



Evaluation of the Home Energy Squad's Residential Engagement Pilot

*For CenterPoint Energy and the Center
for Energy and Environment*

A P R I L 2 0 1 8

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Summary

The Home Energy Squad provides home visit services to help homeowners identify improvements to increase energy efficiency. From 2015-2016, the Home Energy Squad piloted additional services to make it easier to complete attic insulation, attic air sealing, and wall insulation. Wilder Research conducted a web survey and follow-up interviews with homeowners to evaluate these services. High level findings include:

- Reducing energy bills and increasing home comfort were the biggest motivators for those who completed upgrades or are still considering them.
- Finances, timing, and connection to contractors were important in enabling homeowners to complete upgrades when they did.
- Receiving recommendations from experts with no financial interest, receiving an emailed report, and receiving a cost quote were the three most helpful Home Energy Squad services.
- The most significant barriers to completing the upgrades were finances and prioritizing other home improvements.
- Homeowners generally were very satisfied with the Home Energy Squad experience, particularly with the staff and with the services provided.

Introduction

The Home Energy Squad is a joint program offered by Xcel Energy and CenterPoint Energy and implemented by the Center for Energy and Environment. The Home Energy Squad helps homeowners¹ identify ways to increase energy efficiency in their homes. Homeowners can schedule a visit with the Home Energy Squad, which includes a professional inspection of the home (including a blower door test), direct installation of immediate energy-saving measures (such as high efficiency lightbulbs, weather stripping, and programmable thermostats), and recommendations on potential longer-term energy-saving upgrades.² For the longer-term energy-saving upgrade recommendations, the Home Energy Squad:

- Creates, walks through, and emails a detailed report describing the recommended upgrades and the energy homeowners could save
- Discusses information about available rebates for the recommended upgrades
- Discusses possible financing options (when available)

In 2015, the Home Energy Squad began piloting services intended to make it easier for homeowners to complete the larger recommended upgrades of attic insulation, attic air sealing, and wall insulation. These services include:

- Calculating and providing a cost quote for the recommended upgrades
- Providing a list of vetted contractors to the homeowner for completing the recommended upgrades
- Providing the option to schedule the recommended work
- Being a third-party, single point of contact for any follow-up questions or scheduling
- Following up with reminders (via phone or email) from the energy advisor

¹ Services are usually provided to homeowners, but renters may access services as well. In our web survey, 10 respondents were renters.

² Other services include (when appropriate): CFL/LED bulb installation, programmable thermostat installation and program set up, door and attic hatch weather stripping installation, high-efficiency showerhead and faucet aerator installation, water heater temperature assessment and adjustment, water heater blanket installation, attic and wall insulation inspection, blower door test, thermal image testing, combustion safety test, and carbon monoxide check.

In 2017, CenterPoint Energy and the Center for Energy and the Environment contracted with Wilder Research to evaluate these additional pilot services and investigate barriers to and motivations for completing the recommended upgrades. The evaluation included both a web survey and interviews with homeowners who had received these pilot services and received at least one recommendation for upgrades as a part of their visit. The web survey included all participants that fit these criteria and who provided an email address (970), and we received 300 completed surveys (response rate of 31%). Wilder then conducted 40 telephone interviews to dive deeper into themes that emerged in the web survey results, speaking both with participants who had completed recommended upgrades and those who had not. For more detailed information about the methods, please see the Appendix.

In this report, we begin by presenting the energy efficiency upgrades that homeowners were considering before their visit, compared to what they completed after the visit. We also compare completed upgrades with the upgrades that the Home Energy Squad recommended. From there, we review the input from two groups of homeowners – first those who completed at least one recommended upgrade, and then those who have at least one upgrade left to complete – and discuss these groups’ perceived benefits and barriers to completing the recommended upgrades. See Figure A1 in the appendix for an overview of respondent grouping. We then present respondents’ knowledge of and experience with energy efficiency rebates and financing options. Finally, we review respondents’ overall feedback on their Home Energy Squad experience. Quotations from the follow-up interviews are interspersed throughout the report.

Pilot study results

Participants' consideration and follow-through on energy efficiency upgrades

During the Home Energy Squad visit, staff walk homeowners through a variety of opportunities to improve their home's energy efficiency. For many homeowners, this visit offers an introduction to energy efficiency opportunities that they would not otherwise have considered, while other homeowners scheduled the visit with some upgrades already in mind.

Prior to the visit, half of participating homeowners (53%) were considering attic insulation, and of those who were considering attic insulation, half of them (51%) completed that upgrade (Figure 1). In addition, of the homeowners who were *not* previously considering attic insulation, one-quarter of them (27%) completed the upgrade (the highest completion rate for any upgrade by those who were not previously considering it). Attic air sealing also had high rates of completion, both for the 37 percent who were already considering the upgrade (57% of them completed the upgrade), and for the 63 percent who were not considering it (24% of them completed the upgrade). The Home Energy Squad has put particular effort into helping homeowners complete those upgrades, and these findings indicate that many homeowners follow through on upgrades, even those who were not previously considering them.

1. Post-visit upgrade follow-through by pre-visit upgrade consideration

Upgrade	Considering upgrades prior to HES visit?		Completed upgrades?		Upgrade	Considering upgrades prior to HES visit?		Completed upgrades?	
	Yes	%	Yes	%		Yes	%	Yes	%
Attic insulation (N=270)	Yes	53%	Yes	51%	Heating System (N=276)	Yes	20%	Yes	43%
			No	49%				No	57%
	No	47%	Yes	27%		No	80%	Yes	12%
			No	73%				No	88%
Attic Air Sealing (N=250)	Yes	37%	Yes	57%	Windows (N=280)	Yes	41%	Yes	30%
			No	43%				No	70%
	No	63%	Yes	24%		No	59%	Yes	15%
			No	76%				No	85%
Wall Insulation (N=264)	Yes	35%	Yes	41%	Water Heater (N=269)	Yes	20%	Yes	47%
			No	59%				No	53%
	No	65%	Yes	19%		No	80%	Yes	19%
			No	81%				No	81%

Additionally, homeowners’ upgrade intentions tended to shift away from lower-impact upgrades after the visit. Before the visit, 41 percent of respondents were considering window upgrades, but after the visit, only 30 percent of them completed the upgrades (the lowest completion rate of any group that was previously considering an upgrade). Home Energy Squad often discourages window upgrades, or encourages the prioritization of other upgrades, because window upgrades offer a relatively small gain in energy efficiency compared to the cost of the upgrade.

Completion rates of recommended upgrades

The Home Energy Squad pilot services focused in particular on improving follow-through rates on attic insulation, attic air sealing, and wall insulation. The remainder of this report focuses on services and perspectives around these three upgrades.

The web survey reminded participants of the recommendations on file from their visit and asked them which (if any) of the recommended upgrades had been completed. Forty-four percent of respondents with recommended upgrades completed at least one upgrade. For each upgrade, 35 to 43 percent of respondents who received recommendations completed them (Figure 2).

2. Recommended and completed upgrades

Upgrade	Recommended upgrade (N=300)		Completed upgrade?		
	n	%		n	% ^a
Attic insulation	232	77%	Yes	98	43%
			No	131	57%
Attic air sealing	258	86%	Yes	97	39%
			No	154	61%
Wall insulation	150	50%	Yes	52	35%
			No	97	65%
At least one upgrade recommended	300	100%	Yes	128	44%
			No	164	56%

Note: To qualify for a rebate, homeowners who did attic insulation also had to do attic air sealing, though homeowners could do attic air sealing without attic insulation. Thus, the number of homeowners who completed attic air sealing should be equal to or greater than those who completed attic insulation. It is possible that homeowners did not realize they were also getting attic air sealing when they received attic insulation, and differences may arise since it is self-reported data.

^a Percentages exclude those who selected “don’t know” and who did not answer if they had completed the upgrade.

Feedback from participants who completed upgrades

Motivations

For homeowners who had completed at least one recommended upgrade, the web survey asked them about several factors that may have contributed to their decision to follow through with the upgrade(s). Over three-quarters of these homeowners (78%) said reducing their energy bills factored into that decision “a lot,” and 41 percent said this was the biggest factor in their decision. In addition, 63 percent identified increasing home comfort as a factor that mattered “a lot”, and 30 percent chose this as their biggest motivating factor (Figure 3).

3. How much each factor contributed to the decision to complete upgrades (At least one upgrade completed)

Motivation factor (N=128)	A lot	A little	Not at all	Biggest factor
Reducing my energy bills	78%	22%	0%	41%
Increasing home comfort	63%	32%	5%	30%
Reducing my environmental impact	55%	40%	5%	12%
Preventing ice dams or moisture/mold issues	56%	26%	18%	11%
Increasing my home's value	26%	58%	16%	2%
Receiving a rebate	31%	36%	33%	2%

Note: This table excludes those who said something else contributed to the decision.

To understand more about homeowners' motivations, we asked interview participants who had completed upgrades about why they decided to move forward with the upgrades. Nearly half of the interviewed homeowners echoed the sentiments about wanting to reduce energy bills and increase home comfort (9/20 mentioned each factor).

Our house when we moved in in 2013 was pretty noticeably drafty. Our heating bills were higher than we thought they needed to be, but it also didn't feel like our house was just warm. Even when the thermostat would get to the right temperature, it would feel chilly around the edges. Having been told that the windows probably weren't the bigger part of that, we went ahead with the insulation - we actually didn't know that air sealing, etc. - was going to be part of the package. That was something the Home Energy Squad brought to our attention.

The interview also asked about factors that may have made it easier for them to complete the upgrades when they did (as opposed to earlier or later). Most homeowners (16/20) reported finances as a primary reason why they completed the upgrades when they did. Six mentioned available financing, three called out the rebate specifically, four noted they were able to save for it, and three mentioned other financial assistance.

We decided to go ahead with [insulating] in particular because the city of Minneapolis was offering 0% financing for 5 years. Really the Home Energy Squad deserves the bulk of the credit for this because we didn't have to go get a contractor, the quote was lower than we thought, the work was completed within what we were quoted ... They made it very easy - it was surprisingly easy compared to what we thought it was going to be.

Interview participants also noted that timing was important. Some were doing other projects at the time and could add this in, others wanted to get an upgrade done in a particular season to get in front of hot/cold temperatures, and for some it was relevant to the timing of other offers, like financing.

I would say the financing was probably the big one. I think the program was expiring shortly after - within months or a year. We knew if we waited too terribly long the financing option would go away. Also, it was sort of right the front end of winter. I think the Home Energy Squad came in late October/early November and we were able to schedule the work for the week before Christmas- we were able to get out in front of the winter. If we hadn't have done it then, we probably would've waited until summer or maybe even the following year.

Interviewees also noted that the Home Energy Squad had made it easy for them to complete the upgrades at the time. Nearly half (9) mentioned how the connection to contractors helped them complete the project at the time.

I think he gave us the name of someone and connected us, and that person called. It was seamless as far as setting up or using a suggested person that he recommended, so that made it easy. And I don't recall there being a long wait time. I wasn't certain how much needed to be done, we just knew that ice dams are indicative of needing something done. We didn't want to have random bids without knowing if there was other space in our house that maybe we are missing as far as needing attention.

Helpful Home Energy Squad services

The Home Energy Squad pilot program included several services designed to ease the process of completing upgrades to attic insulation, attic air sealing, and wall insulation. The vast majority of respondents identified nearly all of these services as at least somewhat helpful (Figure 4). In particular, 91 percent of web survey respondents said it was “very helpful” that the Home Energy Squad is a third party providing recommendations without any financial interest in which upgrades they complete, and 31 percent identified this as the most helpful aspect of the pilot. They also found receiving the emailed report and the cost quote to be helpful (23% said each was the most helpful). The additional follow-up services like being a single point of contact, scheduling the work, and receiving reminders were rarely identified as the “most helpful,” though with the exception of receiving reminders, at least 60 percent said they found each service to be “very helpful.”

4. How helpful was each service to help you understand and take advantage of opportunities to improve your home’s energy efficiency? What was the most helpful? (At least one upgrade completed)

Service	Very Helpful	Somewhat helpful	Not helpful	Most helpful (N=124) ^a
Receiving recommendations from an expert with no financial interest in which upgrades you complete (N=120)	91%	9%	0%	31%
Receiving an emailed report describing the recommended upgrade(s) and the energy you could save (N=124)	79%	21%	0%	23%
Receiving a cost quote for the recommended upgrade(s) (N=124)	74%	24%	2%	23%
Not having to contact contractors and get quotes on your own (N=114)	75%	19%	6%	14%
Receiving information about available rebates for the recommended upgrades (N=119)	70%	27%	3%	6%
Having a single point of contact for any follow-up questions or scheduling (N=113)	71%	28%	1%	2%
Being able to have the Home Energy Squad schedule the recommended work for you (N=104)	62%	30%	9%	1%
Receiving reminders (via phone or email) from the energy advisor (N=104)	37%	48%	15%	1%

^a Percentages may not sum to 100 percent due to rounding.

Web survey respondents were also asked if they would still have completed the upgrades if the aforementioned services were not available. About one-third (34%) said they would still have completed at least some of the recommended upgrades, 35 percent didn't know if they would've completed the upgrades, and 31 percent would not have completed the recommended upgrades if not for the additional pilot services (Figure 5).

5. If you had not received the services that you identified as helpful, would you still have completed the recommended upgrade? (At least one upgrade completed)

Service (N=123)	n	%
Yes, I would have completed the recommended upgrades in entirety	15	12%
Yes, I would have partially completed the recommended upgrade(s)	27	22%
No, I would not have completed the recommended upgrade(s)	38	31%
Don't know	43	35%

Interview participants who had completed at least one upgrade (N=20) were also asked what was helpful about the visit or follow-up process, and half mentioned receiving the report and receiving a cost quote (10 participants each). Connecting them to contractors was also helpful (6). Seven mentioned that the Home Energy Squad was an independent third party or that they trusted and felt comfortable with the Home Energy Squad. Five interviewees mentioned that they appreciated having the Home Energy Squad walk through things and that they thought the Home Energy Squad made the process easy.

I think having the customized report first made us feel confident that it was a good decision - seeing our areas of need and that our walls were the biggest issue. Having them explain it was super helpful. And having the prices associated too, that factored into the decision. I don't feel like the rebates were...I mean, it was nice, don't get me wrong, but that wasn't make or break.

They broke down the cost for everything, which was helpful, just because if we wanted to complete the work in sections we could have done that, it was flexible, there was no pressure- I also found that to be very helpful. The whole process was very easy. I mean truly, it was so easy to schedule, it was so easy to be in contact with different people. It was a very informative and good experience. They made it easy all the way around.

Interview participants were also asked how big of a role the Home Energy Squad had in helping them follow through with the upgrades. Fourteen respondents said the Home Energy Squad played a big role, five said the Home Energy Squad played a small role, and only one said the Home Energy Squad played no role. Six respondents explicitly said they would not have done the work if it were not for the Home Energy Squad.

Contractors

The Home Energy Squad pilot program included several features intended to provide homeowners with a convenient way to complete the recommended energy efficiency upgrades. Through a partnership with three contractors, the Home Energy Squad was able to provide a cost quote for the recommended project and even work with the contractor to manage the scheduling process for the homeowner. With these services available, only nine percent of web survey respondents who completed an upgrade reported that they looked for other contractors. Many of these homeowners said they wanted to look for a lower price or seek a second opinion on how to complete the recommended upgrades (Figure 6).

6. Why did you look for or consult with other contractors? (At least one upgrade completed)

Reason (N=27)	n	%*
To look for a lower price	13	48%
To seek a second opinion on how to complete the recommended upgrade(s)	13	48%
To seek a second opinion on whether the recommended upgrade(s) was needed	10	37%
Already had a preferred contractor	5	19%
Someone else recommended a particular contractor	2	7%
Another reason	3	11%

Note. Nine percent of web survey respondents who completed an upgrade looked for other contractors, so the N is relatively small. Respondents were allowed to select all that apply, therefore percentages do not sum to 100%.

Across all contractors, nearly three-quarters (73%) of web survey respondents who had completed a recommendation (N=119) were very satisfied with their contractor, while 22 percent were somewhat satisfied.

Benefits and unintended consequences of upgrades

Finally, interview participants were asked about the benefits they saw as a result of the upgrades. Of the 20 interview participants who had completed upgrades, 17 noted improved home comfort, especially making their home warmer, even if that had not been a motivation for completing the upgrades.

Definitely more comfort, our house doesn't feel so drafty. In our old house when the temperatures got really cold, some of the outlets on the exterior walls kind of froze in; like ice actually froze through them because the walls were not insulated. So obviously after they insulated the walls, nothing has ever happened like that since. Definitely comfort wise, it feels much warmer. You touch the walls and they're not icy cold...and just knowing that our walls are insulated kind of has a psychological comfort aspect to it as well.

Seven of these homeowners also mentioned the benefit of increasing energy efficiency or less air leaking from their home.

I have a tall house and a blue roof. For 18 years in the winter, I would always admire my house and acknowledge my white little stucco house, the snow, the blue roof against the blue sky. After the first sizable snow last year, I remember driving toward my house and thinking something is weird here and I realized the snow was not melting off my roof because of all the heat escape - before I would always have a blue roof and everyone else would have a snow-covered roof. I realized the snow was not melting in that telltale fashion of heat escape where the roof is trimmed in white and the rest of the roof is exposed - I thought oh my God, it's because it's no longer losing heat! That was cool.

Though many of these homeowners were motivated by reducing energy bills, only four noted reducing energy bills as a salient benefit. However, six were either relatively new to their homes or had more recently completed the upgrades so they were not really able to compare benefits, especially utility costs, across years or seasons.

Several interview participants noted the same benefits that were identified as motivations: preventing ice dams/moisture/mold issues, lowering environmental impact, and increasing home value. In addition, a few noted that their homes were quieter due to insulation, and noted less stress on or use of their appliances (i.e., the furnace or A/C is turning on less frequently).

We had one summer without insulation and we could tell that summer compared to the following that we were running our A/C less, and it did feel like the A/C was staying in the house more. We had never experienced a winter without [insulation], which might have been more dramatic, but that was something I was surprised by, was that it had that much impact on our A/C too. Our bedroom is upstairs in the attic and that summer we had a window unit because it would get so hot up there and after doing the wall insulation we didn't even use it after that.

Interview participants were also asked about any unintended consequences they may be experiencing. Only five interview participants mentioned any negative unintended consequences of the work, including:

- Smells linger longer because it is less breezy, possibly due to insulation
- Wasn't prepared for the amount of construction for the insulation
- A leak in the roof
- Anticipated it being warmer in the winter, but did not anticipate it also staying warmer in the summer
- Dots on the walls from wall insulation

One of the downsides I hadn't anticipated that I should have is that also in the summer, it takes longer for the house to get cool again - if I'm cooking in the kitchen, and it gets hot in the kitchen, it's really hard to get the house cool again since we don't have air conditioning, but that's mostly mitigated by running some box fans, so that's not too bad. The house is really noticeably well insulated.

We still have all the polka dots on our walls from where they blew in the insulation but we have 3 small kids and haven't had time. That was something we intended to be better about but haven't been. If someone were going to do it, if you can't live with polka dots on the walls, be aware this is going to have to be a thing you have to jump on.

Finally, one respondent mentioned the unexpected result that the Home Energy Squad has become a talking point with friends and neighbors.

Feedback from participants who did not complete upgrades

More than half of the web survey respondents (56%) had not completed any of the recommended upgrades, while another 14 percent completed only some of the recommended upgrades. These respondents were asked about their plans to complete these upgrades in the future, their barriers to doing so, and which Home Energy Squad services were most helpful to them in understanding and improving the energy efficiency of their homes.

Future plans to complete recommended upgrades

Of the 204 homeowners who had completed none or only some of the recommended upgrades, 118 said they were planning to complete the remaining upgrades or weren't sure. For these respondents, reducing energy bills was a primary consideration, followed by increasing home comfort and reducing environmental impact (Figure 7).

7. How much are you considering the following in your decision to complete the recommended upgrade(s)? (No or not all upgrades completed)

Motivation factor (N=117-118)	A lot	A little	Not at all
Reducing my energy bills	66%	31%	3%
Increasing home comfort	57%	36%	8%
Reducing my environmental impact	55%	33%	12%
Preventing ice dams or moisture/mold issues	50%	27%	23%
Increasing my home's value	33%	42%	25%
Receiving a rebate	32%	38%	31%

Note: This table excludes those who said something else contributed to the decision.

Additional Analysis:

Reducing energy bills, increasing home comfort, and reducing environmental impact were top three considerations among both those who did not complete any recommendations and those who had completed some recommendations. While “reducing my energy bills” was still the top response for both groups, the difference between the percentage of homeowners saying they were considering it “a lot” was statistically significant (85% (N=98) of those who completed some recommendations, and only 62% (N=20) of those who did not complete any recommendations; $p < 0.05$). For more detailed information about differences between those who had not completed any recommendations and those who had completed some recommendations, see the Appendix.

Barriers

Of the 204 homeowners who had completed none or only some of the recommended upgrades, 86 said they had no plans to complete the remaining upgrades. For most of these respondents, the justification was either that they are prioritizing other home improvements (33%) or cannot afford the expense (26%) (Figure 8).

8. Why are you not planning to complete the recommended upgrade(s)? (No or not all upgrades completed)

Reason (N=86)	A barrier	Main barrier
I am prioritizing other home improvements at this time	44%	33%
I cannot afford the expense at this time	43%	26%
I don't think the benefits justify the cost	22%	12%
I don't believe my home needs this upgrade	12%	7%
I moved or am planning to move soon	9%	7%
I don't have time to make the arrangements for the contractor	6%	1%
Another reason	21%	15%

Note. 18 respondents had completed some, but not all recommended upgrades.

Additional Analysis

When asked about the main reason they are not planning to complete the recommended upgrade(s), homeowners who had not completed any recommended upgrades were more likely to list "I cannot afford the expense at this time" (31% (N=68) versus 6% (N=18) of those who had completed some; statistically significant difference $p < 0.05$).

Interview participants who had not completed any or had only completed some of the recommended upgrades (28 interviewees) echoed the same sentiments of being unable to afford the expense at this time (9), or prioritizing other home improvements (6).

Additional barriers included:

- Something else would need to get done to complete the upgrade (like putting in vents/fans) (7 responses)
- I don't want to drill holes in my house (6)
- I have knob and tube wiring (4)
- Adding insulation will make a mess (3)

- The Home Energy Squad didn't fully look at or talk about this piece, so I wasn't as comfortable with the upgrade (3)
- I'll be doing additional work (like an addition or refinishing the attic), so it makes sense to wait (2)
- I wasn't happy with the contractor (2)

Probably just the amount of money - cost. It's a lot of money to do. Also I don't really like how it looks when people redo their insulation on the outside when they drill holes on the outside of the house. It looks stupid. I prefer to do it on the inside and it's cheaper, but I feel like it's going to be a big mess inside. I don't mind the mess, but it's planning for that mess.

The first one is, I have a limited income this year and I'm not sure it will be any better next year, so there isn't the cash flow to do that. Second, when they do wall insulation they are either making your exterior stucco look pretty not good, or you have to poke holes inside your house and have somebody redo portions of your wall and the painting, so I don't remember the cost off hand, but yeah it's a lot of work and you have to question whether there's the trade off in the value...And the mess as well. You would just have to be willing to deal with the interruption of a major project; every room in your house would be disrupted.

When asked if there were things the Home Energy Squad could do to assist them in completing the upgrades, half of the interview participants (14/28) said there was nothing more the Home Energy Squad could do. Five interview participants asked for more information on financing, and three people each asked for updated information on rebates, help connecting the homeowner with contractors, and information on the cost/benefit comparison for the recommended upgrades.

What was helpful from Home Energy Squad

Among web survey respondents who had not completed any of the recommended upgrades³, the Home Energy Squad services were rated as helpful, though not quite as helpful as they were by those who completed upgrades. Across nearly all of the services, the vast majority of these respondents rated the service as at least somewhat helpful. Again, the top features were the recommendations from an expert with no financial interest in which upgrades the homeowner completes, the emailed report, and the cost quote (Figure 9). However, receiving an emailed report was more likely to be listed as the most helpful (by 41% of those who had not completed recommended upgrades, and 23% for those who had completed recommended upgrades). Many respondents noted that they found the report helpful so they could keep a copy on hand to return to it later if they wanted to complete the recommended upgrades.

9. How helpful was each service to help you understand and take advantage of opportunities to improve your home's energy efficiency? What was the most helpful? (No upgrades completed)

Service	Very Helpful	Somewhat helpful	Not helpful	Most helpful (N=155) ^a
Receiving an emailed report describing the recommended upgrade(s) and the energy you could save (N=155)	63%	35%	2%	41%
Receiving a cost quote for the recommended upgrade(s) (N=145)	61%	37%	3%	25%
Receiving recommendations from an expert with no financial interest in which upgrades you complete (N=141)	81%	17%	2%	21%
Receiving information about available rebates for the recommended upgrades (N=125)	61%	36%	3%	5%
Having a single point of contact for any follow-up questions or scheduling (N=119)	64%	32%	4%	3%
Not having to contact contractors and get quotes on your own (N=110)	55%	37%	8%	3%
Being able to have the Home Energy Squad schedule the recommended work for you (N=90)	43%	44%	12%	1%
Receiving reminders (via phone or email) from the energy advisor (N=121)	29%	46%	25%	1%

^a This total excludes those who had all items as N/A (3) or did not select any services as helpful (1). It also excludes those who said something else was most helpful (2).

³ Respondents who had completed some, but not all recommended upgrades were included in Figure 4 as they had completed at least one recommended upgrade.

Participant perceptions of rebates and financing

Use of rebates and financing

Web survey participants who had completed at least one of the recommended upgrades (N=128) were asked if they had applied for a rebate or used financing to complete the work. Only 68 percent said they applied for a rebate, though all participants should have received a rebate for attic insulation, attic air sealing, or wall insulation. The homeowner may have minimal involvement in the rebate application process for these upgrades as the contractor is responsible for much of the paperwork, so the homeowner may not recall that they received a rebate.

Fifty-seven percent of homeowners said the Home Energy Squad discussed financing with them, and of those, only about one-third (37%) used financing. Among those 26 respondents who used financing, 85 percent of them said it factored “a lot” into their decision to complete the work, indicating it was a very important factor for those who used it. When those who did not remember having or did not have the Home Energy Squad discuss finances with them (N=53) were asked if they would have used it, 23 percent said probably or definitely yes, 23 percent said they didn’t know, and 55 percent said probably or definitely not.

Finally, based on input from respondents who did not complete any recommended upgrades, it seems that financing availability may not have made it possible for many of them to follow through on the recommendations. Of these respondents, only 19 percent said they would be “a lot” more likely to complete the upgrades if the Home Energy Squad had offered them competitive financing options, though an additional 39 percent said they would be a little more likely to complete the upgrades with competitive financing options available.

Knowledge of rebates

Web survey respondents were asked a series of questions about rebates, including their prior knowledge and the perceived value of the rebate. About half (48%) said they were familiar with rebates prior to the Home Energy Squad visit, and half agreed that they “learned a lot” about energy efficiency rebates through the process. Almost all (90%) said they would look for rebates when considering future home improvements (Figure 10).

10. Learning about rebates from the HES visit

Service	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Before the visit, I was familiar with rebates for energy efficiency improvements. (N=280)	8%	40%	22%	21%	9%
I learned a lot about energy efficiency rebates through this process. (N=283)	11%	39%	34%	14%	2%
I will look for rebates when considering future home improvements. (N=283)	37%	53%	7%	3%	<1%
The rebate was too small to make a difference in my decision making process. (N=241)	4%	27%	35%	29%	5%
The rebate was more generous than I expected it to be. (N=230)	3%	11%	57%	25%	3%

Note: This table excludes don't know responses

The follow-up interviews contained a series of questions to clarify how much homeowners knew about rebates. Almost all interview participants said they were at least somewhat familiar with utility rebates (95%), though only 18 percent said they were very familiar with them.

Interview participants were then asked to list any energy efficiency upgrades that they might get rebates for. Three-quarters (75%) mentioned a furnace and 63 percent mentioned a water heater. Interestingly, only 33 percent mentioned insulation work, even though this would have been emphasized during their Home Energy Squad visit (Figure 11).

11. Could you list energy efficiency upgrades that you might get rebates for? (Interviews)

Upgrade (N=40)	n	%	Upgrade (N=40)	n	%
Furnace	30	75%	Clothes washer	9	23%
Water heater	25	63%	Clothes dryer	9	23%
Air conditioner	15	38%	Appliances (general/ Energy Star appliances)	8	20%
Insulation	13	33%	Refrigerator	7	18%
Windows	11	28%	Boiler	6	15%
Solar panels/gardens	10	25%	Thermostats	4	10%

Note: Interview participants could list as many upgrades as they could think of. Therefore the numbers do not equal 100%.

Participants were asked an open ended question about what they might receive rebates for. Responses were coded into themes and the table shows responses that at least 10% of respondents mentioned. Two or three interview participants noted: attic air sealing, stove, fireplaces/fireplace inserts, cars, dishwashers, doors, or lights. Two could not think of any upgrades for which they could get a rebate.

When asked where they would find more information about utility rebates, more than half of interview participants (55%) named CenterPoint as a place they would look, with just under half naming Xcel (45%) (Figure 12). One-third (33%) said they would Google it. While most people mentioned websites as a first line of investigation, some mentioned they would look at bill inserts or would call to find out more.

12. Where would you go to find information about utility rebates? (Interviews)

Source (N=40)	n	%
CenterPoint	22	55%
Xcel	18	45%
Google (or unspecified website)	13	33%
Energy provider (general or other)	7	18%
Manufacturer/store that you're buying the appliance from	5	13%

Note: Interview participants could list multiple places they would look for information. Therefore the numbers do not equal 100%. Respondents were asked an open ended question. Responses were coded into themes and the table shows responses that at least 10% of respondents mentioned.

Finally, we asked interview participants how much of their rebate knowledge they gained from the Home Energy Squad visit. Most interview participants (58%) said they learned at least half of what they know from the Home Energy Squad visit (Figure 13).

13. How much of what you know about utility rebates would you say you learned from the HES visit? (Interviews)

(N=40)	n	%
Knew most of those things before the visit or learned them on your own	17	43%
Learned about half of those things from the Home Energy Squad visit	16	40%
Learned most of those things from the Home Energy Squad visit	7	18%

Participant satisfaction with Home Energy Squad

Satisfaction (web survey)

When asked about the quality of their Home Energy Squad experience, web survey respondents overwhelmingly agreed that they felt comfortable asking questions of the staff (95%), and they thought the staff were very knowledgeable (94%) and helpful in answering questions (94%) (Figure 14). They also felt that staff provided recommendations that were in their best interest (94%), that the cost of the visit was appropriate (92%), and that it made them more comfortable to get recommendations from someone other than the contractor who would do the work (88%).

14. Overall satisfaction

Service (N=282-289)	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I felt comfortable asking questions of the staff.	67%	28%	4%	1%	0%
The staff were helpful in answering questions.	63%	31%	4%	1%	<1%
The cost of the visit was appropriate for the service I received.	63%	29%	7%	1%	0%
I felt the staff were very knowledgeable.	62%	32%	4%	1%	<1%
I felt the staff provided recommendations that were in my best interest.	61%	33%	5%	1%	0%
It made me more comfortable to get recommendations from someone other than the contractor who would do the work.	59%	29%	11%	1%	<1%

Note: This table excludes don't know responses

Satisfaction (interviews)

To gain deeper insight into participant satisfaction, we asked all interview participants to share their overall perceptions, positive and negative, about their Home Energy Squad visit. Overwhelmingly, respondents had positive things to say about the visit.

Interview participants said they greatly appreciated learning about energy efficiency in their home and having the Home Energy Squad walk through potential upgrades with them. This was the most commonly mentioned theme (12 interview participants). They also appreciated that the overall process was easy, smooth, and simple (6).

For me it was mainly about the information. I just wanted to learn more about the house, and I felt like they did a good job explaining things clearly, and doing different tests...I just felt like it was thorough and very informative.

Just the ease. It was easy to set up the visit, easy to set up with the contractors, just a one-stop hassle-free way to do that stuff.

Interview participants said they were very happy with services provided. Of services related to longer-term energy-saving upgrade recommendations, participants most frequently mentioned that they appreciated the report (10), the list of contractors (8), the cost quote (5), and follow-up reminders (5). This question elevated the list of contractors and the follow-up reminders more so than other instances where we had asked about what was most helpful. Of course, respondents also mentioned being happy with the energy efficiency improvements made during the visit itself, particularly weather stripping doors (11) and replacing lightbulbs (10).

It was really nice they had a list of contractors because finding one you can trust is a major job if you don't know anything about the process. So the fact that they had contractors that they had checked out was great.

All of it. They did a very detailed report; itemized-- they did it both in person telling me what they had found, and then followed up with a very detailed report. It was easy to understand and quite comprehensive.

I thought their reports were great and the kinds of things they were thinking about were really pragmatic, very thoughtful. I had an energy audit done in the 80s and I've kept the results of that, and then I had the audit done again last year. And I got great information both times, but I got more information and a connection to vetted outside contractors was [great]-- seemed more substantial. It looks like they were trying to make it easy.

Additionally, respondents mentioned liking the staff that came to do the visit. They described the staff as thorough (7 interview participants), knowledgeable (7), professional (6), and friendly (5), among many other characteristics.

I felt the team there explained everything really well to me. I felt they were very competent in what they were doing. They didn't treat me like I was a total idiot about the house - they just explained things very matter-of-factly and got things done really quickly, so I appreciated that.

I was happy with all of it. I was impressed with the guys that came out, because they were just patient and knowledgeable, and like they helped me program my thermostat that I hadn't figured out how to do in years, and they were just very thorough-- they didn't seem rushed or anything.

When asked what they disliked about the Home Energy Squad visit, about three-quarters of interview participants (29) said there was nothing that they disliked. Of the few who offered constructive criticism, there were no salient themes, and most comments were not actually dislikes, but things that did not go smoothly or that they had questions about.

Two respondents mentioned an issue with a hole drilled into the wall in their closet by the Home Energy Squad staff to evaluate their wall insulation. One respondent mentioned a lack of responsiveness when the homeowner called for follow-up, another said that the Home Energy Squad had missed a wall that was not insulated. One homeowner did not realize light bulbs would be changed, and they had already changed them all. Others mentioned hiccups with the contractor, differences in cost quotes, and trust issues with hiring a contractor they didn't know. Finally, respondents noted a few lingering questions around air tightness and home-specific quirks, and a desire for more rebates and financing.

Suggestions for improvement (interviews)

To help the Home Energy Squad prioritize among services provided related to attic insulation, attic air sealing, and wall insulation, interview participants were asked to share the one aspect they felt the Home Energy Squad should continue doing on their home visits. Most frequently noted was the report (11), followed by walking through the process and areas for potential energy savings with the homeowner (9). Many also really appreciated the blower door test (6) and thought that should continue to be included, along with the direct installation of various energy efficiency improvements during the visit.

Walking the homeowner through all the pieces. We actually went upstairs and he showed me the vents. It was an education tour and I really appreciated that.

The report was really useful - it provided a really good summary of everything they walked through. They had done a nice job of walking through saying, "Hey - here's something to see here," but like with a home inspection, it's really easy to lose track as you're walking through. So to have one place where when they left I could look at it and say here's what I need to do. There were the immediate recommendations of the insulation and stuff like that, but even now if I wanted to say what's the next thing I should look at, I could go back to that report and pull it out 2 years later and say, "Oh yeah they mentioned this was a moderate or medium term solution- rather than here's something you could do right away." That report I found really useful.

When asked what the Home Energy Squad may be able to omit from their home visits in the future, three-quarters of the interview participants (30) said they could not think of anything they would remove from the visit. Of the few interview participants who did identify something they would cut, three mentioned the follow-up reminder services, and three mentioned light bulb replacement.

Finally, interview participants offered several suggestions of useful things to add to the Home Energy Squad visits. Interestingly, while several had suggested removing the follow-up services, six participants recommended adding to or changing the follow-up reminders, which was the most frequent theme. Each of the following were suggested by one to two respondents:

Suggestions related to services that the Home Energy Squad currently provides:

- Expanding the list of contractors
- Continuing to connect with contractors and schedule on behalf of homeowners
- Receiving more and updated information on rebates and financing, including in follow-up
- Having homeowners let the Home Energy Squad know when a good time to follow-up would be (ex. I'm a teacher and won't think about this during the school year, could you follow-up in May?)

Suggestions for additional services the Home Energy Squad could provide:

- Connect homeowners to solar panels or solar gardens
- Connect with contractors who can do additional work like electrical work
- Add insulation around water pipes⁴
- Help homeowners put up plastic around windows
- Check on furnace efficiency
- Talk more about windows

Suggestions requesting additional information:

- Come back to the home after upgrades have been made and do another blower door test to see progress⁵
- Provide real life examples of what others have done and how much they save now – could potentially include a tour (in person or virtual) of a home that has done the upgrades
- Compare current energy use and show how much you could potentially save on bill
- Pamphlets or additional hard copy information on things like small changes to make yourself
- More advertising/education outside of just an online presence, targeted advertising toward groups like new homeowners
- More information on who the program is sponsored by, why they sponsor it, mission statement, who benefits, etc.

⁴ This service became a part of the Home Energy Squad visit during the pilot.

⁵ A blower door test must be done by the contractor after completing air sealing work in order to qualify for a CenterPoint Energy rebate.

Conclusions and recommendations

Based on this evaluation, Wilder Research recommends the following regarding the Home Energy Squad visits:

Effective current practices and opportunities:

- **Continue providing a report** describing the recommended upgrades and potential energy savings **and providing a cost quote** for the recommended upgrades. These were highly appreciated by both homeowners who followed through with recommendations and those who did not (web survey and interviews). Consider offering both paper and emailed versions based on homeowner preference.
- **Continue providing information about rebates, financing options, and other cost incentives** to homeowners as cost was a primary barrier to completing the recommended upgrades (web survey and interviews). If homeowners are not able to complete the recommendations immediately, consider sending out financing information or offers with subsequent follow-up calls or emails. Since survey respondents noted that timing was an important factor for completing the upgrade (i.e., expiring financing options, getting it done before winter), providing a time-limited offer, or tiered incentive (i.e. if applying by May 31st, you receive \$100 off, if applying by June 30th, you get \$50 off) may provide an extra incentive for people to complete the upgrades.
- **Continue providing excellent customer support;** staff were very highly rated as being knowledgeable and helpful (web survey and interviews), and interview respondents said the process was informative and easy.

Areas for additional emphasis:

- **Highlight the possibility for reductions in energy bills and increases in home comfort.** These were the primary motivating factors for homeowners in following through with the recommendations, noted by both web survey and interview participants. It could be beneficial to further emphasize these during the visit, and even in marketing to attract homeowners to the program.
- **Emphasize that the Home Energy Squad provides a non-biased, third-party opinion.** People who followed through with recommendations and those who did not both appreciated receiving recommendations from an expert with no financial interest in which upgrades they complete (web survey and interviews). It may also be

worthwhile to explain the mission of the Home Energy Squad since there is not a financial interest.

- **Highlight the Home Energy Squad visit as a process for homeowners to learn about their homes.** Interview respondents particularly noted they appreciated learning more about their homes, which could also be a possible marketing piece.
- **Highlight the rebate process** with homeowners so they know they will get a rebate with their upgrades. Since only 68% of web survey respondents completing recommendations said they applied for the rebate, and interview participants did not often mention attic insulation, attic air sealing, and wall insulation as something you could get a rebate for, there may be some confusion around this process.
- **Inquire about the timing of follow-up services** if the homeowner is not ready to complete the upgrades immediately. Multiple interview participants noted that time of year and other factors related to timing were important for being able to complete the upgrades when they did. Providing tailored outreach or reminders at a requested time may make it easier for them to complete the upgrades.

Additional recommendations

The following recommendations were based on fewer interview responses, but may be particularly valuable for CenterPoint and Center for Energy and Environment.

- **Integrate referrals for the Home Energy Squad with services for new homebuyers or other target populations**, such as connecting a Home Energy Squad visit referral with a home inspection.
- **Provide examples or averages of energy savings** homes have achieved through completing the recommended upgrades. While it is important to not over-promise results, homeowners are interested in tangible examples and stories to see what is possible and which paths homeowners have taken. Additionally, providing information on how upgrades could affect appliances (e.g., less stress on a furnace) and those potential longevity benefits could be appropriate and useful.
- **Send reports of actual savings to homeowners who complete upgrades.** If it is possible, sending actual energy savings for the homeowner, or combining results from their Home Energy Squad visit blower door test and a blower door test performed by an insulation contractor would show the differences in their home after completing upgrades. With this information on hand, homeowners can feel confident in their upgrades and more effectively spread the word about the Home Energy Squad's benefits to their friends, neighbors, and colleagues.

Appendix

Detailed methodology

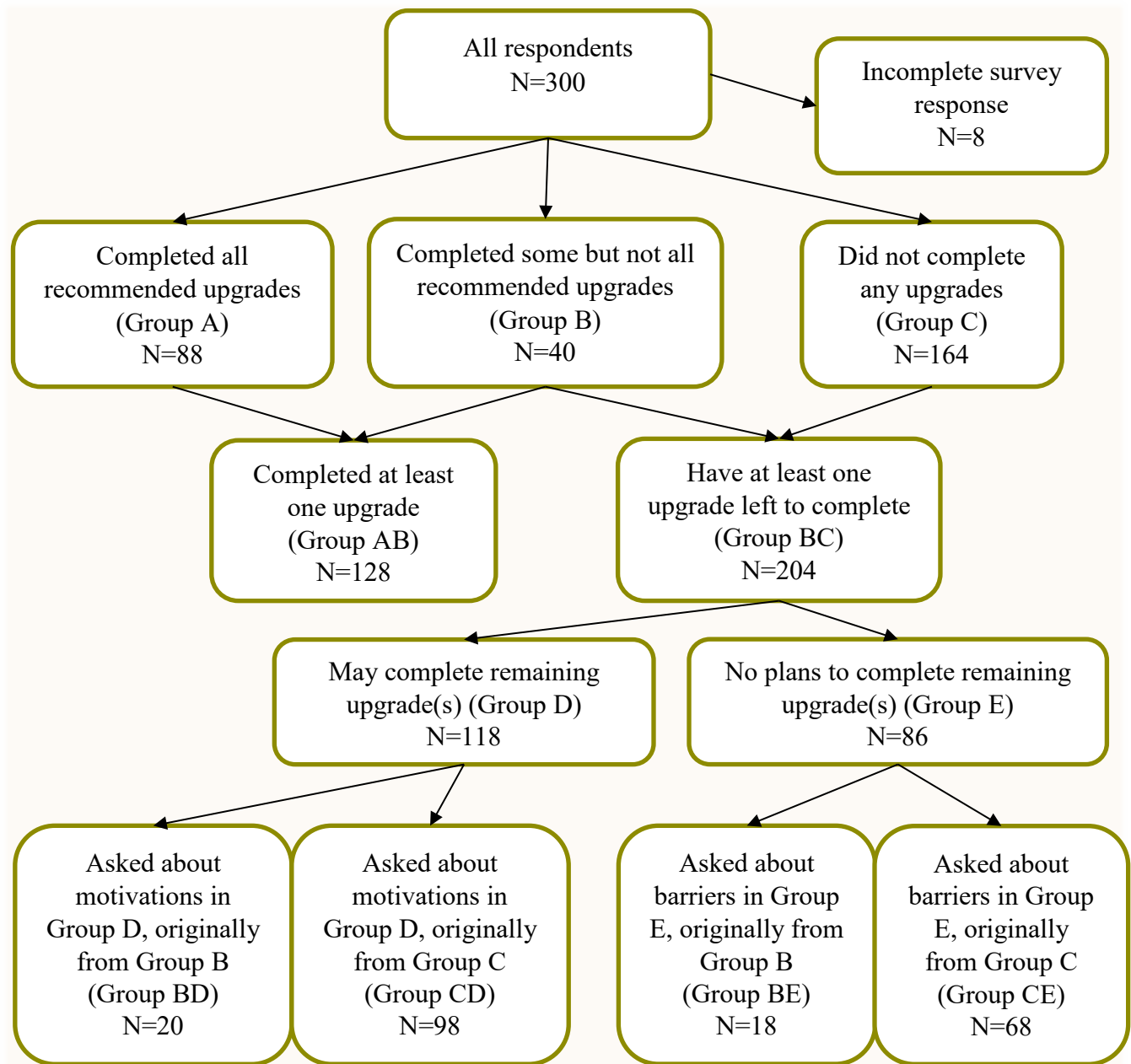
In order to understand the pilot program's effectiveness from a variety of perspectives, this evaluation examines input from several groups of respondents (Figure A1). Web survey respondents were sorted into those who had completed all recommended upgrades (Group A), those who had completed some but not all recommended upgrades (Group B), and those who did not complete any upgrades (Group C).

Participants from the first two of these groups were combined to form the group of respondents who completed at least one recommended upgrade (Group AB). Those who had not completed any or had completed some (but not all) of their recommended upgrades were combined to form the group of those who have at least one upgrade yet to complete (Group BC). The typical respondent perspective may be expected to differ between groups B and C, but the groups were combined to establish adequate sample sizes for analysis when the group was further subdivided.

Group BC is then divided into those who are still considering or planning to complete the remaining upgrades (Group D) and those who do not plan to complete the remaining upgrades (Group E). Groups D and E offer additional views of the motivations and barriers (respectively) to completing the recommended upgrades. Note that groups D and E were drawn originally from groups B and C.

The Additional Analysis section below separates Groups D and E into those who completed some but not all recommended upgrades (Groups BD and BE) and those who did not complete the recommended upgrades (Groups CD and CE) to examine the potential differences between the motivations and barriers for these groups. These distinctions were not explored in the body of the report due to the small sample sizes of Groups BD and BE, which limit the practical significance of observed differences between the groups.

A1. Web survey respondent completion of recommended upgrades



In addition to the web survey respondents, Wilder conducted 40 phone interviews with Home Energy Squad homeowners. Among the phone interview respondents, 20 completed at least one recommended upgrade, and 20 had not completed any upgrades. These participants are not reflected in Figure A1.

Additional analysis (web survey)

This supplementary analysis explores the potential differences in motivating factors and barriers between those who had completed some but not all recommended upgrades (Group B) and those who had not completed any recommended upgrades (Group C). As noted above, these groups were combined for results presented in the body of the report. The sample size for those who had completed some but not all recommended upgrades (Groups BD and BE) is small (N=18-20), so even though differences may appear reasonably large, they are generally not statistically significant (with two exceptions described below).

Motivation factors were essentially ranked in the same order of importance in Groups BD and CD, though respondents' considerations were more likely to emphasize reducing their energy bills "a lot" if they had completed some, but not all upgrades (Group BD 85% versus Group CD 62%; statistically significant $p < 0.05$; Figures A2 and A3).

A2. How much are you considering the following in your decision to complete the recommended upgrade(s)? (Some but not all upgrades completed – Group BD)

Motivation factor (N=20)	A lot	A little	Not at all
Reducing my energy bills	85%	15%	0%
Increasing home comfort	60%	40%	0%
Reducing my environmental impact	60%	25%	15%
Preventing ice dams or moisture/mold issues	40%	35%	25%
Increasing my home's value	40%	50%	10%
Receiving a rebate	20%	60%	20%

A3. How much are you considering the following in your decision to complete the recommended upgrade(s)? (No upgrades completed – Group CD)

Motivation factor (N=98)	A lot	A little	Not at all
Reducing my energy bills	62%	34%	4%
Increasing home comfort	56%	35%	9%
Reducing my environmental impact	54%	35%	11%
Preventing ice dams or moisture/mold issues	52%	26%	22%
Increasing my home's value	32%	40%	28%
Receiving a rebate	34%	33%	33%

Prioritizing other home improvements was frequently listed as the main barrier to completing upgrades in both groups. Cost was also frequently perceived as the main barrier especially among those who had not completed any upgrades (Group CE 31% versus Group BE 6% listing it as a main barrier; statistically significant at $p < 0.05$; Figures A4 and A5).

A4. Why are you not planning to complete the recommended upgrade(s)?
(Some but not all upgrades completed – Group BE)

Reason (N=18)	A barrier	Main barrier
I am prioritizing other home improvements at this time	50%	39%
I cannot afford the expense at this time	28%	6%
I don't think the benefits justify the cost	33%	22%
I don't believe my home needs this upgrade	11%	6%
I moved or am planning to move soon	0%	0%
I don't have time to make the arrangements for the contractor	0%	0%
Another reason	28%	28%

A5. Why are you not planning to complete the recommended upgrade(s)?
(No upgrades completed – Group CE)

Reason (N=68)	A barrier	Main barrier
I am prioritizing other home improvements at this time	43%	31%
I cannot afford the expense at this time	47%	31%
I don't think the benefits justify the cost	19%	9%
I don't believe my home needs this upgrade	12%	7%
I moved or am planning to move soon	12%	9%
I don't have time to make the arrangements for the contractor	7%	1%
Another reason	19%	12%

Demographics (web survey – all respondents)

A6. Do you, or does someone in your household, own your home?

(N=287)	n	%
Yes	277	97%
No	10	3%

A7. In what year was your home built?

Year (N=277)	n	%
Before 1920	97	35%
1920-1944	121	44%
1945-1960	43	16%
1961-1975	9	3%
1976-1990	4	1%
After 1990	3	1%

A8. How long have you lived in your home?

(N=281)	Years
Mean	12
Median	5
Range	<1 - 65

A9. What language do you speak most at home?

Year (N=286)	n	%
English	276	97%
Hmong	2	1%
Spanish	4	1%
Somali	1	<1%
Other	3	1%

A10. How do you identify your race/ethnicity?

Year (N=285)	n	%
Black or African American	18	6%
African-born	1	<1%
American Indian or Native American	0	0%
Asian or Asian American	10	4%
Hispanic or Latinx	11	4%
White	254	89%
Other	5	2%

Note: Respondents were allowed to select all that apply, therefore percentages do not sum to 100%.

A11. What is your best guess of your total household income last year?

Year (N=251)	n	%
\$25,000 or under	16	6%
\$25,001 to \$35,000	22	9%
\$35,001 to \$45,000	23	9%
\$45,001 to \$60,000	32	13%
\$60,001 to \$75,000	35	14%
\$75,001 to \$100,000	54	22%
Over \$100,000	69	27%

Note: Respondents were allowed to select all that apply, therefore percentages do not sum to 100%.

A12. How many adults and children does this income support?

(N=278)	People
Mean	2
Median	2
Range	1 - 10

A13. Energy Assistance Program eligibility status (calculated)

(N=248)	n	%
Eligible	33	13%
Not eligible	215	87%

Note: Data in this table were calculated using self-reported income and household size data.