BRINGING RENEWABLE THERMAL SOLUTIONS TO NEW ENGLAND CITIES

Key Findings from Pilot Renewable Heating and Cooling Campaigns

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SECTION 1 INTRODUCTION

In Activity 3 of the Carbon Neutral Cities Alliance (CNCA)-funded "Bringing Renewable Thermal Solutions to New England Cities" project, the participating cities (Boston, Northampton, Portland, Providence, and Somerville) aimed to design and implement outreach, education, and group purchasing campaigns in their communities. The goals of these campaigns were to address local barriers, raise awareness, and drive adoption of renewable heating and cooling (RH&C) technologies in 1-4 family residential buildings, which account for the majority of housing units and residential square footage in the participating cities.

Five RH&C technologies were initially evaluated (and included in the Activity 2 market segmentation analysis), including air source heat pumps (ASHP), ground source heat pumps (GSHP), solar hot water (SHW), biomass heating, and biofuels. All five cities ultimately opted to focus their efforts primarily on ASHPs, as they are relatively more widely known and deployed, are encouraged by existing incentives in all three states, and have the flexibility to meet diverse urban housing needs.

These campaigns were primarily adapted from the Solarize model for residential solar PV. The Solarize model has seen significant state- and community-level support, with three New England states directly supporting Solarize campaigns and four of the five participating cities having previously run a Solarize campaign. The Solarize model is described in greater detail in Box 1.

Box 1. The Solarize Model

Solarize is a community-based outreach, education, and group purchasing model first launched by community members in Portland, Oregon, in 2009. The Solarize model utilizes a limited-time outreach and marketing campaign led by local governments or community groups to aggregate customers to purchase solar PV systems, with savings from customer acquisition and equipment costs passed on to customers through a discounted pricing structure.

The Solarize model has been deployed in over 200 campaigns across the United States with extensive campaigns in the Northeast, supported directly by state entities (e.g. Solarize Mass, Solarize Connecticut, Solarize Rhode Island, Community Solar NY). In Massachusetts alone, between 2011 and 2016, over 3,200 residential solar PV systems were installed through Solarize campaigns involving 72 communities.[1]

While the Solarize model has been effective at driving demand for solar PV in markets across the country, it is a labor-intensive model dependent on the effectiveness of volunteers and/or municipal staff. Primary campaign coordinators, whether volunteers or city staff, must lead volunteers, coordinate campaign activities, and provide concierge-type services to interested residents to answer questions. Typically, this

[1] For more information, see: http://files.masscec.com/uploads/attachments/Solarize Massachusetts Information Sheet 6.21.17.pdf.

labor is estimated at 600 person-hours for a 4-6 month campaign, which can prove challenging to implement without dedicated city personnel or an effective core volunteer team.[2]

For more information, *The Solarize Guidebook*, developed for the National Renewable Energy Laboratory, is available online http://www.nrel.gov/docs/fy12osti/54738.pdf.

The five participating cities implemented the following programs in Activity 3:

- **The City of Boston** designed and implemented a new track within the broader Renew Boston umbrella focused on ASHP education. Boston ultimately designed a number of program options but faced internal barriers to implementing these program designs during the grant period. See Appendix A for more information.
- **The City of Northampton** designed and implemented HeatSmart Northampton, a community group purchasing program modeled after Solarize Northampton (2013). HeatSmart Northampton ran from August 2017 to February 2018 and resulted in the installation of 54 ASHP systems.
- **The City of Portland** worked in partnership with the City of South Portland, the towns of Falmouth and Scarborough, the Greater Portland Council of Governments, and Efficiency Maine to design and implement the Casco Bay Heat Pump Challenge, a series of community "energy fair"-style events focused on allowing residents to learn about ASHPs from Efficiency Maine and meet with five qualified installers. These four events were held between June and November, were attended by approximately 200 residents, and led to 25 ASHP installations.
- **The City of Providence** integrated ASHPs into the Providence Energy Fair in June 2017. See Appendix A for more information.
- **The City of Somerville** designed and implemented HeatSmart CoolSmart (HSCS) Somerville, a community group purchasing program modeled after Solarize Somerville (2016). HSCS ran from July 2017 to February 2018 and resulted in the installation of 59 ASHP systems, with the potential for an additional two systems to be installed through the City of Somerville's income-eligible Housing Rehab Program.

The following sections discuss program results, key findings, and lessons learned from the three major campaigns implemented: HSCS Somerville, HeatSmart Northampton, and the Casco Bay Heat Pump Challenge.

[2] Cook, R. (2015). Benchmarking the Solarize Model: A Survey of Campaign Organizers. Prepared for the U.S. Dept. of Energy SunShot Program. Available online at http://solaroutreach.org/wp-content/uploads/2015/09/Solarize.pdf.

SECTION 2 OVERALL KEY FINDINGS AND LESSONS LEARNED

Participating installer reception. Most installers who participated in the various programs considered the programs to be successful and good for their businesses and indicated that they would participate in the programs again if possible.

- For example, the two installers that served HeatSmart CoolSmart Somerville both felt that the programs had been valuable to their businesses not only by driving sales, but also by helping to build the potential for future business in the city through increased education and awareness. Notably, both of these installers applied to participate in future programs, including two similar campaigns through the HeatSmart Mass Pilot Program and the Solarize Mass Plus Newburyport program.
- In the Casco Bay Heat Pump Challenge, even an installer that received only two sales through the program was pleased with the exposure received. However, one installer ultimately dropped out after the first event, as they were based over an hour from Portland and the volume of leads was insufficient to justify participation in future events.

Installer recruitment challenges. While the programs were well-received by the installers who were selected to participate in the program, there were few installers who had expressed interest in the various programs. Solicitations were disseminated to all registered contractors by MassCEC and Efficiency Maine, though some installers noted that solicitations were released during peak season (May-June, beginning of cooling season). Additionally, other installers reached out to Northampton and the Portland regional program to participate after the programs were under way, as many claimed to not have been aware of the program when the solicitations had been released.

- Somerville and Northampton both only received bids from the installers that were ultimately selected. While these installers were qualified to serve the programs, both cities were potentially interested in selecting more installers (e.g. Somerville was interested in selecting 3-5 installers).
- Providence received no interest from installers in participating in the Providence Energy Fair and was only able to get an installer to participate with outreach support from manufacturer service reps. These reps noted that the Energy Fair was timed during peak cooling season for HVAC contractors and thus few had interest in taking on more work.
- The Casco Bay Heat Pump Challenge was an exception, receiving far and away the most interest, with seven installers submitting proposals. This potentially reflects the relatively higher penetration of heat pumps in the Greater Portland region relative to other cities and reduced commitment of the program design.
- While solar PV installers understand the benefits of participating in community group purchasing campaigns, HVAC contractors may have less awareness of these campaigns and their potential benefits. More aggressive recruitment with support from manufacturer sales managers and distributors (who have strong existing connections with contractors) to promote program

opportunities and explain the value of participation could be beneficial to get more installers to bid to participate in future programs.

Campaign timing. The campaigns run through this project were all implemented in the second half of 2017, with the goal of including both cooling and heating seasons (to emphasize the flexibility to provide both heating and cooling of heat pumps). However, while ~6 months is a typical timeline for many Solarize campaigns, seasonality can potentially be a more important consideration when working with HVAC installers, who need to contend with major spikes in customer demand for servicing and installation in advance of cooling and heating seasons.

- Installers with significant experience installing heat pumps and air conditioning will experience significant spikes in customer demand for services from April to July—which was when campaign organizers put out installer solicitations and when campaign planning occurred.
- Somerville's installers noted that January and February tend to be slower months for them and planning/launching the campaign in the cooling season was difficult. Notably these installers do not have a significant share of business related to servicing furnaces and boilers, so the constraints related to servicing heating equipment before the beginning of the heating season—and emergency response related to the late-December 2017 and early-January 2018 prolonged cold snaps—were more limited.
- By contrast, Northampton's installer was a general plumbing and heating contractor as well as heat pump installer. While noting similar seasonal issues, the installer ended up being unable to commit any resources to the program during the prolonged cold snaps in December and January due to needing to respond to emergency heating calls.
- Shorter seasonal campaigns focused around targeting months in which installers have more bandwidth could be an option, but choosing timeframes where installers have more bandwidth equates to choosing seasons in which customer interest in heating and cooling equipment is lower. Moreover, in both campaigns the installers were keen on having campaign extensions to convert leads (Somerville extended deadline from mid-Dec 2017 to mid-Feb 2018, Northampton extended deadline from Jan 2018 to end of Feb 2018). It is worth noting, however, that delays in incentive and financing programs could preclude shorter-duration campaigns: installers in both Northampton and Somerville noted that delays in Mass Save assessments and HEAT Loan approvals required additional time to successfully convert leads.
- Additionally, campaign models that are less time-intensive on the installers such as the Casco Bay Heat Pump Challenge could be effective if a community has significant seasonal capacity concerns.

Single vs. multi-installer models. While the Solarize model traditionally operates with a single selected installer for the community, participating cities were interested in testing the potential for single and multi-installer models. Northampton ultimately worked with one installer, Somerville with two installers, and the Casco Bay Heat Pump Challenge with five installers to participate in "heat pump fair"-style events. It is unclear as to whether one model is superior to another, as each has benefits and drawbacks.

- While other programs in the region (e.g. HeatSmart Tompkins) have used a multi-installer model and found that most customers ultimately worked with only one bidder (approx. 90% of customer

worked with one contractor in Round 1), over 75% of HSCS Somerville participants solicited bids from both participating installers. Over 70% of Casco Bay Heat Pump Challenge participants signed up with multiple installers, though this program included five installers and was designed around four heat pump "fair"-style events.

- While some Northampton program participants noted that they wanted to see more installers participate in future programs, less than 20% of survey respondents who participated in the program (i.e. got a site visit) got quotes from other installers

Some of the potential benefits and drawbacks of single- vs. multi-installer models are described in Table 1.

Table 1. Potential benefits and drawbacks of single- vs. multi-installer models

	Single-Installer	Multi-Installer
Benefits	• The community organizers may have a closer working relationship with—and potentially, control—over the participating installer. • Easy to promote a streamlined customer experience with working with a single installer. • Customers who are hesitant to initiate the process of getting quotes from multiple installers appreciate being able to work with a single community-vetted installer. • Customers can still get quotes from other installers outside of the program.	• Customers feel like they have multiple choices for getting multiple bids. • If one installer is not meeting expectations, the community can pass more leads onto another until any issues are rectified. • Multiple bids can be required for some income-eligible programs, which can potentially enable all income-eligible participants to benefit from working with the selected installers.
Drawbacks	• Prospective participants who have a negative impression of the selected installer will likely not participate in the program—and may have a negative view of the technology more broadly. • Prospective participants may feel like the program is limiting when only one contractor is selected, even if customers can get additional quotes. • Non-selected contractors may be dissatisfied and may market within the community to challenge the program and its installer (though this could also be a net benefit to the community by drawing further attention to outreach efforts). • Capacity challenges for a single installer can cause delays for the entire program.	• Coordination of multiple installers (and reporting) can be more challenging. • Customers may receive very different quotes from installers beyond pricing (e.g. different equipment models, configurations, etc.), which can make a decision more challenging. • There may be fewer opportunities for communities to negotiate discounts when leads are driven to multiple installers. • Installers may size and/or price out systems differently even if same pricing is offered, leading to confusion among customers getting multiple bids. • Installers will need to compete with each other, which could cause challenges for program organizers if they criticize each other's work outside of public events.

Challenges in communicating the benefits of renewable heating and cooling technologies. Participants noted some difficulties in understanding all of the potential applications for a technology, as well as the nexus of incentive and financing programs that were available. Ultimately, most individuals who participated in the program felt well-informed about heat pumps and the options available after a site visit, though participants who moved forward with signing contracts reported being more well-informed than participants who did not move forward.

Program success is dependent on strong campaign coordination. Participating installers and organizers commended the volunteers, municipal representatives, and/or utility program representatives who led or supported campaign outreach and coordination efforts, noting that it would have been difficult to imagine the level of success achieved without these efforts. Developing a strong volunteer team and/or having dedicated municipal staff capacity to manage program efforts is critical to the success of these campaigns. In lieu of having staff capacity or a strong volunteer core, leveraging efforts from utility efficiency or state programs that offer incentives for RH&C can also be beneficial.

Reliance on incentive programs. While incentive programs are critical for driving the adoption of RH&C technologies, working with these programs can cause challenges for participants and program organizers. In particular, participants in both Massachusetts campaigns were frustrated by the delays in scheduling Mass Save Home Energy Assessments and/or getting HEAT Loan applications approved, which delayed contract closure rate and, in many cases, made them unable to participate in the program. Moreover, while the Mass Save programs have been successful more broadly across the state, there were significant customer complaints that arose in both Massachusetts communities related to prior negative experiences with Mass Save that could have indirectly dissuaded participation in the program, as engaging with the Mass Save process was a requirement to receive all state incentives.

While there can be limitations in what campaign organizers can do to move participants through these programs, additional outreach in advance of campaigns to prospective participants (to encourage them to sign up for these programs prior to campaign launch) and to engage program administrators (to ensure they are aware of community efforts) could be valuable to mitigate these delays and barriers.

Challenges with engaging low- and moderate-income populations. Based on system costs, it is expected that few low- and moderate-income (LMI) homeowners participated in the program. While Somerville had made an income-eligible pathway available through the Housing Rehab Program that will potentially serve 1-3 homeowners, the Northampton installer noted that most of the jobs completed were in more affluent neighborhoods. The Somerville installers also seemed to have had more limited engagement with LMI residents: prior to the launch of the program, the two Somerville installers noted that they almost never used MassCEC's income-eligible rebates (set at 80% and 120% of state median income)[3] due to most of their previous customers generally being more affluent. They also cited considerations related to customer sensitivity around broaching the issue/encouraging income verification. As with Solarize and other

[3] Note: Many homeowners in Northampton considered more affluent relative to city median household income would likely qualify for one of MassCEC's income-eligible rebates, which are qualified by state median income (and thus, distorted by significantly higher cost of living in the Greater Boston region).

community campaigns, it is expected that providing greater access to and benefits for LMI residents will be more challenging without direct engagement with community groups—or negotiating community incentives for LMI households (e.g. 1 free installation in a low-income home for every 25 systems sold).

SECTION 3 HEATSMART COOLSMART SOMERVILLE

3.1 Program Summary

Program Summary	HeatSmart CoolSmart (HSCS) Somerville was a community outreach and group purchasing campaign supported by the City of Somerville to help Somerville residents and businesses be smarter about heating and cooling their buildings. The campaign encouraged replacing old fossil fuel-based boilers and furnaces and old, noisy window air conditioning units with high-efficiency ductless air source heat pumps that can not only save residents money, but also improve comfort year-round while reducing the City's carbon footprint. The program offered residents no-cost, no obligation site visits from two procured installers who provided discounts on top of state financial rebates and incentives.
Program Timeline	◉ Planning: February-July 2017 ◉ Solicitation (RFQ) released: Early June 2017 ◉ Program Duration: August 7, 2017 through February 15, 2018
Number of installers	2
Key Staff	Christine Andrews (city lead coordinator), Molly Shanley (volunteer HSCS coach)
Key outreach activities	◉ Three "meet the installer" events, featuring presentations or slides from three different residents with heat pumps ◉ Two city-wide mailers targeting higher-potential households (as identified through market segmentation analysis) and other targeted mailer to homes that received site visits and had not signed nor denied a contract proposal from the installers ◉ Phonebanking to targeted homes ◉ Utility bill inserts ◉ Coordination with local lender (Century Bank) ◉ Installers and volunteers hosted tables at five community events ◉ Participant interview video featured on local access TV and YouTube ◉ Promoted social media posts ◉ Two press releases ◉ Local news coverage of first workshop ◉ Flyers and banners posted at City buildings ◉ Outreach through various City listservs, online and print newsletters and local climate activist groups ◉ Bonus $100 VISA gift card requirements: 1. install through the program, 2. complete or have scheduled a Home Energy Assessment, and 3. make a social media post about their install.

Results	◉ The HSCS Somerville website received over 3,000 unique pageviews ◉ 213 individuals signed up for the program with 153 signing up through the HSCS website ◉ 246 site visits were conducted in total by both installers. Over 75% of customers signed up to receive visits from both installers ◉ 59 systems were installed (25 by Installer #1 and 34 by Installer #2)– average system was approximately 2.8 tons in capacity,[4] installed at a cost of $13,831 o 10 single-zone (6 by Installer #1 and 4 by Installer #2) o 49 multi-zone (19 by Installer #1 and 30 by Installer #2) o 1 contract signed and two projects going through enrollment process for income-eligible households through Somerville's Housing Rehab Program ◉ 41% of total cost of marketing activities ($25,500) were funded by the installers through cooperative program. ◉ Somerville offered $100 VISA gift cards to the first 50 participants as an additional incentive

3.2 Key Findings and Lessons Learned

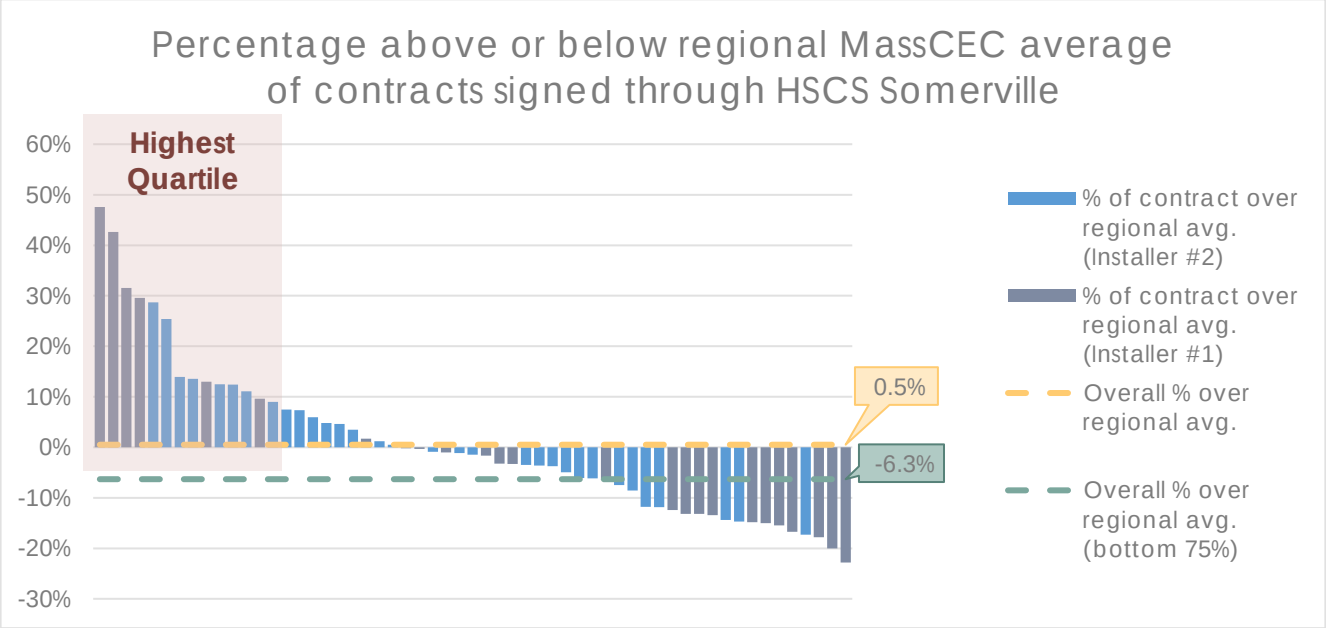
Discounts and Pricing. The HSCS Somerville Program was promoted as offering a base system price at a discount of up to 15% below the regional average before adders. Each installer offered different base pricing for the same equipment (with minor variations in models), though it was unknown going into the program how closely installation prices would reflect the base prices advertised. Key findings on pricing results are summarized in Table 2 and Figure 1 below and discussed below.

Table 2. Prices of contracts signed in HSCS Somerville compared to program base prices and regional average system costs

	Contracts	Avg. % over base price		Avg. % over "base plus"		Avg. % off regional avg.	
		All contracts	Bottom 75%	All	Bottom 75%	All	Bottom 75%
Installer #1	25	43.4%	29.7%	32.3%	20.3%	-0.6%	-10.0%
Installer #2	34	19.7%	14.3%	11.2%	9.6%	1.4%	-2.8%
Overall	59	34.2%	19.2%	20.5%	12.5%	0.5%	-6.3%

[4] As heat pump capacity varies by outdoor temperature conditions, capacity at 5°F (i.e. test condition for NEEP Cold Climate ASHP Specification and output capacity MassCEC ASHP rebate) is used throughout.

Figure 2. HSCS Somerville Project Costs



- In total, the cost of the average contracted system was 34% higher than the advertised base price – approximately 20.5% when accounting for the unforeseen permitting and indoor switch costs that were not included in the base price ("base plus" price). Several systems had significantly higher adders than others: when eliminating the top quartile of systems (on the basis of percentage over base price), systems were on average 12.5% over the "base plus" price. Some of the most common adders were reported to be upgrades to higher-end indoor units and significant increases in labor and materials for additional piping to connect outdoor and indoor units.
- Most customers received a discount from the regional average when compared on a model-by-model basis with MassCEC's rebate data for Boston, Somerville, and Cambridge. When eliminating the top 25% of systems, the average discount received was 6.3% below the regional average.
- While Installer #1 offered a significantly lower base price, the ultimate cost of systems contracted between the two installers was almost the same on a $ per ton of heating capacity at 5°F basis. The percentage over "base plus" price was approximately 32% for Installer #1 and 11% for Installer #2.
- Participating installers noted that breaking out cost adders in the way requested by the program (i.e. in order to standardize pricing and allow for a more apples-to-apples comparison) was not how they internally priced out systems. Thus, some adders were estimates that may not have been born out in the Somerville building stock: in particular, the installers noted a larger share of jobs on the top floor of the common Somerville "three-decker" 1-4 family building, which required significantly greater adders than typical of two-story homes in the suburban areas around Greater Boston (e.g. increased line set/hide, lifts to reach the top floor).
- As quotes began coming out higher than the base price, installers and city staff noted complaints from several residents. As a result, the City added additional information to the program pricing guide, and the installers began more clearly delineating the adders that were causing the cost of

the system to increase beyond the base price, which reduced complaints about lack of transparency.

- The installers also noted that the base price assumptions requested in Somerville's RFQ reflected a "best case scenario" and were not ultimately reflective of typical installations in the city. Additionally, pricing information had led with single-zone ductless systems while the vast majority of quotes and contracts signed ultimately used multi-zone equipment. Future programs could more closely reflect the needs of local building stock and solicitations and public representations of pricing could be more in alignment.
- One of the installers expressed some frustration with the emphasis on price and discounts, noting that other previous programs put more emphasis on contractor quality and did not disclose pricing in a similar way. However, experience from speaking with residents in Somerville and other communities has indicated that cost is one of the most important decision-making factors for a customer. Future campaigns should continue to assess how best to strike the right balance between emphasizing discounts and contractor quality/city-vetting process in messaging.
- The installers suggested that in a future program with multiple installers, the organizer could consider offering one uniform price for all participating installers to avoid confusion. While this suggestion has merit, there could be challenges in implementing one uniform price: it is expected that each installer will approach the labor considerations with a job differently (and not necessarily in the way outlined in how the pricing will be presented to homeowners)—and an installer could still "make up the difference" when pricing out aspects of the job, given the significant customization required. Notably, HeatSmart Tompkins (NY) worked with three installers for two rounds, attempting to standardize offerings, limit adders, and offer one unified pricing, but the Tompkins organizers encountered significant resistance from the three contractors.[5]

Permitting challenges. Partway through the program, the Somerville Inspectional Services Division began requiring indoor switches to be installed with each multi-zone unit. This had previously not been required—and the installers noted that this was not a requirement in any other Massachusetts jurisdiction to their knowledge. The switch requirements translated to a 5-10% increase in the cost of the system to the property owner. Additionally, installers noted that prior to extensive efforts from municipal staff to coordinate expectations with ISD, they had received a range of responses from ISD staff about the best way to comply with state building code requirements, which created additional challenges and confusion.

- While the unexpected added costs of permitting and indoor switches drove up the cost of quotes provided, installers noted that the most negative effect of these added costs was the appearance of lack of transparency. Modifications were made to the pricing guide and how installers engaged customers mid-campaign, which reduced complaints.
- Installers noted that in future campaigns, they would seek to directly engage building permitting/inspectional services staff (with support from the municipal lead representative) in advance of campaign launch. While efforts to reduce excessive requirements may or may not

[5] Interview with Jonathan Comstock, February 2016.

achieve success, clarifying will be important to ensure transparency so that the installer and program participants are not surprised by additional costs.

Experience with city-led program vs. volunteer/community-led program. Solarize campaigns in Massachusetts are typically led by a group of community volunteer organizers with some support from a municipal representative. Somerville's campaign was led directly by city staff with some support from community volunteers.

- The installers noted that working with Somerville's point-of-contact was extremely straightforward. The installers commended the responsiveness of city staff, direct communication, and clear reporting requirements.
- One of the installers had been working with a community-led Solarize Mass Plus program simultaneously and noted that the experience was much more streamlined and well-organized for Somerville's city-led program. Having the municipal representative more directly involved in leading and organizing the program made for a much more valuable experience.
- However, community group purchasing campaigns tend to be very labor-intensive, with an average 4-6 month Solarize campaign requiring roughly 600 person-hours to complete.[6] Somerville estimated approximately 1,000 person-hours over the course of one year to design and implement HSCS, primarily provided by full-time city staff members. It is expected that some municipalities will struggle with having sufficient staff capacity to make a similar level of commitment.

Lead closure rate. Both installers found that the programs lead closure rate was lower than expected (22% and 26% respectively) and lower than their typical closure rates (25-32%).

- The installers noted that because of the broad marketing the city was doing (which in some cases often required simplified messaging), a lot of customers were calling for site visits having spent limited time reading the city's educational materials and having a limited understanding of the technology. By contrast, many customers that contact them outside of the HSCS campaign tend to know more about heat pumps already and are more frequently calling for a specific solution rather than to learn more.
- Nonetheless, the installers maintained that the program was ultimately very good for their businesses and worth participation—and that they would sign up for the program again. They noted the lower closure rates were not a significant impediment, suggesting that the added education that was required would lead to more sales in the future.

Marketing activities. Somerville undertook extensive marketing activities, including sending out a city-wide mailer and providing utility bill inserts. In total, these efforts cost the City $15,000, including $5,000 towards VISA gift cards. These expenses were funded by grants earned through Somerville's participation in past utility energy-efficiency programs. 41% of total marketing costs were born by the installers, who had access to cooperative marketing funds through Mitsubishi Electric and their distributors. These marketing activities included direct mail postcards, social media advertisement, and giveaways at events. Notably, the City did

[6] http://solaroutreach.org/wp-content/uploads/2015/09/Solarize.pdf

not solicit marketing funds from the installers, but rather, the installers offered to provide marketing funds during the first internal planning meeting.

- Both installers noted that the meet the installer events were far and away the most impactful activities from their perspective, as these events were well-publicized and allowed their teams to have extensive conversations with prospective customers prior to conducting site visits. Less dedicated events that installers initially participated (e.g. tabling at local community events) were not impactful and were ultimately discontinued by the middle of the campaign.
- The City noted that while the mass mailer brought in the most leads, one of the more impactful marketing activities was a mailer sent out by Century Bank (a local Mass Save HEAT Loan lender) on City letterhead. Another highly impactful marketing approach was recording a testimonial video with the City's previous Solarize coach, which was viewed over 400 times in the three weeks it was available for viewing on the HSCS website before the campaign closed.

Housing Rehab Program. Somerville was able to leverage an existing income-eligible program (the HUD-funded Housing Rehab Program) to provide a pathway to participate for income-eligible homeowners. Through this process, homeowners were able to receive deferred-interest loans for heat pump systems that were specified by the City and put out to bid. At least four residents considered going through the Rehab program. One decided to not move forward, one signed a contract, and two are in the enrollment process.

Effectiveness of market segmentation analysis. Most homes that moved forward with installing a system in the market segmentation analysis were above the average or median "ASHP score" for the City as a whole:

- The median and mean ASHP values for homes that installed heat pumps through HSCS were 2.19 and 1.93 respectively, which were 57% and 32% higher than the city-wide median and average. When excluding properties that were expected to be rentals, the values were roughly in line with the city-wide median and average.
- A significant reason for this was that heating fuel was one of the most important factors in developing the index score, so homes with oil and electric resistance heating typically had higher scores than gas homes. 83% of installations were completed in homes with gas heating and 17% of installations were completed in homes with oil heating, which represented a higher share than all 1-4 family buildings in the city (77% gas and 22% oil).
- Somerville sent out two postcard mailers targeting higher-potential properties, including 1-4 unit homes heating with oil, natural gas, or electric resistance heating, that did not have a heat pump or central air installed. The second mailing went to about 100 homes that had received proposals from either installer but had not yet informed the installer of their decision. Both mailers dropped 1-2 weeks prior to workshop events.

SECTION 4 HEATSMART NORTHAMPTON

4.1 Program Summary

Program Summary	HeatSmart Northampton was a community outreach and group purchasing campaign focused on encouraging the adoption of cold climate air source heat pumps in 1-4 family residential buildings in Northampton, MA. HeatSmart Northampton was organized by the City with major support from a robust volunteer team and was served by one local installer.
Program Timeline	◉ Planning: March-July 2017 ◉ Solicitation (RFQ) released: Late June 2017 ◉ Program Duration: August 2017 through February 28, 2018
Number of installers	1
Key Staff	Chris Mason (city lead coordinator), Penny Geis and Anne Lombard (lead volunteers)
Key outreach activities	◉ Pre-launch survey to preview the program and gather information about baseline understanding of ASHPs and to guide outreach efforts ◉ One "meet the installer" kickoff event ◉ 4 open house parties to talk with people that have ASHPs and meet the Installer ◉ Tabling at farmer's markets ◉ Yard signs and door hangers ◉ Volunteer door knocking targeting neighborhoods with high electric resistance heating ◉ Significant volunteer support from Climate Action Now (Western Mass) and Mothers Out Front
Results	◉ 162 individuals signed up for the program through the HeatSmart Northampton website ◉ 130 site visits were conducted by the installer with 106 quotes provided. ◉ 54 ASHP systems were installed by the installer (41.5% conversion);[7] average system was approximately 2.7 tons in capacity[8] o 19 single-zone o 34 multi-zone o 1 heat pump water heater ◉ 4 additional ASHP systems were installed in surrounding towns that were not eligible to participate in the program.

[7] The installer also completed four high-efficiency boiler and furnace replacements for homeowners where ASHPs were not the best fit.

[8] Rated heating capacity at 5°F.

4.2 Key Findings and Lessons Learned

Note: See Appendix B for more detailed results from the Northampton respondent survey. Select results from survey respondents are provided in this section for reference.

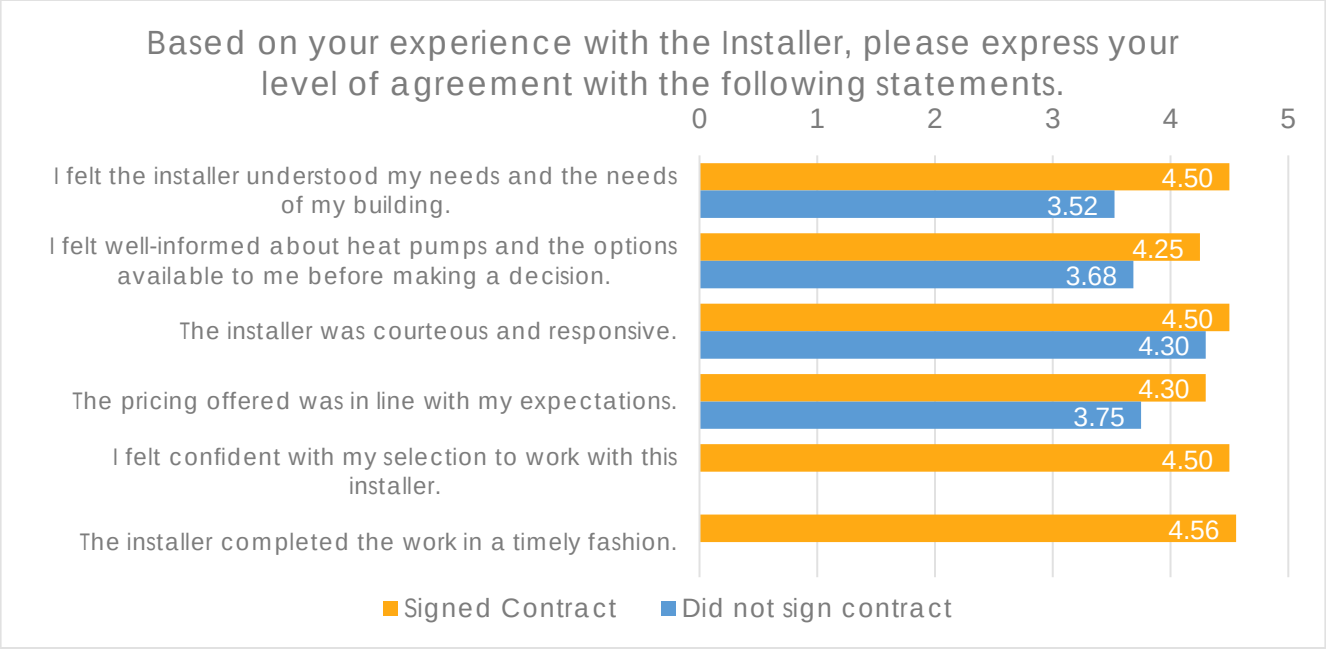
Pricing and discounts. The installer noted that most projects were close to the base price, with the most common adders were related to additional piping required for connecting outdoor and indoor units. However, the installer was not able to provide all cost data prior to the submission of this report. The installer did note that most homes in Northampton did not have sufficient electrical service for an ASHP system (i.e. 200-amp for a near whole-home system). The cost of these upgrades, which was typically around $3,000, was not captured in quotes, as customers were directed by the installer to seek quotes from an electrician.

Experience with city-led program vs. volunteer/community-led program. As noted above, Solarize campaigns are typically driven by community members and volunteers, with support from the municipality. Compared to HSCS Somerville, HeatSmart Northampton more closely followed the Solarize model, with a significant team of volunteers leading outreach activities in coordination with the city representative.

- The city representative, installer, and volunteer leads all commended the active volunteer team for their efforts, noting that it would have been challenging for a small city like Northampton to launch such an effective program without a strong base of volunteers to draw from.
- Besides person-hours of labor, volunteers bring knowledge of the community and social connections that are helpful in planning and carrying out outreach activities.
- In this instance, volunteer groups had coincidentally approached city staff around the time the city was looking for volunteers for this effort. Volunteer groups were looking for ways to help fight climate change. When a "Solarize" type program to promote ASHPs was described to them, however, they were very skeptical of the technology. City staff responded with research and data that convinced the volunteers to the point where the volunteers are now strong advocates of the technology. One result has been that there is now a group of active, engaged, well-connected citizens living in Northampton who are well-versed in the strengths and environmental benefits of ASHPs.
- The research and data-gathering process helped the city to develop a FAQ on ASHPs based on questions from community members

Experiences with the single installer. Northampton's campaign involved only one installer, compared to the other programs involving multiple installers.

- The installer received positive feedback from participants, with participants who signed contracts having a more positive view of the installer's services. 17 out of 20 respondents who signed contracts indicated they would be likely to recommend the installer's services to a friend.



- Survey respondents were asked whether they received quotes from another installer besides the installer. Only 8 out of 42 participant respondents had received quotes from other installers (and only 2 of 19 respondents who signed contracts), though a few respondents indicated that they were interested in having additional installers to choose from for the program. This stands in contrast to HSCS Somerville, where two installers were selected and over 75% of customers signed up to work with both installers.
- At least three of the respondents who sought quotes from more than one installer contracted with another installer for an ASHP system and at least one of those people credit the HeatSmart program with selling him on the technology.
- The installer indicated that one installer was suitable for a program the size of HeatSmart Northampton, though noted that they faced significant challenges keeping up with the program needs during the required emergency heating calls during the prolonged cold snap (necessitating an extension of the program to manage remaining leads. It is worth noting that the installer brought on additional part-time staff capacity as part of campaign participation, which helped to support lead coordination and reporting and maintain responsiveness and high customer services throughout the program. Additionally, the installer's owner completed all site visits in order to provide consistency and indicated in future campaigns he would consider scheduling fewer site visits per day or bringing in an additional staff member to conduct site visits.
- As discussed in Section 2, the overall project results are inconclusive as to whether a single- or multi-installer model is superior to the others, and it is expected that prospective campaign organizers will need to assess interests from community members and the state of the local supply chain. Campaign organizers could consider disseminating pre-launch surveys similar to Northampton, including a question about how many installers to feature.

High participation from natural gas customers. The HeatSmart team had expected that most interest would come from homes with high-cost heating sources (i.e. oil, propane, and electric resistance), as these residents would have higher heating and GHG emissions savings as well as the added cooling and home comfort benefits. The organizers hoped to leverage an existing moratorium on natural gas expansion in the City to drive non-gas customers to install ASHPs instead of waiting for gas conversions. However, 55% of installs ultimately came in homes with natural gas (compared to 48% of all 1-4 family homes), with 19% of installs in homes heating with oil, 19% with electric resistance, and the remainder in propane, wood, or multi-fuel homes.

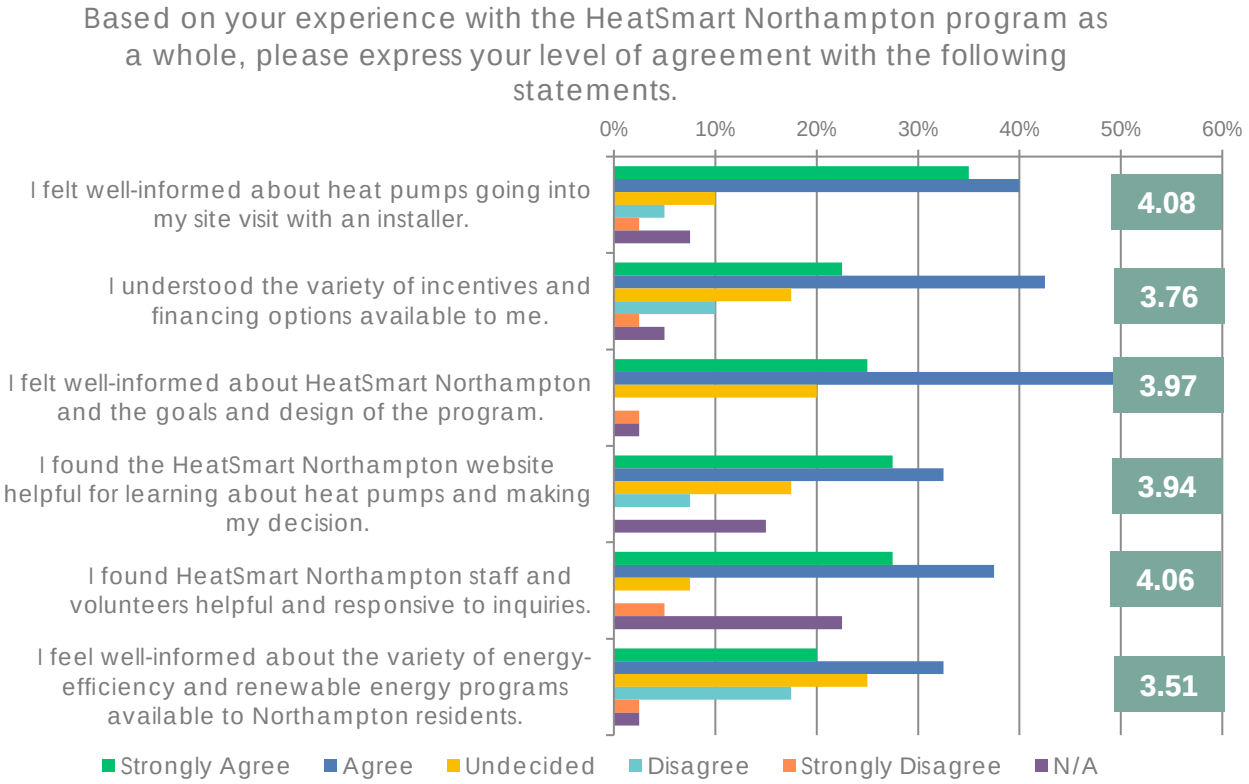
- While approximately two-thirds of installs were supplemental as opposed to replacement installations, 70% of replacement installations were in non-gas homes.

Effectiveness of market segmentation analysis. Based on the results from the market segmentation analysis, most homes that moved forward with an ASHP installation did not have significantly higher scores than the average score for all homes in the city.

- The mean ASHP score for homes that installed heat pumps was 2.42, which was 17.5% higher than the city-wide average for all buildings but approximately the same as the city average when excluding renters.
- As discussed above, the market segmentation methodology considered home heating fuel as one of the more important factors for the index score generated (with oil/propane/electric resistance homes receiving higher scores than gas). However, a majority of installations occurred in gas homes. Additionally, the market segmentation indices were focused on suitability for a replacement application and many installations were ultimately supplemental/displacement applications.

Effectiveness of marketing and education efforts. The HeatSmart Northampton team leveraged a variety of marketing and outreach activities to raise awareness of the program and educate residents on the benefits of participation.

- In general, participants had a positive assessment of HeatSmart Northampton's educational efforts and volunteers.



- Customers learned about HeatSmart Northampton from a variety of sources, with word of mouth, participation in the kickoff event, yard signs, and emails from city councilors promoting the program being the most effective ways respondents heard of the program.
- As discussed above, the targeted door knocking activities appeared to have limited impact on program participation, with only one respondent indicating they had learned of the program through door knocking.

Customer priorities. Program participants indicated that their top priority interests in heat pumps (in order) were cooling, energy savings/efficiency, heating, and GHG reductions, with over half of customers indicating that cooling and energy savings/efficiency were their top priority (28% and 26% respectively).

- Volunteers noted that the most common questions asked by interested residents were around costs, incentives, and financing. While a step-by-step guide to working with incentive and financing programs was developed and provided online, it appeared to have not been sufficiently promoted on the website, as one was requested by some survey respondents and volunteers.
- The primary reasons for not moving forward highlighted by participants who did not sign a contract and non-participants were related to system costs and lack of cost-effectiveness.
- Through discussions at open house events, organizers identified another way that an ASHP might be used by a resident to generate energy savings. A significant percentage of Northampton homes may have antiquated, un-zoned steam heat systems. Therefore, besides switching to a more efficient technology, converting a portion of a home to a heat pump system effectively provides

zoned heating, a more efficient heating design. While survey results revealed that zoning was not one of the top reasons people were interested in an ASHP, 50% of respondents indicated that it was a consideration.

- The cost-effectiveness of converting a home with an open floorplan to an ASHP system (fewer indoor units are required) and the increased savings made possible by adding zoned heating to old homes with closed floorplans became two alternative talking points for volunteers depending on which neighborhood they were in.

Income level of participants. 81% of installations occurred in neighborhoods where at least 62% of households had a household income of at least $60,000. The installer noted that most customers tended to be more affluent, noting that he had conducted more site visits in upscale neighborhoods and that less than 30% of customers used the Mass Save 0%-interest HEAT Loan to finance their systems. The installer noted that while the volunteer team targeted electric resistance households, uptake was lower than expected—perhaps because those households may have been less affluent than typical program participants and less able to afford an ASHP system.

- Volunteers indicated that potentially more targeted outreach to senior and LMI community groups could be valuable to increase LMI engagement, as well as translations for marketing materials into Spanish.
- Many outreach efforts also engaged residents who were likely more affluent and/or belonged to liberal-leaning social groups—e.g. tabling at farmer's markets and the local co-op market.
- Volunteers proposed, in hindsight, targeting a wider array of social networks —e.g. PTOs, church groups, gun clubs and/or veteran's clubs.

Managing negative word-of-mouth. The HeatSmart team highlighted only one challenging customer that seemed to be very displeased by their installation and voiced their concerns on NextDoor. Volunteers and unaffiliated community members noted that some of the comparisons being made in their complaints were not apples-to-apples—and it appeared that the resident had been poorly served through Mass Save prior to participating in HeatSmart. It is expected that such community campaigns often encounter one or more residents providing negative testimonials, and campaign organizers could consider discussing how best to handle such situations when they arise as part of the campaign planning and messaging process.

- It is also worth noting that the customer felt that her experience did not match the savings estimates provided on the campaign materials and website. The HeatSmart Northampton team had debated during planning how much specificity to provide on potential energy savings, which can be challenging to estimate due to the range of potential applications (for costs and efficiency), varying heating fuel prices, and the variety of factors related to each building and occupant behavior that could affect performance. These concerns needed to be balanced against the desire from customers for specific financial information, and HeatSmart Northampton ultimately provided general ranges on percentages of savings (e.g. up to 30% below oil on a per Btu-basis based on average prices from previous five years) that could be realized based on historical heating fuel prices.

SECTION 5 THE CASCO BAY HEAT PUMP CHALLENGE

5.1 Program Summary

Program Summary	The Casco Bay Heat Pump Challenge (CBHPC) was regional program focused around a series of educational ASHP vendor events held throughout the Greater Portland area. These four events, held in Portland, South Portland, Falmouth, and Scarborough, were "energy fair"-style events focused primarily on ASHPs, though other energy efficient technologies were promoted by Efficiency Maine and community groups in attendance. Events (and participation in the program) were not limited by geographic area. Five installers were competitively selected through an RFP released by the Greater Portland Council of Governments to participate in these events. These installers were asked to provide special discounts to customers who signed up at events and offer standardized pricing for single-zone units (displayed at each booth). Event promotion was led by each community host with some cross-promotion from other hosts and partners.
Program Timeline	◉ Planning: March-June 2017 ◉ Solicitation (RFP) released: May 2017 ◉ Program Duration: o Portland: June 2017 o South Portland: September 2017 o Falmouth: October 2017 o Scarborough: October 2017
Number of Installers	5
Key Staff	Troy Moon (City of Portland), Julie Rosenbach (City of South Portland), Kimberly Darling (Town of Falmouth), Kerry Grantham (Town of Scarborough), Jennifer Brennan (Greater Portland Council of Governments), Dana Fischer/Andy Meyer (Efficiency Maine)
Key Outreach Activities	◉ Coordination with Efficiency Maine on social media outreach ◉ Cross-promotion through other municipal networks ◉ Yard signs and flyers

Results[9]	◉ Approximately 200 residents participated in the four events ◉ At least 100 residents signed up for site visits, with approximately 30-40% signing up for visits from ◉ At least 25 ASHP systems were sold by participating installers. The average system was approximately 2.5 tons in capacity,[10] installed at a cost of $8,970 o At least 15 multi-zone o At least 7 single-zone The CBHPC organizers expect to run another round of the CBHPC in Fall 2018.

5.2 Key Findings and Lessons Learned

A regional, lower-commitment alternative to the Solarize model. At the outset of the broader project, the City of Portland expected to lack the staff capacity and resources to run a full Solarize-style campaign and engaged frequent collaborators at the City of South Portland and Greater Portland Council of Governments to support development of a program concept. With support from Efficiency Maine, the state utility efficiency program that offers rebates for ASHPs, the CBHPC was envisioned as a program model that could offer a level of community engagement and education while significantly reducing the commitments on municipal staff required to plan and coordinate a full Solarize campaign.

- **Replicability.** Upon release of the installer RFP in May 2017, only Portland and South Portland had at the time committed to the program. However, the CBHPC's event-based model was designed to be easily replicable, with a similar event structure and quickly-customizable templates for marketing and educational content. Portland and South Portland were able to engage neighboring towns of Falmouth and Scarborough over the subsequent months to join the CBHPC and host events. This event model and template materials could be easily re-used for a future round of the CBHPC and to invite additional neighboring towns to participate.
- **Structure of events.** Events followed a similar structure, with a presentation of no more than one hour being the focus of each event.[11] These presentations included: (1) a brief welcome from the municipal organizer for the event, (2) an educational presentation on ASHPs delivered by Efficiency Maine as a neutral, trusted information provider, (3) a customer testimonial (if available) to discuss experiences with living with an ASHP, and (4) a rapid-fire round of <3 minute presentations from each of the installers to introduce their company. The presentation was preceded and followed by tabling by the installers during which attendees could speak with installers and, if interested, sign up for site visits. Efficiency Maine also tabled at all events to provide more information and promote

[9] As discussed further below, collecting reports from participating installers after events and on a regular basis was challenging. Two of the five installers never provided any reports, making it difficult to estimate the number of total leads and conversions. Contact information collected and reported by installers was inconsistent, and thus program participants were challenging to survey.

[10] Rated heating capacity at 5°F.

[11] The first event in Portland was a full-day event with presentations in a morning and afternoon session. However, the afternoon session was poorly-attended, and thus, subsequent events only included a single three-hour session.

other energy efficiency incentive programs. These events were easy to host in public spaces that municipal representatives had access to.

- **Roles and responsibilities.** The team structure developed to run the CBHPC leveraged a range of individuals in order to decentralize responsibilities and limit time commitment for individual program partners: each city/town was responsible for organizing and promoting its own event; the RFP was released by GPCOG; promotion and presentations were supported by Efficiency Maine, which was positioned as a trusted, neutral party at events; and coordination with installers was managed by MCG. This collaborative approach strengthened the existing relationship among neighboring municipalities and with Efficiency Maine, which the organizers hope will facilitate future successful collaborations.

Latent community interest in ASHPs. Organizers and participating installers were surprised by the high interest in heat pump-only weekend events. While the Greater Portland region has among the highest per capita installation rates of ductless ASHPs in New England (due in part to low gas access and low penetration of central AC), there was still significant interest for information and services related to ASHPs. To continue maintaining interest and providing opportunities to residents, the organizers expect to host another round of the CBHPC in fall 2018.

Installer response. Most of the installers responded positively to the program, with both the installer receiving the most and fewest sales reporting being pleased with the program and having the opportunity to educate and promote their services to community members. In particular, the installers highlighted the event at South Portland, which was the largest event attended by approximately 100 people. Installers appreciated a set of events focused primarily on ASHPs, noting that these events were far more valuable than traditional energy fairs or home shows where vendors not only need to compete against each other, but also for attention over different products and services. Some installers also appreciated being promoted as vetted installers and having third parties like Efficiency Maine and the towns/cities promoting the technology as viable.

Installers did note that they would have preferred all of the events to be within a couple of weeks of each other to maintain momentum. While the gap between Portland's event in June and South Portland's in September was primarily a product of scheduling challenges around summer events, future rounds could consider keeping events within 1-3 weeks of each other (e.g. from September through November) to drive word of mouth and enable more straightforward promotion. One installer dropped out after the first event, citing difficulty justifying the commitment for lower-than-expected turnout. This installer was based approximately an hour from Portland, while the other four had offices in or within 15 miles of Portland. Additionally, one installer was non-responsive to communications related to reporting or seeking feedback on future programs.

Reporting challenges. While monthly reporting during the duration of the Challenge events was a requirement of the RFP, collecting reports from participating installers was challenging, perhaps due in part to events being more sporadic and campaign administration being decentralized and not directly coordinated by the municipalities or soliciting entity (GPCOG). As customers signed up for site visits at each installer's table, organizers depended on installer reporting to determine leads, progress, and contact

information for attendees. Additionally, each installer collected and reported inconsistent contact information, making it challenging for organizers to have enough individuals to survey. As noted above, one installer dropped out after the first event without providing a report, and another attended all events without ever providing any reports. Future rounds could more clearly articulate reporting requirements (e.g. requiring the report on customer leads from a previous event as a precondition for participating in the next event) and clarify the requirements in an onboarding meeting or call prior to the first event.

Equipment installed. The CBHPC had collected and published pricing (and discounts) offered for single-zone ductless ASHP units from each installer. However, it is estimated that two-thirds of all contracts ultimately signed were for multi-zone ductless systems. Across all campaigns in this project, there were more multi-zone systems sold than single-zone, but this was most surprising in the CBHPC as, in contrast to Massachusetts' incentives (which scale with capacity/number of indoor units), Efficiency Maine's rebate only increases slightly for multi-zone units ($500 for first indoor unit, $250 for second). Future rounds could request and display pricing for multi-zone systems as well, though it is worth noting that these systems can be more complex and difficult to provide a more standardized price for, as observed in Somerville's program.

Event participants. The CBHPC events (and special offer) were open to all residents of the Greater Portland area in contrast to the Somerville and Northampton programs which were limited to residents of those cities. As such, many event attendees came from neighboring towns and cities, including those that were holding future events. This flexibility was clearly beneficial for attendance and participation: at least 30 of the CBHPC participants who signed up for site visits were not residents of the hosting community.

APPENDIX A: ADDITIONAL CAMPAIGN INFORMATION

The cities of Boston and Providence participated in the project but ultimately decided to not run more extensive group purchasing campaigns, opting to focus on community outreach programming and broadening understanding of RH&C opportunities internally.

The City of Boston had initially aimed to develop a joint procurement with the City of Somerville to run HeatSmart CoolSmart programs concurrently with the same group of qualified installers. However, the City ultimately decided to not move forward with this approach. The City explored a number of other options for programs throughout this project, including:

- Integrating air source heat pumps into the Seniors Save program, an income-eligible program for elderly homeowners that provides a grant and deferred-interest loan for replacing inefficient heating systems.
- An outreach program in collaboration with Eversource targeting condo associations with high shares of electric resistance heating. This included identifying condo complexes in the City that would be interested in working with the City/Eversource on an outreach program and where installation of ASHPs (and accompanying modifications to building exteriors) would be permissible under condo bylaws.

While other conversations were ongoing, the City ultimately opted to focus on expanding the scope of the existing Renew Boston outreach program to focus specifically on ASHPs. The City utilized market segmentation analysis data to identify optimal neighborhoods to hold these ASHP-focused workshops in (e.g. West Roxbury, Hyde Park, Jamaica Plain). In Q1 2018, the City had held two workshops in West Roxbury and is expected to continue hosting additional workshops throughout 2018.

The City of Providence had significant interest expanding ASHP deployment, especially as Rhode Island's Renewable Thermal Market Development Strategy and other analyses were released in late-2016/early-2017. The City was interested in potentially running a group purchasing campaign in partnership with a local community partner and with support from the Rhode Island Office of Energy Resources. Related planning efforts were pursued in Q1-Q2 2018.

The City ultimately decided not to pursue a group purchasing campaign because the Office of Sustainability did not have the staff resources to administer such campaign and the grant did not provide funding to pay a community partner or local individual to organize the effort. Alternatively, the Office of Sustainability elected to integrate ASHPs into the Providence Community Energy Fair in June 2017. However, a solicitation for vendors to participate in the program did not yield any initial responses. Vendors indicated that they were not interested in participating and/or were too busy to participate. Ultimately an enthusiastic vendor

was identified and participated in the event after some assistance from a manufacturer representative). This experience indicated that significant engagement with businesses across the local supply chain would be necessary to launch a successful Solarize-style group purchasing campaign, as observed in other participating cities. In particular, this engagement would need to focus on articulating the proposed campaign model and benefits of participation and better understanding the opportunities for collaboration between the City and local contractors.

APPENDIX B: EVALUATION SURVEY RESULTS

The following pages provide a summary of results from Northampton's evaluation survey. While a survey was developed for Somerville, response rate was too low (only 6 out of 213 program participants responded) to provide meaningful feedback. Additionally, for the Casco Bay Heat Pump Challenge, installers were inconsistent in collecting email addresses, and thus there were insufficient program participants to survey.

HeatSmart Northampton

Evaluation Survey Results

March 2018

MEISTER CONSULTANTS GROUP | A CADMUS COMPANY

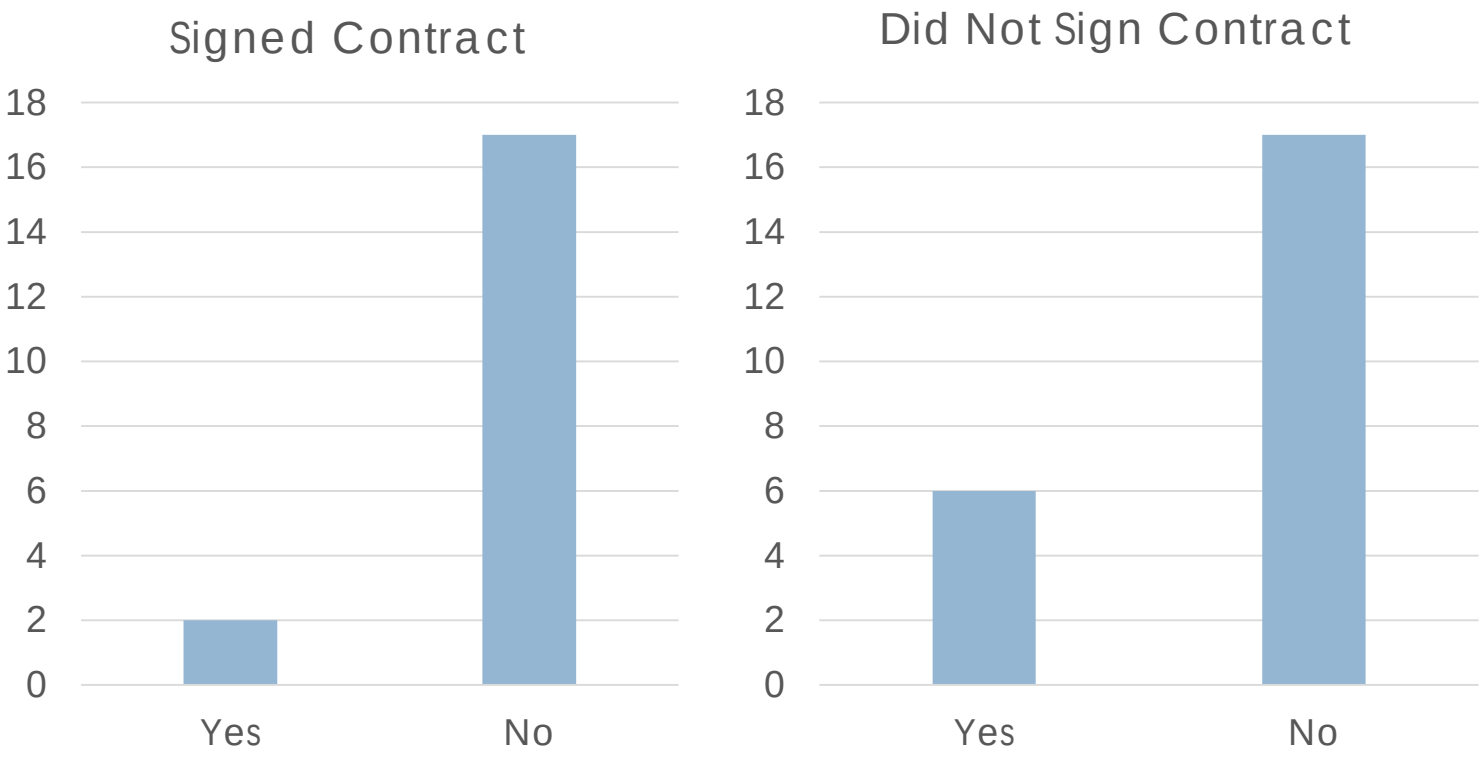
HEATSMART NORTHAMPTON

Introduction

- Survey was sent to 458 individuals
  - Included HeatSmart participants and others who wanted additional information
  - Also included residents who previously received emails through Solarize Northampton (who also received the pre-launch survey)
- Total Respondents: 60
  - 21 (out of 54 total) signed up for program and installed a heat pump
  - 23 (out of 76 total)[1] signed up for program but did not move forward
  - 14 heard about program but did not sign up
  - 2 had not heard of program
- *Individuals who signed up for the program are referred to as "Participants"*

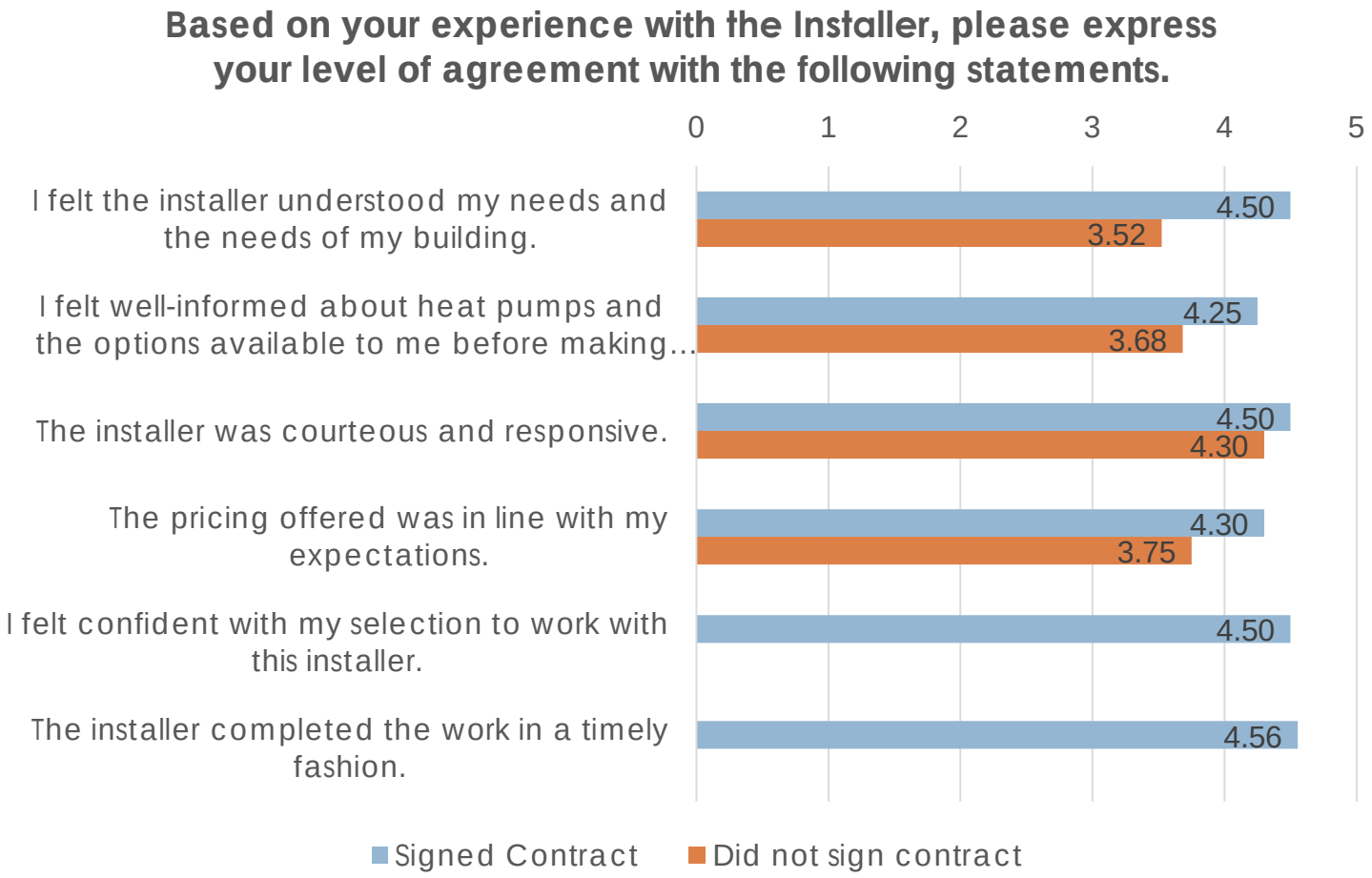
[1] 130 site visits were conducted out of 162 individuals who signed up for the program online. Based on survey responses, it is estimated that all or most of these respondents received a site visit from the installer.

Did you receive another site visit from an installer?



- Most individuals did not seek multiple bids, regardless of whether they signed a contract or not
- 4 respondents opted to work with a different installer

Participant assessment of the Installer

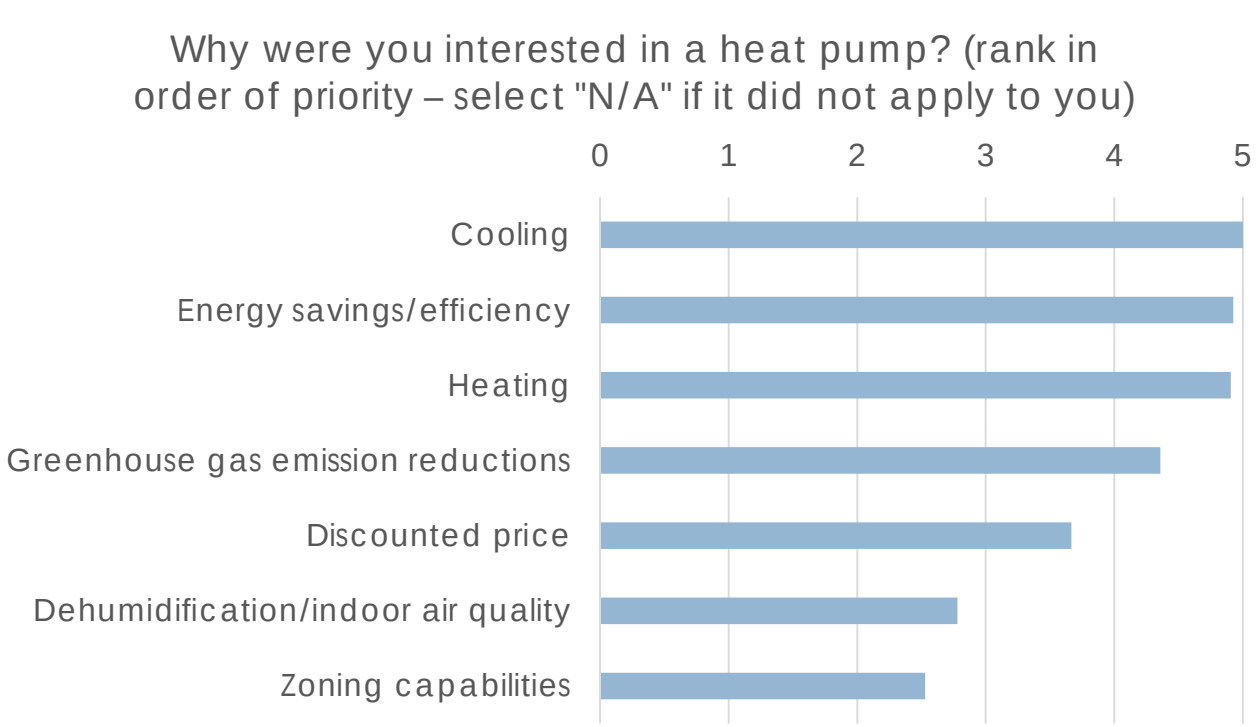


» While participants who signed contracts had a more positive view of the Installer's service, all participants generally had a positive view of the Installer

Participant assessment of the Installer (cont.)

Participant Type	Question	Weighted Avg Response
Signed Contract	On a scale of 1-5 (with 1 being not at all likely and 5 being very likely), how likely would you be to recommend this installer to a friend?	**4.45**
Did Not Sign Contract	If the circumstances were right, on a scale of 1-5 (with 1 being not at all likely and 5 being very likely), how likely would you be to work with the Installer in the future?	**3.57**

Participant interest in heat pumps



Responses weighted with top score levelized to 5

» % of customers ranking a benefit as top priority

› Cooling: 27.8%

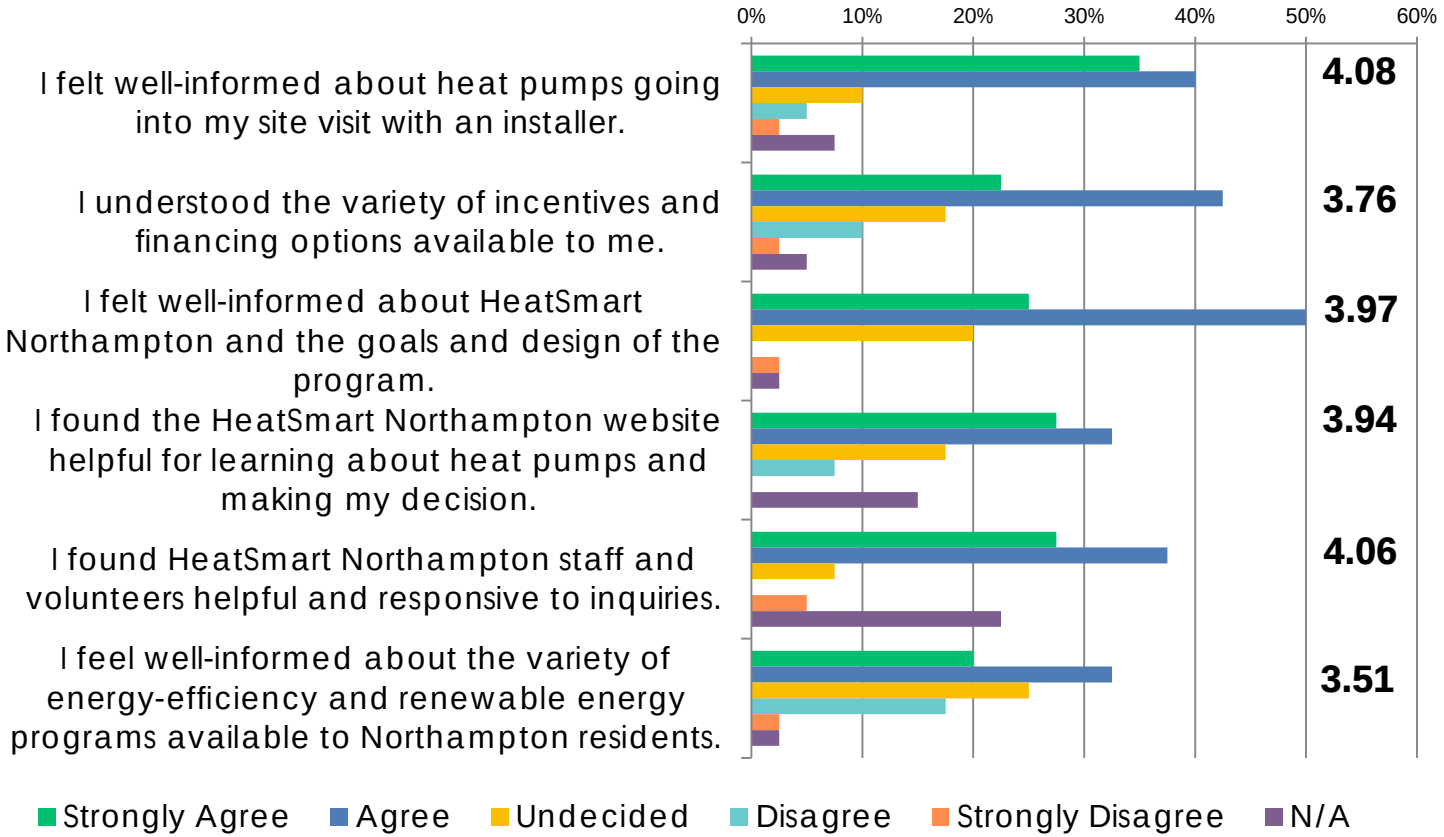
› Energy Savings/Efficiency: 26.3%

› Heating: 12.8%

› GHG emissions reduction: 15.8%

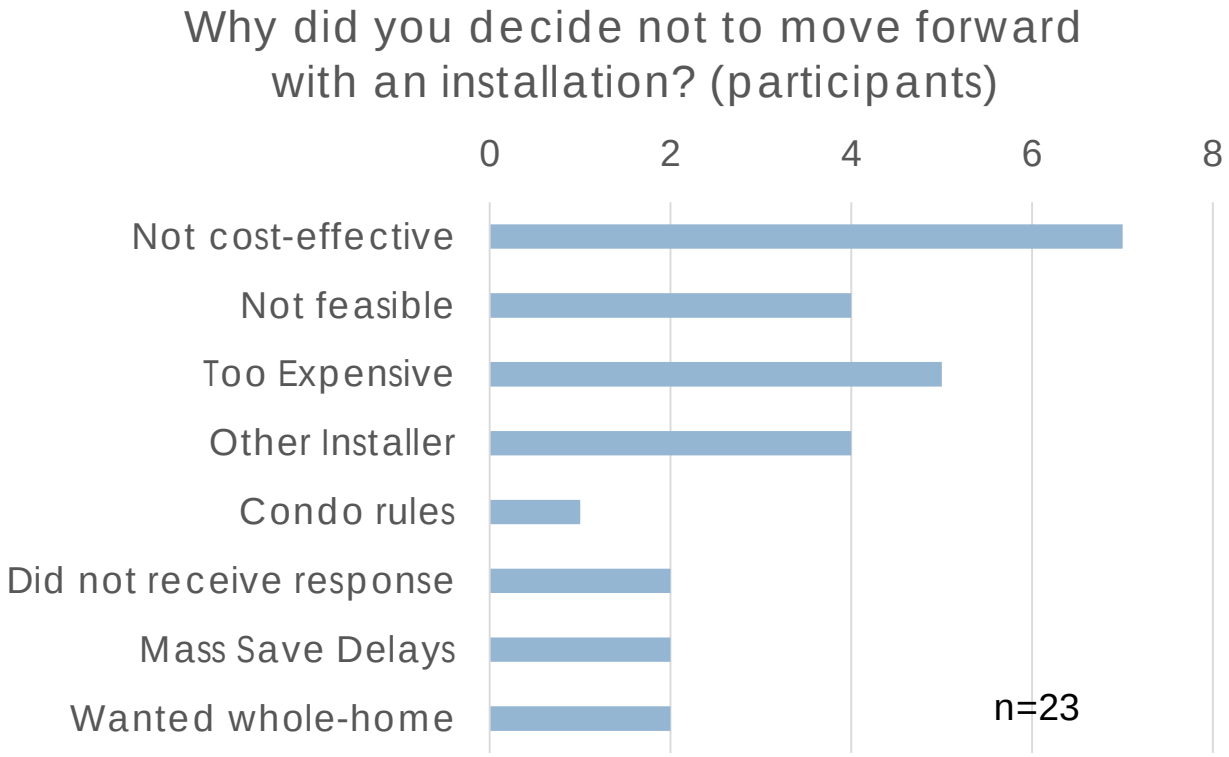
Participant Assessment of HeatSmart Northampton

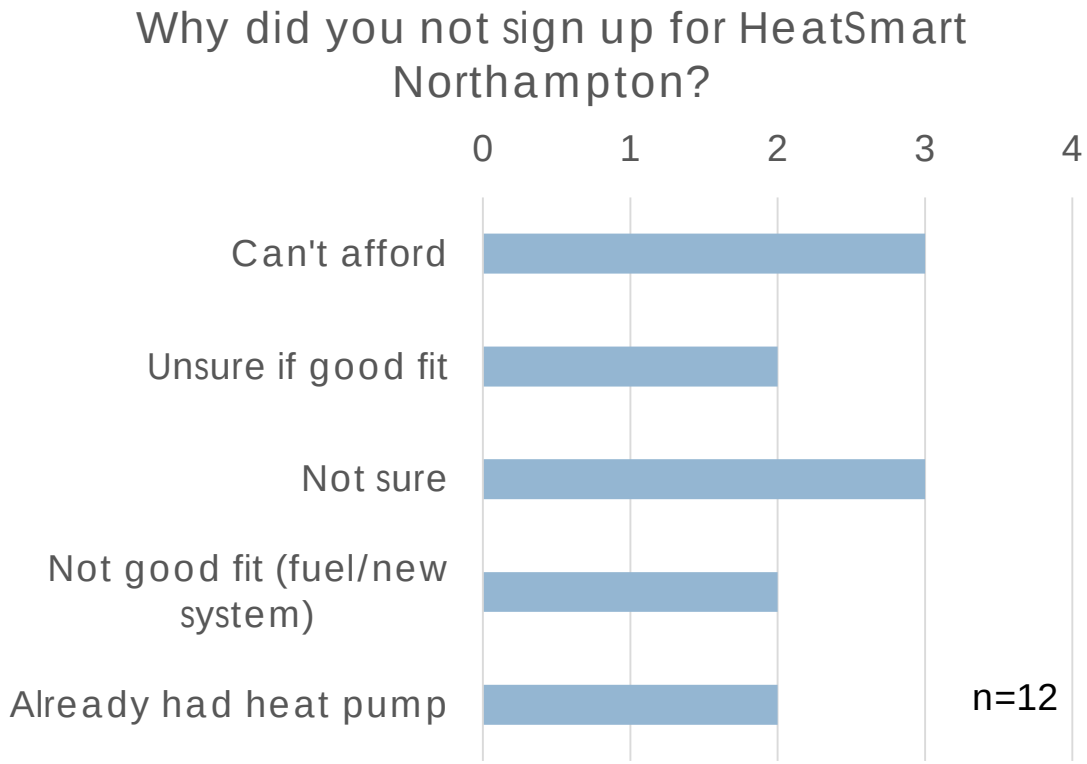
Based on your experience with the HeatSmart Northampton program as a whole, please express your level of agreement with the following statements.



- Participants generally had a positive assessment of HeatSmart Northampton and felt that resources (materials, website, volunteers) were helpful
- Participants felt that information on other renewable energy/ energy efficiency options could have been better-presented

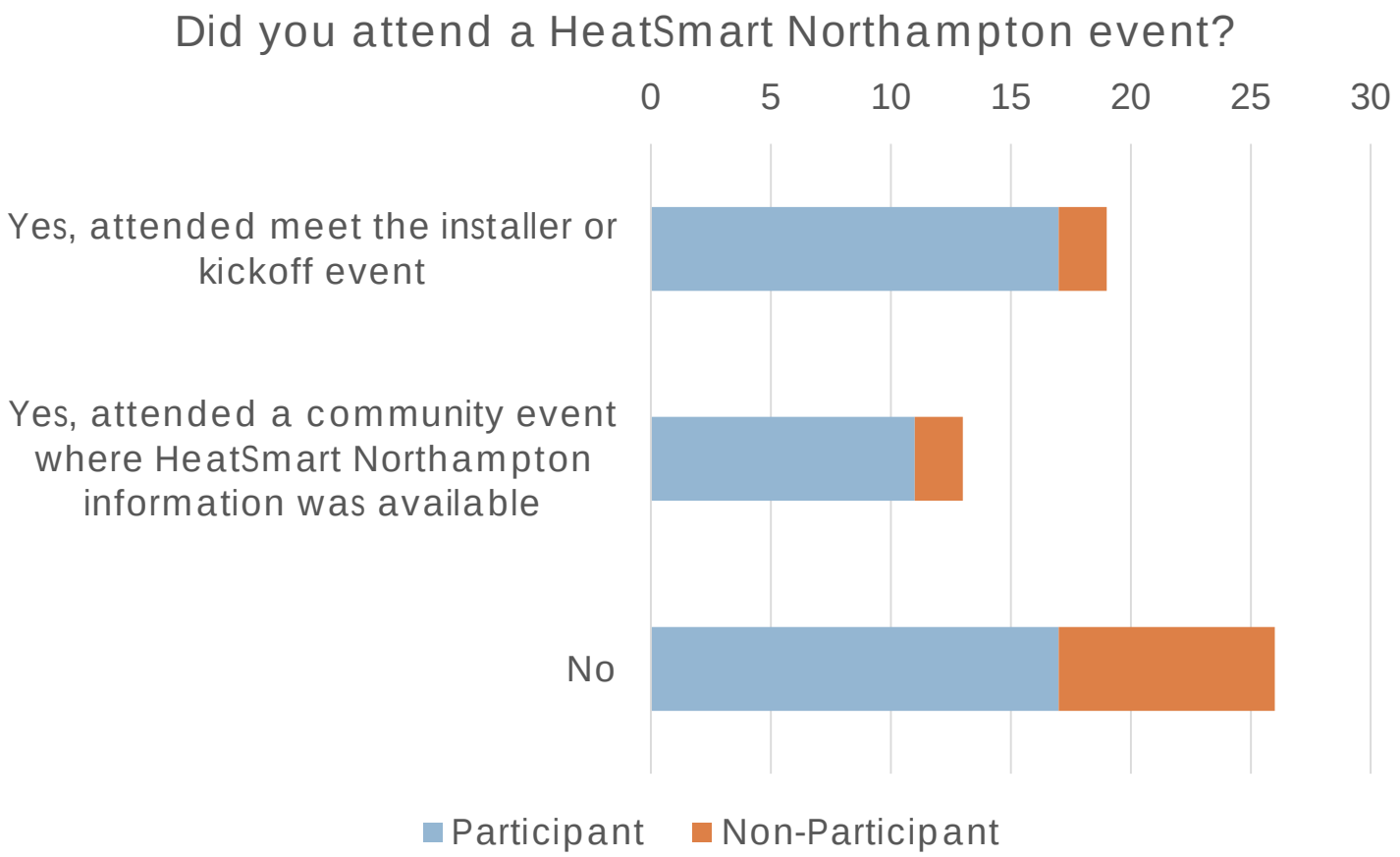
Reasons for not signing a contract/signing up for HeatSmart





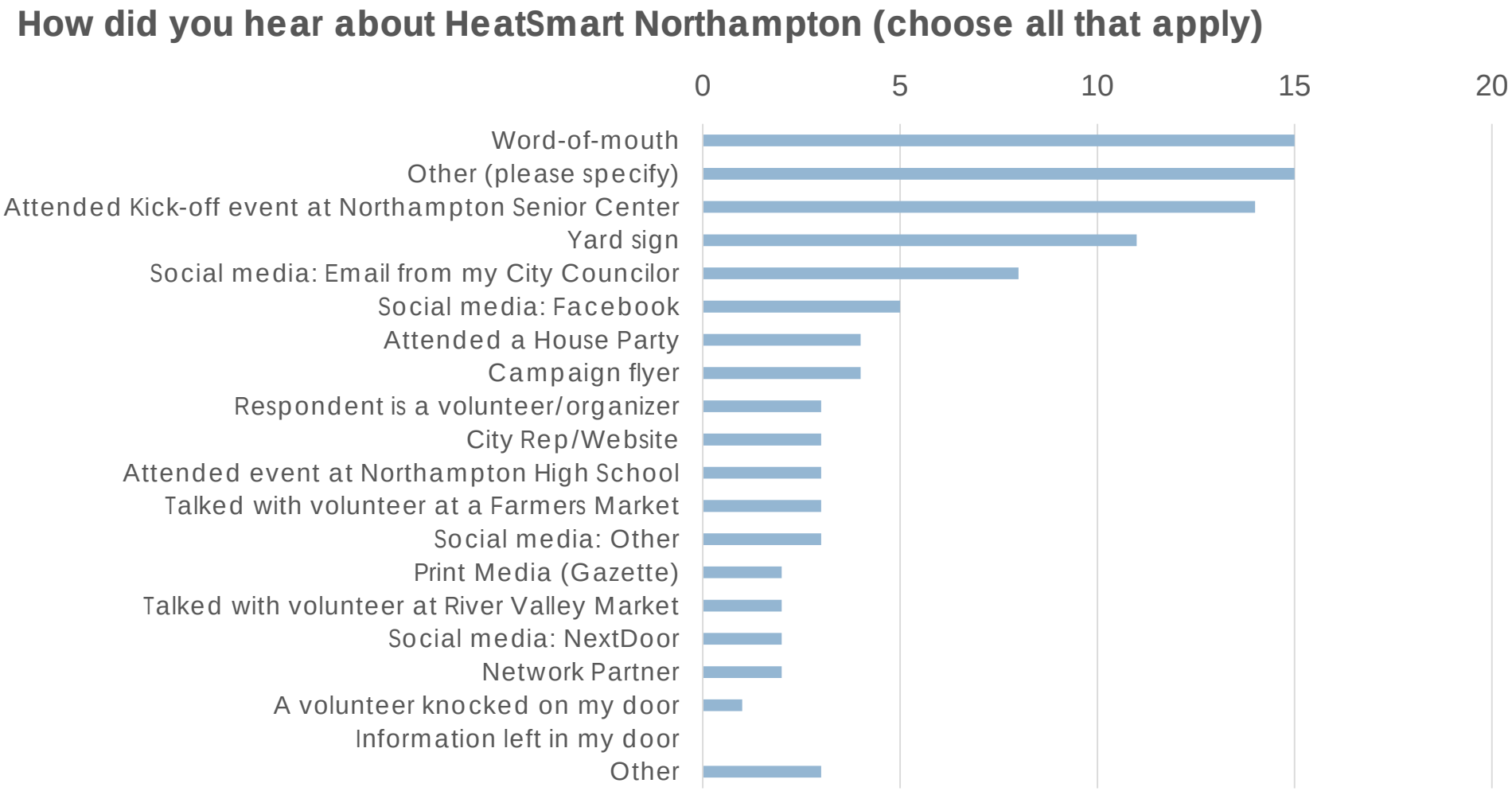
» Coded open responses, totals may not add up to total relevant respondents

Outreach efforts



- Most participants attended a “meet the installer” event or a community event where HeatSmart Northampton was present
- Most non-participants did not attend any such event

Outreach efforts (cont.)



What could we do better next time?

1. A step-by-step to-do list, including the financing steps. 2 More outreach to Hamp - in addition to NoHo outreach
I thought it was a well run program and info got out to homeowners. Not sure how responsive it could be for renters but think it would be important to target a meeting at appropriate location. Certainly a great deal for an older house with electric baseboard heat sucking on the grid. I don't think you needed one dedicated company given that are a number of qualified operators in the area - but maybe having a selected installer also gave folks an added push to at least get the ball rolling. We really appreciated knowing about MassSave, CEC, etc.
more competitive pricing.
be open to offering heat pumps to homes with natural gas
I found out that people on fuel assistance (not me) might be eligible for free installation. I didn't see anything about that in the advertising
Maybe a little more information about the average size of the machines for the square footage.
I would like to know about a future offer!! I hope it will be well publicized.
More installers options
More extensive explanation by Selected installer and site visit by installer/heat smart staff about a week after installation
Call consumer back
Please have more options of companies.
Provide a few installers to choose from.
Nothing.

What could we do better next time?

find better ways to publicize it, make clearer the actual steps involved & timeframe to expect
We have experienced higher electric usage with the mini-splits than with our electric baseboard heat that we used previously. We have had meetings with the installer and with the Mitsubishi rep. Each time, we hear that the pumps are working properly and will save money "over time" but also hear a myriad of excuses why they haven't been efficient to date, some due to the extreme cold, then the "relative humidity" also due to the placing of the units and the design of the house. Why weren't all these issues explained before. The HeatSmart staff person came out to this meeting but really did not add any information that would help us or say that the HeatSmart group is in any way accountable if a consumer has a negative experience with this technology. After spending a lot to install this system, we are continuing to use it through this heating season to see if it saves electric use, but our electric baseboard seems to have served us more efficiently than the mini splits so far.
Initial meeting could have broken up into small groups after presentation so individuals could ask more specific questions.
effective link between enerGsave and mass save assessment scheduling
provide more information about ways to save energy in your building - Mass save does not provide useful information about improving the building
Explain energy savings and relation to solar energy use.
Not sure. Again, my main problem was not getting started early enough. I did have to make more than one call to the Installer before I got a response. Don't think that there was any other central contact for the HeatSmart Program with the city. Don't understand the relationship between HeatSmart and MassSave and why the latter seemed to have no awareness of the program.
If the program ran from July through December, the benefits of installation for both cooling and heating would be apparent. Word-of-mouth is more active in summer and there would be more opportunities for tabling at public venues.
There were computer problems, cord problems--stuff like that made the meeting late in starting. Everything should be ready to go!
Provide more options- eg whole house furnace/ac with detailed info about the pros and cons of various systems
MassCEC has been slow and chaotic about processing the rebate on my system. Nearly four months after I paid for my system, I still don't have my rebate in hand. I've had to call MassCEC multiple times and resolve their misinterpretation of my rebate application.
Nothing. The whole experience was very good!

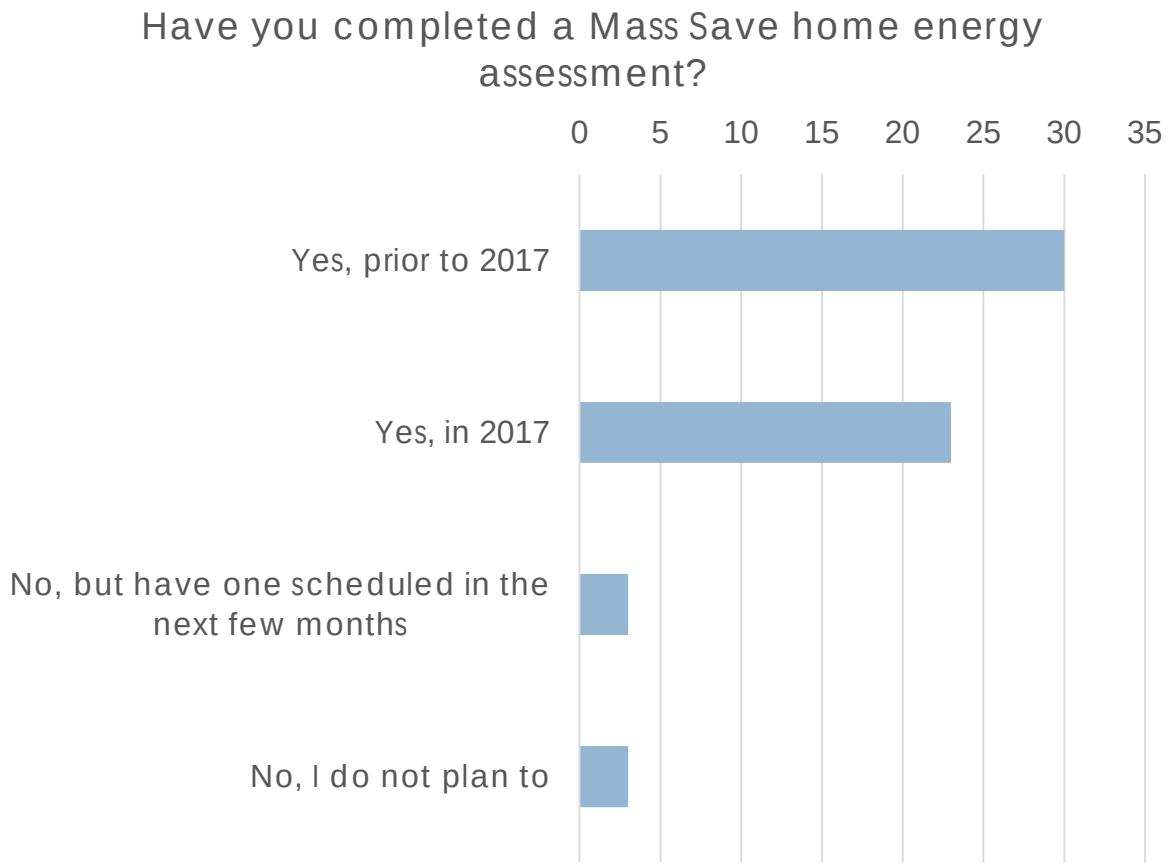
Any other feedback for us?

some people were very interested in this but couldn't justify the cost and others didnt even want to be bothered with talking about it and others were the "GET OUT OF MY YARD! " types. So I'm not sure what the best way to approach this is.
I would still like to know about options to pursue this.
Results are cost effective for me. Good experience.
I will be interested if this is offered again. Maybe I will be able to afford it. When I heard about the program this time, I only had a short time to make a decision.
How did you decide on this vendor? Was it an open and fair pricing? Were HeatSmart customers encouraged to get outside quotes?
We are still interested.
Good job!!
Would still like to have a sense for ball park estimate for installation of heat pumps at my home.
Let people know what role this group actually plays- are they just promoting this technology without holding Mitsubishi or the installers accountable for problems that consumers might have?
Please, keep it going
Since I was a volunteer, I was trained/informed before the program started so I couldn't answer the #10 questions.
Dave Musante had the BUN program years ago. Try this program again at a later date..
it would be more helpful to put it in the context of what a home/condo owner can do to improve the energy efficiency of their building
Would definitely be interested in participating with HeatSmart and the Installer if there is another round.
Will you continue the program next fall/winter?
I was very frustrated that we got our bid from Espress in Oct, made clear that we wanted to proceed, but were unable to schedule the required mass save assessment before applying for 0% loan
I really liked working with Mark.
The program was limited to mini splits rather than broader range of options.

What other programs or services would you like to see the City offer for energy-efficiency and renewable energy? (open response)

solar panels program that works in a similar way as heatsmart would be great	Solar
0% or low interest loans for energy retrofits that dont fit into the Mass Save programs. Energy education in the schools (age appropriate) to make the younger generation more aware of the energy they are using. (not sure how to reach adults). Incentives to replace gas cook tops with induction (maybe even in restaurants)	More help with energy efficiency, especially for low to moderate income families and those who live in apartments or condos. My condo association refused to support energy efficiency upgrades until we got a new manager.
Neighborhood solar.	More small cars for the city employees. Way to many 4x4 vehicles in use. They're only needed for a couple days out of the whole year.
SOLAR for all.	resources to actually assess a building and recommend businesses that could address the issues found
revolving rooftop solar program with competitive pricing. Community solar options.	Free vermiculite removal
More public transport, ride sharing, bicycle lanes, inter-city public transport	Not sure
Maybe some publicity on what people are doing and have done, so other people can relate to the idea, and it becomes more concrete. It's nice reading about deep energy retrofits in the paper, but I think people with ordinary budgets & time limits need some inspiration too.For instance, showing these are the kinds of things other people in Northampton are doing to contribute to lowering our town's carbon footprint (and saving money too!)	"Insulation Another round of solar would be great, we missed it the first time" covered bike racks Options for EE resources not provided by Mass Save
Solar options	Window replacement. Though I believe that I have seen that MassSave does support some other programs, such as water heaters.
Solar Northampton again	Very pleased to read that Northampton is considering participating in a regional effort to choose renewable electricity for residents.
Workshops around improving an existing home in terms of retrofitting insulation, etc.	Roofing
I have been impressed with the state and utility supports over the last 10 years. And the efforts of the city. I would love help in just understanding how utilities work and the energy sourcing options to decipher the barrage of mailings and phone pitches to change providers. So if it makes sense as a community to purchase electricity or solar, etc.	I would like to see peak demand charges or other efforts to reduce peak energy demands through pricing incentives. Also public education about options like drain water heat recovery systems or passive solar systems.
Do solar again	Options for installing solar panels not on the roof of my home.
Solar panels and batteries	Solar for multi-unit residences
More energy efficiency and more access to air source heat pumps.	coordination of programs was loose

Misc. Info


Have you completed a Mass Save home energy assessment?
0
5
10
15
20
25
30
35
Yes, prior to 2017
Yes, in 2017
No, but have one scheduled in the next few months
No, I do not plan to