Hubs



Market Hub*

We'll spur and support heat pump supply and installation by:

- Providing midstream incentives to distributors
- Engaging with the supply chain
- Training contractors, new jobseekers, and small businesses to develop the workforce



Innovation Hub*

We'll support new ways to overcome barriers for low-income populations by:

- Centering equity in our program design
- Designing state-level pilots
- Providing community-level grants
- Offering technical support to grantees
- Ensuring innovative ideas meet program goals



Resource Hub

We'll provide central resources for deployment and learning by:

- Hosting a website
- Offering tools to key stakeholders
- Creating a reporting warehouse
- Analyzing and sharing data
- Sharing lessons learned



Market transformation

We'll support our overall goals by:

- Addressing market barriers
- Using data to continuously improve
- Developing a long-term strategic plan for region



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Potential Regional Impact on Heat Pump Installation Quality & Use



How the Accelerator will achieve long-term impacts

- **Market transformation initiatives overcome specific market barriers** to accelerate the shift in what technology people buy and what suppliers provide as the default choice

Vermont shares this regional market.

- The program will **complement existing programs**, including those engaging directly with customers
- The Accelerator will **reduce the long-term cost of achieving savings** by shifting default behavior
- The program will consider what affects purchasing decisions (beyond simply cost) and **invest in innovation** to overcome specific barriers, especially those faced by low-income populations



Workforce Development



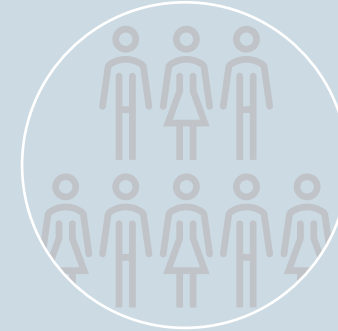
Upskilling Incumbent Workers

- Work with distributors to enhance manufacturer trainings
- Create partnerships within the building industry to build a pipeline of trainees working in adjacent fields
- Provide regional-specific trainings



Small Business Support

- Ensure small business and entrepreneurs share in economic benefits of the program
- Host business bootcamps for HVAC-related trades
- Focus on LMI communities
- Provide ongoing technical and business strategy support



New Entrants

- Collaborate with preparatory institutions, technical schools, unions, training centers, nonprofits, and other organizations to attract new workers
- Prioritize recruitment in LMI communities
- Provide wraparound services
- Train-the-trainer

Addressing workforce gaps, building consistency, and strengthening regional workforce

Free Training Modules Open to Anyone



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Explore your learning options

Category ▾



Heat Pumps 101: Heat Pump Applications

🕒 45min

Basic



Heat Pumps 102: Load Estimation Best Practices

🕒 1h



Heat Pumps 103: Heat Pump System Selection

🕒 1h 15min

Basic



Heat Pumps 104: Heat Pump Controls and Configurations

🕒 50min

Basic

State Pilots & Community Grants

The goal of the Innovation Hub is to **overcome barriers to adoption of HPs for low- and moderate-income households by testing and deploying scalable strategies** in technology, program design and delivery, customer outreach and targeting, and financing.

State pilots

- Up to \$14.5M total per state for 1–2 pilots
- Each state sets its own priorities for pilots
- State pilots may be run by an existing state program or have unique RFPs issued
- Proposals will be scored state-by-state

Community Grants

- \$100k–\$400K per grant for 20–40 grants throughout all states
- VEIC will conduct procurement for the region with up to three solicitation rounds
- Proposals will be scored across all states
- Projects are expected to be 12–24 months long



Data & Insights

www.nehpa.org will be an accessible website that acts as a centralized resource for contractors, distributors, program administrators, policymakers, municipalities, and public service organizations, providing:

- **Program information**, including
 - Midstream incentive details
 - State pilots and community grant details
 - Contractor trainings
- **Transparency around program performance, learnings, and impact**, including:
 - Data visualization (program data; full category sales data)
 - Maps
 - Reports
 - Case studies
- **Resources to help trade professionals, policymakers, and community organizations** address market barriers and challenges and optimize heat pump installation and use
- **Annual Program Status Reports & Annual Evaluation Reports** will yield program learnings & regional insights





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What Can Vermonters Do?



How can Vermont take advantage of the Accelerator?

Consider Aligning Standards

- Regional consistency helps customers & market actors
- e.g., equipment eligibility specs, training curriculum, etc.

Learn from Program Data & Resources

- Relevant lessons learned from Innovation Hub pilots
- Market data to better understand regional market
- Applicable educational resources

Stay Updated & Engaged

- Sign up for Accelerator newsletters at www.nehpa.org



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Thank you!

Tara McElhinney

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Northeast Energy Efficiency Partnerships
(NEEP)



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