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Ductless Heat Pumps: 2025 Market Diffusion Evaluation #3

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1 Executive Summary

The Northwest Energy Efficiency Alliance (NEEA) actively promoted residential Ductless Heat Pump (DHP) installations from 2008 to 2020 via its Northwest Ductless Heat Pump Project. In 2020, the project was transitioned from active market development to the Market Diffusion stage. The purpose of Market Diffusion Evaluation reporting is to provide continued evidence that market diffusion is progressing in the absence of direct intervention by NEEA.

This 2025 Market Diffusion Evaluation report is the third in a series of studies tracking DHP market diffusion indicators, with prior studies conducted in 2020 and 2022. Please note that prior reports are titled Long-Term Monitoring and Tracking (LTMT), a report designation that was updated to Market Diffusion Evaluation in 2025. To avoid naming confusion and facilitate historical comparison, this report will reference the study sequence number.

Table 1: Prior and Current Studies of DHP Market Diffusion Evaluation

Sequence	Year	Report Title
Study 1	2020	Ductless Heat Pumps 2020 Long-Term Monitoring and Tracking Report
Study 2	2022	Ductless Heat Pumps 2022 Long-Term Monitoring and Tracking Report
Study 3	2025	Ductless Heat Pump 2025 Market Diffusion Evaluation (current report)

Market diffusion for DHPs is currently assessed through the evaluation of three diffusion indicators. A fourth indicator was paused after Study 2, as results showed consistent progress toward objectives.

- **Diffusion Indicator 1.** The number of DHPs installed in single-family homes to displace/replace electric zonal heat or electric forced air furnaces is increasing.
- **Diffusion Indicator 2.** The installed cost for a single-head system remains constant or decreases.
- **Diffusion Indicator 3**. The share of regional HVAC companies/installers offering DHPs remains constant or is increasing.
- ***[Paused]* Diffusion Indicator 4.** The number of counties in the region with HVAC companies that install DHPs remains constant or is increasing.

The Diffusion Indicators identified above are also evaluated in the context of three specific target markets (TM):

- **TM 1 SF Zonal.** Single-family homes replacing/displacing zonal heating
- **TM 2 SF eFAF.** Single-family homes replacing/displacing electric forced air furnaces
- **TM 3 MH eFAF.** Manufactured homes replacing/displacing electric forced air furnaces

1.1 Key Takeaways

Status of DHP Diffusion Indicators

Study 3 findings reveal a residential DHP market that is continuing to grow and gain market share over time, results that indicate continued success in the wake of the transition away from active market development. Yet despite this progress for the DHP market overall, the specific results for Diffusion Indicators and target markets paint a more nuanced and mixed picture.

Single-family DHP installs are on the rise, but target market growth has slowed

Diffusion Indicator 1. The number of DHPs installed in single-family homes to displace/replace electric zonal heat or electric forced air furnaces is increasing.

DHPs make up an increasing share of single-family home heating systems. According to the RBSA, market share grew from 4% in 2017 to 8% in 2022, while distributor and utility data indicates continued growth in residential installations in 2023 and 2024. The HVAC Installer Survey also showed growth in total DHP installations as well as increasing demand among residential customers, with installers reporting 14% growth in the average number of DHP installations between Study 2 and Study 3. Additionally, 65% of HVAC installers reported an increase in customer requests for DHPs in the past year.

While these results indicate a robust Northwest market for residential DHPs broadly, diffusion within target markets appears to be slowing. Findings from the latest HVAC Installer Survey indicate gains in non-incented single family zonal (TM1) and single family electric forced air furnace (TM2) installations but a decline in manufactured homes (TM3) in comparison to the previous study. Incentive availability may be one factor in the differences among target markets. Single family zonal have historically represented a large share of incented DHP sales according to NEEA's annual survey of rebates provided by its alliance partners (known as the Local Programs Survey). However, the available rebates for single family zonal have declined in recent years, and the latest Local Programs Survey report indicates a corresponding decline in DHP units sold. This suggests that the gains in non-incented installations for TM1 may simply indicate a shift from incented to non-incented.

These results indicate slowing growth or stabilization for displacements/replacements in single-family zonal, single family electric forced air furnace and manufactured home electric forced air furnace. The difference could reflect a slowdown in growth as the target markets near saturation or may be the result of other unknown factors.

Total installed costs continue to increase due to rising labor costs

Diffusion Indicator 2. The installed cost for a single-head system remains constant or decreases.

Affordability has been a crucial barrier to market diffusion since market transformation began. In recommending the inclusion of cost as a market diffusion indicator, MPER Study #8 noted:

> Price may continue to be a barrier to accelerated consumer adoption and the cost-effectiveness of utility DHP programs. If DHP price (i.e., installed cost to the consumer) increases, consumers may be less willing to purchase. And because rising price can impact cost-effectiveness, utilities may discontinue or scale back their support for DHPs, further stalling customer uptake.
>
> Source: MPER #8

HVAC installers consistently identify cost as the top barrier to DHP adoption, with 39% of respondents in the latest study citing cost as a barrier. Yet total costs continued to rise throughout both active market development and the Diffusion Evaluation phases, while number of DHP installations and DHP market share have also continued to grow.

In the current Study 3, HVAC installers reported that the average total cost for DHP installations rose by 5% since Study 2. (Cost comparisons were adjusted to 2020 dollars.) Yet unlike past years, equipment costs remained steady at an adjusted $2,841 on average. The growth in DHP cost for Study 3 was driven by increases in labor costs only. It is unknown whether this labor cost increase is unique to DHPs or reflected across the entire home heating market. As a result, the affordability of DHPs in comparison to other home heating options may be less of a challenge than originally indicated.

Likewise, the affordability of DHPs may also be less of a barrier to market diffusion. According to the latest HVAC Installer Survey results, Northwest states with the highest average installation cost also report the highest number of installations. It is possible that DHP costs have stabilized in the context of home heating costs in general to the point that this is less of a barrier than in the past.

The vast majority of HVAC installers in the Northwest offer DHPs

Diffusion Indicator 3. The share of regional HVAC companies/installers offering DHPs remains constant or is increasing.

HVAC installers in the Northwest have overwhelmingly accepted DHPs as a product offering. According to the most recent website review of installers (an update to prior call-down surveys), an estimated 87% of HVAC installers in the region offer DHP installation. Results are in line with prior study findings which found 83% and 84% of installers offering DHPs. In addition to a growing share of installers, the website review also indicated that many companies are explicitly highlighting the benefits of DHPs in their marketing materials. This indicates an overwhelming acceptance of DHPs among the installer community.

Additional Findings

The DHP market is continuing to show signs of market diffusion, but the shape of the market may be somewhat different than expected, consisting of fewer single-head installations, a higher share in previously unheated areas, and only some intended to displace the whole home load.

- **Single-Head Installations.** According to the latest HVAC Installer Survey, single-head installs make up a smaller share of residential installs than in past years, falling from 52% of installations in Study 2 to only 48% in Study 3. While the adjusted total number of single-head installations is continuing to increase, other residential installations are outpacing this growth.
- **Single-Family Additions.** Meanwhile, 20% of non-incented residential installations in the past year occurred in single family spaces that were previously unheated such as garages, a slightly higher share than in prior studies.
- **Whole Home Load.** A new survey question in Study 3 found that 63% of non-incented single-family installations were intended to replace the whole home load, though only 34% of these intended replacements had the old system removed. This dynamic suggests that DHPs are filling many roles in home heating, from displacements to replacements to additions.

Methodological Considerations

In both Study 1 and Study 2, market diffusion was evaluated primarily through a survey of residential HVAC installers. This study approach has proven increasingly challenging in recent years due to declining response rates among this population. In Study 1, recruitment achieved a sample size of n=228, while Study 2 responses dropped to n=184. To mitigate anticipated recruitment challenges, Study 3 augmented prior methodologies with analysis of secondary data sources to both streamline the recruitment process and enhance reporting. These strategies were adopted to improve data collection and build a more comprehensive picture of market size, saturation and diffusion.

For Study 3, an online version of the survey was added to supplement phone interviews, and HVAC installer contact lists were manually reviewed to improve contact list accuracy. The online survey was particularly helpful in driving responses. Two-thirds of surveys were completed online (n=79), with 23% directly following the QR code on the postcard mailer and an additional 44% responding to a link emailed after outreach via telephone. Despite these methodology updates, low survey response rates persisted in Study 3, which resulted in a sample size of n=118. An additional 17 installers started but did not complete the survey, suggesting that survey intricacy may be another driver of low completion.

The persistent decline in response rates across the three DHP studies adds complexity to the data analysis. Prior studies reported the total number of DHP installations reported by respondents. With varying sample sizes, this resulted in under-reporting for Study 2. This year, a normalization approach was applied to reduce the impact of sample size variation and to more effectively compare historical results.

1.2 Recommendations

Overall, the findings from this study indicate continued progress in DHP market diffusion. Yet the recruiting challenges experienced in both Study 2 and Study 3 suggest that an adjustment to the Market Diffusion Evaluation approach may be needed to effectively and efficiently track continued progress.

The following recommendations may help to streamline the data collection and reporting process for subsequent Market Diffusion Evaluation reports while also better aligning study objectives with the current DHP market.

- **Simplify study approach and instrument.** Response rates for HVAC installers are declining, even with highly vetted contact lists, and a high number of respondents dropped out of the survey prior to completion. This may be due to the intricacy of the questions and expectations that respondents will remember precise numbers of past DHP installations. This tedious recall demand may also impact reliability of the data, especially for the specific target market scenarios. For future studies, the potential for relying more on secondary data sources to indicate the direction of DHP market diffusion may be worth exploring, as this could help to streamline the survey instrument.
- **Evaluate target market needs.** The low response rate and survey complexity also impacts the ability to accurately understand target market dynamics. Inconsistent results across data sources such as the Local Programs Survey and HVAC Installer Survey suggest that more information may be needed to understand diffusion in specific target markets. If target market specifics are still needed, modifications to the survey instrument or different research methodologies to evaluate these cases may be worthwhile.
- **Adjust study timeframe.** The winter months are quite busy for HVAC installers. Fielding research studies over the winter holidays and during the peak business season likely further depressed participation. In future studies, consider shifting the data collection timeframe to late spring or late summer/early fall for potentially better response rates.
- **Pause Diffusion Indicator 3.** Prior studies consistently indicate that nearly nine in ten HVAC installers in the region now provide DHP installation services, and many actively promote DHPs as a highly viable option for home heating.
- **Assess Diffusion Indicator 2 approach.** Although cost is consistently noted as a barrier to DHP, installation volume does not appear to be strongly correlated to cost increases. Additionally, single-head installations are not the dominant share of residential installs, so these costs may not reflect the current market dynamics. These findings suggest that Diffusion Indicator 2 may benefit from revisions or further exploration.

2 Project Background & Approach

2.1 Introduction

The Northwest Energy Efficiency Alliance (NEEA) launched its Northwest Ductless Heat Pump Project in 2008 as a pilot program to demonstrate the viability of ductless heat pumps (DHPs) to displace[1] electric resistance heating in Northwest homes. The DHP project was expanded to a full-scale initiative in 2010, with the objective of accelerating the adoption of DHPs through coordination with market actors, promoting effective installations, supporting incentives, and building market and consumer awareness.

Over the course of the DHP initiative, NEEA completed eight market progress evaluation reports (MPERs) to evaluate the impact of the program on the DHP market. These reports indicated significant progress in terms of market transformation. At the conclusion of active market transformation, NEEA reported that:

- 101,395 DHPs were installed in target markets since 2008, meeting or exceeding market saturation forecasts for these target markets
- 108 utilities offered DHP rebates
- 82,702 installations had received a utility rebate

These and other findings indicated that the DHP market would likely continue to transform without direct intervention by NEEA. As a result, the project was transitioned from active market development to Market Diffusion Evaluation in 2020.

2.2 Research Objectives

Diffusion Evaluation reporting is intended to provide continued evidence of DHP market diffusion in the absence of direct intervention and to alert NEEA to backsliding or changes in the DHP market. This report represents the third Diffusion Evaluation study completed for the DHP market, with the first study conducted in 2020 and a second in 2022.

In this study, continued market diffusion for DHPs is assessed through the evaluation of three diffusion indicators. A fourth indicator was paused after Study 2, as results showed consistent progress toward objectives.

- **Diffusion Indicator 1.** The number of DHPs installed in single-family homes to displace/replace electric zonal heat or electric forced air furnaces is increasing.
- **Diffusion Indicator 2.** The installed cost for a single-head system remains constant or decreases.

[1] The original intent of the program was to add DHPs to displace less efficient home heating technologies, meaning the existing technology (eg. baseboard heating) could still be turned on as needed in addition to the DHP. This is in contrast to replacement, which implies removal of the existing less efficient technologies.

- **Diffusion Indicator 3**. The share of regional HVAC companies/installers offering DHPs remains constant or is increasing.
- ***[Paused]* Diffusion Indicator 4.** The number of counties in the region with HVAC companies that install DHPs remains constant or is increasing.

Though DHP market diffusion is tracked for the residential market broadly, specific target markets were also identified for ongoing tracking:

- **TM 1 SF Zonal.** Single-family homes replacing/displacing zonal heating
- **TM 2 SF eFAF.** Single-family homes replacing/displacing electric forced air furnaces
- **TM 3 MH eFAF.** Manufactured homes replacing/displacing electric forced air furnaces

2.3 Research Methodology

To assess progress on the identified diffusion indicators and compare results with prior Diffusion Evaluation studies, this research adopts a mixed methods methodology that incorporates findings from a survey of HVAC installers, an independent review of installer company websites, prior DHP studies, and secondary data from several independent NEEA sources.

HVAC Installer Survey

An online and telephone survey of HVAC installers was fielded from December 2024 through January 2025. Survey respondents were recruited by survey administrator Ward Research from a census of 2,599 HVAC contractor businesses based in the Northwest region of Idaho, Montana, Oregon and Washington. Survey respondents consisted of current HVAC installers who reported installing DHPs in residential buildings. While screening questions asked about commercial installations as well, installers who only work in commercial or who do not provide residential DHP installations were excluded.

Recruitment for this study was extremely difficult due to low outreach response and high rates of refusal. A total of 118 surveys were ultimately completed out of a targeted 232 responses. The overall sample achieved 90% confidence and ±7.57% precision, though state-level precision fell below the targeted 10%. The same survey instrument used in prior studies was employed in this research, though two questions were added related to whole load replacements in single family homes. Full details on the survey dispositions and instrument can be found in the Appendix.

HVAC Installer Website Review

Because the HVAC Installer Survey screened out respondents who did not offer residential DHP installations, it was not a good source for evaluating Diffusion Indicator 3. In prior studies, a brief call-down survey was conducted to gain further insights into the share of contractors offering DHPs. However, given continued changes in installer use of technology to market their services, this labor-intensive approach was deemed no longer necessary. Instead, a similar method

based on reviews of company websites was conducted to evaluate whether the company advertised DHP installation services. A total of 60 residential HVAC installers were included in this brief study. Full details on the methodology and results can be found in the Appendix.

Prior Market Diffusion Evaluation Studies

This report represents the third Diffusion Evaluation study conducted to track DHP diffusion indicators since NEEA ceased its active investment in the DHP market. The two prior studies were conducted in 2020 and 2022. Prior studies are titled Long-Term Monitoring and Tracking (LTMT), a report designation that was refreshed to Diffusion Evaluation in 2025. To avoid naming confusion and facilitate historical comparison, this report references the study sequence number in all charts and tables.

- **Ductless Heat Pumps 2020 Long-Term Monitoring and Tracking Report (Study 1).** A telephone survey of HVAC installers fielded from March to April 2021. The survey yielded 228 completes, starting with the census of 2,296 records of all known HVAC installers in the four-state region. The survey achieved a confidence/precision of ±5.17%. The study also included a call-down survey of 60 residential HVAC installers to identify the share offering DHPs.
- **Ductless Heat Pumps 2022 Long-Term Monitoring and Tracking Report (Study 2).** A telephone survey of HVAC installers fielded from October to December 2022. The survey yielded 184 completes, starting with the census of 8,336 records of suspected HVAC installers in the four-state region. The survey achieved a confidence/precision of ±11.49%. The study also included a call-down survey of 60 residential HVAC installers to identify the share offering DHPs.

Additional Secondary Data Sources

The original data collection and prior Diffusion Evaluation studies are further augmented by data from several sources:

- **Northwest Ductless Heat Pump Initiative: Market Progress Evaluation #8.** Completed in 2019, this research represented the final MPER for the DHP Initiative, including a survey of HVAC installers completed in 2018.
- **NEEA Local Programs Data, 2018-2023.** Data provided by NEEA represents the number of DHP units identified by utilities as having received a rebate, organized by target market. Annual total incented installs are based on reporting from 17 utilities across the Northwest states.
- **NEEA DHP Market Extrapolation & Forecasting, 2011-2023.** A preliminary estimate based on distributor data, this report is used to highlight trends in total DHP units sold in the Northwest region.

- **2022 NEEA Residential Building Stock Assessment.** A study conducted by NEEA every five years to develop a current, robust and representative characterization of the existing residential single-family and multi-family building stock in the Northwest.

3 Diffusion Indicator Findings

3.1 Diffusion Indicator 1

The number of DHPs installed in single-family homes to displace/replace electric zonal heat or electric forced air furnaces is increasing.

The purpose of Diffusion Indicator 1 is to demonstrate continued replacement or displacement of other heating sources with DHPs in identified target markets (TM):

- **TM 1 SF Zonal.** Single-family homes replacing/displacing zonal heating
- **TM 2 SF eFAF.** Single-family homes replacing/displacing electric forced air furnaces
- **TM 3 MH eFAF.** Manufactured homes replacing/displacing electric forced air furnaces

This diffusion indicator can be evaluated from several perspectives, including full residential market share of DHPs, the progress toward achieving market saturation goals in target markets, and the trajectory of new DHP installations in both the market overall and target markets.

Market Share & Demand

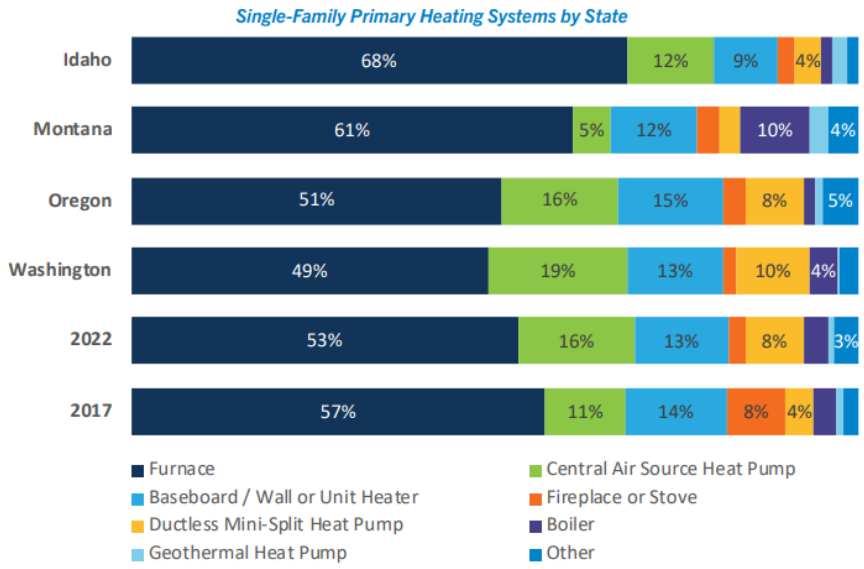
DHPs represent a growing share of single-family home heating systems

While the purpose of Diffusion Indicator 1 is to assess market share within specific target markets, a broader assessment of regional DHP market share can provide an indication of continued diffusion and context for assessing specific target market outcomes. The Residential Building Stock Assessment (RBSA) Study provides an indication of trending in DHP market share for single-family homes in the Northwest region, offering a comparison for subsequent research from the Local Programs Survey and HVAC Installer Survey.

The 2022 RBSA identified DHPs as a growing share of single-family home heating systems, rising from 4% in 2017 to 8% in 2022. The states of Washington and Oregon have the highest DHP market share, a finding that is consistent with current and past HVAC Installer Survey results assessing new non-incented installations.

Although the specific heating systems replaced or displaced by these new DHPs cannot be determined from the RBSA data, the historical trends indicate a decline in market share for furnaces, baseboard heat and fireplace/stove heating.

Figure 1: Market Share of Single-Family Heating Systems Over Time

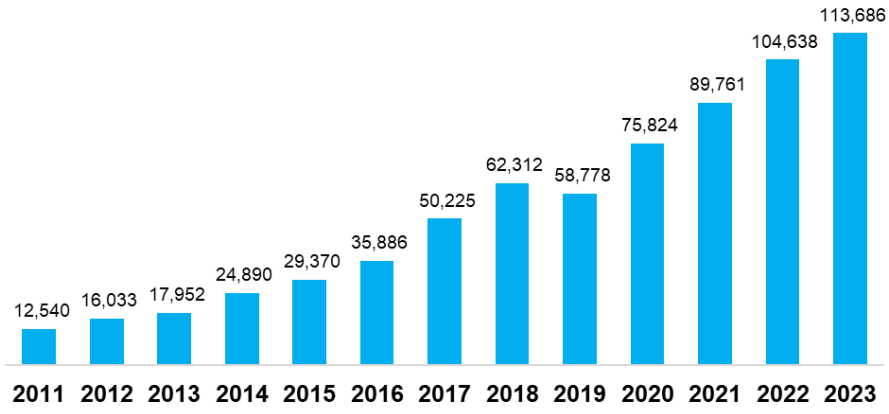


Source: RBSA 2017, RBSA 2022

Distributors report continued growth in DHP unit sales

The indication that DHPs are a growing share of the residential market is further supported by distributor data which reports continued year-over-year growth in the number of DHP units sold in the Northwest region. Distributor data offers a unique window into DHP market diffusion because it includes not only unit sales to HVAC installers but also DIY sales, online sales and different configurations. As a result, the trends in this dataset may reflect a more comprehensive view of DHP market diffusion than the HVAC Installer Survey alone. Though 2024 distributor data is not yet available, sales grew by 9 percent from 2022 to 2023, and growth has been evident each year since 2019.

Figure 2: Estimated Number of DHP Unit Sales

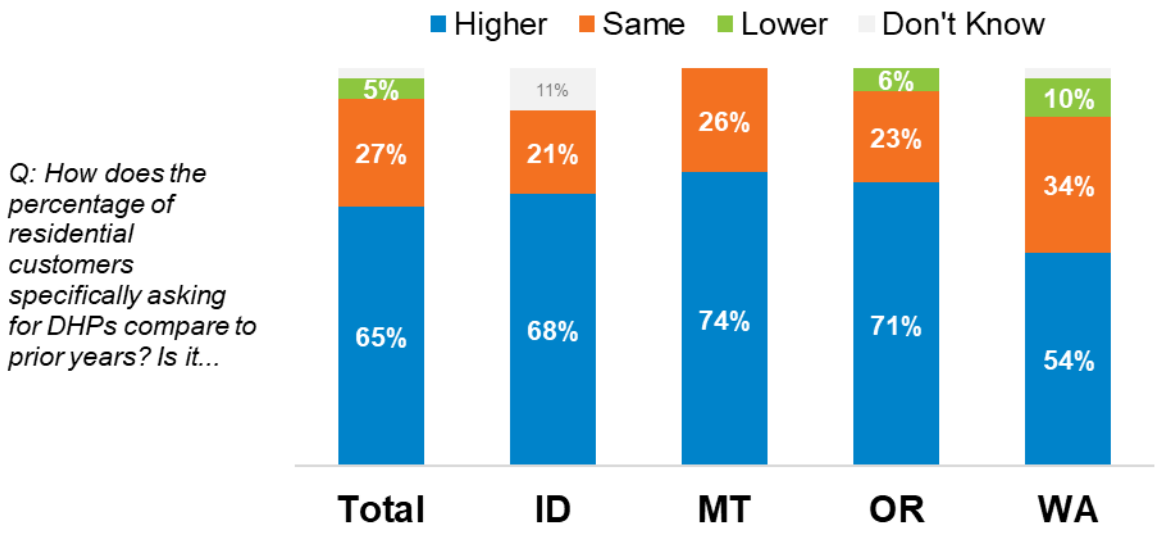


Source: NEEA DHP Market Extrapolation 2023

Residential customers increasingly request DHPs

The HVAC Installer Survey also indicates robust and continued growth in residential customer demand for DHPs. Sixty-five percent of installers reported that they have a higher rate of requests for DHPs in the past 12 months than in the prior year, and the trend was evident across all states in the region.

Figure 3: Change in Residential Customer Demand for DHPs



Source: 2025 HVAC Installer Survey

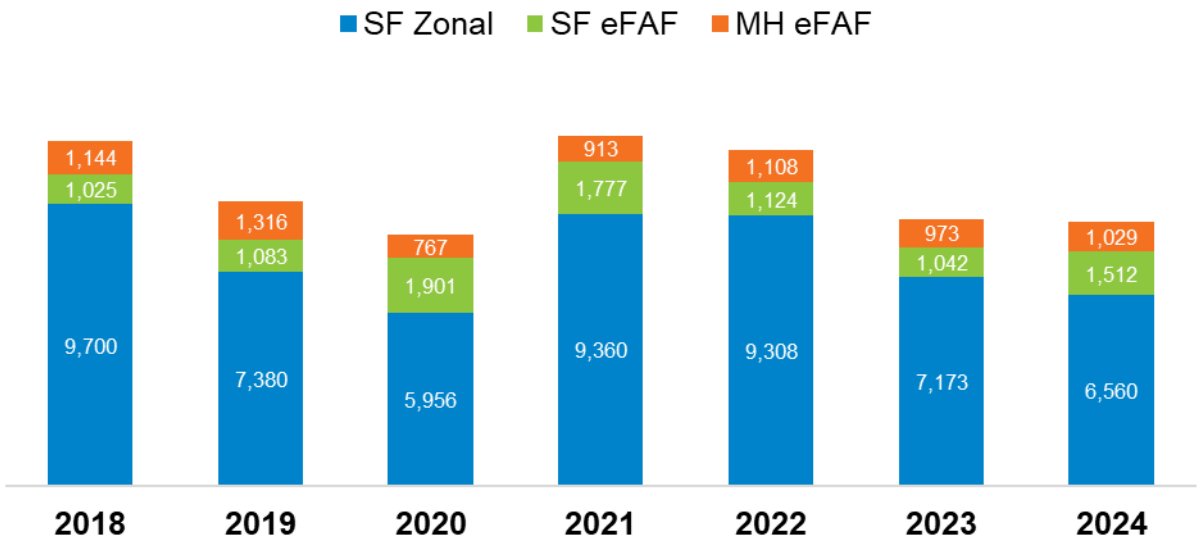
Incented installations

Rising use of DHP rebates to replace/displace electric forced air furnaces

Utility reports of rebates claimed for DHP installations can further indicate the progress toward market diffusion, though the results are heavily dependent upon the availability and characteristics of residential DHP incentives. A review of 24 Northwest utility groups and energy efficiency organizations indicated that 83% offer some form of rebate for DHP installations. Though program specifics vary, evidence indicates that replacements in single-family homes with zonal heating (TM 1) have been deprioritized in recent years, while the other target markets remain covered.

The reduced emphasis on TM 1 may explain the decline in rebates claimed for this target market in the past three years, while TM 2 and 3 both show rising incentive use. In fact, incentives claimed for DHP installations to displace or replace electric forced air furnaces in single-family homes (TM 2) rose by 45% from 2023 to 2024, and manufactured home installations (TM 3) rose by 6%. During the same timeframe, installations in single-family homes with zonal heating fell by 9%, though these remain the largest share of incentives claimed in 2024.

Figure 4: Rebates claimed for DHP Installations in Target Markets



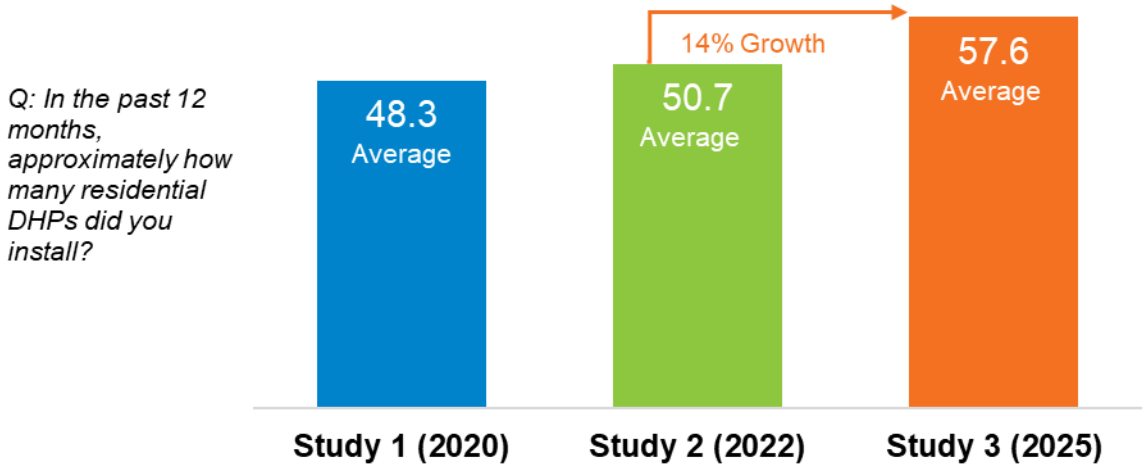
Source: NEEA Local Programs Survey, 2018-2023

Installer Trends

Contractors are installing more residential DHPs than in past years

The annual number of residential DHP installs reported by HVAC installers has risen since prior studies conducted in 2020 and 2022. Contractors in the Northwest region are each installing an average of 7 additional residential DHP units per year than in Study 2, a growth rate of 14%.

Figure 5: Average Annual Residential DHP Installs Per Contractor by Study



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Despite differences in sample sizes for the three studies, comparisons can be drawn in terms of total residential installs by normalizing average installations per contractor to the target sample size. Table 2 shows this calculation in its entirety. Based on changes in the average DHP installation rates per contractor, it can be inferred that the total number of residential installs has increased since Study 1 in 2020.

Table 2: Actual and Adjusted Total Reported Residential Installs

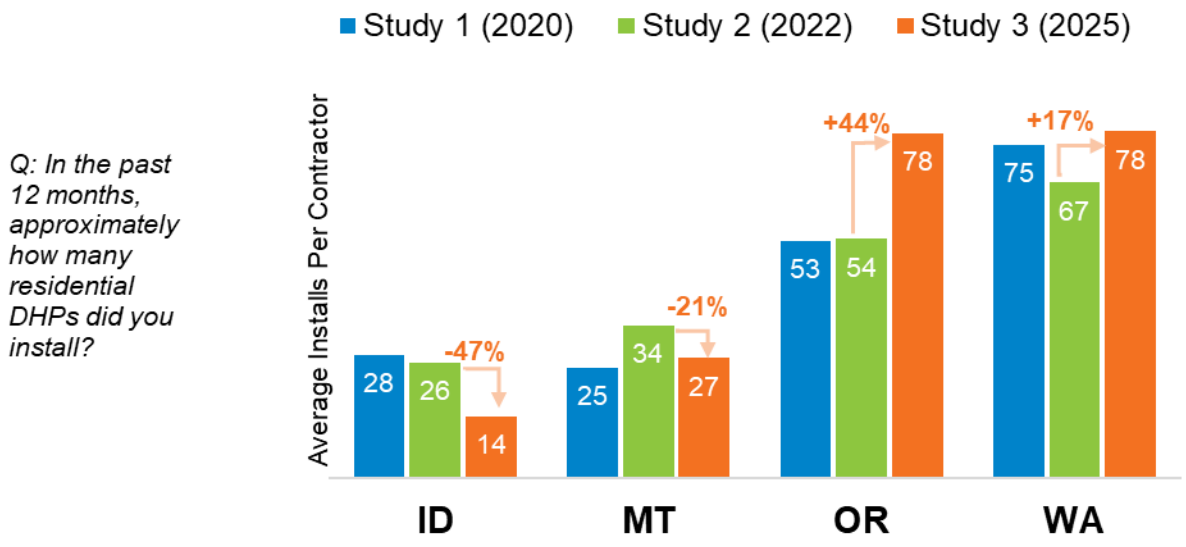
Report	Total Reported Residential Installs	Completed Surveys	Average Installs per Contractor	Target Sample	Adjusted Total Reported Residential Installs
Study 1 (2020)	11,006	228	48.3	232	11,199
Study 2 (2022)	9,336	184	50.7	232	11,771
Study 3 (2025)	6,798	118	57.6	232	13,366

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

New installations are concentrated in Oregon and Washington

The gains in total residential DHP installs can be attributed to increases in Washington and Oregon specifically. Since Study 2, the average number of reported residential DHP installs has declined in Montana and Idaho. Always a lower share of DHP installations anyway, these states have seen decreases of 21% and 47% respectively since 2022.

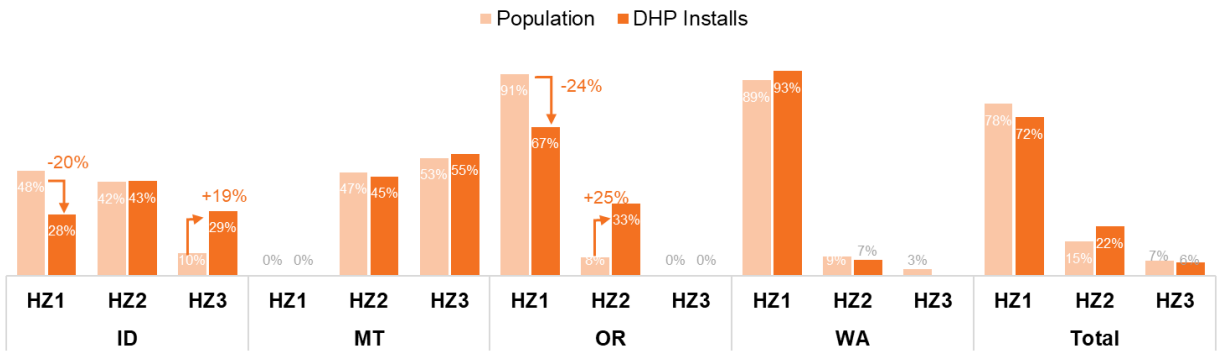
Figure 6: Average Number of Residential Installs per Contractor by State



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

With the bulk of residential installs by state occurring in Oregon and Washington, it is no surprise that DHPs remain predominantly represented in Heating Zone (HZ) 1, as nine out of ten residents of these states live in HZ 1. Figure 7 compares the share of the state population residing in each heating zone as well as the share of DHPs in that zone, revealing several notable state-level differences. In Idaho, DHPs are being installed in a higher share of HZ3 homes than would be expected given the size of that market, while Oregon has a similar difference in HZ2 installations.

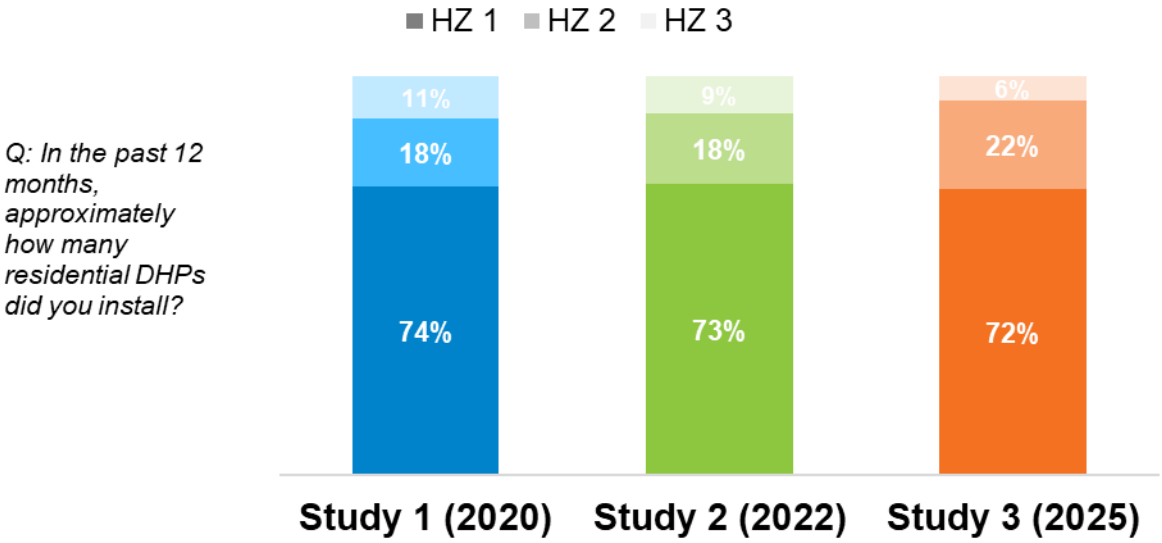
Figure 7: Share of Residential Installs by Heating Zone



Source: 2025 HVAC Installer Survey

Following regional trends over time, this year's results are notable for an increase in share of reported DHP installations in HZ 2, although it accompanied a comparable drop in HZ 3 representation.

Figure 8: Share of Residential Installs by Heating Zone



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Non-incented installs are increasing

Non-incented installations include DHPs installed in residential locations that did not receive a rebate from a local utility. NEEA's DHP initiative targeted increased adoption of single-head DHPs in the three target markets, irrespective of whether installations received a utility incentive (rebate)[2]. However, the HVAC Installer Survey attempts to isolate the number of non-incented single-head installations in target markets as a way of simplifying the calculation of total installations as well as to align with methodology used in the MPERs. The HVAC Installer Survey results indicate an increase in the number of non-incented units installed per contractor in the past twelve months compared to prior results. In total, the adjusted number of non-incented installs reported in Study 3 increased by 34% compared to Study 2.

Table 3: Actual and Adjusted Non-Incented Residential Installs

Source	Total Reported Non-Incented Installs	Completed Surveys	Average Non-Incented Installs per Contractor	Target Sample	Adjusted Total Non-Incented Installs
Study 1 (2020)	3,711	228	16.3	232	3,776
Study 2 (2022)	2,362	184	12.8	232	2,978
Study 3 (2025)	2,030	118	17.2	232	3,991

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

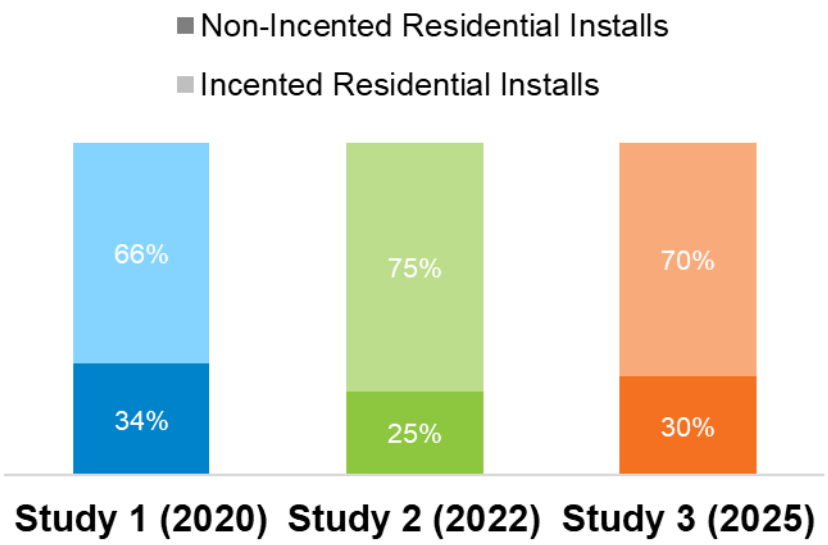
Non-incented installations also make up a larger share of all residential DHP installs in Study 3 compared to the previous study, although non-incented installs made up a larger share in the first study.

[2] Utility rebates are considered an important market transformation strategy to drive down high first cost early in the program lifecycle to support market diffusion to early and late majorities (beyond innovators and early adopters). In theory, more mature market transformation programs depend less on utility rebates or other financial incentives, because a key outcome of market diffusion is price parity with alternative products.

Figure 9: Non-Incented Share of Total Residential Installs

Q: In the past 12 months, approximately how many residential DHPs did you install?

Q: Of the number residential DHP installations you completed in the past 12 months, approximately how many did NOT receive a utility rebate?



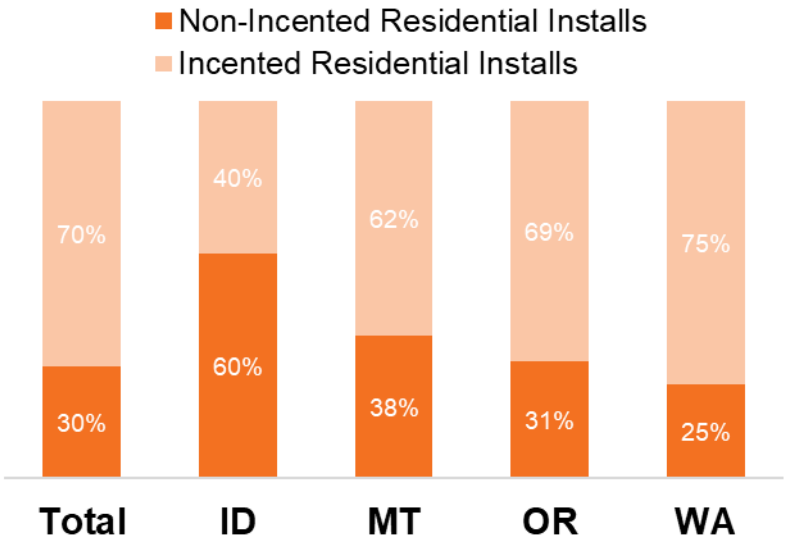
Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Despite the overall increase in non-incented installs, some evidence suggests that rebates are continuing to support DHP diffusion. When reporting Study 3 results by state, the states with the highest rates of DHP adoption generally (Oregon and Washington) also have higher reported rates of incentive use. Idaho, by contrast, has both the lowest number of total installs and the higher share of non-incented units.

Figure 10: Non-Incented Share of Total Residential Installs by State

Q: In the past 12 months, approximately how many residential DHPs did you install?

Q: Of the number residential DHP installations you completed in the past 12 months, approximately how many did NOT receive a utility rebate?



Source: 2025 HVAC Installer Survey

Target markets make up a declining share of all non-incented installs

While the results of NEEA's Local Programs Survey (shown previously in Figure 4) reflected incentives claimed for DHP target markets, this data did not reflect the total estimate of DHP target market installations. The HVAC Installer Survey was utilized to estimate the total number of installations by capturing installers' estimates of non-incented installations in these target markets. These survey results indicate a complex picture for target markets.

Across all three studies, non-incented displacements or replacements for SF Zonal (TM 1) make up the largest share of all target market installations. In the latest HVAC Installer Survey, SF Zonal accounted for 59% of all non-incented target market installs. However, the number of installations in this target market has fluctuated over the years. As Table 4 shows, reported non-incented SF Zonal installs declined between Study 1 and Study 2 but rose again in Study 3.

SF eFAF (TM 2) installations follow a similar pattern to SF Zonal, with the highest reported number of installations in Study 1 and the lowest reported number in Study 2. In the current survey, SF eFAF represented 31% of target market installations.

Trends in MH eFAF (TM 3) installations are reversed, with a decline in reported non-incented installs from Study 2 to Study 3, but a higher number than in the first study. About 10% of target market installs in Study 3 occurred in MH eFAF.

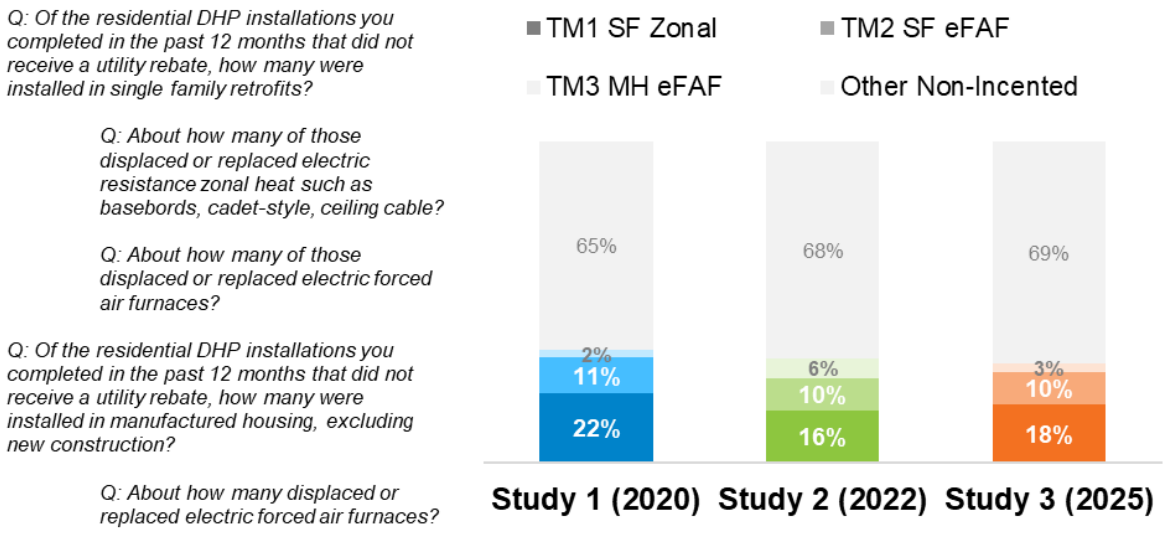
Table 4: Actual and Adjusted Non-Incented Residential Installs by Target Market

Source	Target Market	Total Reported Non-Incented Installs	Completed Surveys	Average Non-Incented Installs per Contractor	Target Sample	Adjusted Total Non-Incented Installs
Study 1 (2020)	TM1 SF Zonal	810	228	3.6	232	824
	TM2 SF eFAF	406	228	1.8	232	413
	TM3 MH eFAF	90	228	0.4	232	92
Study 2 (2022)	TM1 SF Zonal	388	184	2.1	232	489
	TM2 SF eFAF	237	184	1.3	232	299
	TM3 MH eFAF	138	184	0.8	232	174
Study 3 (2025)	TM1 SF Zonal	371	118	3.1	232	729
	TM2 SF eFAF	198	118	1.7	232	389
	TM3 MH eFAF	62	118	0.5	232	122

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

In total, the three target markets comprised 31% of all non-incented residential installs in 2025. This is a slight decline from Study 1 and Study 2, which represented 35% and 32% of non-incented installs respectively.

Figure 11: Target Market as Share of Non-Incented Residential Installs



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Target market trends are not consistent across all three markets. Single family zonal installations (TM1) experienced a rise in share of non-incented installations from Study 2 to the current study, while eFAF replacements in manufactured homes (TM3) fell and the single-family eFAF target market (TM2) remained steady.

Table 5: Change in Target Market Share Over Time

	Study 1 (2020)		Study 2 (2022)			Study 3 (2025)		
Target Market	Adjusted Total Non-Incented Installs	% of All Non-Incented Installs (3,776)	Adjusted Total Non-Incented Installs	% of All Non-Incented Installs (2,978)	Change from Previous Study	Adjusted Total Non-Incented Installs	% of All Non-Incented Installs (3,991)	Change from Previous Study
TM1 SF Zonal	824	22%	489	16%	**- 8%**	729	18%	**+ 2%**
TM2 SF eFAF	413	11%	299	10%	**- 1%**	389	10%	**0%**
TM3 MH eFAF	92	2%	174	6%	**+ 4%**	122	3%	**- 3%**
All Target Markets	1,329	35%	962	32%	**- 3%**	1,241	31%	**- 1%**

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

A comparison of non-incented target market installations as a share of all reported residential installs (combining non-incented and incented) can be found in Appendix 5.1.

3.2 Diffusion Indicator 2

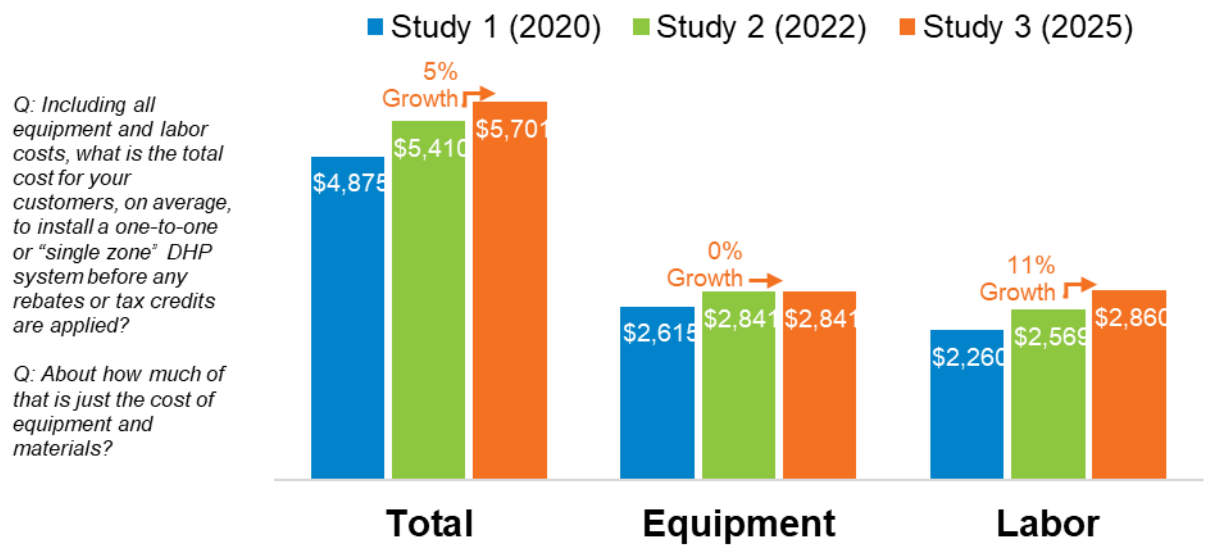
The installed cost for a single-head system remains constant or decreases

Initial program logic and metrics indicated that costs of DHP systems would decline over time as availability and market transformation occurred. However, with market share continuing to expand despite rising costs, the relationship between installed cost and market share requires additional context.

DHP installation costs continue to rise, but equipment prices have stabilized

The total average cost for a DHP single-head system reported by survey respondents was $7,020, evenly split between equipment and labor costs. To compare against Study 1 and Study 2 results, all reported costs were adjusted to 2020 dollars. This adjustment revealed an average cost increase of 5% between Study 2 and Study 3. Adjusted equipment costs remained constant while reported labor costs were 11% higher than in the previous study.

Figure 12: Average Costs for DHP Single-Head Systems (in 2020 Dollars)



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Table 6: Average Cost of Single-Head Installations (in 2020 Dollars)

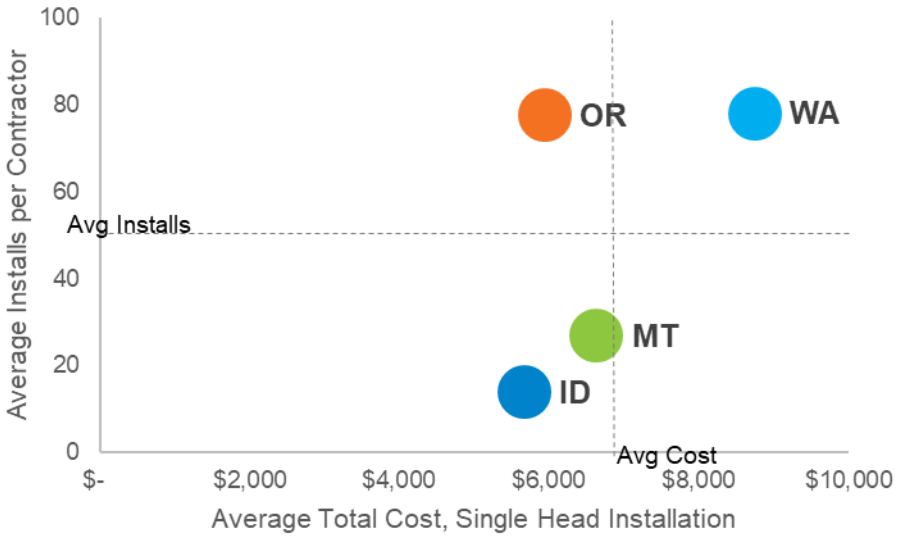
Source	Type	Cost in 2020 Dollars	Change from Prior Study	% Change
Study 1 (2020)	Equipment	$ 2,615	-	-
	Labor	$ 2,260	-	-
	Total	$ 4,875	-	-
Study 2 (2022)	Equipment	$ 2,841	$ 226	9%
	Labor	$ 2,569	$ 309	14%
	Total	$ 5,410	$ 535	11%
Study 3 (2025)	Equipment	$ 2,841	$ 0	0%
	Labor	$ 2,860	$ 291	11%
	Total	$ 5,701	$ 291	5%

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

States with the highest DHP costs also have a larger share of new installations

A comparison of costs and installation rates by state suggests that the association between single-head installation cost and DHP diffusion may be less strong than originally expected. While it is by far the most expensive to install a DHP system in Washington, this state also has the highest rates of DHP installation. By contrast, installation costs in Idaho are relatively low yet the number of installations per contractor are the lowest in the region. Lack of clear correlation between cost and installation rates suggests that cost may be a less clear indicator of DHP diffusion than other factors.

Figure 13: Comparison of State Costs and Installs



Source: 2025 HVAC Installer Survey

3.3 Diffusion Indicator 3

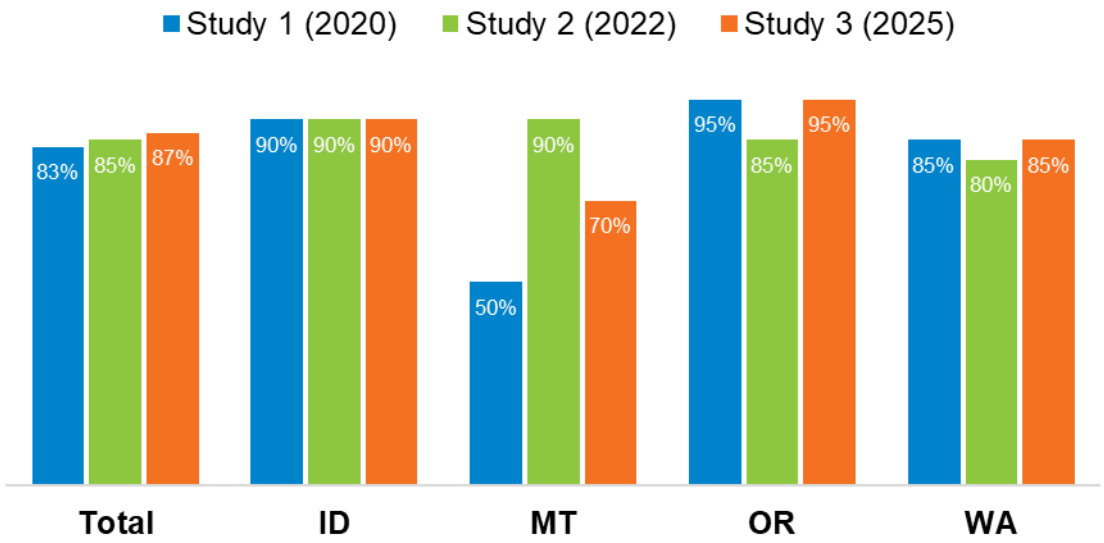
The share of regional HVAC companies/installers offering DHPs remains constant or is increasing.

Diffusion Indicator 3 evaluates the availability of contractors with expertise in residential DHP installations. Because the HVAC Installer Survey screens to a sample of residential DHP installers, it is not an ideal resource to assess installer dynamics more broadly. A second study was instead conducted using the same initial sample to identify the share of contractors promoting the ability to install residential DHPs. This study utilized a website review method documented in Appendix 5.2.

The share of HVAC contractors installing DHPs is increasing

In comparison with prior studies, the share of contractors offering DHP installations is increasing across all states except Montana, and the total share of DHP installers within HVAC contractors has risen to 87% in 2025.

Figure 14: Share of HVAC Contractors Installing DHPs by State



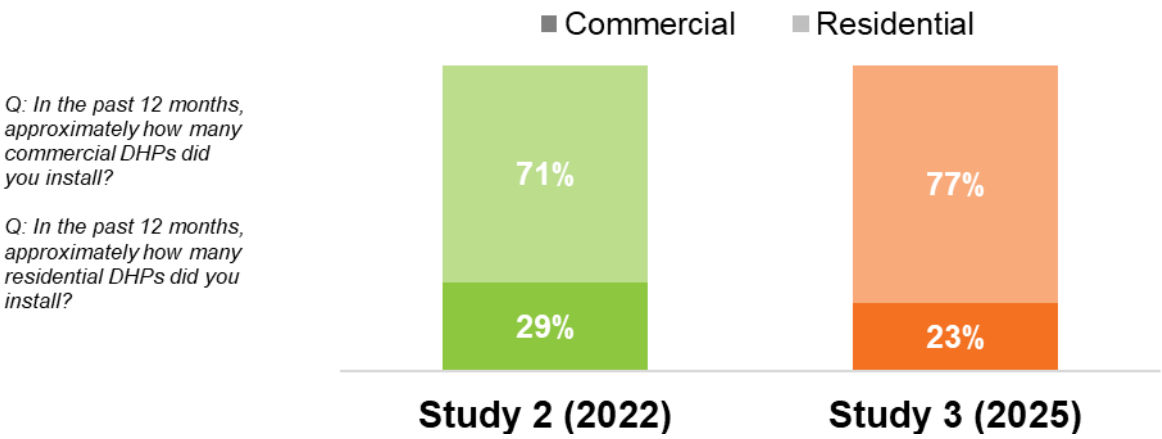
Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Website Review

4 Additional Findings

Residential installs have increased as a share of all DHP installs

Among respondents of the HVAC Installer Survey, commercial DHP installations declined from the Study 2 to Study 3. However, because commercial-only DHP installers were not included in the survey, the decline in reported commercial DHP installations may not be indicative of broader commercial trends. (Note this question was not asked in Study 1.)

Figure 15: Share of Commercial and Residential Installs

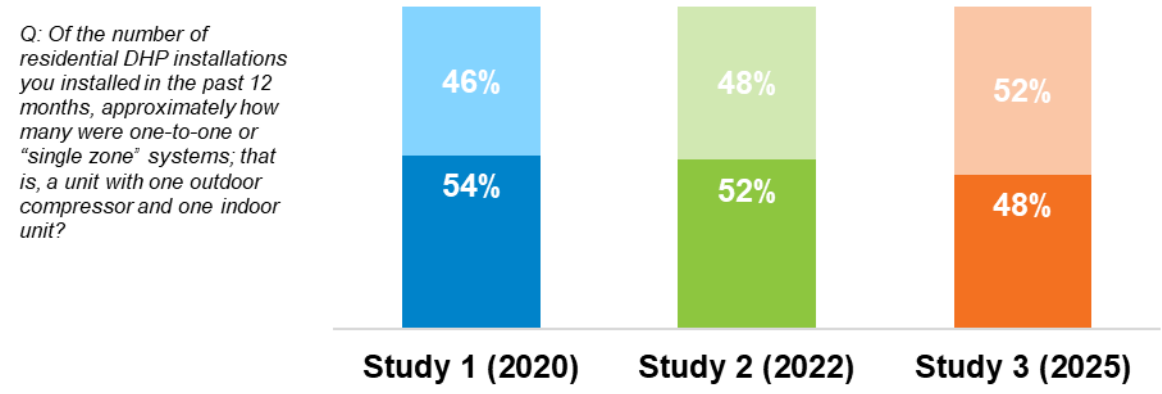


Source: LTMT 2022, 2025 HVAC Installer Survey

Single head installations make up a smaller share of residential installs

Although HVAC installers on average report a higher number of single head installations in 2025 than in prior study years, the share of residential installations using this configuration has declined. Still, nearly half of all residential DHP installations are single head.

Figure 16: Share of Residential Installations with Single Heads



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Table 7: Actual and Adjusted Single Head Installs

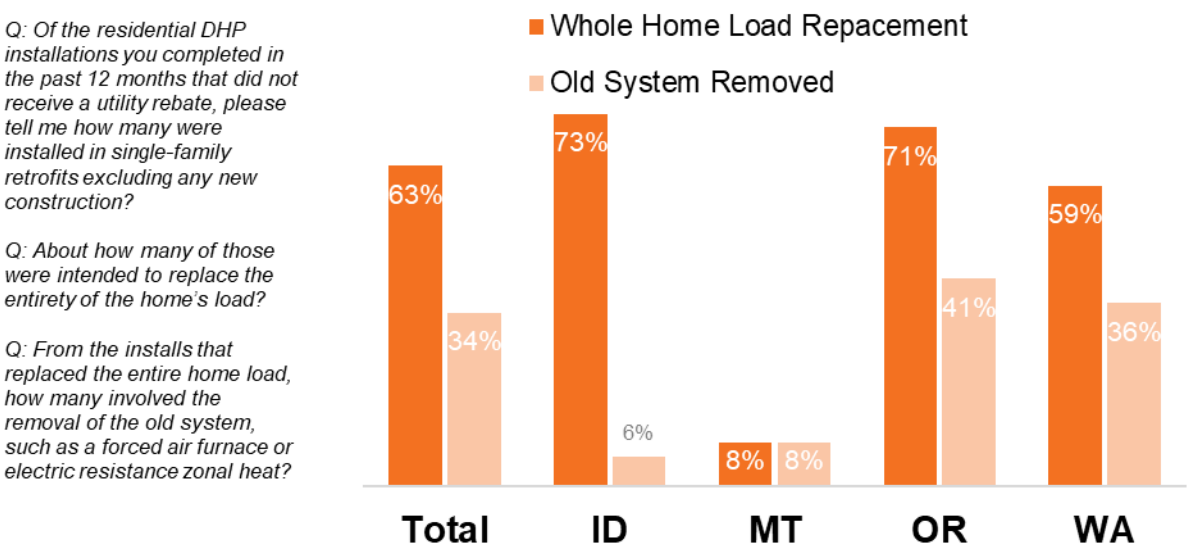
Source	Reported Single Head Installs	Completed Surveys	Average Installs per Contractor	Target Sample	Adjusted Single Head Installs
Study 1 (2020)	5,937	228	26	232	6,041
Study 2 (2022)	4,896	184	27	232	6,173
Study 3 (2025)	3,263	118	28	232	6,415

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Single family retrofits are often intended to replace the whole home load

HVAC installer survey results show that 63% of single-family retrofits are intended to entirely replace the whole home load with the DHP, though only 34% have the old system removed by the HVAC installer. State responses vary substantially in response to this question. A higher share of retrofits in Idaho and Oregon were intended to replace the whole home load, while Montana installers reported a substantially lower rate.

Figure 17: Share of Single Family Retrofits with Whole Home Load Replacement

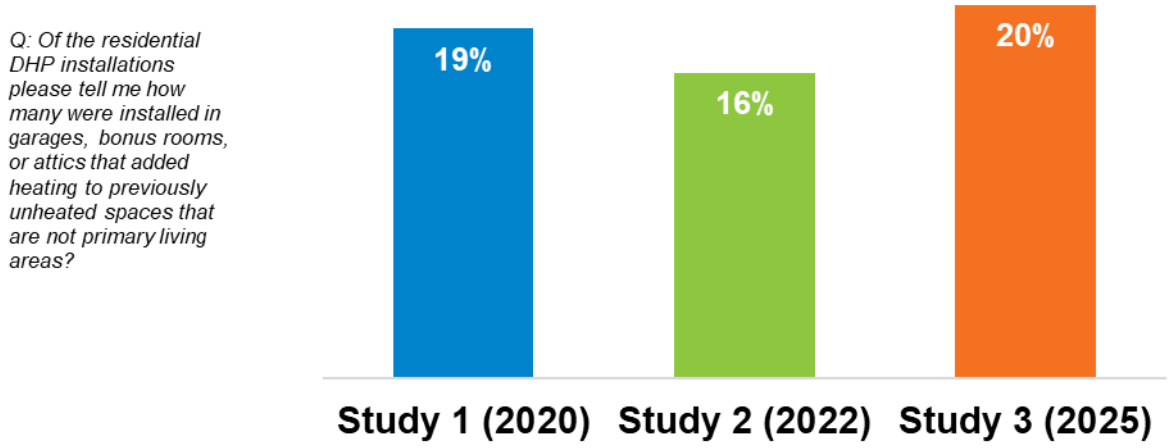


Source: 2025 HVAC Installer Survey

DHP use in single family additions is growing

HVAC installers reported that about one in five of their non-incented residential installations in the past year were for heating previously unheated spaces in single family homes. This is a higher share than in prior study years and suggests continued interest in DHPs for this particular use case.

Figure 18: Share of Non-Incented Residential Installs as Single Family Additions



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Table 8: Actual and Adjusted Installs in Single Family Additions

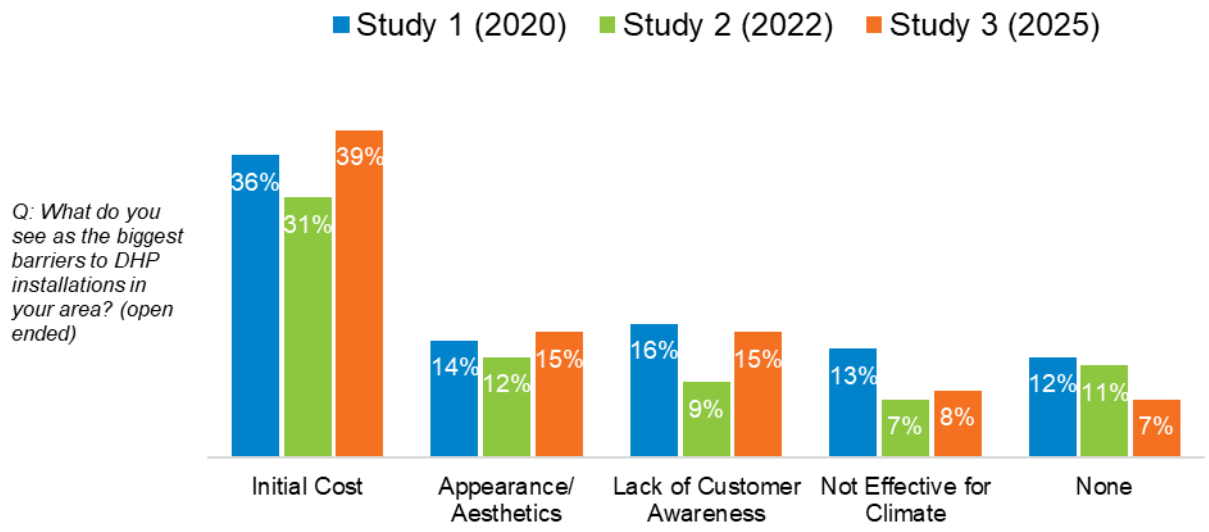
Source	Reported Single Head Installs	Completed Surveys	Average Installs per Contractor	Target Sample	Adjusted Single Head Installs
Study 1 (2020)	695	228	3.0	232	707
Study 2 (2022)	386	184	2.1	232	487
Study 3 (2025)	406	118	3.4	232	798

Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

Cost remains the largest perceived barrier to DHP installations

In all three HVAC installer survey years, the initial cost of DHP installation has been identified as the primary barrier to increased adoption, with appearance and lack of customer awareness also frequently noted. Year 3 responses also noted the need for backup heat systems and a need for more financial incentives as additional barriers.

Figure 19: Top Barriers to DHP Installations



Source: LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

5 Appendix

5.1 Comparison with Past Reports

Prior evaluations of DHP market diffusion have assessed non-incented target market installs as a share of all residential installs (both incented and non-incented). While this study aims to better distinguish between incented and non-incented installs, providing more context on factors driving diffusion, it remains valuable to continue comparing the same data points over time.

Table 9 below adds Study 3 findings to previously reported results in an effort to maintain continuity and ease of comparison between reports. To mirror prior reporting, the results below include actual reported values and are not adjusted, although the use of adjusted values would not impact the reported shares.

Table 9: Historical Comparison of DHP Installations 2018-2025

	MPER #8		Study 1 (2020)			Study 2 (2022)			Study 3 (2025)		
	Total Installs	% of All Installs (n=5,099)	Total Installs	% of All Installs (n=11,236)	Change from Previous Study	Total Installs	% of All Installs (n=9,336)	Change from Previous Study	Total Installs	% of All Installs (n=6,798)	Change from Previous Study
TM1 SF Zonal	249	5%	810	7%	**+ 2%**	388	4%	**- 3%**	371	5%	**+ 1%**
TM2 SF eFAF	83	2%	406	4%	**+ 2%**	237	3%	**- 1%**	198	3%	**0%**
TM3 MH eFAF	33	1%	90	1%	**0%**	138	1%	**0%**	62	1%	**0%**
All Target Markets	365	5%	1,306	12%	**+ 4%**	763	8%	**- 4%**	631	9%	**+1%**

Source: MPER #8, LTMT 2020, LTMT 2022, 2025 HVAC Installer Survey

5.2 HVAC Installer Survey Methodology

Research Approach

Study 3 aimed to replicate as closely as possible the survey methodology completed in prior studies, with several exceptions to improve response rates. First, the survey was expanded to include a web-based option in addition to the telephone survey offered in past studies. Second, a cleaning approach was applied to the list of HVAC contactors to update contact information and reduce the rate of bad numbers and not eligible contacts.

Sampling Plan & Recruitment

The HVAC installer contact list utilized in Study 2 presented several challenges, including a high share of duplicate records (25%), bad numbers (17%), and ineligible businesses (15%). To improve contact list accuracy in Study 3, a phased cleaning approach was conducted on an initial list of 5,807 HVAC installers provided by NEEA, using a separate list by DataAxle to both validate contact information and append with new records, as needed.

The final contact list shared with data collection partner Ward Research included:

- 1,103 records confirmed by NEEA as HVAC installers, fully manually reviewed and updated for current contact information, duplicate records removed
- 1,586 records with contact information that matched in the NEEA and DataAxle lists, not identified as a bad address by past NEEA surveys, duplicate records removed

To maintain alignment with past studies, the proposed sample maintained the same quote goals for each state, with a total target of 232 completed surveys.

Table 10: Proposed Sample

State	Proposed Sample Size	Confidence Interval and Precision	% of Total
ID	48	90/11%	21%
MT	48	90/11%	21%
OR	68	90/10%	29%
WA	68	90/10%	29%
Total	232	+- 5.39%	100%

Postcards were developed and sent to the full census of 2,599 HVAC installers. The postcard included a QR code linking to an online version of the survey as well as informing the respondents to expect a future call from research partner Ward Research. The postcard also notified potential respondents of a $50 incentive for participation in the form of an Amazon e-gift card, Venmo or PayPal payment.

Data collection began in December 2024 and continued until February 7, 2025. Low response rates led to a second postcard distributed in January 2025, which helped to increase the total number of completes. However, the target sample size was not achieved in any state.

Survey Development

Although the survey instrument was largely unchanged from prior studies, slight wording changes were introduced add clarity, and additional questions were added to evaluate the share of DHP installs intended to fully replace the whole home load.

Survey Disposition & Completes

A total of 2,599 HVAC installers were contacted as part of this survey effort, with 118 completed responses. The refusal rate of 12% was high, but aligned with past results, and only 6 percent were not eligible for participation.

Table 11: Survey Dispositions

Disposition	Number	% of Sample
Complete	118	5%
Partial Complete	17	1%
Refused	305	12%
Not Reached	1419	55%
Not Eligible	148	6%
Bad Number	500	19%
Business Closed	45	2%
Do Not Call Again	43	2%
Previously Contacted	2	0%
No Longer at Company	2	0%
Total	2,599	100%

Source: 2025 HVAC Installer Survey

Table 12: Confidence and Precision for the HVAC Installer Survey

State	Population Size	Completed Surveys	Confidence	Precision
ID	450	19	90%	18.87%
MT	322	23	90%	17.15%
OR	721	35	90%	13.90%
WA	1106	41	90%	12.85%
Total	2599	118	90%	7.57%

Survey Instrument

The HVAC contractor survey is designed to measure the following research objectives listed in Table 12. These include assessing three key Diffusion Indicators, which are listed as Research Objectives 3, 4, and 6 in Table 12. The other research objectives confirm DHP's current operations (Research Objective 1), identify remaining barriers to DHP installations (Research Objective 5) and provide information about current DHP contractor operations (Research Objective 7).

Table 13: Key Research Objectives

Research Objective	Question Number
1. Confirm HVAC DHP Eligibility	B1-B2
2. Home types where DHPs are installed	C1
3. DHPs installed in single zones	C3
4. Number of DHPs incented in each market	C4, C5
5. Changes in the DHP Market	C2, C7
6. Types of heating measures DHPs are displacing	C6a, C6b
7. Cost of DHP Systems	D1 -D2
8. Contractor "firmographic" information	E1, E3, E-4, E6

Last updated: December 12, 2024 for Study 3

Record the Following Variables from the Sampling Frame:

Contractor Name

City

State

Zip Code

NEEA "Oriented Contractor"

[**1**] ORIGINAL_TELEPHONE

[**2**] Ward_ID

[**3**] SAMPLE_STATE

[**4**] SAMPLE_STATE_CODE

1> IDAHO

2> MONTANA

3> OREGON

4> WASHINGTON

5> UNKNOWN

A. **Introduction**

[**5**]

[TELEPHONE]

[ORIGINAL TELEPHONE]

[PHONE2]

[STATE]

[COMPANY]

[CONTACT]

[TITLE]

ALTERNATE INTRO (NO POSTCARD MAILED):

Hello. I am _____ calling from Ward Research on behalf of the Northwest Energy Efficiency Alliance (NEEA-KNEE-AH). We are conducting a survey of HVAC contractors who install Ductless, "mini-split" or "split system" Heat Pumps or DHPs. If you qualify and complete this survey, NEEA will send you a $50 Amazon, PayPal or Venmo e-gift card. Are you the best person to talk about your company's experience with DHPs?

[IF RESPONDENT SAYS THEY DON'T INSTALL DHP OR ARE NOT IN HVAC GOTO QB1_HVAC_INSTALLER]

If Yes, Continue; If No: Who would be the right person? Is that person available?

If needed, reintroduce yourself and begin:

Hello. I am _____, calling from Ward Research on behalf of the Northwest Energy Efficiency Alliance (NEEA-KNEE-AH). We are surveying HVAC contractors who install Ductless, "mini-split" or "split system" Heat Pumps or DHPs.

I'd like to ask you a few questions about your installation experiences with DHPs. To thank you for your participation, we will send you either a $50 Amazon online e-gift card or make a $50 payment to your PayPal or Venmo account.

*Is now a convenient time to speak? This is **not** a sales call. This survey will take about 10 minutes.*

Hello. I am _____ calling from Ward Research on behalf of the Northwest Energy Efficiency Alliance (NEEA-KNEE-AH). We are following up on a postcard we mailed regarding a survey of HVAC contractors who install Ductless, "mini-split" or "split system" Heat Pumps or DHPs. If you qualify and complete this survey, NEEA will send you a $50 Amazon, PayPal or Venmo e-gift card. Are you the best person to talk about your company's experience with DHPs?

[IF RESPONDENT SAYS THEY DON'T INSTALL DHP OR ARE NOT IN HVAC GOTO QB1_HVAC_INSTALLER]

If Yes, Continue; If No: Who would be the right person? Is that person available?

If needed, reintroduce yourself and begin:

Hello. I am _____, calling from Ward Research on behalf of the Northwest Energy Efficiency Alliance (NEEA-KNEE-AH). We are surveying HVAC contractors who install Ductless, "mini-split" or "split system" Heat Pumps or DHPs.

I'd like to ask you a few questions about your installation experiences with DHPs. To thank you for your participation, we will send you either a $50 Amazon online e-gift card or make a $50 payment to your PayPal or Venmo account.

*Is now a convenient time to speak? This is **not** a sales call. This survey will take about 10 minutes.*

_____Schedule Call Back

If redirected: Repeat Introduction.

1> YES CONTINUE

2> YES CONTINUE - DIFFERENT COMPANY NAME

6> SCHEDULE CALLBACK

7> GO TO DISPOSITION CODES

[**6**] [DIFFERENT_COMPANY_NAME] ENTER COMPANY NAME

[COMPANY]

[UPDATE COMPANY NAME]

[CONTACT]

[TITLE]

[**7**] May I have your [**7**] name and title?

[ENTER NAME AND TITLE ON TWO LINES]

[**8**] CHECK NAME AND TITLE SCREEN

B. Screening Questions

[**9**] *Thank you for taking the time to talk with me today. I'd like to start by asking about your company's experience with DHP installations.*

QB1. Does your company install ductless heat pumps, also known as DHPs or mini-splits?

1. Yes
2. No **[ASK QB1_HVAC_INSTALLER]**
3. Don't know **[ASK QB1_HVAC_INSTALLER]**

[**10**][QB1_HVAC_INSTALLER] Is your company an HVAC installer?

1> Yes **[THANK AND TERMINATE]**

2> No [**ASK QB1_HVAC_REPAIR**]

9> Don't Know/Refused (DO NOT READ) [**ASK QB1_HVAC_REPAIR**]

[**11**][QB1_HVAC_REPAIR] Does your company repair and/or maintain HVAC equipment?

1> Yes **[THANK AND TERMINATE]**

2> No**[THANK AND TERMINATE]**

9> Don't Know/Refused (DO NOT READ) **[THANK AND TERMINATE]**

[**Q13_A1-5**] QB2. In what types of buildings do you install DHPs? (*Select all that apply*)

1. Manufactured homes
2. Single-family homes (site built)
3. Multifamily buildings such as apartment buildings or condos, or senior or assisted living
4. Commercial facilities
5. [**14**] Other

[NOTE: THANK AND TERMINATE IF B2 ≠ 1 , 2, or 3; if 4, indicate contractor specializes in commercial in the recruiting spreadsheet]

C. Installations

Now, I'd like to ask you a few questions about *the **numbe**r of DHPs you have installed in the past 12 months. Your best estimate is fine.*

[**83**] In the past 12 months, approximately how many commercial DHPs did you install? ***Your best estimate is fine.***

Commercial **_____Estimated # of DHPs Installed**

9999: Don't Know

[**16**] QC1. In the past 12 months, approximately how many residential DHPs did you install? **(*Read if necessary: This estimate should include installations in the residential, manufactured housing, and multifamily applications)? Your best estimate is fine.***

Residential (all sectors) **_____Estimated # of DHPs Installed**

9999: DON'T KNOW- THANK AND TERMINATE

[**17**] QC2. How does the percentage of residential customers specifically asking for DHPs compare to prior years? Is it?

1. A *higher percentage* specifically requested a DHP in the past 12 months compared to prior years?
2. A *lower percentage* specifically requested a DHP in the past 12 months
3. Approximately the *same percentage* specifically requested a DHP in the past 12 months compared to prior years

9. Don't Know (DO NOT READ)

[**18**] QC3. Of the number of residential DHP installations you installed in the past 12 months, approximately how many were one-to-one or "single zone" systems; that is, a unit with one outdoor compressor and one indoor unit?

_____# of DHPs Installed DK = 9999 (DO NOT READ)

[19] CHECK QC3 IS NOT GREATER THAN QC1

[**20**] QC4. Of the number residential DHP installations you completed in the past 12 months, approximately how many **did NOT receive** a utility rebate?

_____# of DHPs Not Receiving a Rebate DK/REF=9999 (DO NOT READ)

[IF 0 OR DK/REF THEN SKIP TO QC7]

[21] CHECK QC4 IS NOT GREATER THAN QC1

[23] *The next several questions are specifically about the residential DHP installations you completed in the past 12 months that **did NOT receive a utility** rebate.*

[INTERVIEWER NOTE:

MANUFACTURER'S REBATE, TAX CREDIT,

OR ANY OTHER INCENTIVE IS COUNTED

AS LONG AS THEY DID NOT RECEIVE A UTILITY REBATE]

[**24**] **QC5.** Of the [**REPEAT NUMBER FROM QC4**] residential DHP installations you completed in the past 12 months that **did not receive a utility rebate**, please tell me how many were installed **in single-family retrofits excluding any new construction**? Those are r**etrofits to replace or displace existing equipment in the primary living space only. I am going to ask you about other installations a little later.** Your best estimate is fine.

QC5a. Single-family retrofits (excluding any new construction)

_____**# of DHPs Installed DK/REF=999 (DO NOT READ)**

If Zero, Skip to QC6

[84] QC5a3. About how many of those [READ NUMBER OF DHPS FROM QC5A] were intended to replace the entirety of the home's load?

_____ Estimated Number Replacing Entire Home Load

If Zero, Skip to QC5a1

[85] QC5a3a. From the [READ NUMBER FROM QC5a3] that replaced the entire home load, how many involved the removal of the old system, such as a forced air furnace or electric resistance zonal heat?

_____ Estimated Removals

[**32**] QC5a1. About how many of those (**READ NUMBER OF DHPS FROM QC5a]** displaced or **replaced** Electric resistance zonal heat such as baseboards, cadet-style, ceiling cable?

_____Estimated **# Electric Resistance Zonal Heat Systems** Replaced

9999. Don't Know

[**33**] QC5a2. About how many of those (READ NUMBER OF DHPS FROM **QC5a)** displaced or replaced electric forced air furnaces?

_____Estimated Number of **Forced Air Furnaces** Replaced

9999. Don't Know

[**28**] QC 6. Of the [REPEAT NUMBER FROM QC4) residential DHP installations please tell me how many were installed in **garages, bonus rooms, or attics that added heating to *previously unheated spaces that are not primary living areas*** ? Your best estimate is fine.

QC6a. Single-Family Additions

_____**# of DHPs Installed**

[29] Check that QC6 is not greater than QC4

9999. Don't Know:

[**26**] QC5b: Of the [REPEAT NUMBER FROM QC4] residential DHP installations you completed in the past 12 months that **did not receive a utility rebate**, please tell me how many were installed in **manufactured housing, excluding new construction?** Those are r**etrofits to replace or displace existing equipment in the primary living space only.** Your best estimate is fine.

QC5b. **Manufactured Housing:**

_____**# of DHPs Installed**

9999. Don't Know

[27] Check that QC5b is not greater than QC4

[**36**] QC5b1. About how many of those [**READ NUMBER OF DHPS FROM QC5b**] displaced or **replaced** Electric resistance zonal heat such as baseboards, cadet-style, ceiling cable?

_____**Estimated # Electric Resistance Zonal Heat Systems** Replaced

9999. Don't Know

[**37**] Q5b2: About how many of those [**READ NUMBER OF DHPS FROM QC5b**] displaced or replaced electric forced air furnaces?

_____Estimated Number of **Forced Air Furnaces** Replaced

9999. Don't Know

[74-81]**[CHECK SCREEN FOR Q5 and Q6. SUM OF QC5a, QC5b, and QC6 LESS THAN QC4]**

ALL CONTINUE

[**40**] QC7. What do you see as the biggest barriers to DHP installations in your area? [PROBE FULLY. TYPE VERBATIM RESPONSES.] Open Ended_____

1. Initial Cost
2. Lack of Customer Awareness\Lack of knowledge
3. Difficult to Install
4. People Don't Like Something New
5. Too cold\They are not as effective with our climate
6. Too much regulation to deal with
7. They need backup heat systems during cold weather
8. People don't like the appearance\Aesthetics
9. The need for more financial incentives\Rebates\Financing
10. House is too big\Layout of the house\Multi-level
11. Too much competition by people that don't know what they are doing\Online retailers
12. Not enough qualified installers
13. People already have a ducted system
14. Need for an electrical upgrade
15. Sometimes ducted is better
16. Supply chain issues\Long wait to get equipment

88. Something Else (Other)_____
97. None\No barriers

99. Don't Know

Installation costs

[**41**] D1. Including all **equipment and labor** costs, what is the total cost for your customers, on average, to install a **one-to-one or "single zone"** DHP system before any rebates or tax credits are applied?

Your best estimate is fine. DON'T KNOW/REFUSED=999999 (DO NOT READ)

1. $ [RECORD DOLLAR AMOUNT]

D2. **For the $[INSERT RESPONSE FROM D1] equipment and labor costs, about how much of that is just the cost of equipment and materials? Your best estimate is fine."**

Cost Components Average Cost ($)

[**42**] a. Equipment and materials (for example, box/unit with single-head, as well as ancillary equipment such as the padmount, brackets, and lineset [RECORD NUMBER]

DON'T KNOW/REFUSED=999999 (DO NOT READ)

E. Installer Background

Now, I'd just like to ask a few questions for classification purposes only.

E1. What percentage of your HVAC installation work is for DK/REF = 999 (DO NOT READ)

1. [**51_A1**] Residential Customers _____%
2. [**51_A2**] Commercial Customers _____%

[**56_A1-4**] E3. What states do you serve? (***Mark all that Apply***)

2> Idaho

3> Montana

6> Oregon

9> Washington

E4. What counties do you serve?

97 > All of them (DO NOT READ) 99 > Don't know / Refused (DO NOT READ)

[**58_A1-37**] [**IF E3 EQ 2**][E4_IDAHO] What Idaho counties do you serve?

1> Ada County	16> Cassia County	31> Lewis County
2> Adams County	17> Clark County	32> Lincoln County
3> Bannock County	18> Clearwater County	33> Madison County
4> Bear Lake County	19> Custer County	34> Minidoka County
5> Benewah County	20> Elmore County	35> Nez Perce County
6> Bingham County	21> Franklin County	36> Oneida County
7> Blaine County	22> Fremont County	37> Owyhee County
8> Boise County	23> Gem County	38> Payette County
9> Bonner County	24> Gooding County	39> Power County
10> Bonneville County	25> Idaho County	40> Shoshone County
11> Boundary County	26> Jefferson County	41> Teton County
12> Butte County	27> Jerome County	42> Twin Falls County
13> Camas County	28> Kootenai County	43> Valley County
14> Canyon County	29> Latah County	44> Washington County
15> Caribou County	30> Lemhi County	

[**59_A1-39**] [**IF E3 EQ 3**][E4_MONTANA] What Montana counties do you serve?

1> Beaverhead County	2> Big Horn County	3> Blaine County

4> Broadwater County
5> Carbon County
6> Carter County
7> Cascade County
8> Chouteau County
9> Custer County
10> Daniels County
11> Dawson County
12> Deer Lodge County
13> Fallon County
14> Fergus County
15> Flathead County
16> Gallatin County
17> Garfield County
18> Glacier County
19> Golden Valley County
20> Granite County
21> Hill County
22> Jefferson County
23> Judith Basin County
24> Lake County
25> Lewis and Clark County
26> Liberty County
27> Lincoln County
28> McCone County
29> Madison County
30> Meagher County
31> Mineral County
32> Missoula County
33> Musselshell County
34> Park County
35> Petroleum County
36> Phillips County
37> Pondera County
38> Powder River County
39> Powell County
40> Prairie County
41> Ravalli County
42> Richland County
43> Roosevelt County
44> Rosebud County
45> Sanders County
46> Sheridan County
47> Silver Bow County
48> Stillwater County
49> Sweet Grass County
50> Teton County
51> Toole County
52> Treasure County
53> Valley County
54> Wheatland County
55> Wibaux County
56> Yellowstone County

[**62_A1-36**] [**IF E3 EQ 6**][E4_OREGON] What Oregon counties do you serve?

1> Baker County
2> Benton County
3> Clackamas County
4> Clatsop County
5> Columbia County
6> Coos County
7> Crook County
8> Curry County
9> Deschutes County
10> Douglas County
11> Gilliam County
12> Grant County
13> Harney County
14> Hood River County
15> Jackson County
16> Jefferson County
17> Josephine County
18> Klamath County
19> Lake County
20> Lane County
21> Lincoln County
22> Linn County
23> Malheur County
24> Marion County
25> Morrow County
26> Multnomah County
27> Polk County
28> Sherman County
29> Tillamook County
30> Umatilla County
31> Union County
32> Wallowa County
33> Wasco County
34> Washington County
35> Wheeler County
36> Yamhill County

[**65_A1-40**] [**IF E3 EQ 9**][E4_WASHINGTON] What Washington counties do you serve?

1> Adams County
2> Asotin County
3> Benton County
4> Chelan County
5> Clallam County
6> Clark County
7> Columbia County
8> Cowlitz County
9> Douglas County
10> Ferry County
11> Franklin County
12> Garfield County
13> Grant County
14> Grays Harbor County
15> Island County
16> Jefferson County
17> King County
18> Kitsap County
19> Kittitas County
20> Klickitat County
21> Lewis County
22> Lincoln County
23> Mason County
24> Okanogan County
25> Pacific County
26> Pend Oreille County
27> Pierce County
28> San Juan County
29> Skagit County
30> Skamania County
31> Snohomish County
32> Spokane County
33> Stevens County
34> Thurston County
35> Wahkiakum County
36> Walla Walla County
37> Whatcom County
38> Whitman County
39> Yakima County
40> Washington (state
)

[**68**] E6. *Thank you for your time today. To thank you for participating in our survey today, we will email you a link to a $50.00 Amazon online e-gift card or deposit a $50 payment to your PayPal or Venmo account.*

QE6a. Which gift card would you prefer?

1. Amazon **(CONTINUE TO QE6b)**
2. Pay Pal **(SKIP TO QE6c)**
3. **Venmo (SKIP to QE6c)**
4. **REFUSED INCENTIVE (DO NOT READ) (SKIP TO THANK YOU)**

[**69**] *QE6b. Please confirm your email address we should send this Amazon e-gift card to.*

_____confirm email address

[**70**] *QE6c. Please confirm the email address associated with your [READ from QE6a, either PayPal or Venmo] account**. (IF CUSTOMER DOES NOT HAVE A PAYPAL ACCOUNT, PAYPAL WILL SEND AN EMAIL REQUEST TO OPEN A PAYPAL ACCOUNT SO THEY CAN SEND THE PAYMENT.)***

_____confirm email address

[IF THEY ASK, THEY SHOULD RECEIVE THE E-GIFT CARD OR PAYMENT WITHIN 2 WEEKS.]

[**71**] *Thank you very much for your time today!*

5.3 HVAC Installer Website Review Methodology

Research Approach

An additional study of DHP contractors was conducted to assess the status of Diffusion Indicator 3, evaluating the share of HVAC contractors in the Northwest region offering DHP installations.

In prior studies, a call-down survey was conducted to determine the share of contractors installing DHPs in each state. Based on preliminary review of the provided contact list of HVAC installers, OWL determined that the majority of currently operating businesses offer either a website or social media property where prospective customers can learn more about the company and services offered. This information usually includes an indication of the types of HVAC systems installed, including whether or not the company installs DHPs. Given the ubiquity of these properties, a comparable approach to call-down surveys can be completed with a basic website review.

The sample for the website review was derived from the same sample contact list used for the HVAC Installer Survey, with an original population of 2,599 installers (Phase 1 Sample). Contractors who had completed or partially completed the survey were excluded, as well as those who refused to participate, had bad contact information, or other exclusionary results from the dispositions. A list of 1,466 installers (Phase 2 Sample) were identified whose status regarding DHP installations was unknown.

Table 14: State HVAC Installer Website Reviews Sample

	# Records	% of Phase 1 Sample
Phase 1 Sample (HVAC Installer Survey Population)	**2,599**	**100%**
Excluded from Phase 2 Sample		
Completed or Partially Completed HVAC Installer Survey	135	5%
Refused	305	12%
Not Eligible	148	6%
Bad Number	500	19%
Business Closed	45	2%
Total Excluded	**1,133**	**44%**
Phase 2 Sample (Website Review)	**1,466**	

Source: 2025 HVAC Website Review

In alignment with prior call-down methodologies, a stratified random sample was developed to with target sample quotas for each state.

Table 15: State HVAC Installer Website Reviews Sample

State	Phase 2 Sample	Phase 2 Sample Frame	Target Sample Quotas
ID	229	100	10
MT	187	100	10
OR	403	200	20
WA	647	200	20
Total	1,466	600	60

Results

The HVAC Installer Website Review confirmed that most contractors (87%) in the Northwest region offer DHP installations, and the share of contractors providing this service has increased since Study 1.

Table 16: State HVAC Installer Website Review Results

Source	State	Adjusted Population Estimate	Sample Frame	Achieved Sample Size	Number Who Install DHPs	Unweighted Percentage of DHP Installers	Weighted Percentage of DHP Installers
Study 1 (2020)	ID	208	100	10	9	90%	13%
	MT	175	100	10	5	50%	6%
	OR	408	200	20	19	95%	26%
	WA	674	200	20	17	85%	39%
	Total	1465	600	60	50	83%	84%
Study 2 (2022)	ID	448	100	10	9	90%	13%
	MT	331	100	10	9	90%	9%
	OR	950	200	20	17	85%	26%
	WA	1416	200	20	16	80%	36%
	Total	3145	600	60	51	85%	84%
Study 3 (2025)	ID	229	100	10	9	90%	14%
	MT	187	100	10	7	70%	9%
	OR	403	200	20	19	95%	26%
	WA	647	200	20	17	85%	38%
	Total	1466	600	60	52	87%	87%

Source: LTMT 2020, LTMT 2022, 2025 HVAC Website Review