



ILLUME



RES 25 – Heating/Cooling Contractor Interview Findings

Final Report

Prepared for:

The Electric and Gas Program Administrators of Massachusetts
Part of the Residential Evaluation Program Area

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TABLE OF CONTENTS

Executive Summary	ii
Results.....	ii
Heat Pump Water Heater Practices and Perceptions	ii
Contractor Experience with Other Water Heater Technologies	ii
Use of Utility Incentives in Business Model.....	ii
Recommendations for Program Improvement	iii
Experience with Industry Training and GasNetworks	iii
1. Introduction	1
1.1 Overall Study Goals	1
1.2 Research Questions.....	1
2. Sampling and Recruitment Methodology.....	3
2.1 Data Received.....	3
2.1.1 National Grid Contractor Contact List.....	3
2.1.2 NMR Contractor Database	4
2.1.3 Heat Pump Water Heater Participant Database	5
2.2 Sampling.....	6
3. Results	10
3.1 Characteristics of Interviewed Heat Pump Water Heater Contractors.....	10
3.2 Contractor Perception of Heat Pump Water Heater Technology	11
3.3 Contractor Awareness of GE's Exit from HPWH Market	12
3.4 When Contractors Recommend HPWHs, and Under What Circumstances.....	12
3.5 Are Heat Pump Water Heaters Replacing Functioning or Failed Water Heaters?	14
3.6 Contractor Approach to Heat Pump Water Heater Capacity	14
3.7 Other Water Heating Technologies.....	16
3.8 Incentives as Marketing.....	18
3.9 Contractor Experience with Utility Programs and Training	18
3.9.1 Program Participation	18
3.9.2 Program Recommendations.....	20
3.9.3 Industry Training Experience.....	21
3.10 Contractor Experience with GasNetworks	23

EXECUTIVE SUMMARY

This report describes the research objectives, methods, and key findings of interviews with Residential Heating, Ventilating, and Air Conditioning and Water Heating contractors (RES 25). These interviews were designed to support the High Efficiency Heating Equipment (HEHE) Condensing Equipment Research (RES 16), but also expanded that contractor research to explore issues around water heating technologies, with a particular focus on heat pump water heaters (HPWH).

Through these contractor interviews, the research team sought to better understand, from contractors' perspectives, barriers to customer adoption of efficient HVAC and water heating equipment, as well as any barriers that may exist to program participation. This research was qualitative in nature, intended to inform program processes and design.

The key findings of this research are presented below.

Results

Heat Pump Water Heater Practices and Perceptions

- Contractors we spoke to generally reported selling few HPWHs, with nearly half saying they installed fewer than 5 in the past 12 months. However, nearly all these projects went through PA incentive programs.
- Most respondents had a generally positive opinion of heat pump water heaters, but expressed that HPWHs are only suitable in certain homes, and for certain customer types.
- Water heater contractors are apt to present heat pump water heaters to customers with a location in their home amendable to optimized HPWH function: Adequate clearance in a non-conditioned space.
- While most contractors install HPWHs to replace failed units, about a third reported that most their HPWH installations replace working units.
- Half of interviewed contractors most commonly install smaller-capacity (<55 gallons) HPWHs, while a third of contractors are more likely to install larger units. This is because contractors think smaller-capacity units supply sufficient hot water for most homes.

Contractor Experience with Other Water Heater Technologies

- Nearly all interviewed contractors reported a rise in customer demand for tankless water heaters in recent years.
- Most contractors did not view wireless-enabled water heater technology as a useful technology – a few saw its value in specific cases of second homes or frequent travel.
- Indirect water heating systems are popular with both contractors and customers in homes with high-efficiency boilers.

Use of Utility Incentives in Business Model

- Nearly all respondents had used utility incentives to help sell efficient equipment.

- Across both the condensing boiler respondents and the HPWH respondents, almost all have recently participated in an incentive.

Recommendations for Program Improvement

- Contractors recommend at least maintaining the rebate amounts and improving program processes by streamlining the current paper-based rebate process.

Experience with Industry Training and GasNetworks

- Most contractors had recently attended industry training – most commonly manufacturer-sponsored.
- Contractors are aware of GasNetworks' resource offerings and mostly use these offerings for assistance with rebate paperwork.

1. INTRODUCTION

This report describes the research objectives, methods, and key findings of interviews with **Residential HVAC and Water Heating contractors (RES 25)**. The research team designed these interviews to support the High Efficiency Heating Equipment (**HEHE**) **Condensing Equipment Research (RES 16)**, but also expanded that contractor research to explore issues around water heating technologies, with a particular focus on heat pump water heaters (HPWH).

The Massachusetts Residential Research Area evaluation team, led by Navigant and subcontractor ILLUME Advising (ILLUME) (henceforth “the research team,” or “the team”), developed the research plan for this work. Navigant, as the prime contractor, performed quality control on major milestones and deliverables for the project.

1.1 Overall Study Goals

The study’s goals were twofold: 1) Support RES 16 condensing equipment research and 2) collect information from heating and plumbing contractors on industry practices and program participation barriers related to both condensing boilers and water heating equipment. This report focuses on presenting results related to the second goal; RES 16 contractor-related findings are reported separately under that research area report.

Through these contractor interviews, the research team sought to better understand, from contractors’ perspectives, barriers to customer adoption of efficient HVAC and water heating equipment, as well as any barriers that may exist to program participation. This research was qualitative in nature, intended to inform program processes and design.

1.2 Research Questions

The research questions explored industry practices and program participation barriers related to both condensing boilers and water heating equipment, including the following topics:

Heat pump water heater market perceptions:

- To what extent are contractors installing HPWH less than 55-gallon capacity, either as early replacement or replace on failure?
- Are contractors installing non-HPWH technologies when greater than 55-gallon capacity is needed? For example, installing two smaller water heaters or commercial grade water heaters?
- Is location, and/or space requirements, a barrier to installing HPWH?
- What other issues are cited by contractors as reasons to not install HPWH (probe for ambient temperature around the water heater)?

Other Technologies: PAs identified targeted research questions related to four other technologies to investigate through the interviews. Research questions focused on the installation and contractor perceptions of these technologies:

- **Wireless water heater technologies:** How familiar are contractors with water heaters that incorporate wireless technologies (allowing customers to adjust water heater settings via

smartphone and other wireless devices)? What is contractor perception and customer demand like for wireless-enabled water heaters?

- **Tankless water heaters:** Have contractors seen increased movement toward adoption of tankless water heaters?
- **Indirect water heaters:** How do contractors approach selling indirect water heaters, and how willing are to consider that option?

Experience with GasNetworks: GasNetworks is a primary information and resource tool for Massachusetts contractors. The website was significantly redesigned in early 2015. Research questions included:

- Are contractors leveraging GasNetworks offerings? If so, which ones?
- Do contractors use the resources on the GasNetworks website?
- What information do they receive from GasNetworks? What other types of information would they like to have available to them?
- To what extent are contractors engaged with GasNetworks? Are there opportunities to increase their engagement? (Probe on their experience with various aspects, including paperwork, training, other resources, fall conference, etc.).

Training attendance and needs: Contractors can attend various PA and GasNetworks-sponsored trainings throughout the year. Interviews explored the following questions:

- Do contractors attend other industry-offered training events, such as those provided by manufacturers?
- Do contractors have other training needs that are not being met by current resources?

Program Experience: Interviews assessed contractors' experience with the program, including:

- Perceived barriers to participation
- Suggestions for program improvements
- Integration of program offerings in their business model, including whether and how they use utility incentives to upsell efficient equipment.

2. SAMPLING AND RECRUITMENT METHODOLOGY

This section describes the sampling and survey approach to meet the needs of both RES 16 and RES 25, including the data sources used for these studies, followed by sampling and recruiting strategies.

2.1 Data Received

The evaluation team received and sampled contractors from three data sources: 1) participating HVAC and plumbing contractor list provided by National Grid, 2) general contractor database received by NMR Group, Inc., and 3) participating HPWH contractor data provided by Blackhawk Engagement Solutions. Below is a summary of the data received by data source.

2.1.1 National Grid Contractor Contact List

On July 26, National Grid provided to the evaluation team an Excel file that documents HVAC and plumbing contractors that installed rebated boilers, furnaces, water heaters, and outdoor boiler reset controls through statewide (Mass Save) heating and cooling rebate program in the prior year. The data included information on nearly 300 contractors. For each contractor, the file captured: measure(s) associated with the contractor, natural gas PA, and contact information (address, telephone number, email address). Table 1 details the number of contractors associated with each gas PA in the file.

Table 1. Contractor Counts in National Grid Contractor File by Gas PA

Gas PA	Count of Records
National Grid	158
Columbia Gas of MA	60
NSTAR Gas	48
Berkshire Gas	20
New England Gas	10
Unitil	7
Blackstone Gas	1

Table 2 documents the heating and/or water heating measure associated with each contractor. Note that heat pump water heaters were excluded from this data file, presumably because the file focused on gas measures.

Table 2. Contractor Counts in National Grid Contractor File by Product Category

Equipment Type	Count of Records
Condensing boiler	99
Furnaces	48
Water heaters-gas tankless	48
Water heaters - indirect	47
Water heaters – gas condensing	12
Infrared heaters	14
Condensing boiler with on-demand water heater	14
Outdoor boiler reset controls	9
Condensing unit heaters	5
Hot water boiler	3

While the National Grid file provided fairly complete contact information for each contractor, it did not provide project-focused information (e.g., number of projects or participants, relative savings, program participation). Additionally, the evaluation team presumes the contractor company is associated with measures other than documented in the file.

2.1.2 NMR Contractor Database

The Massachusetts PAs also provided the evaluation team with a contractor database managed by NMR Group, downloaded and reviewed as of September 2, 2016. This file contained 5,078 contractor records. (Duplicates are present; therefore, this number does not represent *unique* contractor organizations, although the file does appear to have removed most duplicate records). Six sources fed into the database, described in Table 3. Per the descriptions, most of these contractors participated in 2015.

Table 3. NMR Contractor Database Sources

Study or Source	What it Represents	Number of Records
Early Boiler/Early Furnace rebate programs	Contractor email list, including both contractors who installed Heating Systems as part of the Early Boiler/Early Furnace rebate programs or were contacted by the program in 2015. <i>(NOTE: Although it seems this group could include nonparticipants, all listed contractors have an associated rebate.)</i>	4,414
CoolSmart program (training and certification recipients)	Contractors who received training and certifications to be eligible to offer Quality Installation Verification (QIV) protocols and appear on the Mass Save Website as program contractors. All of these contractors provide cooling, but some provide heating too.	221

Study or Source	What it Represents	Number of Records
HEHE & CoolSmart (rebate participants)	HVAC installer contact information from HEHE program rebate forms.	624
Survey of HVAC contractors that attended 2015 Gas Networks conference	Contractors that attended GasNetworks conference in Oct 2015 & filled out survey. NMR expects these respondents are contractors who focus mostly on residential HVAC.	45
Sample frame for cross-cutting gas NTG study (2014-2015)	Design professionals and vendors that were designated as “influential” contractors by participants in the gas cross-cutting NTG free ridership and spillover surveys.	192
Sample frame for cross-cutting electric NTG study (2014-2015)	Design professionals and vendors that were designated as “influential” contractors by participants in the electric cross-cutting NTG free ridership and spillover surveys.	223

Source: NMR HVAC Contractor Databases_Contractors_with contact info_5-27-16 (downloaded September 2, 2016)

Additionally, the database documented whether the contractor was associated with one of the following rebate types: 1) residential boiler or furnace rebate in 2015; 2) residential cooling rebate in 2015; 3) residential cooling or heating rebate in 2015. Nearly 400 contractors (380) had no rebate association, the majority of which were related to the abovementioned NTG studies and associated with commercial programs only. These commercial-only contractors were excluded from the study.

The database was inclusive of the following contact details out of the 5,078 records:

- Addresses for nearly all 4,896 records
- Telephone numbers for 3,469 records
- Email addresses for 1,872 records
- Contact name for 1,527 records

The database, while it captures associated rebate, does not document the following variables needed for efficient recruiting and to be used in analysis in evaluation analysis:

- Types of measure(s) rebated
- Number of associated projects
- Associated PA or program in which the contractor participated.

2.1.3 Heat Pump Water Heater Participant Database

On December 2, 2016, Blackhawk Engagement Solutions, Inc., the firm contracted to track the Massachusetts PA’s heat pump water heater rebates, provided the evaluation team with an Excel document containing a list of contractors in the Mass Save territory, along with the number of incentives each had received through program participation. The file included a total of 1,901 contacts, and upon the removal of duplicate contacts acquired through previous data sources, an estimated 1,560 unique contacts remained (this count may be overstated slightly due to variations in spelling of contractor names that may not have been identified in the data cleaning). The file lacked specific contact information; phone

numbers were acquired through web searches. We attempted to contact contractors with the most HPWH program experience.

2.2 Sampling

Sampling and interview recruiting was an iterative process. The research team first started with the NMR database to sample contractors as this database had the most unique contractors. The team removed commercial-only contractors and HVAC contractors who indicated they provide only cooling services. A total of 900 contractors were randomly sampled from the remaining data.

Recruiting contacts from the NMR database through telephone outreach proved relatively ineffective. Using this initial sample list, the team attempted to pretest the sample source and interview guide. Illume pretested the process between September 23rd and October 6th, 2016. In total, the team made 90 attempts to reach 76 contractors, and only completed two interviews. Up to three attempts were made for each contact.

Recognizing the low initial response, and implications for the full study, the research team re-evaluated the sampling and interviewing strategy. Through discussions with the evaluation team and PAs, the group decided to recruit contractors via email, offering a \$50 incentive for their participation (in the form of an Amazon or Visa gift card). It was necessary to limit contractors to those who provided email addresses, which varied by data source (see above). However, the ability to mass-recruit, together with the opportunity to obtain information via the email recruitment process, offered a more efficient, and potentially more cost-effective, option for reaching and speaking with these organizations.

In early October, the research team developed an email survey designed to prescreen/qualify interview participants and characterize them by equipment type and program participation status. Based on responses to the email survey, contractors were characterized as either “active” or “less active.” To qualify as an “active” contractor, respondents were required to have installed a minimum of 5 condensing boilers or heat pump water heaters that received a Mass Save rebate within the past twelve months. Those respondents who had installed condensing boilers and/or HPWHs, but had fewer than 5 projects go through a utility program in the past twelve months, were characterized as “less active” contractors.

The research team distributed the email prescreen surveys in three waves, contingent upon expected level of contractor participation. Each wave consisted of an original notification email, and a follow up reminder email (one week follow up for waves 1 & 2, two week follow up for wave three). Table 4 shows the number of contractors who received the prescreen email (1,426) and the number who completed the prescreen survey (232), which represented a 16% completion rate.

Lastly, since the aforementioned sources of contacts did not contain a sufficient number of contractors who had experience with heat pump water heaters, we also reached out to the contacts supplied through the Blackhawk contractor list, as described under the heading *Heat Pump Water Heater Participant Database*, above. The research team sorted this list by projects completed (high to low), searched out phone numbers through Google, and reached out to these contacts directly over the phone. The team completed an additional 19 interviews with HPWH participants, for total of 23 “active” HPWH installers and 26 “less active” installers. However, upon further inspection into the HPWH completed interviews, it became apparent that the extent to which “active” and “less active” participants were able to respond to the HPWH questions greatly varied depending on how frequently they worked with HPWH. The research team included interview data in the HPWH analysis if the respondent was able to answer the majority of

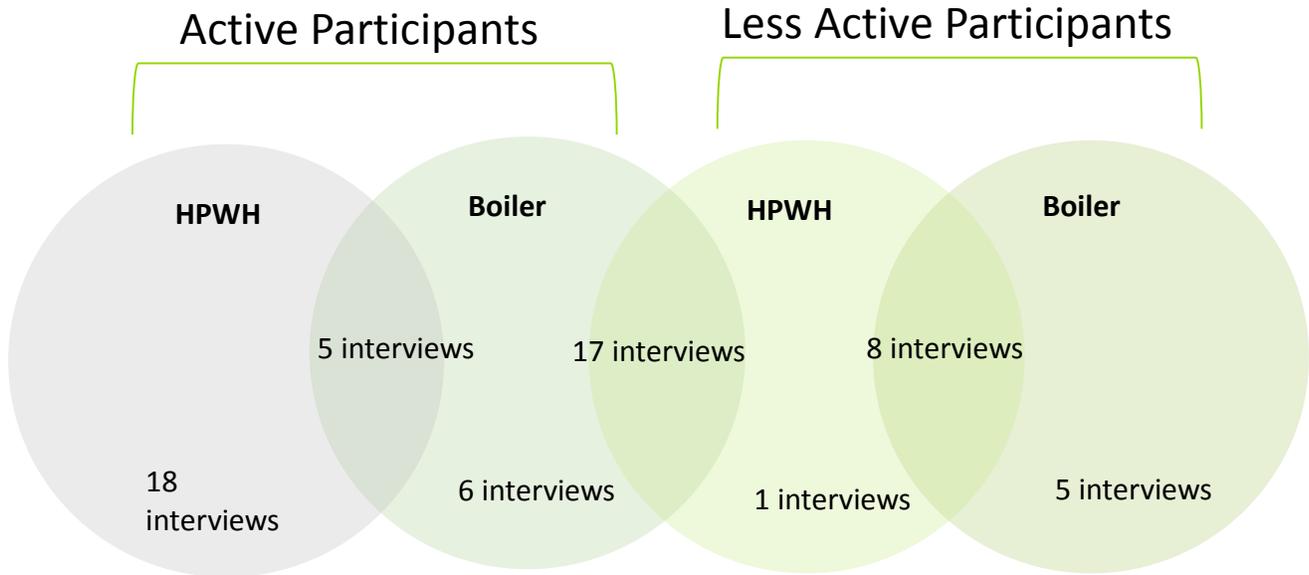
the HPWH battery of questions. This resulted in 14 participants, though categorized as an “active” or “less” active HPWH participant, being excluded from the HPWH analysis, for a final total of 35 participants included in the HPWH analysis (Table 4).

Table 4. Prescreen Survey Delivery

Wave	Data Source	Contractors Contacted	Prescreen Surveys Completed
1	National Grid Contractor Contact List	266	30
2	NMR Contractor Database	243	45
3	NMR Contractor Database ¹	917	157
TOTAL		1,426	232

The research team attempted to contact all contractors that completed the prescreen surveys. In total, the team completed 60 interviews with active and less active contractors, utilizing contacts through both the prescreening process as well as the Blackhawk contact list. Figure 1 show the distribution of completed active versus less active interviewees. It’s important to note that there were 16 interviewees who were active *boiler* participants, but less active *HPWH* participants.

Figure 1. Types of Interviewees



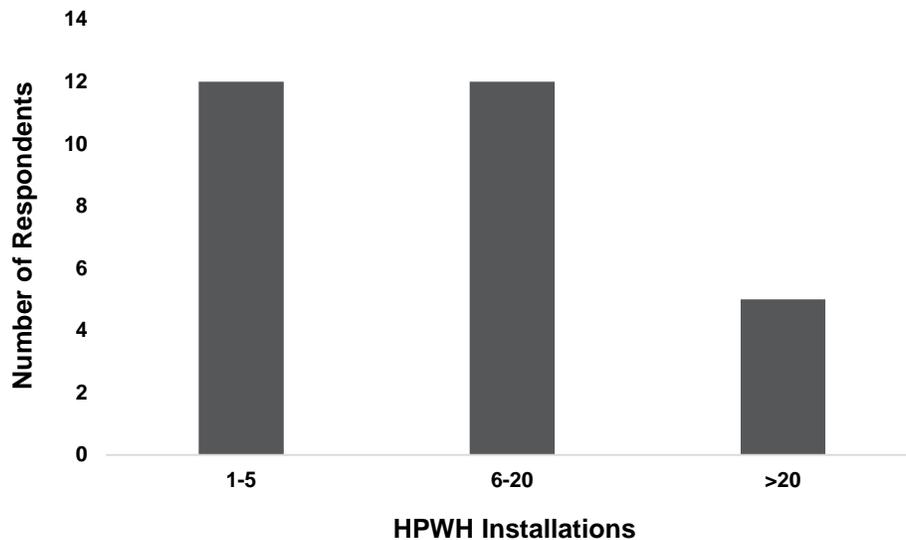
¹ The third wave included all the remaining non-duplicate contacts in the database.

Table 5. Type of participants, completed interviews and those who were included in the HPWH analysis

Type of Participant	Total Interviews	Included in HPWH Analysis
Active boiler	6	0
Active HPWH	18	18
Active both boiler and HPWH	5	4
Less active boiler	5	0
Less active HPWH	1	0
Active boiler and less active HPWH	17	8
Less active both boiler and HPWH	8	5
TOTAL	60	35²

For the 35 HPWH installers interviewed, almost all (30 of 35) participated in a rebate program for HPWH in the past twelve months. Of those 30 participants, 12 installed between one to five HPWH, while 12 installed between six and 20 HPWH (Figure 2). Five installed more than 20 HPW; one participant did not provide a specific number of HPWHs that he installed³.

Figure 2. Residential HPWH Installations in the Past 12 Months (n=30)

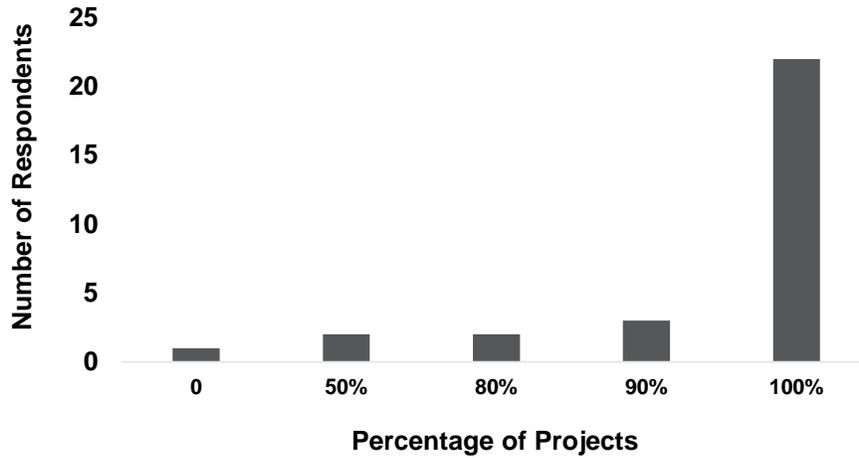


² 19 of these participants were from the Blackhawk database, while 16 were from the NMR database.

³ From available 2016 rebate application data - a list of over 1500 contractor names (including duplicates due to slightly different name variations) only 27 companies installed 10 or more HPWHs over the 2014-2015 program years.

For those contractors who had participated in a utility rebate program for HPWH in the past 12 months, 27 contractors stated that 80% or more of their HPWH projects had received a utility rebate (Figure 3). Three contractors did not specify the percent of installed HPWH that had received an incentive.

Figure 3. Percentage of Respondents' HPWH Projects Receiving Utility Incentive (n=30)



As an anomaly, one contractor reported that he had in indeed participated in a utility HPWH rebate program in the past 12 months, yet none of his HPWH projects received a utility incentive. While the interviewee did not elaborate on this disconnect, he could have attempted to participate in a HPWH program, yet the equipment or customer was not eligible to receive an incentive.

3. RESULTS

The following sections summarize the key findings from the contractor surveys.

Contractors generally reported selling few HPWHs, with nearly half saying they installed fewer than 5 in the past 12 months. However, nearly all these projects went through PA incentive programs.

3.1 Characteristics of Interviewed Heat Pump Water Heater Contractors

The evaluation team interviewed 35 heat pump water heater contractors, representing a diversity of geographic locations as shown in Table 6.

Table 6. Region of Massachusetts where HPWH Contractors Work

Where HPWH Contractors Work	Number of Contractors
Western Mass	8
Northeast	7
Central	6
Southeast	6
Boston	4
Entire State	3
Eastern	1
TOTAL	35

Nearly all (30 of 35) interviewed HPWH contractors had participated in at least one utility HPWH incentive program in the past 12 months. One contractor did not specify whether he had participated in a rebate program.

For the HPWH contractors who had not recently participated in a rebate program (4 of 35), two had participated in a program *prior* to the last 12 months. Only one individual explained why they did not have projects go through the program, citing difficulties in attaining the license required by the MA HPWH incentive program (1 of 35).

Nearly all HPWH contractors expect to participate in the Mass Save Heat Pump Water Heater offering in 2017.

Almost all (33 of 35) of the HPWH contractors expressed an interest in participating in utility programs in 2017. Again, the only specified deterrence from participating in the rebate program in 2017 was the difficulties that one contractor faced in attaining a license.

3.2 Contractor Perception of Heat Pump Water Heater Technology

The research team asked HPWH installers, in an open-ended question, “What is your opinion of heat pump water heaters as compared to other options you might recommend to customers?”

Most respondents had a generally positive opinion of heat pump water heaters, but expressed that HPWHs are only suitable in certain homes, and for certain customer types.

Respondents generally had a favorable view of HPWHs, though most noted they are more applicable in some homes than in others, based on fuel type and home characteristics. As such, many respondents (20 of 32⁴) expressed a *qualified* positive opinion of heat pump water heaters, noting that HPWHs are a good option for some customers, depending on their fuel source and homes’ characteristics. One contractor stated, “...*high electric rates in area, so it’s a great option instead of [standard] electric water heater. However, if gas is available, it’s better to go to gas.*”

Of these 20 respondents, several noted the home characteristics required to reap the benefits of HPWH:

- Electricity as primary fuel source
- Appropriate location
- Need to cool a specific room
- Other types of energy sources are present, specifically solar panels; in these cases, the cost of electricity is lower, so customers don’t need HPWH

Nine of 35 respondents had an *unqualified* positive opinion of heat pump water heaters, offering statements like, “Efficient, they’re great, economical...lower pollution.”

A few contractors (3 of 32) had a generally negative perception of heat pump water heaters. These respondents said HPWHs are complicated to service and require more maintenance compared to standard electric water heaters.

⁴ Three HPWH contractors either did not respond to this question or felt that they were unable to answer.

3.3 Contractor Awareness of GE's Exit from HPWH Market

*The majority of contractors were **not** aware of GE's exit from the heat pump water heater market.*

The research team asked contractors if they were aware GE was exiting the HPWH market, and then asked them why they think GE made this decision⁵. Most contractors (28 of 35) were not aware of GE's plans. Respondents offered a few different theories for GE's decision. Eleven contractors hypothesized that low demand for HPWHs was a factor, while some (7 of 35) thought GE may have had problems with their HPWHs. Still others speculated about increased competition in the market, and several simply said they didn't know.

When asked if they anticipated needing to change business practices based on GE's exit, most contractors (27 of 35) stated they would not need to make any business changes, or weren't sure. Seven contractors said they would need to change manufacturers; one contractor guessed that it might actually increase his sales since he does not sell GE products.

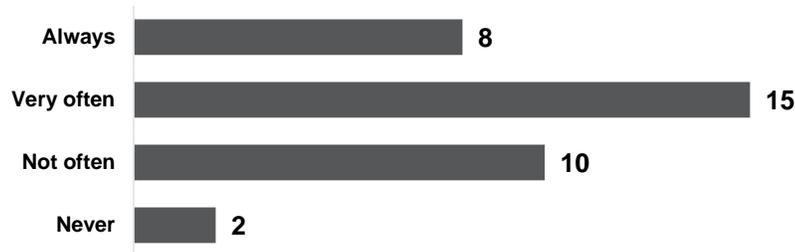
3.4 When Contractors Recommend HPWHs, and Under What Circumstances

Water heater contractors are apt to present heat pump water heaters to customers with a location in their home amendable to optimized HPWH function: Adequate clearance in a non-conditioned space.

Interviewed heat pump water heater installers often present HPWH as an option to their customers (23 of 35), with 15 doing so "very often" and eight "always" mentioning HPWHs when discussing water heating equipment options with customers (Figure 4).

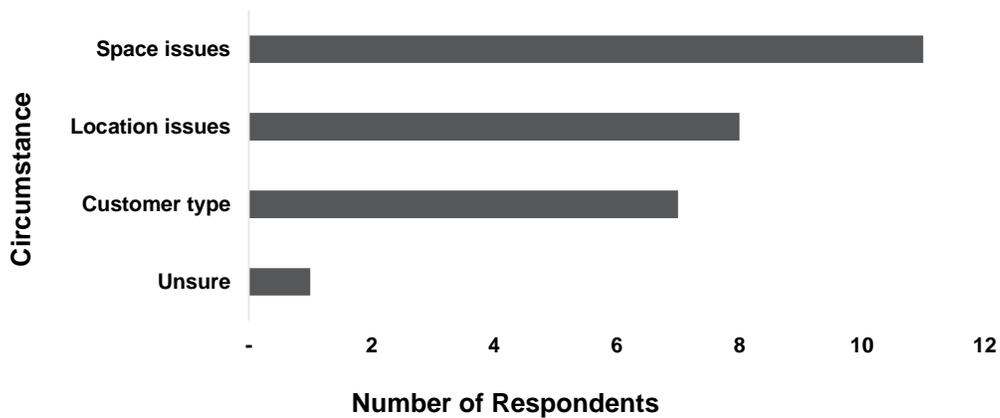
⁵ Shortly after this study was complete, Bradford White, one of the nation's leading water heater manufacturers, announced acquisition of GE's GeoSpring HPWH production assets. The units will be manufactured in the US, at Bradford White's Michigan plant. For years, Bradford White rebranded GE HPWH product as the AeroTherm HPWH, and will now offer 24/7 customer support to existing GeoSpring owners.

Figure 4. How Often Do Contractors Recommend HPWHs, and Under What Circumstances? (n=35)



For the majority of contractors who don't always offer heat pump water heaters to customers (27 of 35), they take the following factors into consideration when deciding whether to present HPWHs: space issues, location issues, and customer type (Figure 5).

Figure 5. Circumstances Where Contractors Do Not Offer Heat Pump Water Heaters to Customers (n=27)



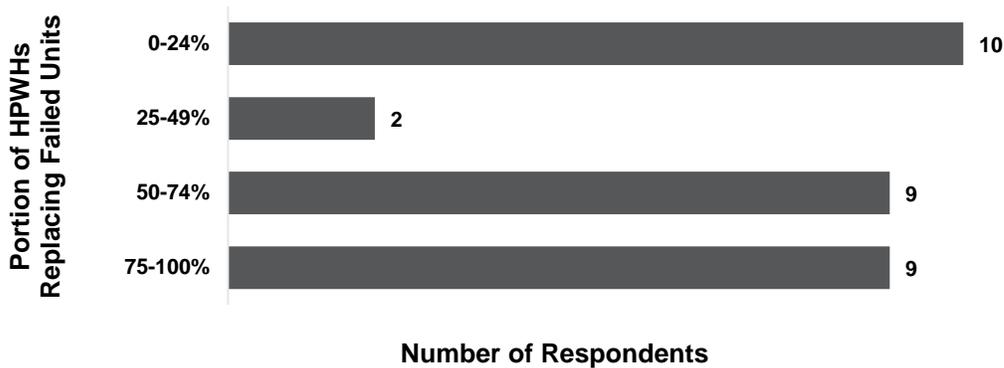
Contractors described space and location issues as including ambient temperature and clearance space. Customer type included financial circumstances and energy usage levels, with contractors opting not to offer HPWHs to customers of modest means and those deemed high-demand customers.

3.5 Are Heat Pump Water Heaters Replacing Functioning or Failed Water Heaters?

While most contractors install HPWHs to replace failed units, about a third reported that most of their HPWH installations replace working units.

When asked what portion of the HPWHs they install are replacing failed water heaters, respondents reported a range of values, with 18 (of 30) contractors saying greater than 50% of their HPWH installations replace failed units.

Figure 6. Portion of HPWHs Replaced on Failure (n=30)



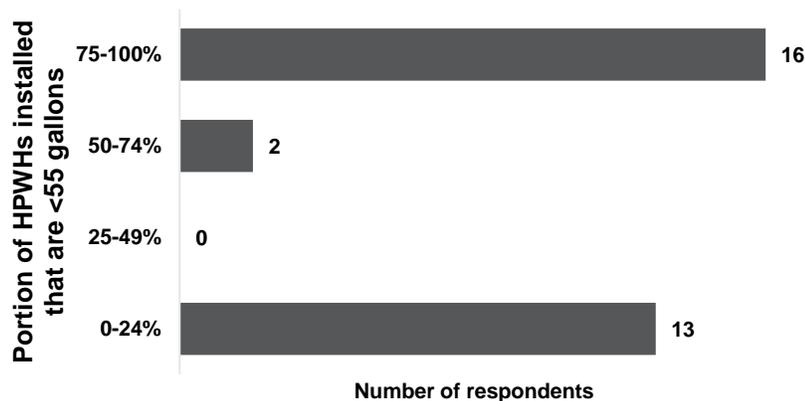
3.6 Contractor Approach to Heat Pump Water Heater Capacity

Half of interviewed contractors most commonly install smaller-capacity (<55 gallons) HPWHs, while a third of contractors are more likely to install larger units.

To gauge contractor sales of HPWHs of differing sizes, the research team asked contractors to estimate the portion of units they installed that were <55 gallons vs. >55 gallons in capacity. About half of respondents reported most commonly installing smaller-capacity HPWHs (<55 gallons), noting that these units provide ample hot water for the average home. However, a third of interviewed contractors (13 of 31) reported that less than a quarter of their HPWHs are <55-gallon capacity – these contractors did not

provide the reasoning for this.⁶ These 13 contractors covered a wide range in the number of total HPWHs they each installed; this group included mostly active participants and one less active participant.

Figure 7. Portion of HPWHs Installed That Were Less Than 55 gallons (n=31)



For the 19 contractors who have installed water heaters less than 55-gallon in capacity, the team asked if they had ever replaced a larger HPWH with smaller sized HPWH⁷. Three contractors answered yes, explaining that the original water heater was oversized. None of these contractors had experienced issues with hot water run outs after installing the smaller sized HPWH.

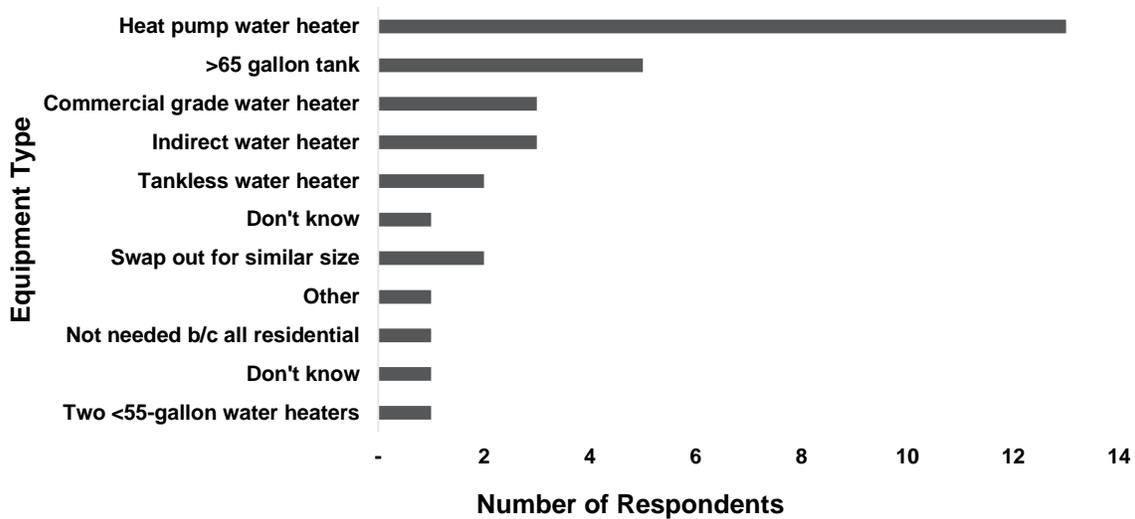
HPWHs are a popular choice when contractors need to install water heating systems with larger capacities. Thirteen contractors are likely to install a HPWH when >55-gallon capacity is needed (Figure 8). Some contractors said they would install a 65-gallon or larger water heater (5 of 34), and three contractors specifically stated that they would install a commercial grade water heater when greater capacity is needed. A few contractors recommended installing tankless (2 of 34), indirect (3 of 34), or just swapping the water heater out for a similar sized water heater (2 of 34)⁸.

⁶ Two contractors either do only HPWH repairs, as opposed to installations, or did not remember the size the of their HPWH installation. Two contractors did not provide information about the size of their HPWHs. Although commercial-only contractors were screened out of the sample, a few contractors interviewed work in both residential and commercial sectors.

⁷ Contractors were asked only about capacity of heat pump water heaters, no other water heater type.

⁸ One contractor did not respond to this question due to time constraints.

Figure 8. Typical Equipment Installed When >55-Gallon Capacity Is Needed (n=34)



3.7 Other Water Heating Technologies

In addition to heat pump water heaters, the Massachusetts utilities are also interested in contractor experiences with tankless, indirect, and wireless-enabled water heaters. The research team asked water heater contractors a variety of questions about these products, including their familiarity, experience, and opinions of them.

Nearly all interviewed contractors reported a rise in customer demand for tankless water heaters in recent years.

Tankless water heaters. Water heater contractors consistently (31 of 35) reported seeing a rise in demand for tankless water heaters “over the past couple of years.” These contractors most commonly (21 of 31) attributed the rise in demand to the perceived efficiency of the units, and potential for energy savings. Nine contractors mentioned a rise in advertising for tankless water heaters, while four contractors referenced efficiency program success in increasing awareness about this technology. Two contractors talked about how consumers perceive tankless water heaters as environmentally friendly, with one contractor stating:

“...everyone wants to be green. They think they're going green.”

Most contractors did not view wireless-enabled water heater technology as a useful technology – a few saw its value in specific cases of second homes or frequent travel.

Wireless-enabled water heaters. Seventeen contractors were familiar with wireless water heater technology; 17 contractors were not familiar or were unable to answer the question. For those contractors who were familiar, most did not view it as a terribly useful technology. A few respondents noted that wireless capability has some value to customers owning a second home, or for those who frequently travel (3 of 17). One did not think customers are interested in wireless capability for their water heater, and two contractors did not see its value, saying wireless-enabled water heaters might be “too much technology” and “worthless⁹.”

Indirect water heating systems are popular with both contractors and customers in homes with high-efficiency boilers.

Indirect water heaters. When asked about their likelihood of recommending indirect water heating, the majority of contractors said they often suggest indirect water heating to customers with hot water boilers (28 of 35). Some contractors described the scenarios in which they would make this recommendation:

- If the contractor is replacing an existing or installing a new condensing boiler (4 of 35)
- If the contractor is replacing a high efficiency boiler (including oil & gas) (4 of 35)
- The contractor always recommends this system (3 of 35)
- If the contractor is replacing a system that has heavy use (2 of 35)

Interestingly, one contractor stated that he recommends indirect water heating when a customer has tankless, while two contractors specified that they do NOT recommend indirect when a customer has tankless water heating.

The 28 contractors who recommended indirect water heaters reported customers as very willing (24 of 28) to install water heaters, while four contractors said that their customers either are not willing, or it depends on the customer, saying the expense of indirect water heating is a challenge for some customers.

⁹ No respondent mentioned that units are condensing and achieve higher efficiencies than gas tank water heater heaters.

3.8 Incentives as Marketing

The research team asked all contractors – both water heater and condensing boiler installers – whether they had used utility incentive programs to help them sell efficient equipment to their customers.

Nearly all respondents had used utility incentives to help sell efficient equipment.

Nearly all respondents (57 of 60) had used utility incentives to help sell efficient equipment. Contractors appear to use the incentives in a few ways to market energy efficient equipment. In general, respondents reported using the rebates to help sell equipment or to upsell equipment (13 of 57), with two contractors claiming that customers only purchase certain equipment because of the rebates. Some contractors talk about rebates when they perform energy audits (2 of 57), while others use an annual service visit as an opportunity to talk about early replacement and available incentives (3 of 57).

A few contractors stated that the customer is already aware of available rebates when they contact their company (2 of 57) and inquire about it, while other contractors (8 of 57) discussed how they provide the rebate information as part of their quote to the customer; they present several installation options, including an option on rebated equipment and how much money the rebate would save them. Four contractors calculate the money customers will save in fuel costs if they choose the rebate eligible equipment.

3.9 Contractor Experience with Utility Programs and Training

Contractors provided feedback regarding their experience with utility programs and trainings.

Across both the condensing boiler respondents and the HPWH respondents, almost all have recently participated in a program.

3.9.1 Program Participation

The team asked both condensing boiler and HPWH contractors if they had participated in any utility rebate programs for either condensing boilers or HPWH. The majority of both types of contractors had recently participated in a program (Figure 9, Figure 10).

Figure 9. Condensing Boiler Respondents Who Participated in Utility Programs in Past 12 Months (n=41)

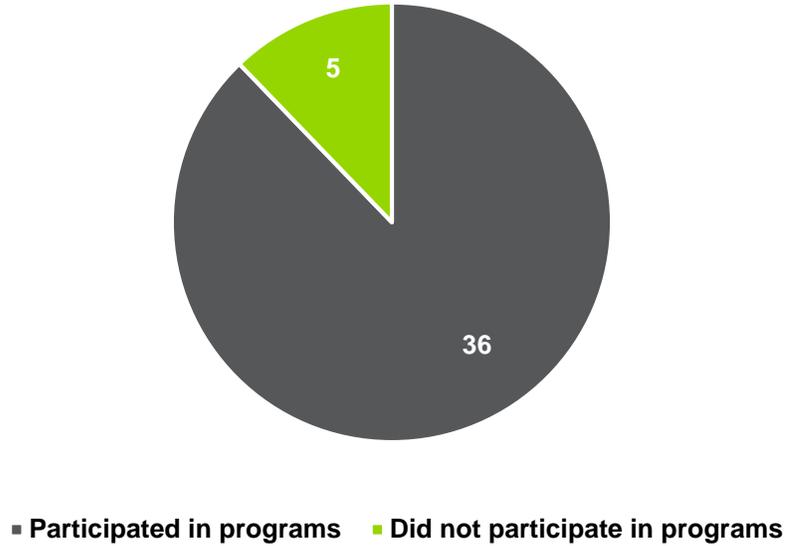
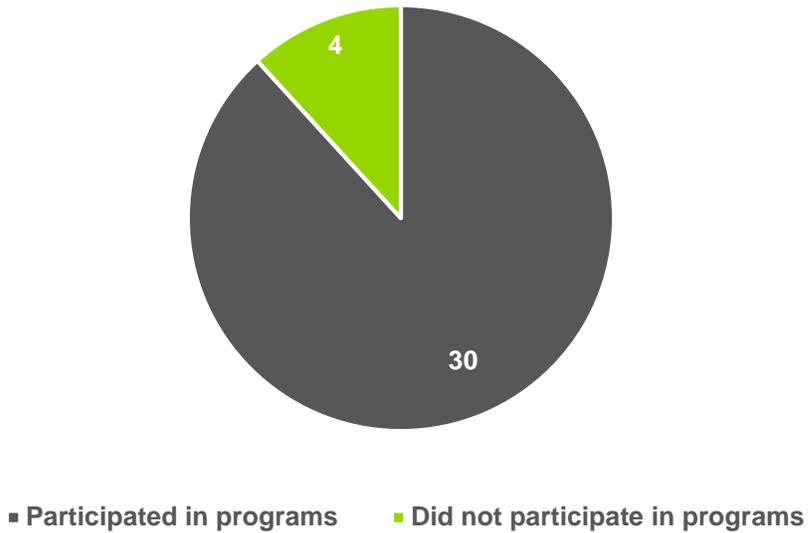


Figure 10. Heat Pump Water Heater Respondents Who Participated in Utility Programs in the Last 12 Months (n=34¹⁰)



¹⁰ One respondent was not sure if he had participated in a utility program and chose not to respond to this question.

Of the four HPWH contractors who had not participated in a HPWH program in the past 12 months, two had participated prior to the past 12 months. One contractor said he did not have enough interest from customers to participate.

Across all 60 participants, including HPWH installers and those who mainly worked with boilers, 15 contractors had not participated in a HPWH program in the last 12 months. For the contractors that had not participated in utility incentive programs recently (15), 14 discussed why they had not participated. The most common reasons for not participating were 1) the contractor did not offer customers the type of equipment that is eligible for rebates, or 2) there was no demand in their area for that type of technology. One contractor explained that he tried to participate, but was unable to obtain a business license for his company, which is a requirement of the program.

3.9.2 Program Recommendations

Of the 60 total contractors interviewed, 37 provided insight into what Massachusetts could do to improve and make participating in their programs more attractive, while 23 believed that nothing can be improved to make the program more attractive.

Contractors recommend at least maintaining the rebate amounts, improving program processes and cross-promoting the rebate programs with the Home Energy Assessment program.

Many contractors think that Massachusetts could at least maintain (3 of 60), if not increase (6 of 60) the rebate amount available. One contractor noted:

“The cost of equipment and the sale is so high that it scares people off.”

A few (5 of 60) contractors also suggested increasing the number of rebates offered, and provided the following equipment suggestions for additional rebates:

- 80 gallon HPWH (1)
- Commercial tankless water heaters and other commercial rebates (2)¹¹

Contractors also noted that streamlining the overall rebate process (8 of 60), and more specifically, the paperwork associated with the rebates (7 of 60) would make the programs more attractive. Contractors discussed how the rebate process was not consumer-friendly, and it is not easy to gather all the information. Some contractors find the overall process cumbersome because customers can't process the rebates themselves, and it requires some information gathering to complete the paperwork and process the incentive. Two contractors noted that it's unclear what information is required. Two contractors

¹¹ Contractors were asked broadly, “What could the Massachusetts utilities do to make participating in programs more attractive for you company?”

mentioned that submitting “paperwork” online would decrease the burden they experience with the program. One contractor stated:

“When you call them to get them to come down to the house to do the evaluation, there is a backlog, sometimes up to two weeks. The process just takes so long. It’s just not easy; we do it, we always do it, but it’s not quick and easy. They need to speed up the larger rebates-they need to speed that process up somehow.”

Cross-promoting the Home Energy Services (HES) program with rebates would also make it easier for contractors to participate in Massachusetts programs (2 of 60). The contractors described promoting rebates to those who receive a home energy assessment as part of HES, and even sharing customer information with contractors for HES participants, to promote the program. Three contractors said the programs should offer better incentives for contractors to participate, such as providing gift cards to participating contractors. Finally, contractors provided the following suggestions:

- Eliminate the deadline associated with the number of days a contractor has to submit a rebate application;
- Make a webpage that has a list of all rebates offered in Massachusetts;
- Turn rebates into instant rebates, similar to Connecticut’s programs;
- Have program administration meet with contractors in person to further nourish relationships.

3.9.3 Industry Training Experience

Most contractors had recently attended industry training – most commonly manufacturer-sponsored.

The majority (49 of 59) of both boiler and heat pump water heater installers attended at least one industry training event over the past 12 months (Figure 11). Nearly all these contractors (43) attended a manufacturer-sponsored training, with a few more saying they attended a training session sponsored by GasNetworks or a utility (Figure 12).

Figure 11. Number of Respondents Who Attended Training in the Past Year (n=59)

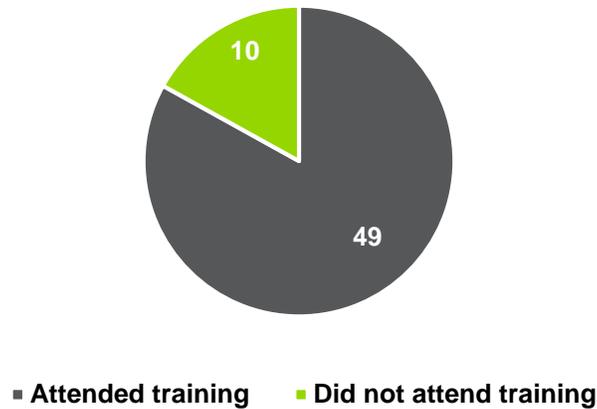
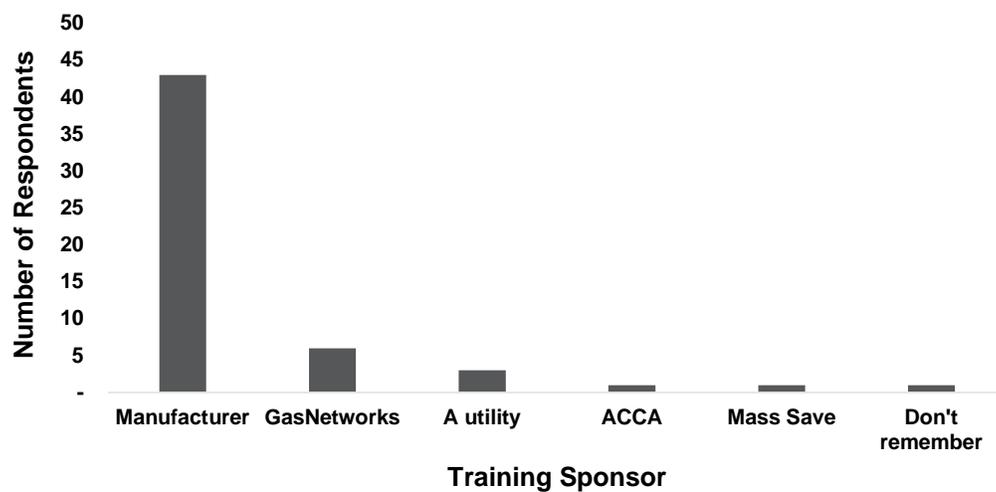


Figure 12. Sponsors of Industry Training



Seventeen contractors provided specific recommendations for trainings. A common theme was the need for any type of training to be accessible, especially for contractors who work in more rural locations. These contractors described how they either do not have the resources for an employee to spend a full day traveling to and from a training, or they experience connectivity issues. One contractor described his work-around when he needs on-the-spot training: watching relevant YouTube videos.

Table 7. Recommendations for Training Improvement

Recommendation	Number of Respondents
Make trainings more accessible	4
New technology and new equipment	4
Offer business trainings (management and sales)	2
AC (including A/C startups)	2
Repairing boilers that are part of rebate program	1
GE exiting HPWH market	1
Heat load	1
Gas classes, to attain license	1
Ductless heat pumps	1
Total	17

3.10 Contractor Experience with GasNetworks

Contractors are aware of GasNetworks' resource offerings and mostly use these offerings for assistance with rebate paperwork.

The research team asked 35 HPWH and condensing boiler contractors about their experience with GasNetworks. These contractors were highly aware of GasNetworks offerings (31 of 35, Figure 13), and most were aware contractors had used their resources (26 of 31, Figure 14).

Figure 13. Are You Aware of GasNetworks Information and Resource Offerings? (n=35)

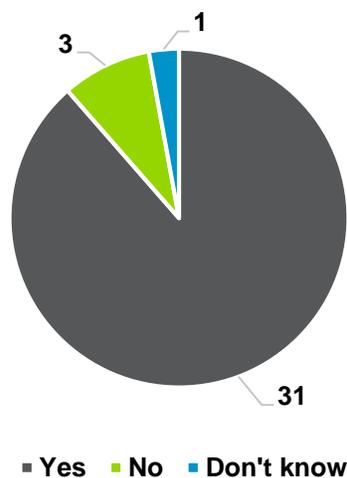
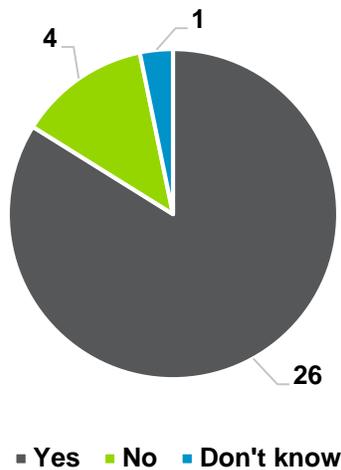


Figure 14. Have You Used GasNetworks Information and Resource Offerings? (n=31)



When asked which GasNetworks resources they had utilized, the 26 contractors that have used GasNetworks most commonly mentioned using the website to obtain rebate forms and assistance, as well as to gather information on conferences and training. Additionally, several respondents mentioned receiving newsletters and other information via email.

Though several contractors volunteered the website as a key GasNetworks resource utilized, the research team also asked all respondents who were aware of GasNetworks specifically, “Have you ever visited the GasNetworks website?” Contractors indicated that they do use the GasNetworks website, with 26 of 31 answering yes to the question. Again, the most common reason given for website visits was to download rebate forms or access rebate information (20 of 26). Beyond that, a few contractors reported using the GasNetworks website to “check out what’s new.”

Finally, when asked if there were other types of information they would like to receive from GasNetworks, responses included updates of rebate information through email (2), tax incentive information about energy efficient equipment (1), local training (1) and contact information for a local representative (1).