

What do we know about heat pump installation and use in Vermont and the region?

Energy Action Network Heat Pump Action Team

February 13, 2026

Efficiency Vermont: Kelly Lucci and Phil Bickel

Vermont Public Service Department: Alek Antczak

Northeast Energy Efficiency Partnerships: Erin Cosgrove



February 13, 2026

Vermont Heat Pump Market Assessment

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



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



Blodgett SUPPLY



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

Heat Pump Program Structure:

Eligible Products

- Ducted and Ductless Heat Pumps
- Eligibility based on the NEEP ccASHP spec & qualified product list

Rebates (based on heat pump capacity)

Ductless:

- ≤ 2 tons = \$375
- > 2 tons = \$475

Ducted:

- ≤ 2 tons = \$1,200
- $> 2 - < 4$ tons = \$1,700
- ≥ 4 tons = \$2,200

Funding

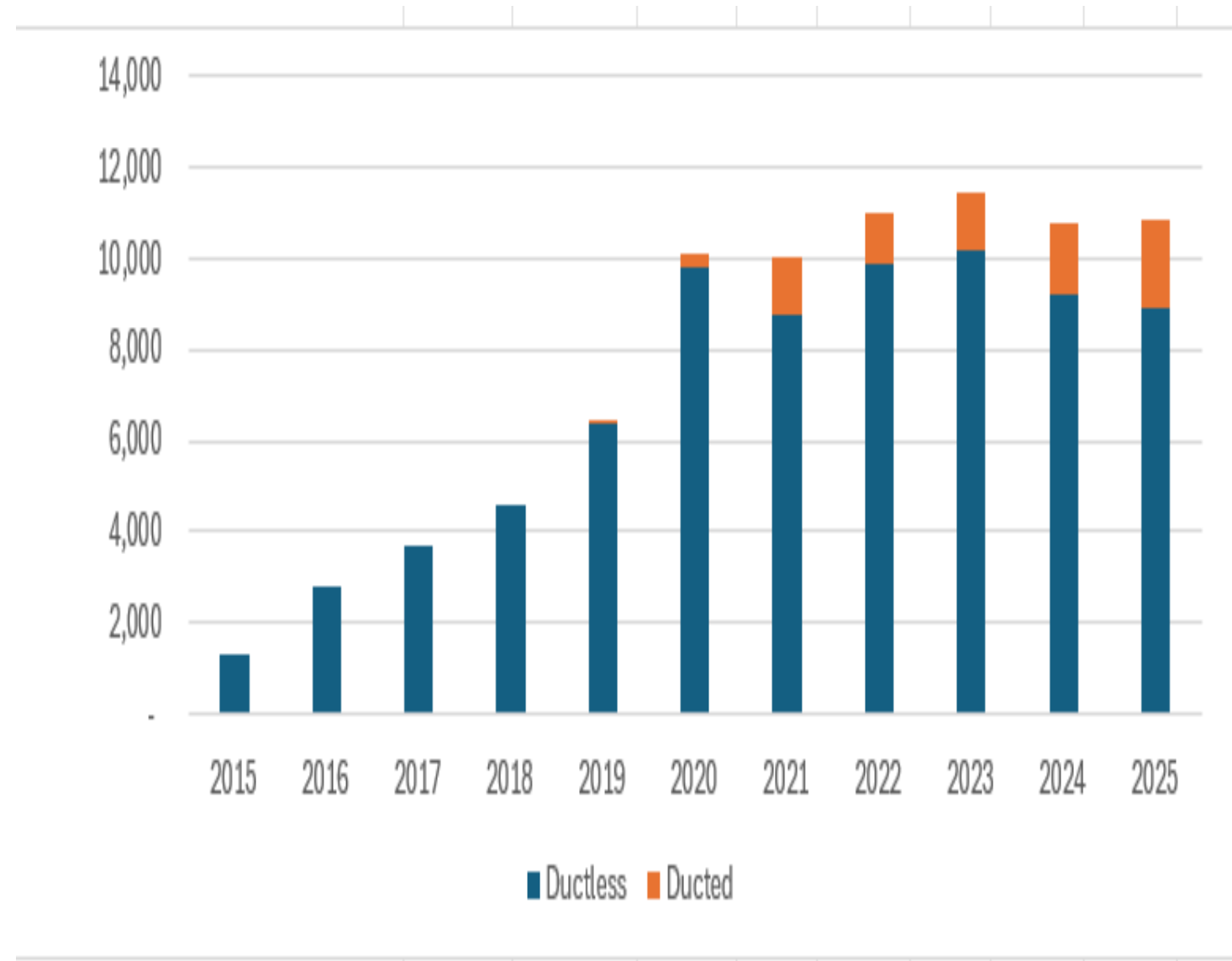
- Heat pump programs are co-funded with our distribution utility (DU) partners.
- Efficiency Vermont pays a portion & claims electric savings; DUs pay the remainder & claim fossil fuel offsets

Income Bonus

- From EVT: \$200 downstream (mail in or apply online) for Low & Moderate Income customers
- Some DUs also offer a stackable LMI rebate which EVT processes their behalf (customer receives one check for the total bonus amount)

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



Heat pump highlights

82,800

Number of HPs installed since Efficiency Vermont's rebate began in 2015

10%

Number of housing units in Vermont with a HP

+200

Efficiency Excellence Network (EEN) contractors installing heat pumps

225,638

The number of single-family detached homes in Vermont

46,524 (20%)

Single-family homes with at least one HP installed

The 2025 VT Heat Pump Market Assessment

Overview of the Market Assessment

Comprehensive Statewide Market Analysis

The assessment analyzes single-family residential heat pump adoption, barriers, and opportunities across Vermont comprehensively.

Focus on Cold-Climate Heat Pumps

The study evaluates ductless mini splits, ducted systems, air-to-water heat pumps, and heat pump water heaters suitable for cold climates in single family homes.

Utility Collaboration

Vermont Distribution Utilities and Efficiency Vermont collaborated throughout the process.



Key Findings

Customer Satisfaction

Customers report high satisfaction with heat pumps, reflecting reliability and comfort benefits.

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

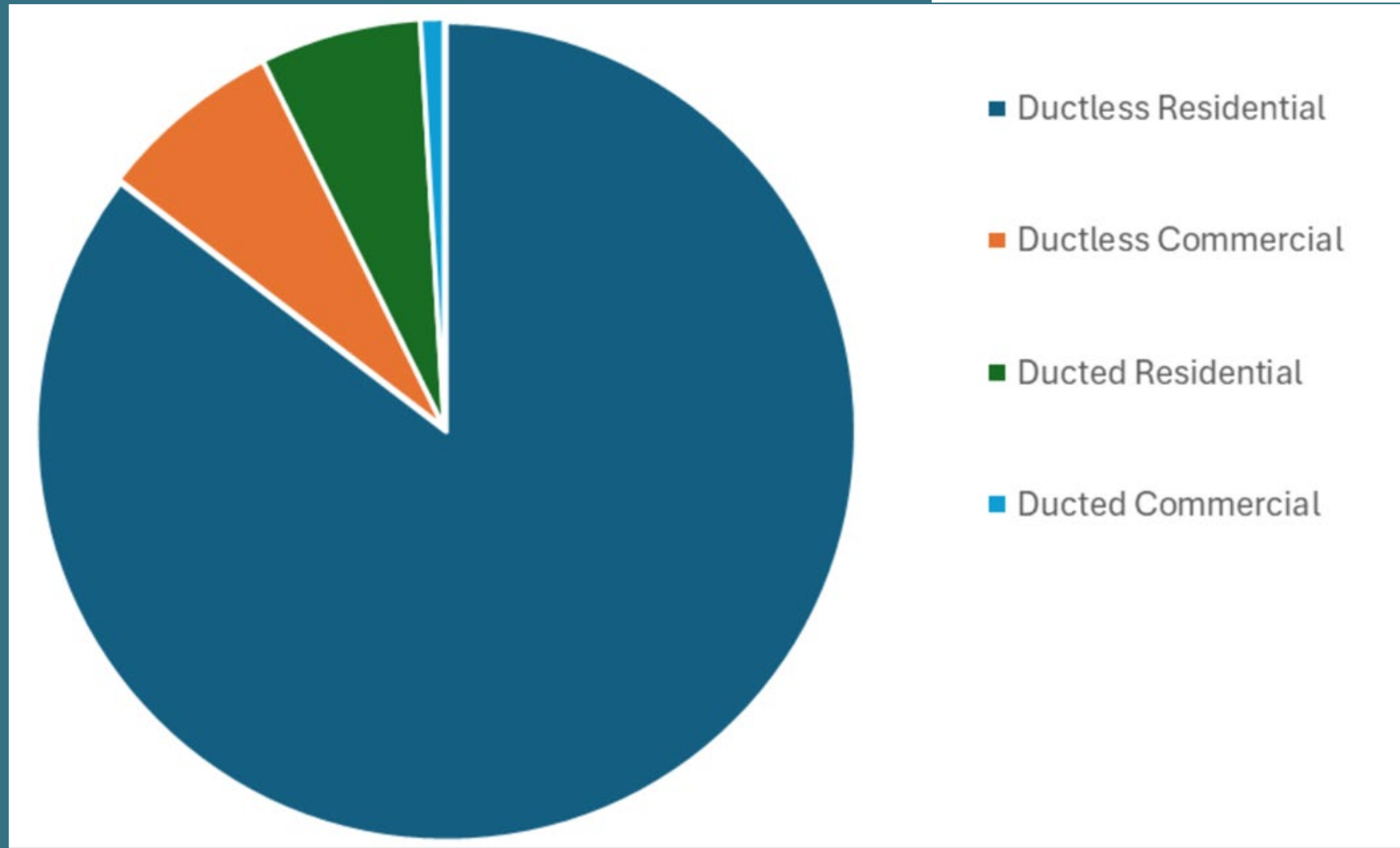
March 2025

Efficiency
Vermont

20 Winooski Falls Way
Winooski, VT 05404



HVAC heat pumps by type and market

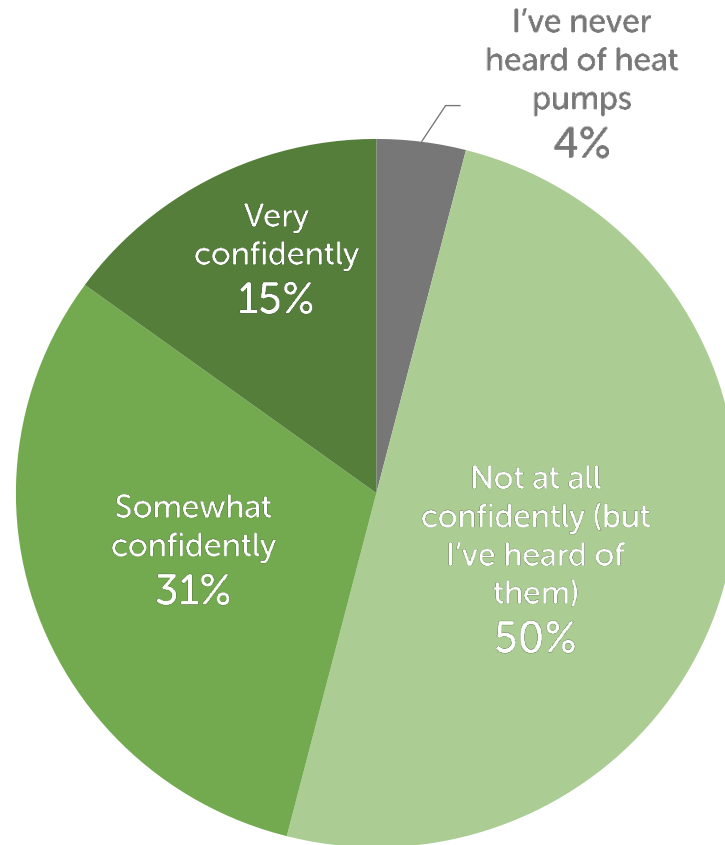


Awareness

Almost all Vermonters have heard of heat pumps.

But familiarity (how confidently they could describe what one is) varies. Low-income Vermonters are more likely to have lower levels of familiarity.

Q: How confidently could you describe what a heat pump is?





Customer Satisfaction and Usage Patterns

High Customer Satisfaction

94% of heat pump owners in Vermont report positive experiences with their systems, indicating strong satisfaction.

Winter Heating Underutilization

90% of owners use secondary heating on very cold days, showing heat pumps are underused for winter heating.

Air Conditioning as Motivation

Air conditioning motivates 73% of owners to install heat pumps, emphasizing cooling benefits as a key factor.

Need for Education

51% of non-owners do not understand heat pumps well, highlighting the need for better education and outreach.

Barriers to Heat Pump Adoption

Upfront Cost Barrier

Upfront cost is the leading barrier, cited by 52% of respondents, limiting heat pump adoption in Vermont.

Aging Housing Stock

57% of Vermont homes built before 1980 pose technical challenges for retrofitting heat pump systems. Heat pumps face technical issues like integration with existing heating systems and older home weatherization needs.

Behavioral Factors

Lack of awareness and usage patterns limit effective use and adoption of heat pumps.

Electrical System Upgrades

30% of non-owners identify electrical upgrades as necessary to support new heat pump installations.

Equity Considerations

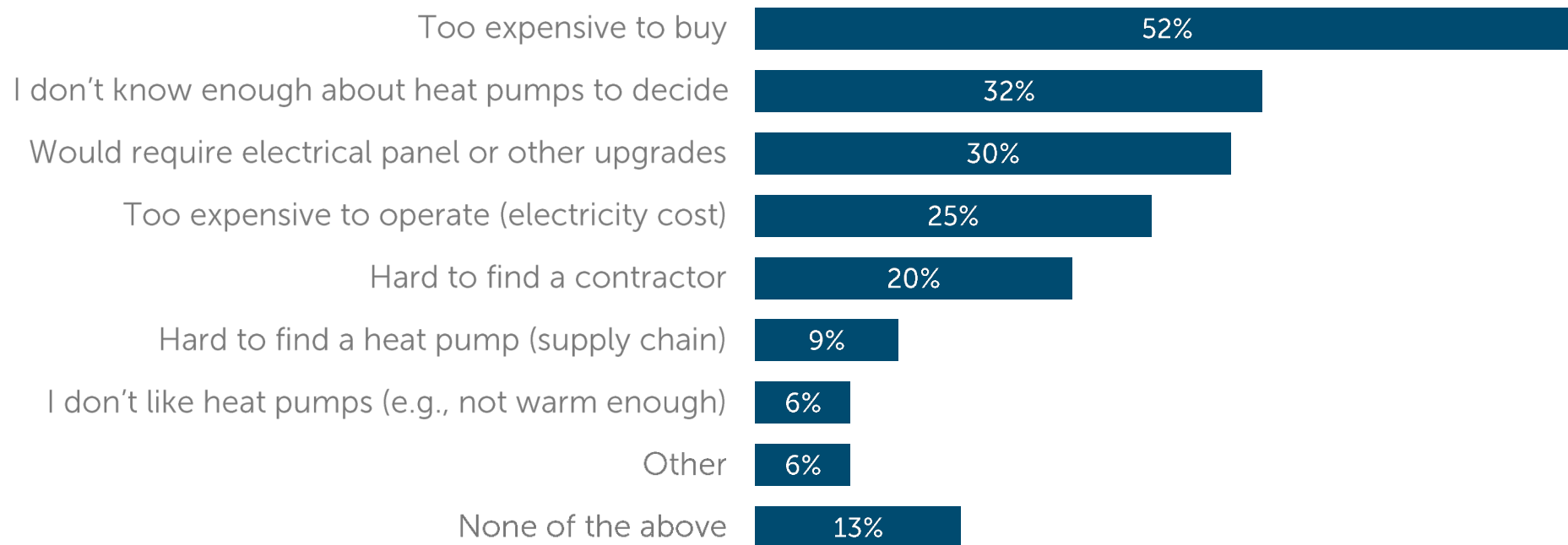
Low-income and rental households face unique barriers requiring tailored adoption solutions.



Barriers

Upfront cost and **limited knowledge** of heat pumps are the primary barriers to installation cited by non-owners.

Some non-owners are aware of the potential need for **supplementary upgrades** (like a panel upgrade) to enable heat pump installation.

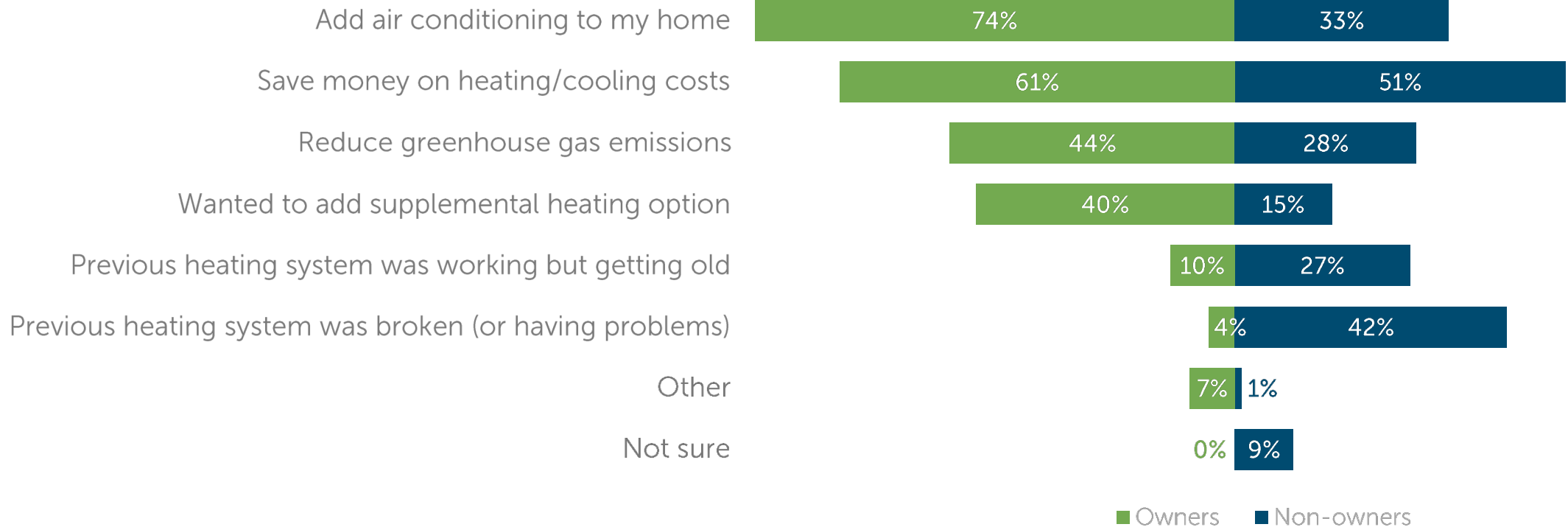


Q: The items below are reasons some people say they aren't likely to install a heat pump in the next few years. Do any of these apply to you? Please select all that apply.

Motivations

Cooling is a substantial motivator for heat pump installations.

It was also by far the most common topic mentioned by owners as “the best thing” about their heat pump.

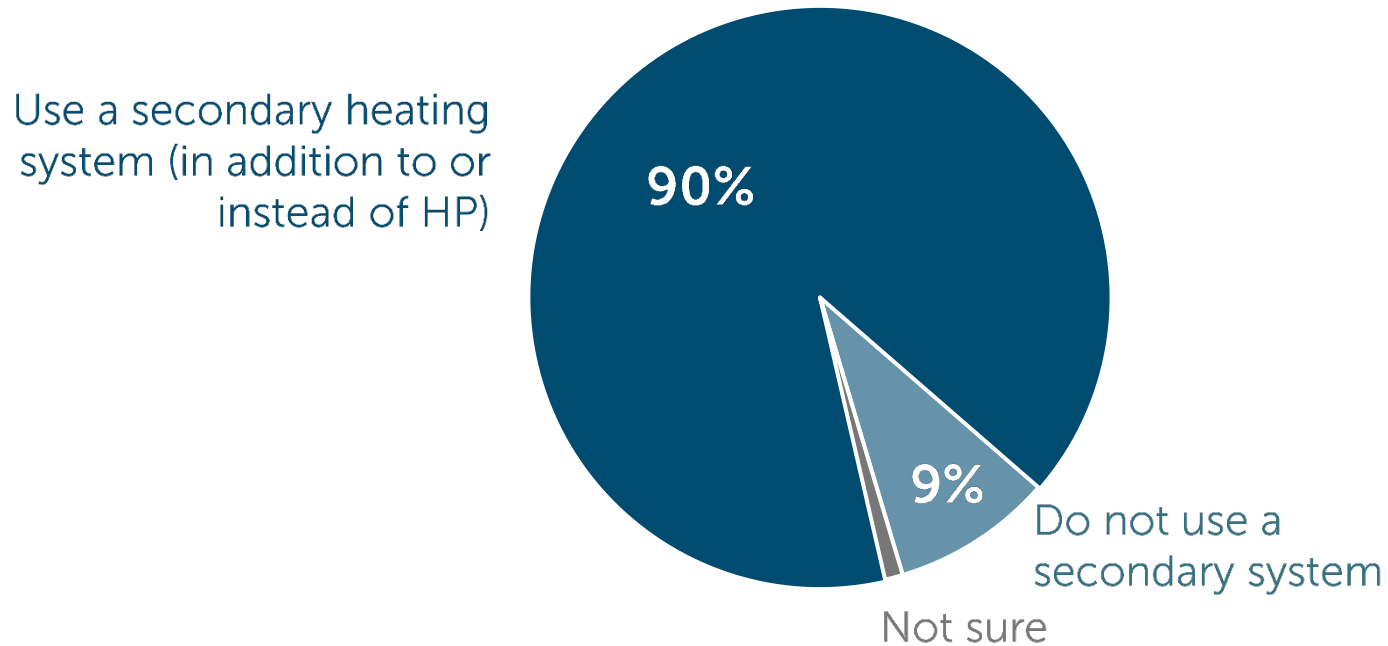


Q: What were the top three reasons you decided to get a heat pump? [Owners, select up to three]

Q: The items below are reasons some people say they installed a heat pump. Do any of these resonate with you as a good reason to install a heat pump? [Non-owners, select up to three]

Performance in cold weather

Almost all owners use a secondary heating system on “very cold” days.



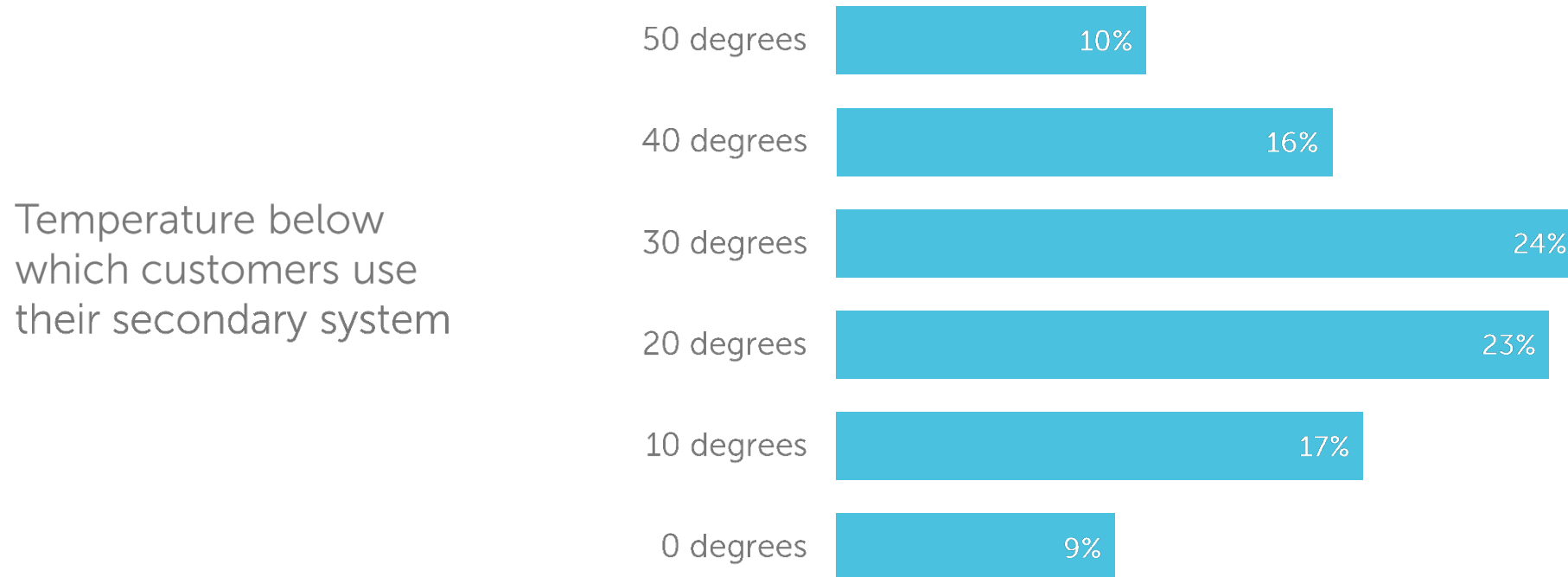
Q: Do you use a different heating system (other than or in addition to a heat pump) on very cold days? [Asked only to owners who report using their HP to heat]



Performance in cold weather

Many customers report using their secondary system in temperatures that are **higher** than the minimum temperature in which their heat pump is rated to perform.

Most (79%) report turning this secondary system on manually (e.g., adjusting a thermostat or lighting a wood stove).



Q: Below what temperature do you use this different heating system? [If indicated they use a secondary system]

Q: Which of the following best describes how you turn this other heating system on? [If indicated they use a secondary system]

What happens from here?

Next Energy Action Network webinar:

Improving heat pump installation and use in Vermont

Monday, March 30 (12-1)

Evolving the Program

Consumer Education

Enhance end-user education and outreach to support efficient heat pump adoption

Contractor Training

Develop a Trade Ally Incentive offer to contractors that attend Efficiency Vermont approved trainings on best practices for heat pump system design and installation

Whole Home Rebate

We plan to launch a program in 2027 that will offer higher rebates for “whole home projects” designed to offset the majority of the fossil fuel heating usage in the home

Questions?

Phil Bickel
HVAC Program Manager

E pbickel@efficiencyvermont.com

T (888) 921-5990

D (802) 540-7666

20 Winooski Falls Way, 5th Floor

Winooski, VT 05404

efficiencyvermont.com



Cold Climate Ductless Heat Pumps

24-25 Impact Evaluation Results

Summary

Human Behavior

- Not offsetting heating loads as predicted
 - ~30% less MMBtu savings per unit
- Oversizing of systems, *and* increased cooling loads
 - Consuming more energy and capacity
 - Added expense for customers
 - Added cost to grid

Cost

- System costs are higher than program assumptions
 - Estimates range from 25-300% more expensive*

Preliminary screening results

- **some units are cost-effective, some are not**

*Based on NESCAUM Report - Heat Pumps in the Northeast and
Mid-Atlantic Coastal Value Trends, 2024.

What's at Stake

Vermont rebates 10,000-15,000 ductless heat pumps per year
Prompted over \$162 million investment in ductless HP technology in the last 2 years

Cold Climate Heat Pumps	2023	2024
Annual Installs	12,091	10,925
Total Installed Cost	\$85,350,369	\$77,119,575

Vermont expects a lot from ductless heat pumps-
In the PSD CHS potential assessment, to hit GWSA thermal emissions reduction targets by 2050, **10% of all GHG reductions are expected to come from ductless heat pumps.**

Problem:

Ductless HPs cost more money for customers and the grid, and save less energy and GHG emissions than our previous models predicted.

Key Points

*Compared to Current Assumptions

Rated Capacity

- 17% increase in average system size

Larger systems = higher demand per unit

Equivalent Full Load Hours (EFLH_h) and (EFLH_c)*

- 54% reduction in total heating usage
- 105% increase in total cooling usage

Less heating use = lower savings from supplementary heating

More cooling use = larger load build in summer, less kWh savings from customers w/ existing cooling (related to point #1)

Heating Fuel Offset

- 33% reduction in total heating fuel savings

Less heating fuel offset = less GHG savings, less bill savings for customers

*Equivalent Full Load Hours is the standard for estimating how long a heating or cooling system needs to run at full capacity to meet the building's annual energy requirements.

Meta-analysis

Variable	2017 Findings	2021 Findings	2024 Maine	2024 Findings	2024 Findings
Unit of Analysis	Per Heat Pump	Per Home	Per Heat Pump	Per Home	Per Heat Pump
Rated Capacity (BTU/hour)	17,388		18,143	29,377	20,401
Impacts (Δ kWh/year)	2,085	1,539	1,887	1,923	1,335
Δ kWh per kBtu of Heat Pump	120	-	104.0	65.5	
Efficiency Metric	HSPF/ metered		HSPF/metered	HSPF2	
HSPF	11.9/ 10.7		12.5/ 8.84**	10.1	
EFLH Heat Calculated	1,426/ 1,283+	-	1,300/ 919***	634	
EFLH Cool	240	-		492	
Winter kW	0.52	0.35		0.39	0.27
Fuel Offset (MMBtu per year)	*26.6	-	20.8*	25.5	17.7

Equivalent Full Load Hours are lower, partly due to the larger average installed capacity, but primarily due to lower use than previously assumed.

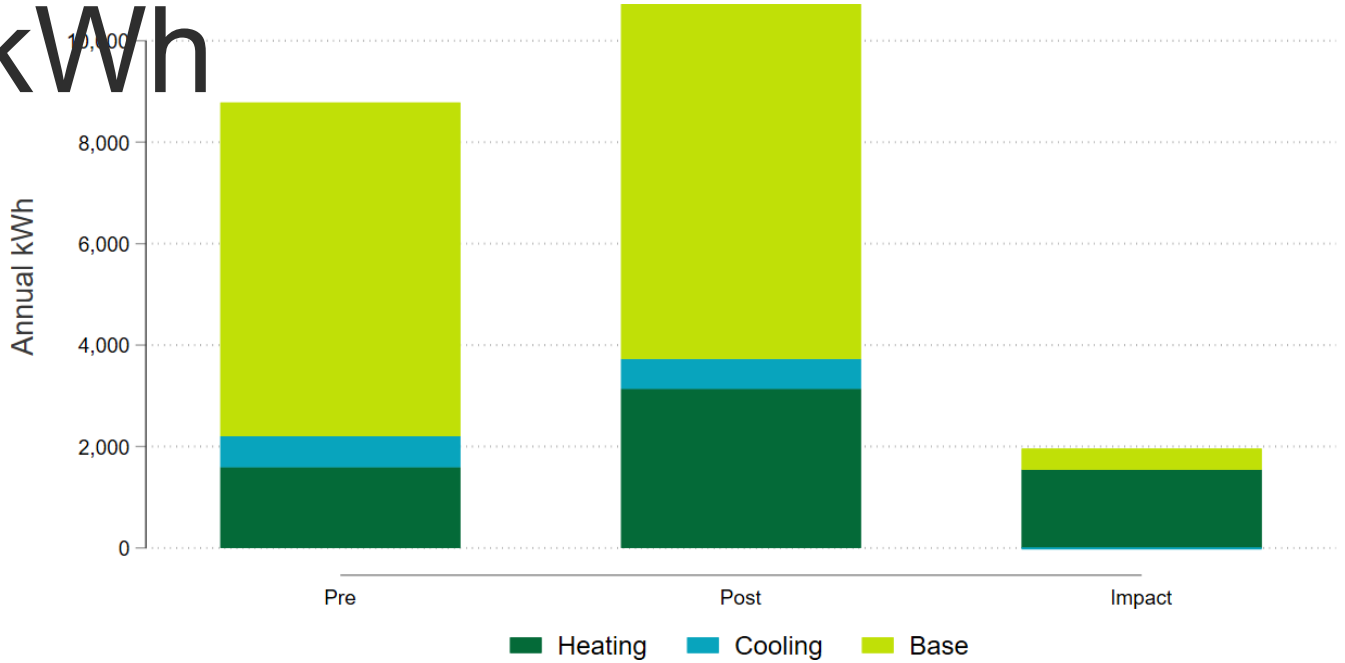
* Calculated using a weighted average thermal efficiency of 80.4% since the study reported output MMBtu

** Approximate weighted average of rated HSPF; metered is based on actual field COP.

*** EFLH calculated using average HSPF and actual field efficiency

+ Value of calculate 1,383 based on the average of individual EFLH

Average Annual kWh

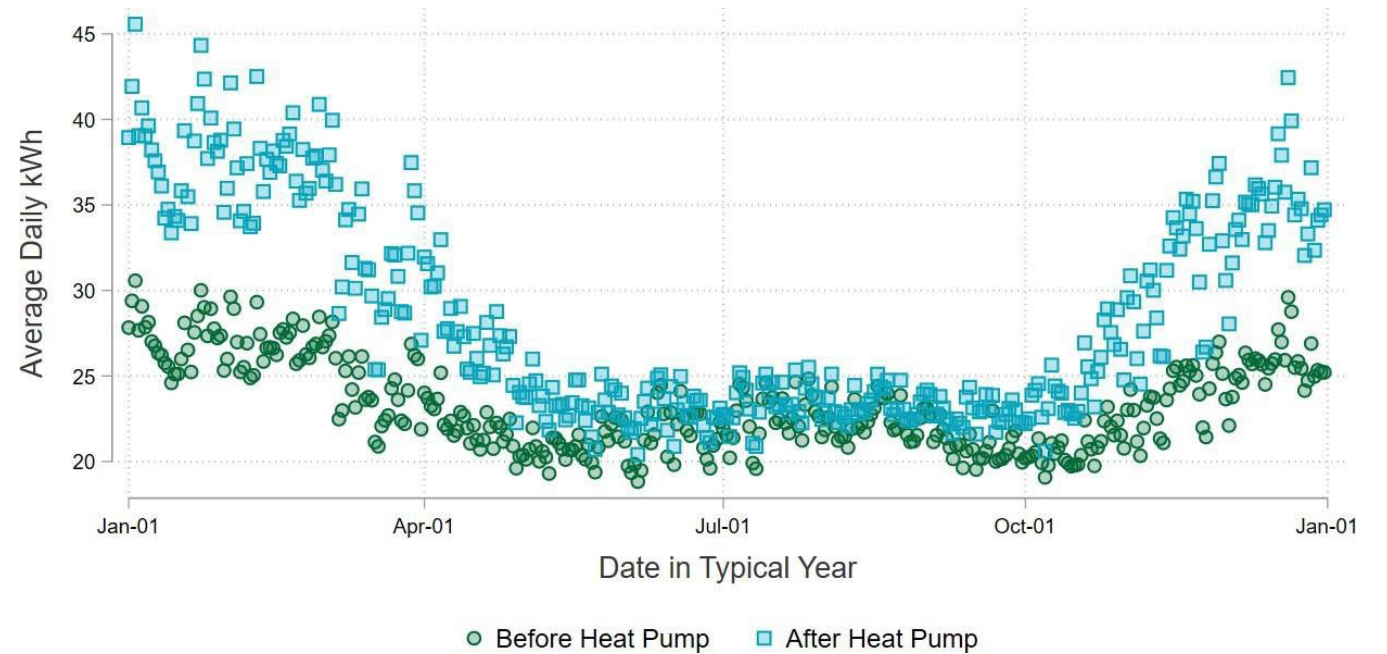


Most of the impact is associated with heating degree days, while the impact of cooling degree days is slightly negative.

The DPS is investigating why the base load would also increase post-period.

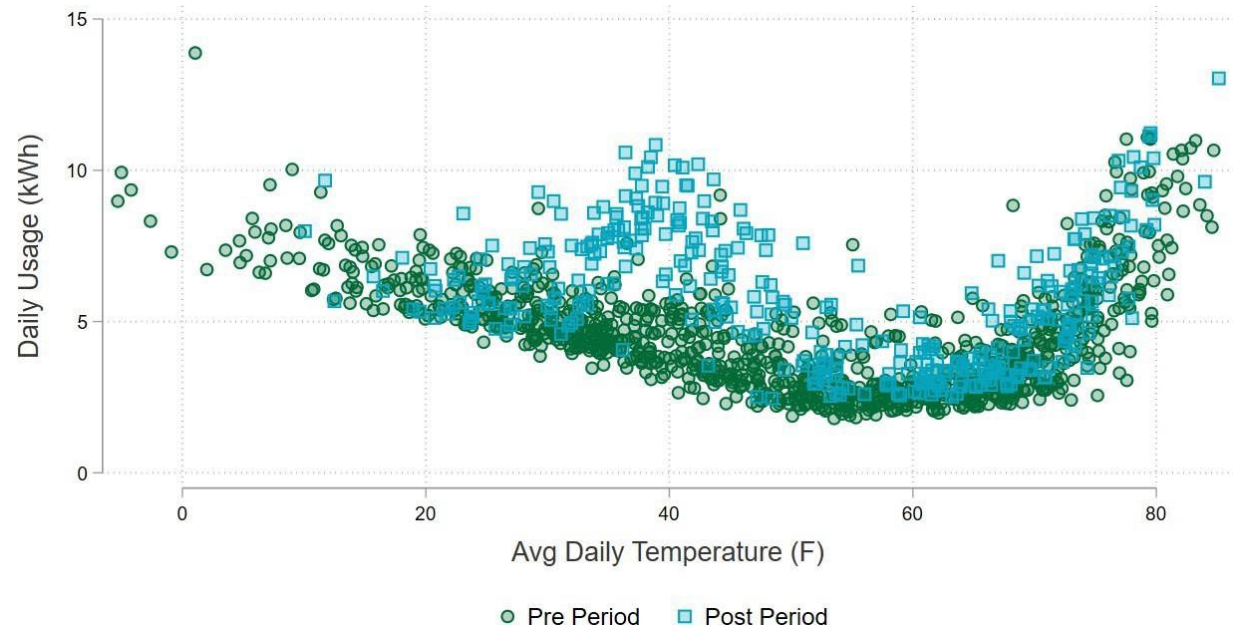
Daily kWh Pre/Post Installation

Expected growth in heating-driven load as well as some additional cooling load.



Avg Temp Pre/Post Installation

As the average daily temperature starts to go below 35 F°, the post-period trend starts to match the pre-period trend, suggesting that the residents have turned their heat pump off and turned their legacy heating system on.



Questions

Alek Antczak

Division of Energy and Efficiency Resources

alek.antczak@vermont.gov

(802) 828-4020



Heat Pump Installation and Use in New England

Erin Cosgrove
Director, Policy and Programs
Northeast Energy Efficiency Partnerships



Northeast Energy Efficiency Partnerships



About

Non-partisan, non-profit 501c3 organization founded in 1996; One of six Regional Energy Efficiency Organizations

Vision

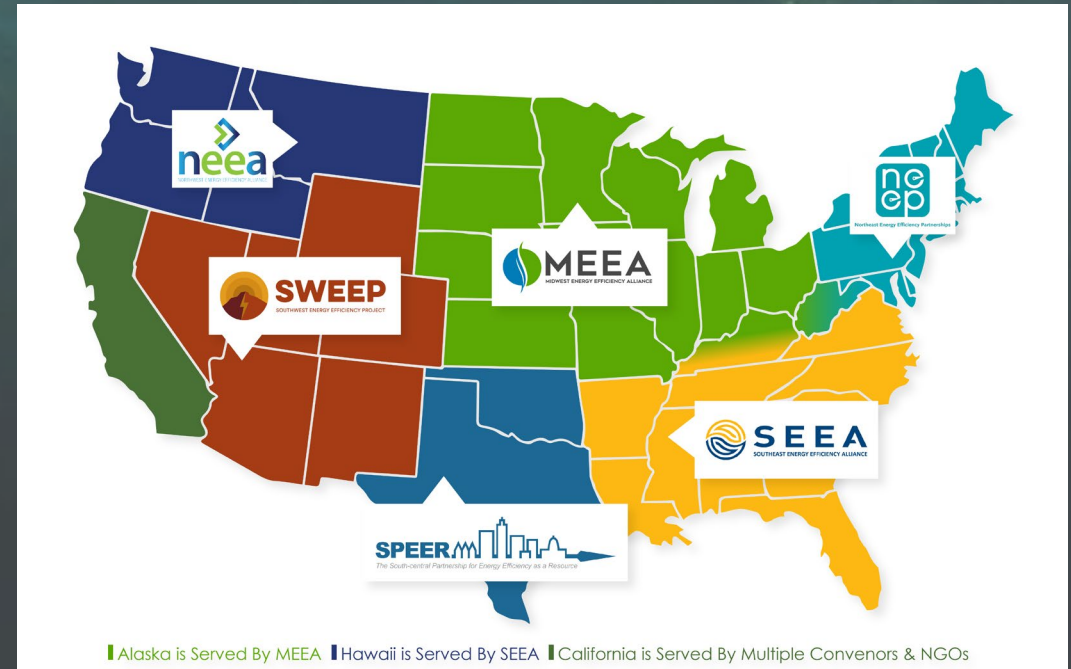
We envision the region's homes, buildings, businesses, and communities transformed into efficient, affordable, low-carbon, resilient places to live, work, and play.

Mission

We drive regional collaboration and best practices in energy efficiency so the Northeast and Mid-Atlantic region can lower energy bills, reduce air and carbon pollution, create jobs, and improve energy and climate resilience.

Approach

Drive market transformation regionally by fostering collaboration and innovation, developing research and tools, and disseminating knowledge.



Heat Pump Market in the Northeast

Estimated heat pump sales in the Northeast outperformed the national market from 2021-23:

NORTHEAST MARKET

VS

NATIONAL MARKET

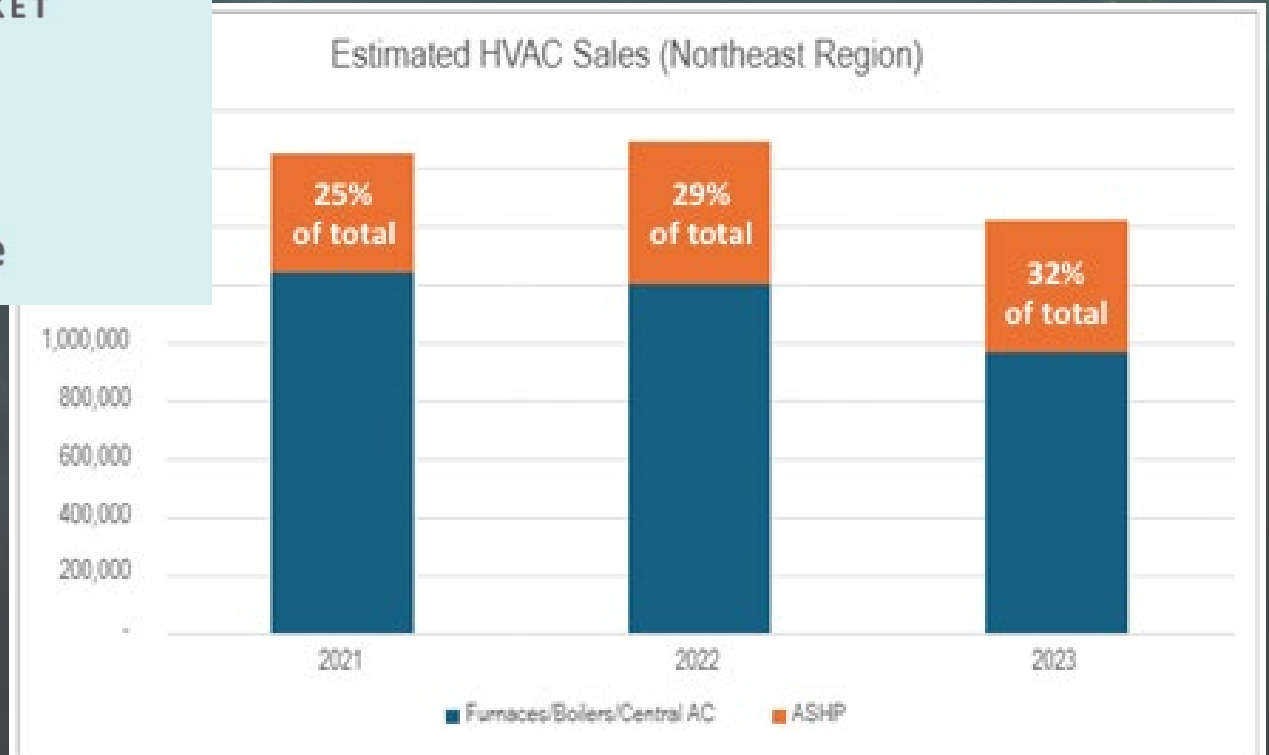


12% increase



8% decline

Estimated HVAC Sales (Northeast Region)



Source: [Residential Heat Pump Market Assessment, 2025 Data Snapshot](#)

Estimated Installed Costs of a Heat Pump System



	Typical Low	Typical High	Average Low	Average High
Whole Home Centrally Ducted HP	\$12,000	\$28,000	\$18,000	\$22,000
Whole Home Ductless HP	\$10,000	\$26,000	\$14,000	\$20,000
Centrally Ducted HP/Furnace (Dual Fuel)	\$11,000	\$28,000	\$18,000	\$20,000
Single-Zone Ductless HP	\$5,000	\$10,000	\$7,000	\$8,000

Source: [NEEP Northeast High Performance HVAC Market Assessment](#) and Rewiring America [Upfront Cost of Home Electrification](#)

Regional Heat Pump Program Summary

All states in New England offer heat pump rebates

- Market rate incentives vary between \$240 to \$10,000 per residence
- Rebates are increasing to encourage whole home replacement*

Programs offer both mid-stream and down-stream rebates.

- Recognizing the importance of engagement with contractors and distributors

Weatherization is seen as a key tool for states to ensure comfort and affordability*

- Priority for states with natural gas where HPs can raise bills

Most states have a workforce development network as a key touchpoint with the industry

- 4 out of 5 New England states require a certain level of training to access program rebates



Regional Heat Pump + Weatherization Programs



State	Program	Co-promotion Model	Weatherization Incentive Structure/Linkage
CT	Energize CT	Bonus	Completing weatherization unlocks additional HP incentive if installed within 12 mo.
MA	Mass Save – Whole-Home	Both measures required	Home must be sufficiently weatherized to qualify
MA	Mass Save – Partial Home	Bonus	\$500 Weatherization Bonus and \$500 Sizing Bonus
ME	Efficiency Maine	Information Sharing	Weatherization offered through separate coordinated program; sequencing encouraged but not required
NH	NH Saves	Information Sharing	Audits and weatherization offered through separate program; pairing encouraged but not required
RI	Clean Heat RI	Both measures required	Home must have “sufficient” weatherization
VT	Efficiency VT	Information Sharing	Weatherization rebates and audits available; pairing encouraged but not required

[NEEP, Co-Promotion of Weatherization and High-Performance HVAC Best Practices](#)

Programs Adjustments to Ensure Higher Usage

Assessment of Heat Pumps in Maine Homes (2026)

Efficiency Maine Trust (EMT) evaluated heat pumps in 2021 – 2022 and 2022 – 2023 and found they were under utilized.

Introduced a whole home program and saw usage increase

- Installations required to cover 80% or more of heating load

Study found that whole home heat pumps were operating closer to their full capacity and “displacing significantly more fossil fuel”

- All homes saw 64% heat pump usage, 24% central fossil system usage
- Removing bottom 10 that infrequently used their heat pumps resulted in 73% heat pump usage, 17% central fossil usage

Massachusetts and Connecticut Heat Pump Metering Study (2021 - 2022)

Program Requirements

- MA, customers were required to disconnect their heating equipment
- CT, customers were required to install integrated controls or remove equipment

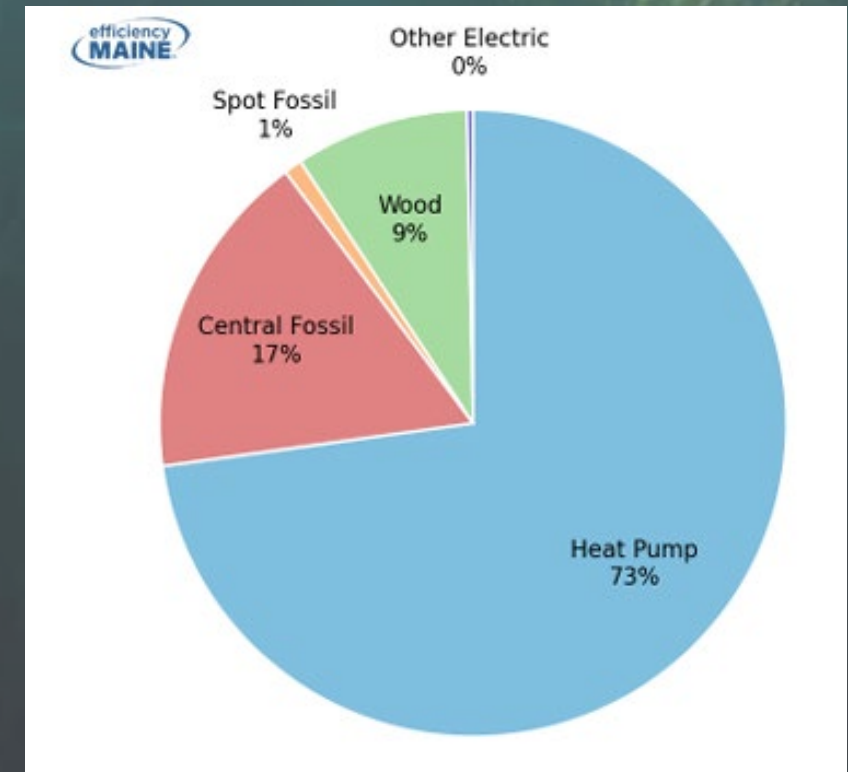
For full displacement, almost all the heating load was displaced

- 86% for ducted and 92% for ductless

For partial installation, more than half of the heating load was displaced

- 67% for ducted and 79% for ductless

Heating Provided to Homes by Heat



Source: [Maine 2026 Study](#)

Policies and Programs Advancing Heat Pump Deployment



Increase incentives to prioritize full replacement

- Massachusetts defines whole home as 90 – 120% of heating load, provide per ton rebates
- New York defines whole home as 100 – 120% of heating load, provide per ton rebates
- Maine defines whole home as 80% or more of heating load, provide per unit rebates

Increase Workforce Training and Installer Network Engagement

- Focusing on best practices for installation and sizing

Continuing both mid-stream and down-stream rebates to engage consumers and align the supply chain

- New England Heat Pump Accelerator

Adjustments to rate design to promote demand reduction and align with adoption of new technologies

- Massachusetts, Heat Pump Rates
- Maine, Default TOU Rates Proceeding

Prioritizing delivered fuels and electric resistance customers as heat pumps



Snapshot of Annual Heating Costs, Maine



Annual Heating Costs

Natural Gas Boiler: \$1,694

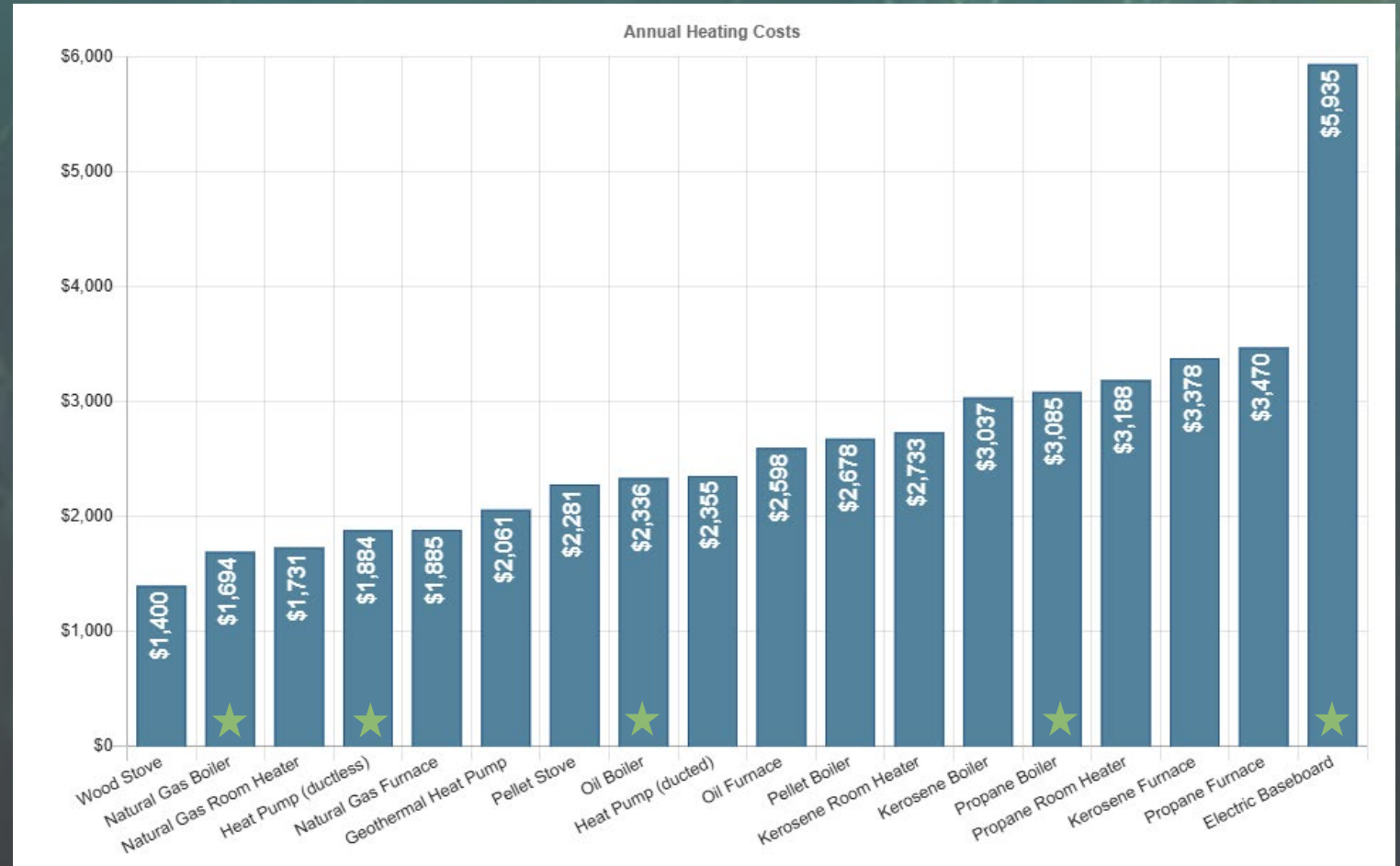
Heat Pump Ductless: \$1,884

Oil Boiler: \$2,336

Propane Boiler: \$3,085

Electric Baseboard: \$5,935

Source: [Efficiency Maine Trust, Residential Heating System Cost Calculator](#)



Thank you!



Erin Cosgrove

- *Director, Policy and Programs*
- ecosgrove@neep.org

Resources

- [NEEP, Northeast High-Performance HVAC Market Assessment](#)
- [NEEP, Co-Promotion of Weatherization and High-Performance HVAC Best Practices](#)
- [NEEP, Modern Rate Design in the Northeast: Unlocking Efficiency, Affordability, and Electrification](#)
- [Efficiency Maine Trust, Whole Home Heat Pump Study \(2026\)](#)