WHOLE HOME HEAT PUMP REBATE – 2025 SURVEY

SUMMARY RESULTS – NOVEMBER 2025

Prepared by Demand Side Analytics for the Efficiency Maine Trust

Acknowledgements

- The survey and analysis presented here was performed by Demand Side Analytics at the request of and under contract to the Efficiency Maine Trust.
- Any reference to or re-use of any data, graphs, images or other content contained in this presentation shall provide appropriate citation as follows:

  Demand Side Analytics, "Whole Home Heat Pump Rebate – 2025 Survey," prepared for the Efficiency Maine Trust, 11/2025.

- This presentation contains data and analysis from a 2025 survey of customers who recently participated in the Efficiency Maine Trust's program to promote "whole-home heat pump" (WHHP) systems. These WHHP systems are intended to serve as a Maine home's "primary" heating source.

  The first part of the presentation compares the findings of the 2025 survey with findings from an earlier survey conducted in 2023. The 2023 survey interviewed customers who had received rebates through a legacy program, discontinued in 2023, for heat pumps characterized as a "supplemental" heating source.

  The second part of the presentation contains more detailed findings from the 2025 survey about customers' perceptions of their WHHP system.

Glossary

1. HP → Heat Pump
2. FF → Fossil-fueled heating system
3. WHHP → Whole-Home Heat Pump System – a home heat pump system, whether using a central ducted system, mini-splits, or a combination of both, which taken together meet or exceed 80% of a home's heat load at design temperature, and when combined with qualifying supplemental heat sources (NOT the old central system), must meet or exceed 100% of heat load at design temperature.
4. "Legacy" rebate → refers to the former residential heat pump rebate program before Efficiency Maine introduced WHHP requirements for rebate eligibility. While it had equipment efficiency requirements, the "legacy" rebate did not have capacity requirements.
5. "Primary" heat → Whole-home HP rebate recipients were asked which heating system they consider as primary, or which system they "rely on the most"
    1. "HP Primary" = WHHP rebate recipients who stated that they relied mostly on their heat pumps
    2. "HP Supplemental" = WHHP rebate recipients who stated that they relied mostly on other heating systems, but still used their heat pumps for some heating

BACKGROUND

Background

- Efficiency Maine Residential Heat Pump Program Design Changes (Fall 2023)
  - Legacy rebate offerings for Supplemental heat pumps discontinued (limited exceptions)
  - New rebate requires a Whole Home Heat Pump (WHHP) design
  - Heat pump / fossil fuel combination systems ("dual fuel") are not rebate eligible
  - Heat pumps (newly installed together with any previously installed HPs) must be sized for at least 80% of home's peak heating load
  - Resulting HP system, combined with any supplemental sources (e.g., stoves, space heaters), must be sized for at least 100% of home's peak heating load.
    - Central fossil-fuel heating systems may be used for emergency backup, but their heating capacity cannot be counted toward the 100% requirement.
  - Heat pump(s) will be used as primary heating system throughout the heating season
  - Only single-zone heat pumps are rebate-eligible. Multi-zone heat pumps are not rebate-eligible, but do count towards the peak heating load requirement.

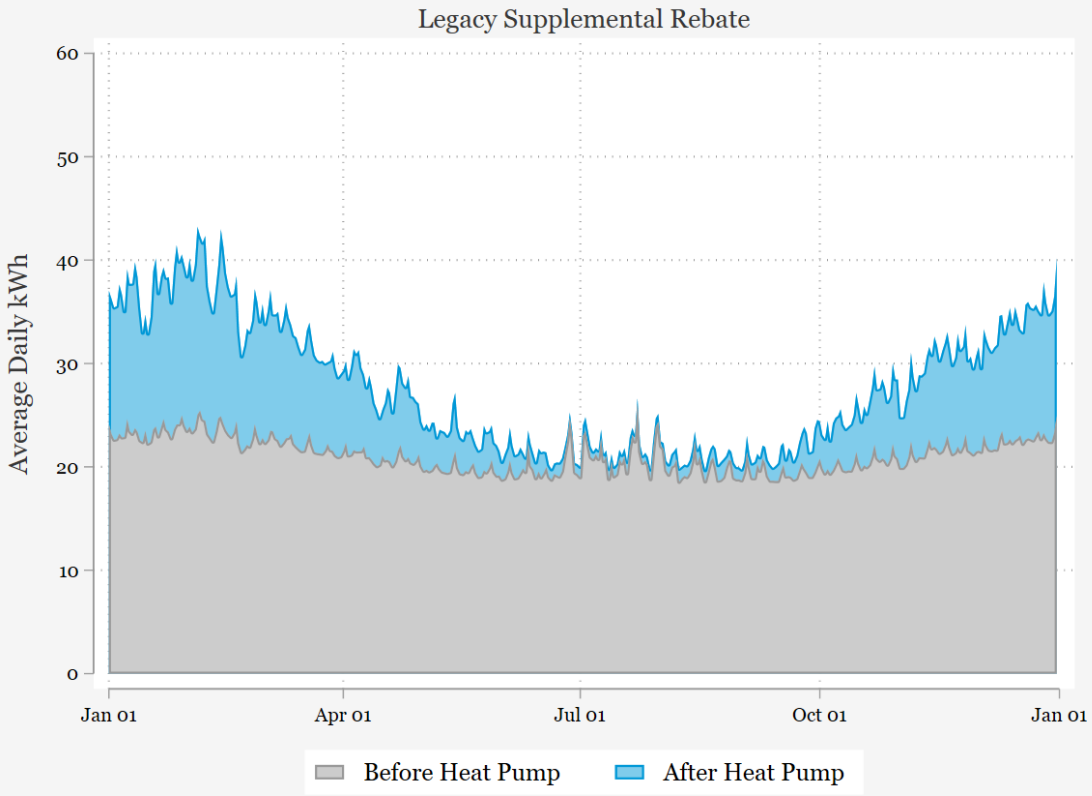
- Prior Research on Utilization
  - Efficiency Maine's AMI analysis suggested that nearly three-quarters of Supplemental HP rebate recipients used less winter electricity than expected, suggesting reduced economic benefits due to continued fossil fuel use
  - Efficiency Maine conducted a survey of legacy Supplemental rebate participants in 2023 to identify characteristics, beliefs, or behaviors among "low users" and "high users" to inform program marketing and delivery, education & training. It aimed to identify:
    - Characteristics to target or avoid
    - Usage behaviors or beliefs associated with continued fossil fuel use
  - AMI analysis and end-use metering of WHHP participants suggests an increase in heat pump utilization relative to the legacy Supplemental rebate offering, resulting in improved economic benefits to homeowner.

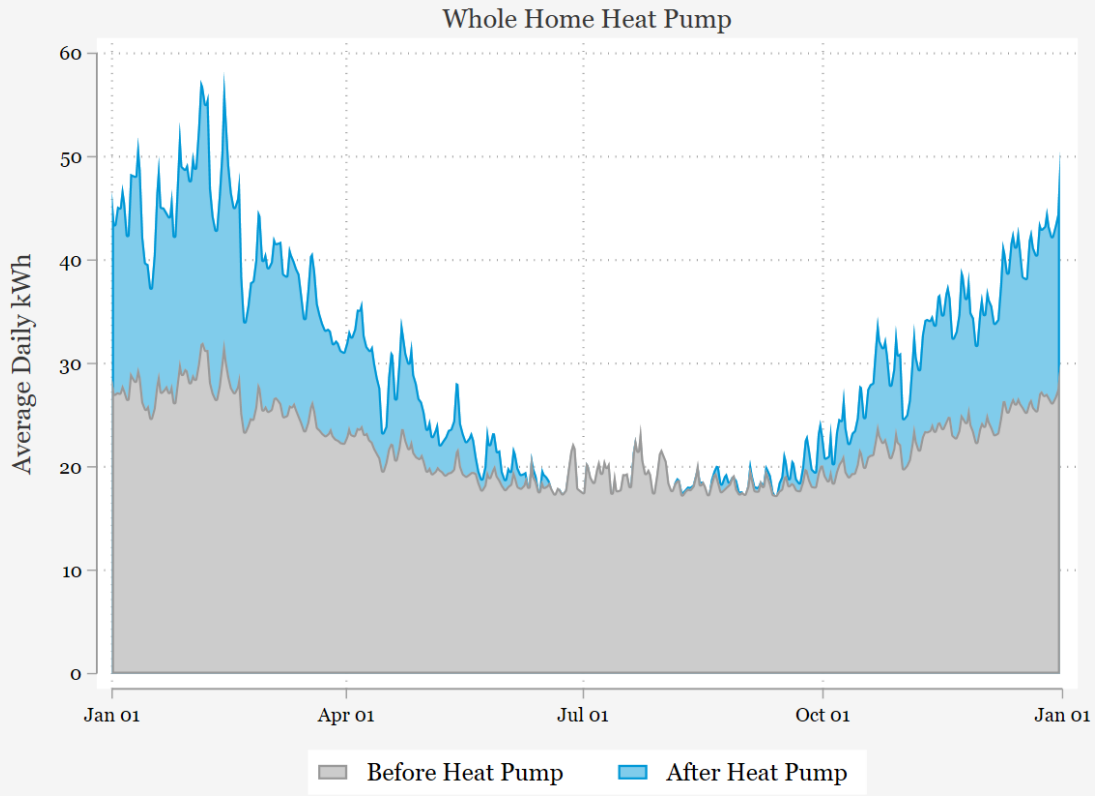
Legacy Supplemental HP Rebate - 2023 Survey Findings:

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	
Purchased for cooling only	Older residents (65+)	Installation contractor (with exceptions)	Purchased as **replacement heat** (vs. supplemental)	Purchase for heating/cooling or heating only
Heat pumps in bedrooms	Boiler connected to water heating	Size of home	Installed 1 indoor unit only	Ran at least 1 HP all/most of the time during winter
Not using HPs for heating	Tstat for central heat in the same room as main heat pump	Previous heating fuel	Maintain HP settings (or increase temp) **in cold weather**	Installed 1 outdoor unit only
	Less satisfied with size or location of installed units		**Whole** vs. partial home	Lower switchover temperature (to turn off HP / turn on FF)
	High household income		Lower tax-assessed home value	Ran HP as usual or turn up in very cold weather

AMI Analysis Suggests Improved HP Utilization Under The WHHP Rebate Structure.





Weather-normalized daily kWh values are based on TMY3 data for the nearest station to each participant

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Whole Home Heat Pump (WHHP) Rebate – 2025 Survey

- Survey Goals
  - Understand how whole-home heat pump participants are using heat pumps and supplemental heating sources, and if moving to the whole-home rebate requirement (from supplemental heat pump rebates) has encouraged higher displacement of fossil fuels.
  - Compare response patterns with 2023 survey of supplemental heat pump rebate; explore whether attitudes and behaviors have shifted as suggested in the AMI results.
- Target Customers
  - Residential whole-home heat pump rebates between 9/18/2023 to 1/31/2025
  - Three income designations (Low, Moderate, Any)
- Survey Deployment
  - Fielded in July 2025
  - Invited 8,800 customers
  - Received 1,286 responses, 14.6% complete rate without incentive

COMPARISON OF TOP LINE RESULTS:

WHOLE HOME HEAT PUMP REBATE – 2025 SURVEY

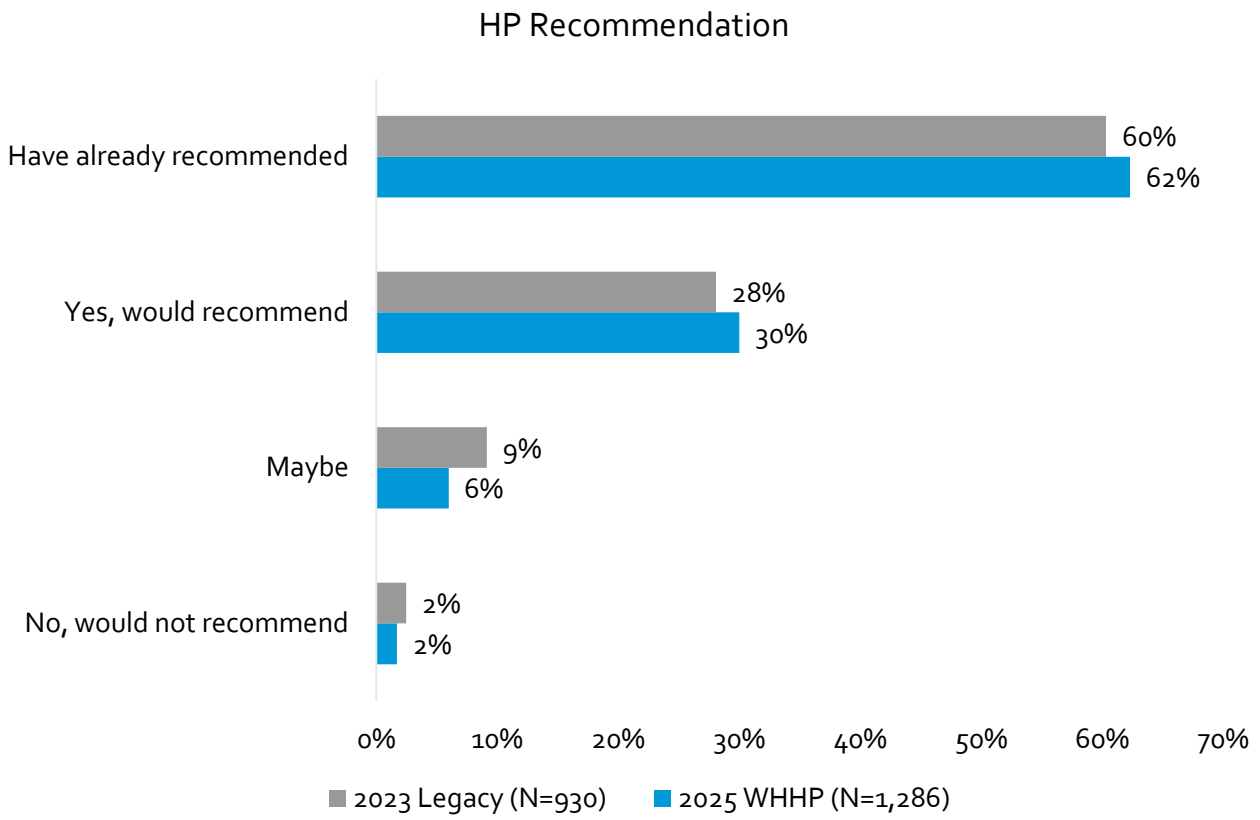
AND

LEGACY SUPPLEMENTAL HEAT PUMP REBATE – 2023 SURVEY

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.**

Satisfaction With HPs Remains High. WHHP Rebate Recipients Report Slightly Stronger Likelihood to Recommend HPs to Friends, Family, or Neighbors than 2023 Legacy Supplemental Rebate Recipients



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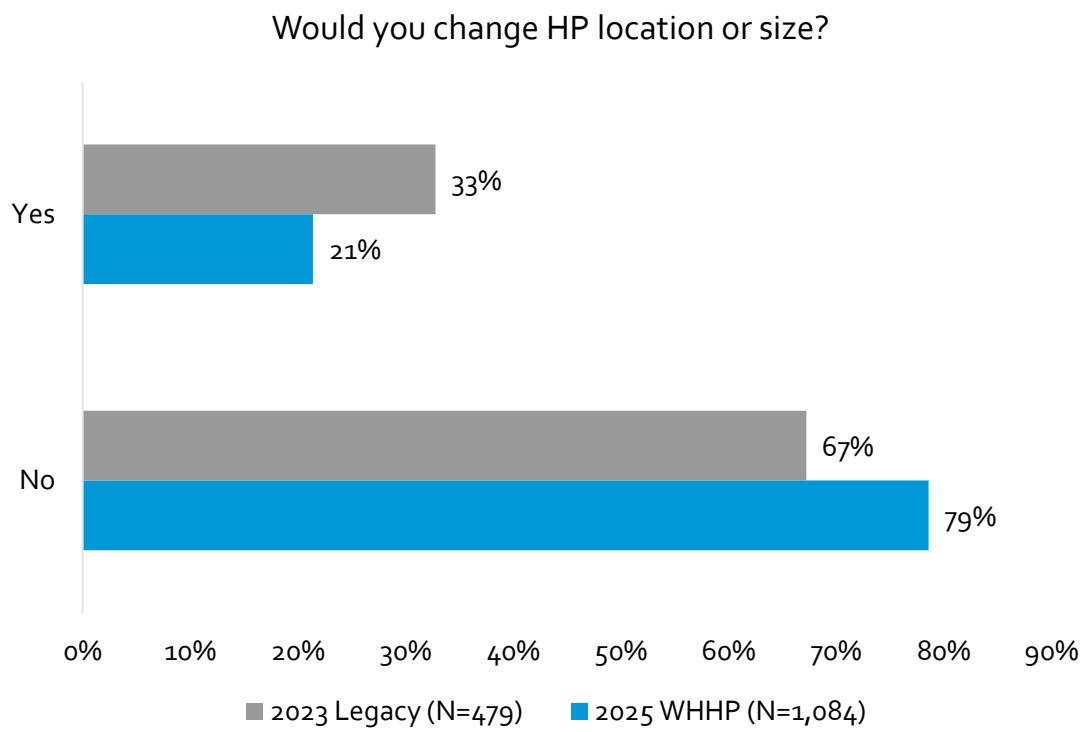
Bars add up to 100% by color to allow comparison of the Legacy Supplemental rebate to the WHHP rebate

WHHP Rebate Recipients Indicated Increased Satisfaction With Heat Pump Location And Size



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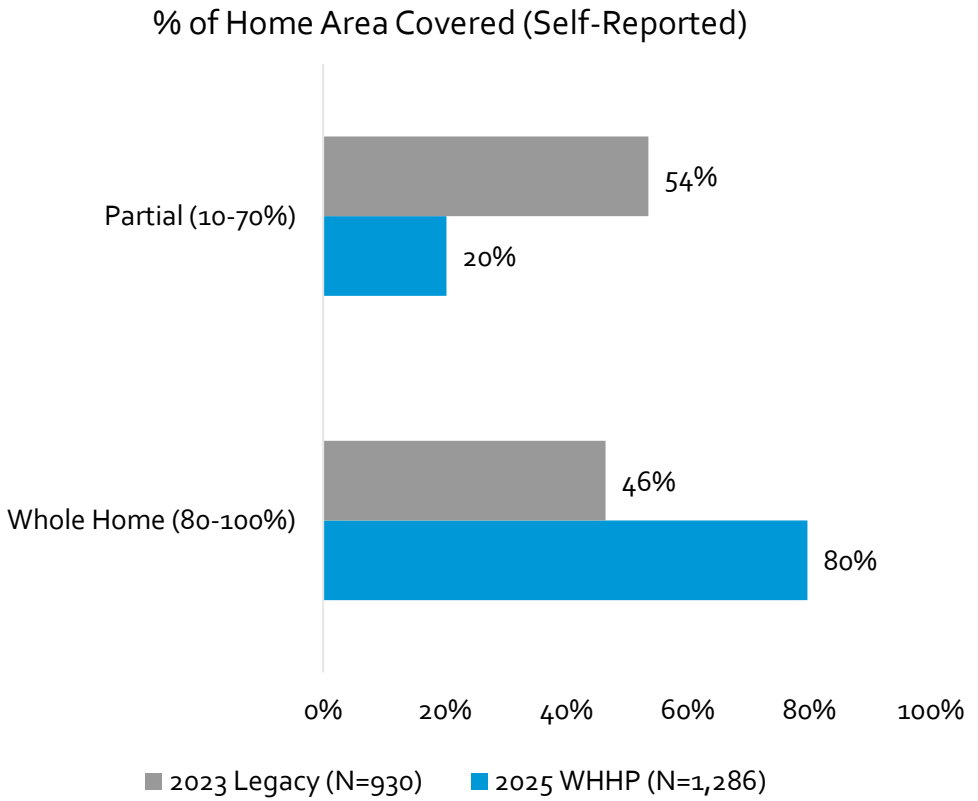
WHHP Rebate Recipients Report that HPs Distribute Heat through More of The Home than Legacy Supplemental Rebate Recipients



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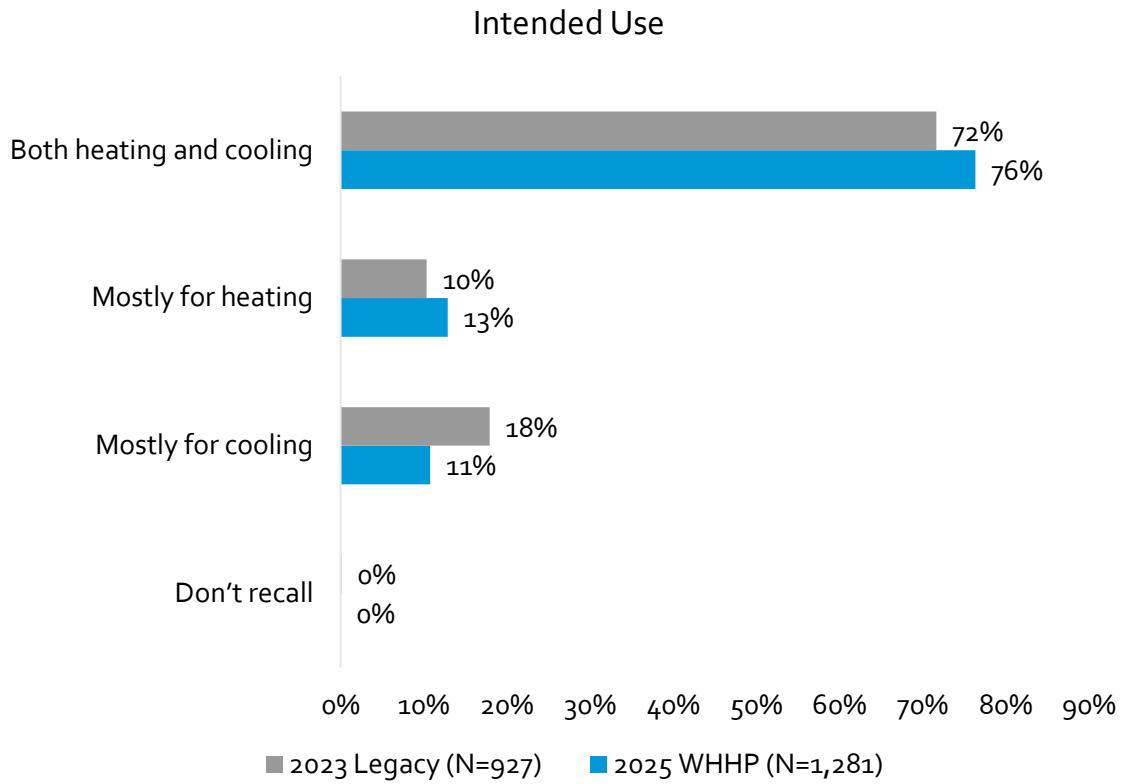
Bars add up to 100% by color to allow comparison of the Legacy Supplemental rebate to the WHHP rebate

Frequency of Intended Use "Mostly For Cooling" Decreased for WHHP Rebate Recipients



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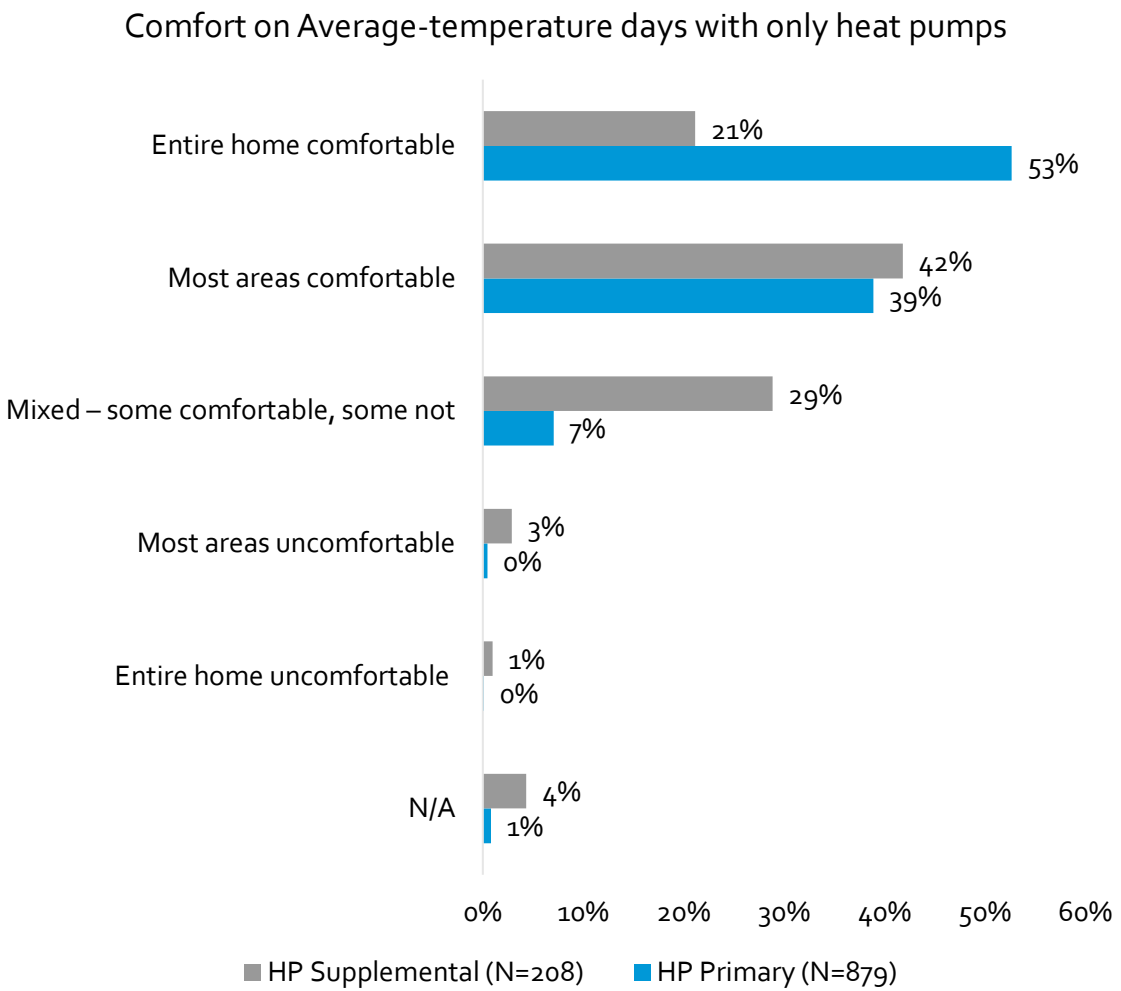
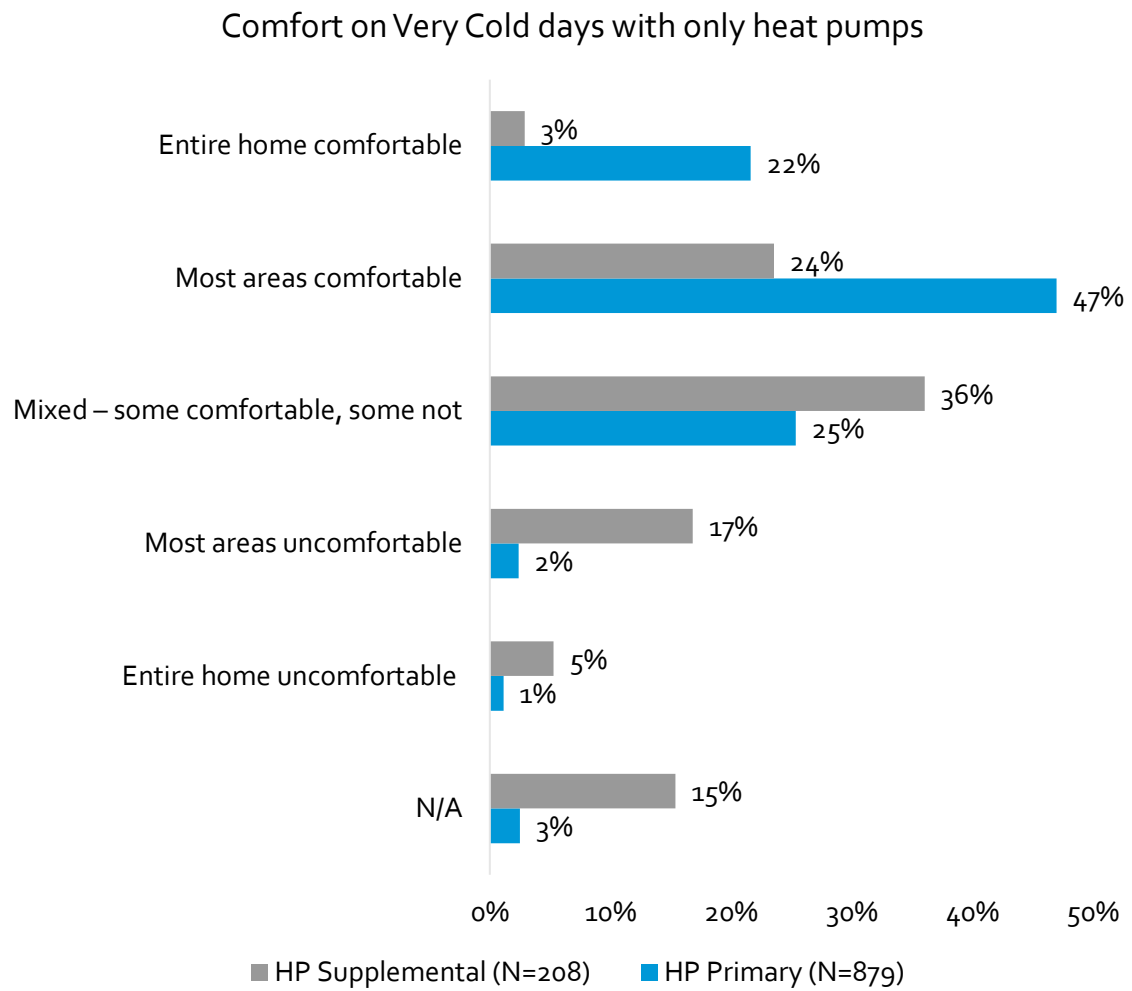
Bars add up to 100% by color to allow comparison of the Legacy Supplemental rebate to the WHHP rebate

WHHP REBATE – 2025 SURVEY ADDITIONAL RESULTS

During Periods When ONLY HPs Were Used to Heat the Home, Respondents Who Perceive their WHHPs as the "Primary Heating" System Reported Higher Comfort than Those Who Perceive Their HPs as Supplemental





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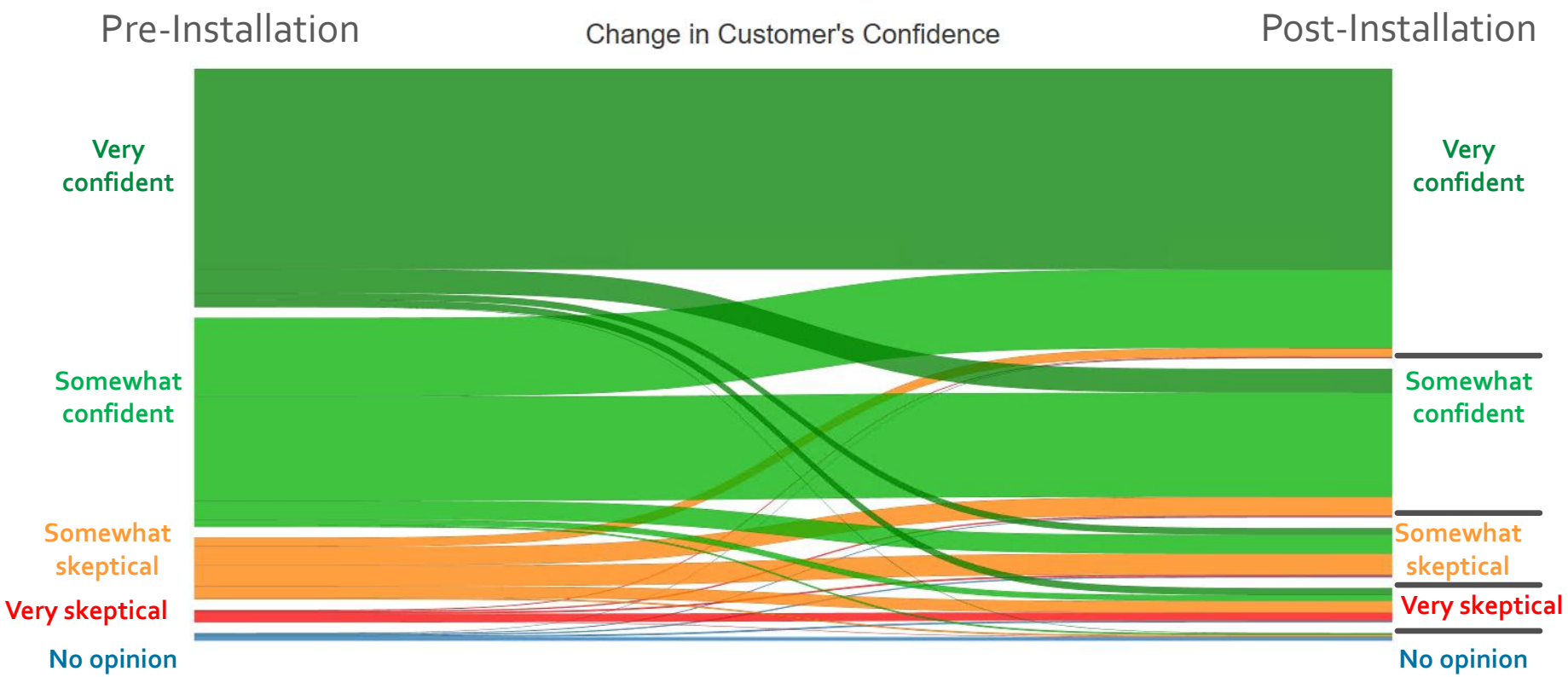
Customer Confidence In HPs Serving as Primary Heating System Generally Increased after Using WHHP System



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Customer Confidence In HPs Being Primary Heat Aligns With Perception of Contractor Confidence

Contractor's Confidence Pre-installation*	Customer's Confidence Pre-installation: Very confident	Somewhat confident	Somewhat skeptical	Very skeptical	No opinion	Total
Very confident	41.4%	24.7%	4.8%	1.1%	0.3%	72.4%
Somewhat confident	1.9%	12.4%	3.7%	0.3%	0.2%	18.5%
Somewhat skeptical		0.5%	1.6%	0.3%	0.2%	2.5%
Very skeptical	0.1%	0.1%	0.2%	0.2%	0.1%	0.6%
Contractor did not provide guidance or opinion	1.6%	1.9%	1.4%	0.4%	0.8%	6.0%
Total	45.0%	39.5%	11.7%	2.3%	1.5%	100%

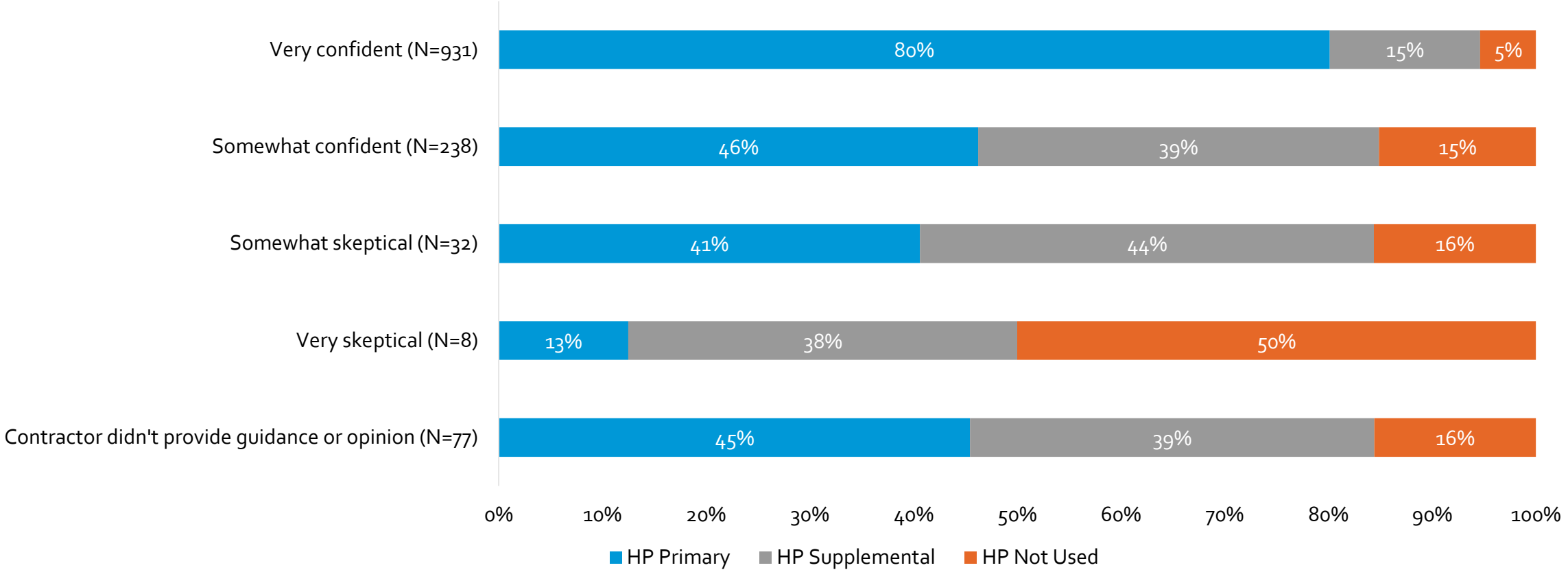
- Approximately 85% of respondents were very confident or somewhat confident about having HPs as their primary heat source
  - Approximately 91% for contractors. Contractors are perceived to be more confident than customers overall, before the HP install.

*Represents the customer's perception of their contractor's confidence: I8. When you installed heat pump(s) how confident was **your contractor** that heat pumps could be the primary heat?

Perceived Contractor Confidence* Is A Strong Predictor Of How HPs are Used (Based on Self-Report)

Contractor's Confidence in WHHP Serving as Primary Heating Source

How Heat Pumps Are Used



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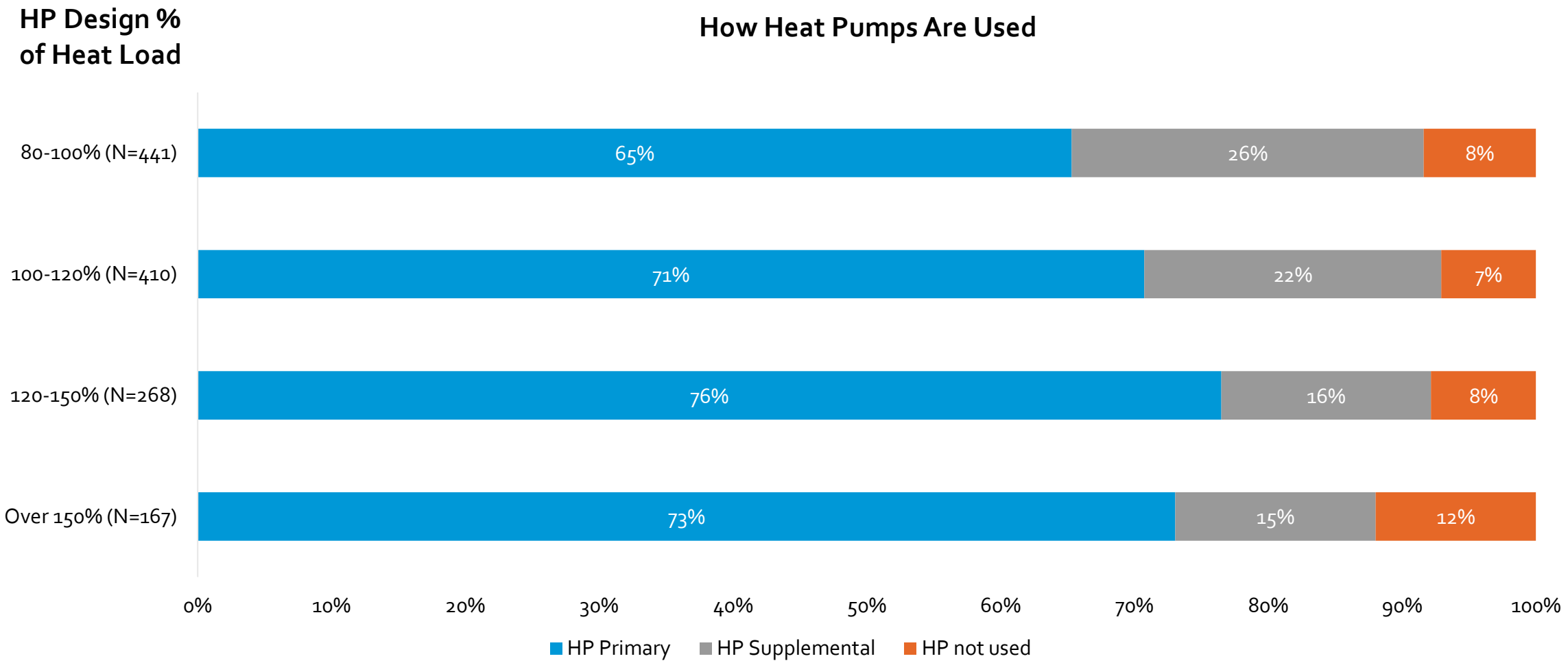
*Represents the customer's perception of their contractor's confidence: I8. When you installed heat pump(s), how confident was **your contractor** that heat pumps could be the primary heat?

HP Capacity Equal To Or Exceeding The Design Load of The Home Is Associated with A Greater Likelihood of Using HPs as The Primary Heat Source



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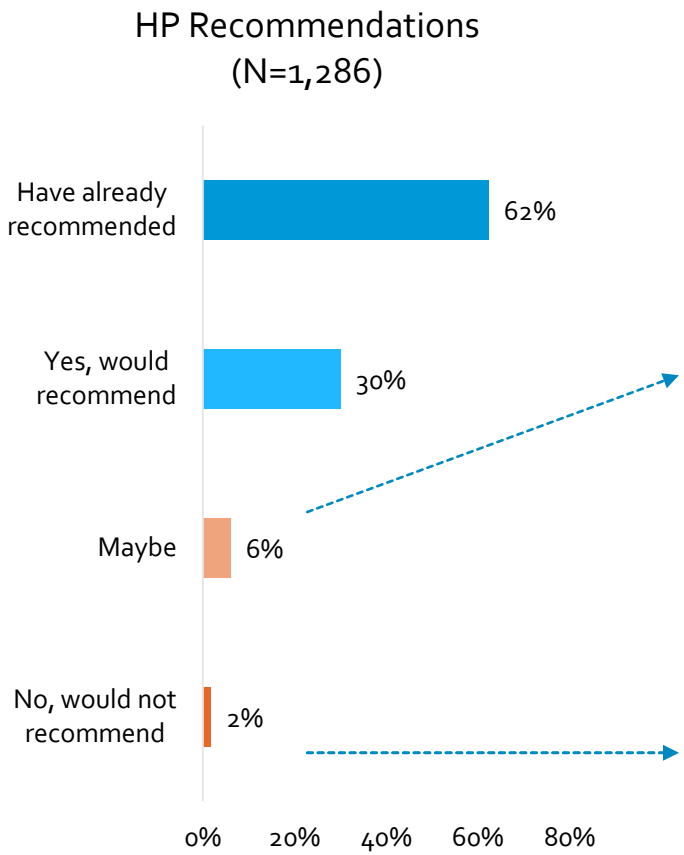
Reasons Cited for Maybe Recommending Or Not Recommending Heat Pumps



92% would recommend HPs or have already.

Among the 8% who would not or would maybe recommend a HP, the leading reason was **perceived electricity bill increases.** About 44% of them cited electricity costs or high bills. An additional 5% were not sure about energy cost impacts.

The second most cited reason (39%) was feeling HPs are insufficient, such as **distribution** (not covering whole home or certain areas), **insufficient heat** (doesn't keep house warm; requires supplemental heat), and **performance at low temps**.

About 9% would recommend for cooling but not heating.

Distribution Issues Were A Common Concern Amongst Respondents Who Indicated Issues With Home Comfort When Relying Solely On Heat Pumps

331 respondents (26% of respondents) rated their home comfort as either mixed or uncomfortable when using only heat pumps (either on average or cold days). They were asked to describe why.

A large majority (72%) described a **distribution issue** such as heat not reaching all areas of the home, primarily areas/rooms without heat pumps or perimeter of the home:

"two rooms furthest from the first floor heat pump."

"they only heat the rooms they are in. so all the other bedrooms are cold and so was the kitchen."

"the rooms furthest away from heat pump were uncomfortable. had electric space heater to augment"

While **bedrooms** were a top mention (85 of 238 distribution mentions), some people mentioned **living areas,** including areas without heat pumps and larger living areas.

"there is a temperature fluctuation of about 3-4 degrees in the largest room. the bedrooms are fine."

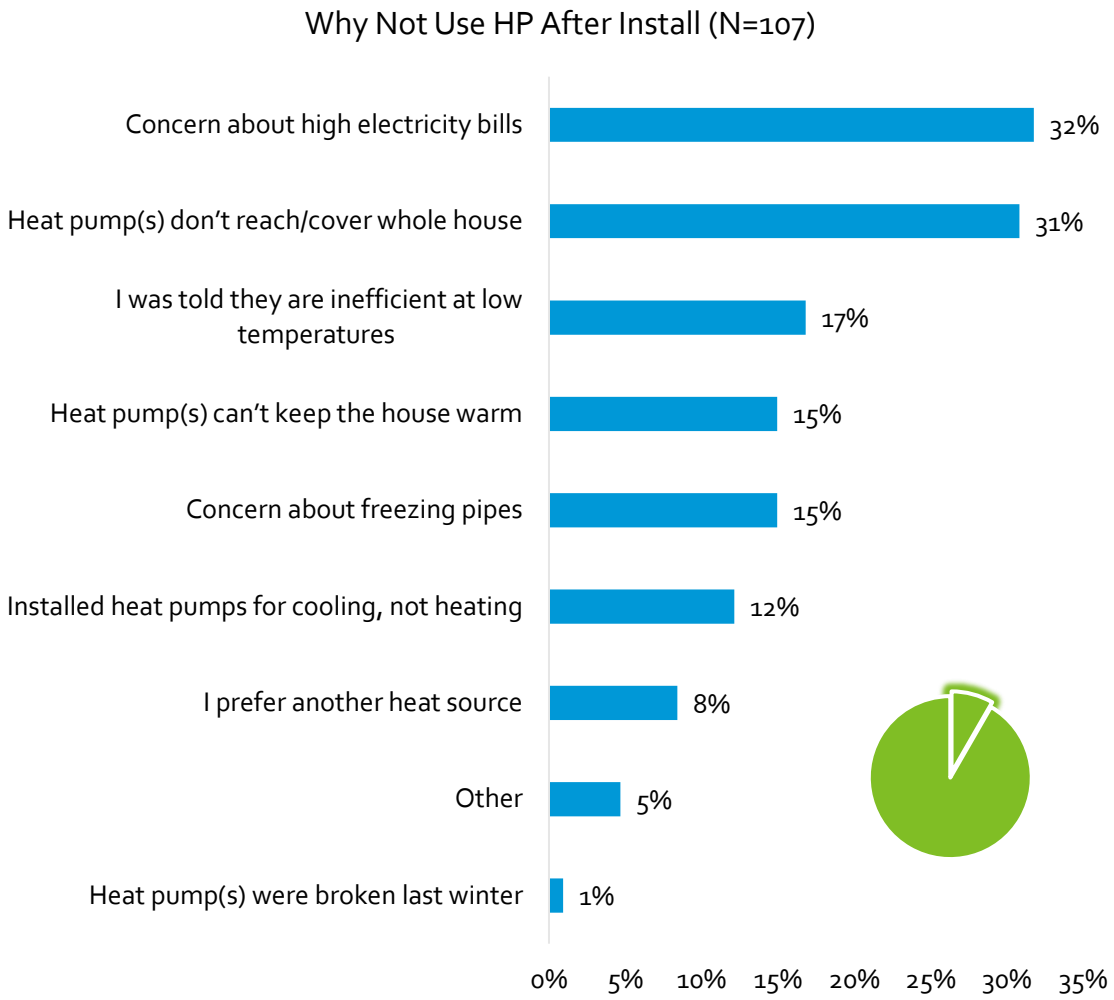
"there are cold spots in the main living area and other rooms with little coverage from the heat pumps"

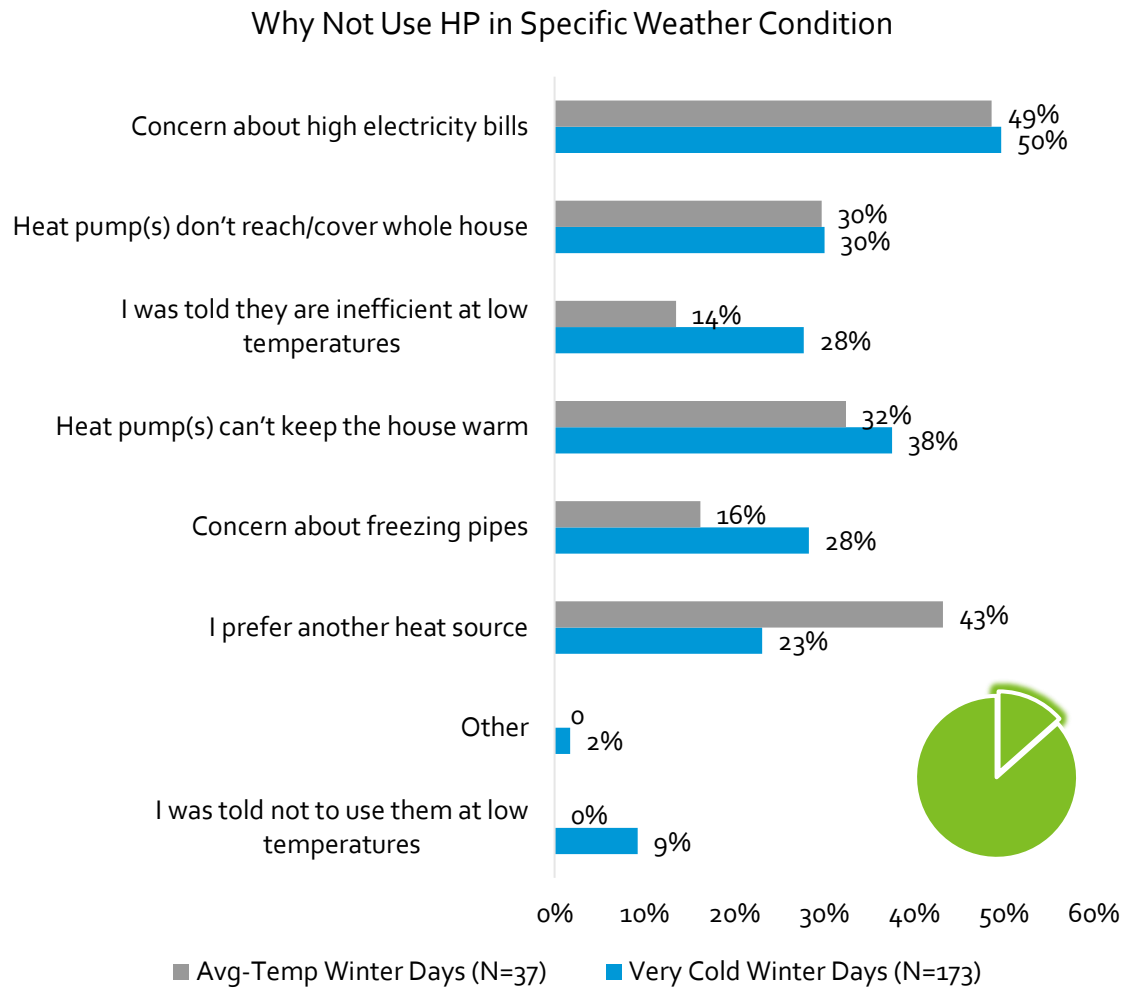
Homes with distribution issues aren't just "rambling farmhouse" types - people mentioned **mobile homes and ranches,** which could indicate distribution issues across different housing types.

"we have a small ranch and the heat pump is in the LR. The heat does not reach the farthest bedroom, ours"

"i own a mobile home and the hot or cold that the pump provides only does 1/3rd of the house. I have to use fans to circulate…to the rest…"

High Electricity Bills and Distribution of Heat Are Top Concerns For Respondents Who Did Not Use Their HPs After Installing or In Specific Weather Conditions





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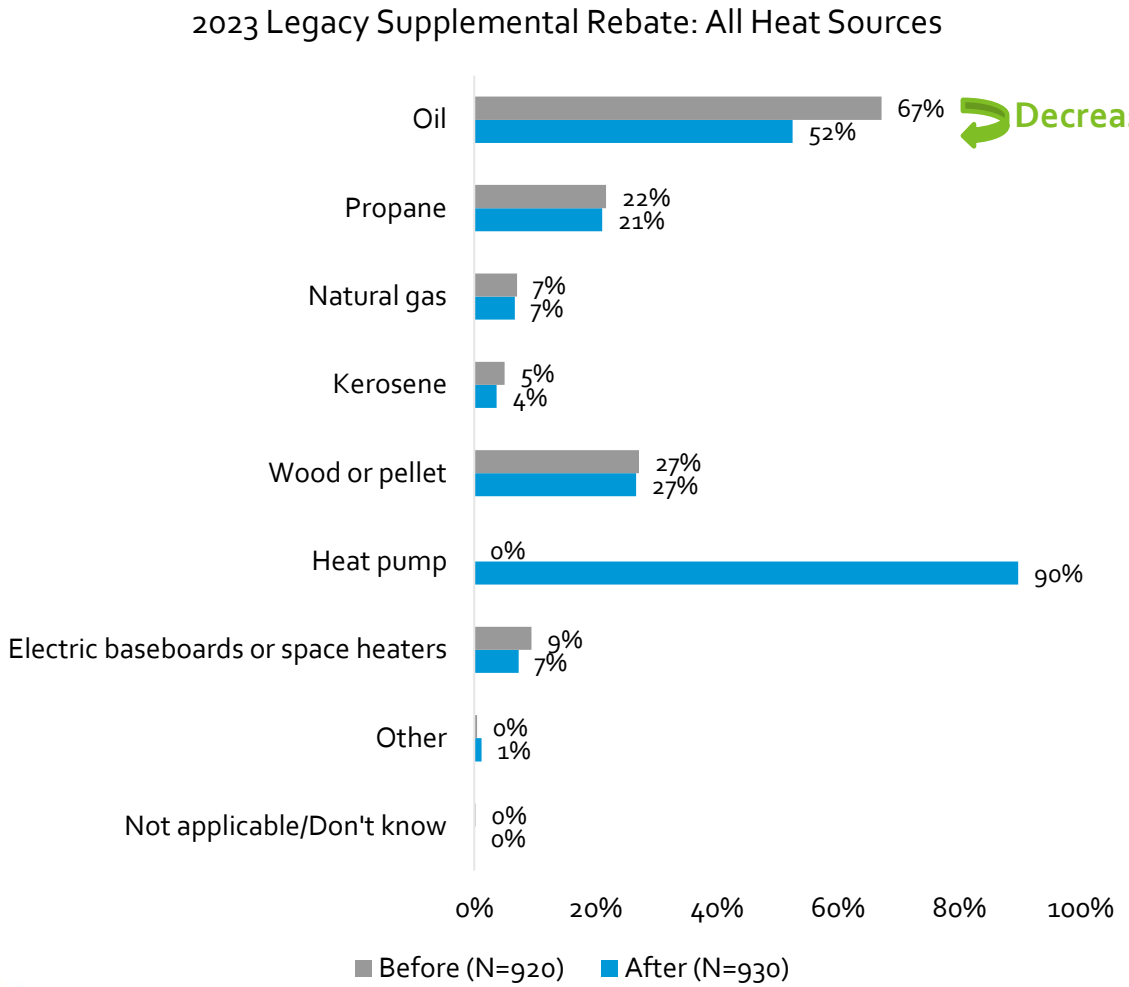
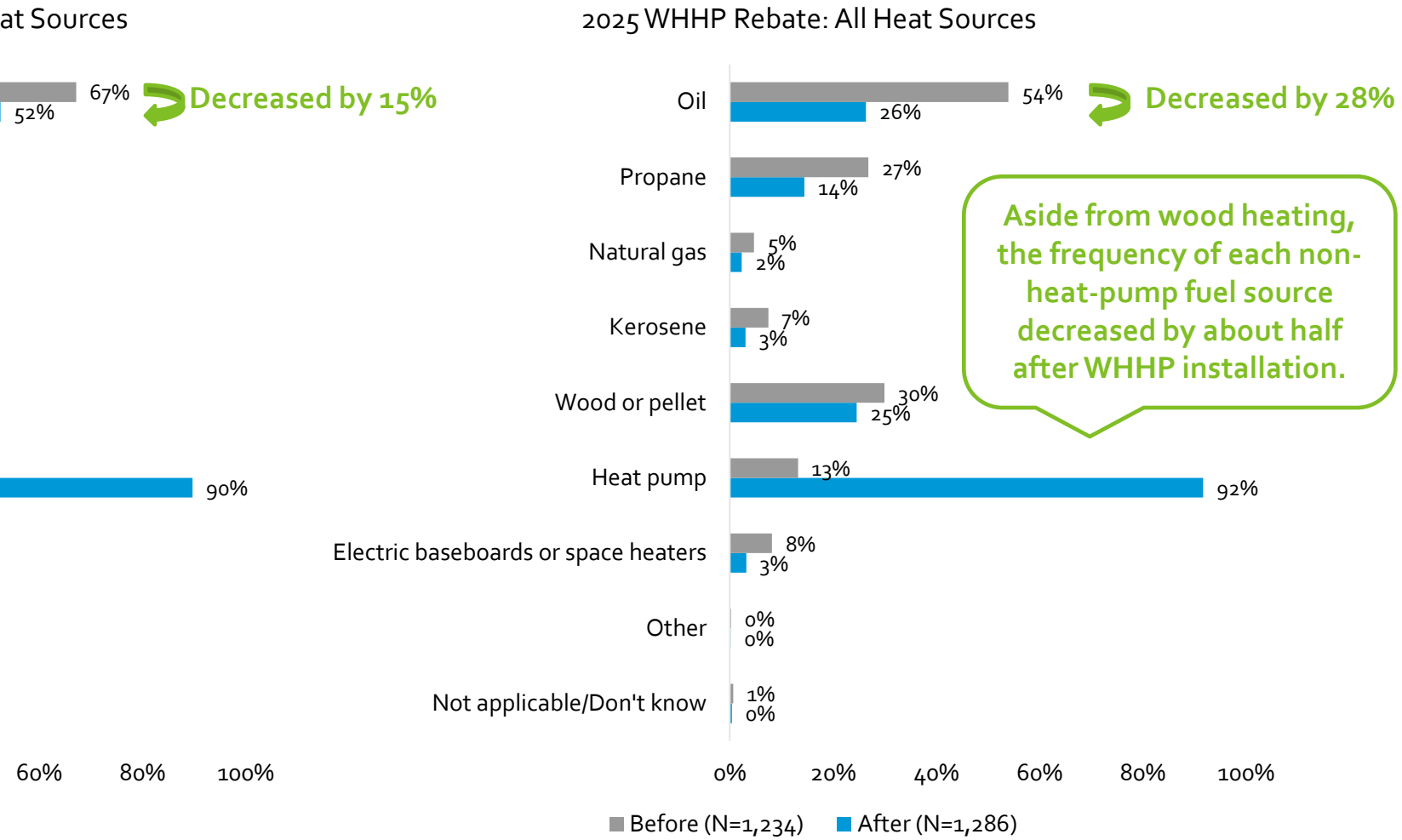
WHHP Rebate Recipients Self-Reported a Greater Decrease of FF System Use Compared to Legacy Supplemental Rebate Recipients





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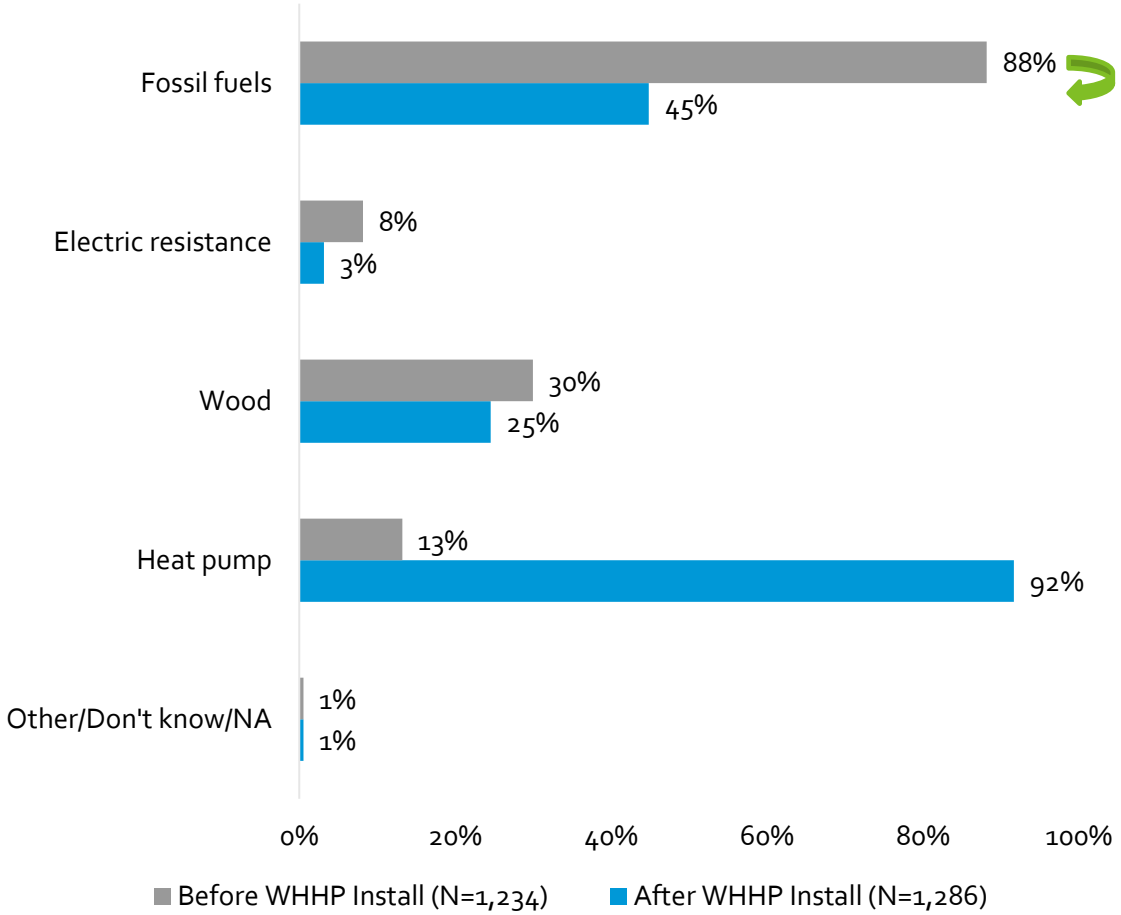
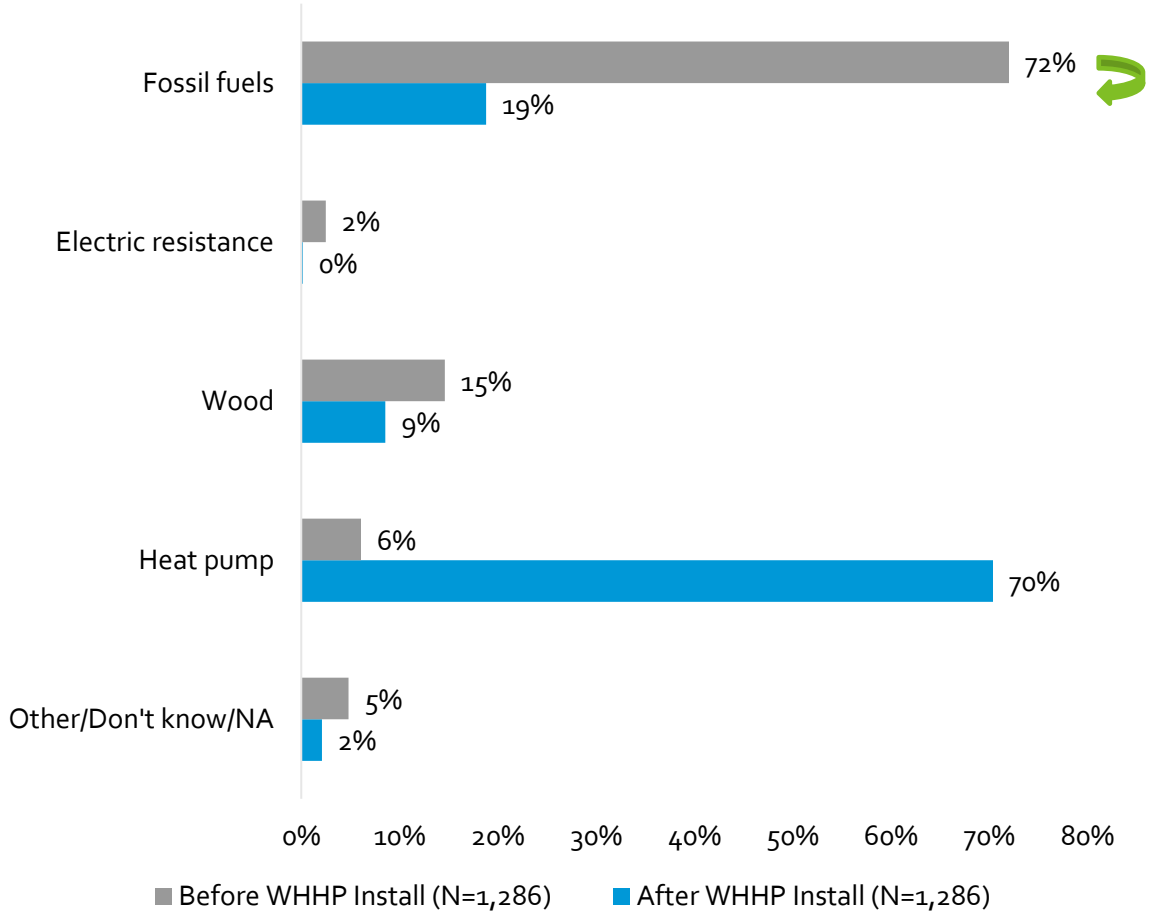
Most WHHP Rebate Recipients Reported That HPs Are Their Primary Heat

All Heating Sources Before and After WHHP



Primary Heating Source Before and After WHHP



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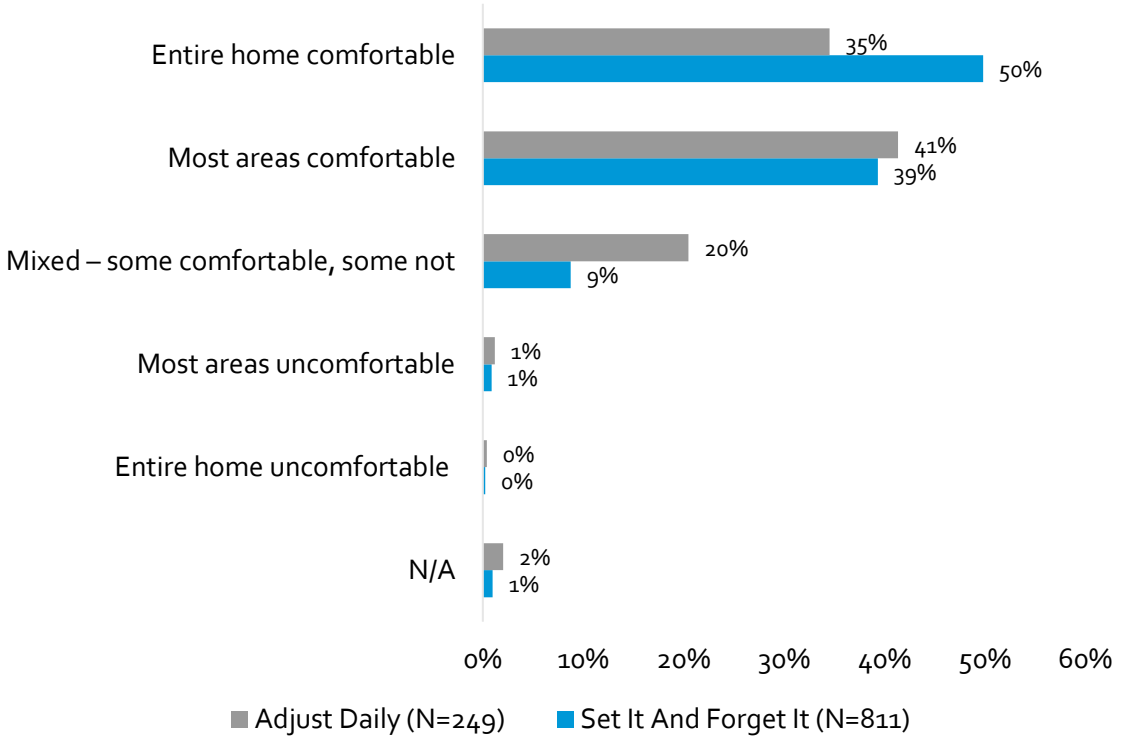
APPENDIX

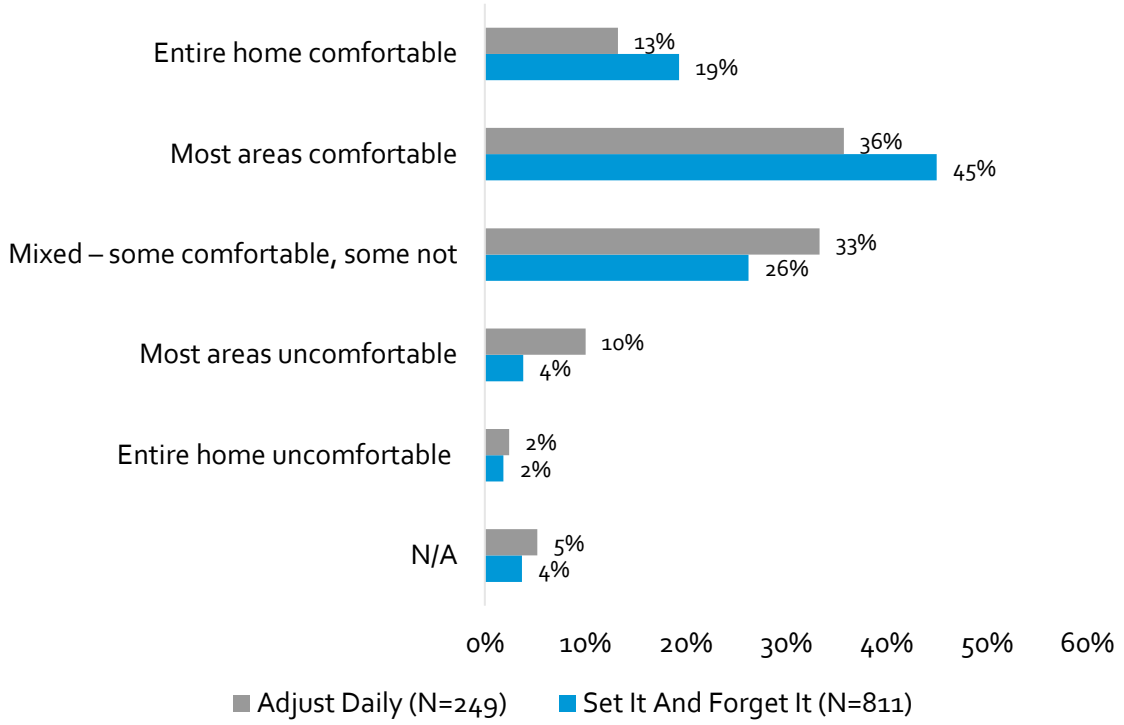
"Set It And Forget It" Settings Deliver Higher Comfort On Both Average And Very Cold Days When Relying Solely On Heat Pumps For Heating

On average winter days (when homes were occupied): 76% set and forget, 24% adjust daily

Comfort on Average-temperature days with only heat pumps



Comfort on Very cold days with only heat pumps



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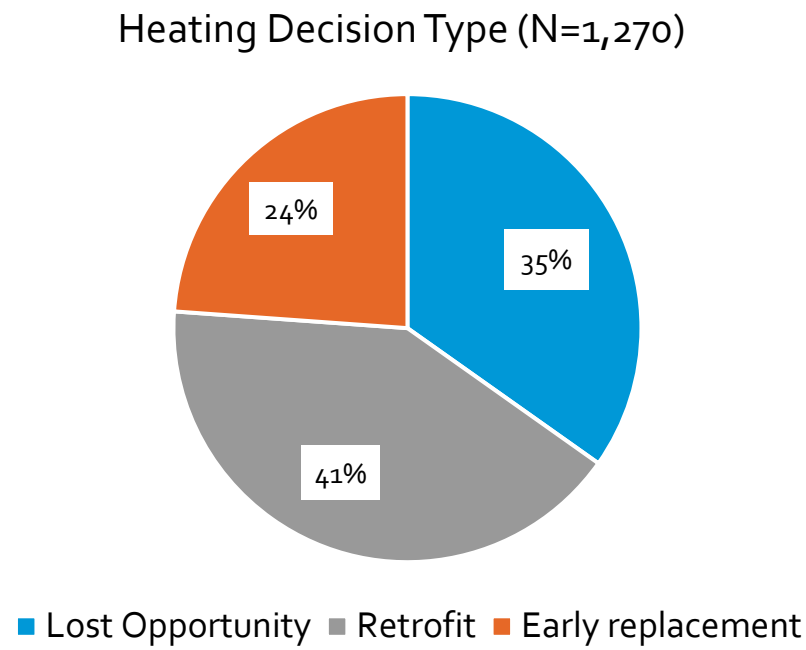
Additional Insights

- 2025 WHHP homes tend to have smaller living area on average (1,448 sqft) compared with 2023 Legacy homes (1,609 sqft). Homes that reported partial HP coverage (10-70% of the home's area) tend to be larger homes (living area square footage)
- Home layouts are consistent across years (63% open floor plan, 37% traditional)
- 2025 WHHP respondents are more likely to have more indoor and outdoor units than 2023 Legacy Supplemental.
  - Indoor units:
    - 2023: 42% having 1, 32% having 2, 25% having 3+
    - 2025: 21% having 1, 45% having 2, 34% having 3+
  - Outdoor units
    - 2023: 66% having 1, 28% having 2, 6% having 3+
    - 2025: 23% having 1, 51% having 2, 26% having 3+
- 2025 WHHP respondents are more likely to have completed major insulation work (18% vs. 13% in 2023 Legacy), charge an EV at home (9% vs. 1% in 2023 Legacy), and install solar PV (9% vs. 3% in 2023 Legacy)
- 12% of respondents are enrolled in HEAP
  - The most common fuel HEAP paid for last winter and will pay for next winter is oil or kerosene, followed by electricity
  - HEAP households that switch their benefit to electricity typically use HPs as primary heat

Heating Baseline and Decision Type

- Respondents were asked about the condition of their prior **heating** system and what they would have likely done absent installing a heat pump. Based on their response patterns, each respondent was classified as either:
  - **Early replacement**: the prior heating system had some life remaining, but was decommissioned 5 to 10 years early in favor of a heat pump.
  - **Retrofit**: the prior heating system was working and could have operated for more than 10 years with typical maintenance, but the participant chose to replace it with a heat pump.
  - **Lost opportunity**: a new heating system was needed within 5 years, and the decision was between a high efficiency heat pump and other potential options.



Cooling Baseline and Decision Type

- Respondents were asked about their prior **cooling** system and what they would have likely done absent installing a heat pump. Based on their response patterns, each respondent was classified as either:
  - **Retrofit**: Participants would have continued to use their prior cooling or would not have added cooling system.
  - **Lost opportunity**: The participant planned to modify their cooling equipment, and the decision was between a high efficiency heat pump and other potential cooling options.