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Nonparticipant Market Barriers Study (RI-21-RX- NPStudy)

Rhode Island Energy

Developed For

Rhode Island Energy
280 Melrose Street
Providence, RI 02907

Developed By

Cadeo
107 SE Washington Street, Suite 450, Portland, OR 97214
ILLUME Advising
440 Science Drive, Suite 202, Madison, WI 53711



ILLUME

Contributors

Doug Bruchs, Jun Suzuki, Lima Hossain, and Jon Shay, Cadeo

Eileen Hannigan, Shannon Kahl, Becca Cevilla, Leith Nye, Joe Kramer, Emily Morris, and Karishma Thakkar, ILLUME Advising

Please refer questions to:

Shannon Kahl, shannon@illumeadvising.com, 608-561-1076

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Executive Summary

For over 30 years, Rhode Island Energy (formerly National Grid) has helped customers save energy and lower utility bills and generated non-energy environmental, health, and other benefits for customers and society through a portfolio of energy efficiency programs. Through these programs, Rhode Island Energy has served almost 95,000 electric program participants and 30,000 gas participants between 2016 and 2020. While these programs have been successful, Rhode Island Energy would like to reach more customers, particularly customers who have not historically participated in energy efficiency programs. We refer to customers who are not known to have participated in Rhode Island Energy's energy efficiency programs between 2009 and 2020 as nonparticipants throughout this report.

About the Nonparticipant Market Barriers Study

To understand how to reach more customers, Rhode Island Energy sponsored this study to characterize the customer segments that have historically participated less in Rhode Island Energy residential programs, assess barriers to their participation, and identify opportunities to engage them. As part of the Cadeo team, ILLUME Advising (hereafter, "we," "the team," or the "Cadeo team") led this study.

Using a multi-mode approach, we gathered data and feedback from customers, landlords and property managers, program implementers, and community-based organizations to understand nonparticipants' attitudes, needs, and perceptions.

This study builds on other research efforts:

1. The Residential Nonparticipant Market Characterization and Barriers Study the Cadeo team conducted in Massachusetts in 2019.¹
2. The concurrent Participation and Multifamily Census Study (RI-21-RX-Participation) in Rhode Island, which informed this study's sampling plans, research questions, and survey/interview instrument design.²

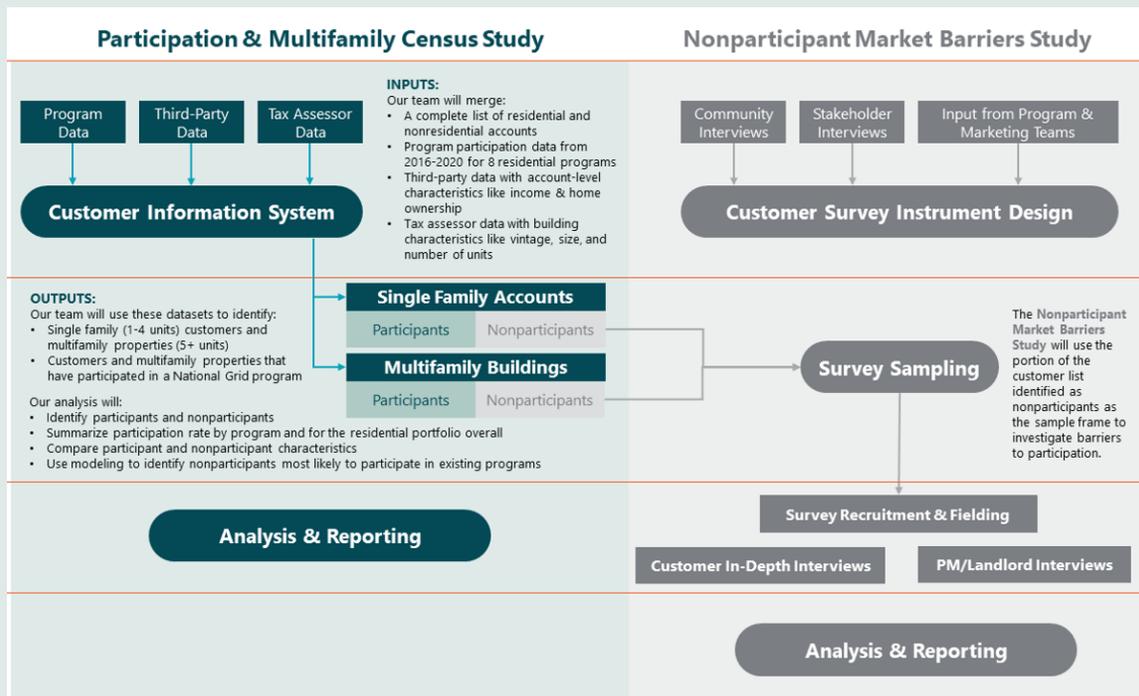
¹ https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf

² This report will be available at <http://rieermc.ri.gov/> upon finalization.

Relationship to Participation and Multifamily Census Study

The Participation and Multifamily Census Study supported this study in two primary ways:

1. **Provided Nonparticipant Demographics.** The Participation and Multifamily Census Study team analyzed and compared the demographic characteristics of participating and nonparticipating customers. We used those comparisons to assess the comparability of nonparticipating customers in Rhode Island and Massachusetts to determine the appropriateness of applying the findings of the recent Massachusetts Nonparticipant Study to Rhode Island Energy’s nonparticipating customers in Rhode Island in Task 2 of this study. See Section A.4 in Appendix A for more detail.
2. **Provided Nonparticipant Sample Frame.** The Participation and Multifamily Census Study team provided a file containing all nonparticipating residential accounts along with contact information, available demographic and housing characteristics, and a participation propensity score.



Key Takeaways from the Participation and Multifamily Census Study:

- Greater household income is associated with higher participation. Electric participation rates ranged from 16% among the lowest income customers to 31% among the highest income customers and natural gas participation rates ranged from 7% to 20%.
- Older households tend to participate more than younger households.
- The propensity model did not find language to strongly influence participation, even though there is a clear increase in the participation rates for English speakers.
- Homes built between 1980 and 1999 had the highest participation rate.

Research Objectives

The objectives of this study included:

- Understanding the barriers preventing customers from participating in energy efficiency programs.
- Exploring messaging, program approaches, and other possible solutions to barriers to participation.
- Identifying the common characteristics of customer groups not participating in energy efficiency programs or are participating at a lower rate than the general population.

Customer Groups of Interest

Our research focused on nonparticipating residential customers, with particular interest in renters, who have low participation rates, and customers with a low propensity to participate in energy efficiency programs as identified in the Participation and Multifamily Census Study.

Report Organization

This report is organized as follows:

- **Executive Summary** – provides an overview of the study including research objectives and customer groups of interest, methodology, and key findings.
- **Section 1 Participation Barriers** – shares findings drawing from each of the research tasks undertaken as part of the study.
- **Section 2 Solutions for Nonparticipation** – shares potential solutions based on the findings of our research.
- **Appendix A Detailed Methodology** – includes the detailed methodology for each of the research tasks undertaken as part of the study.
- **Appendix B Detailed Findings** – contains detailed findings from each of the research tasks undertaken as part of the study.
- **Appendix C Supplementary Tables** – contains survey data crosstabulations by home ownership and propensity score grouping.

Study Methodology

The study used a multi-pronged research approach to reach customers and address the research questions, balancing quantitative and qualitative research activities. See Appendix A Detailed Methodology for detailed information about each activity.

Interviews with Community Organizations, National Grid, and Program Implementers³

The Cadeo team interviewed 18 community organizations to learn about the needs, perceptions, and priorities of populations they serve, their households' conditions, and potential barriers and solutions to engage with National Grid-directed programs. The team targeted organizations that serve renters, people with limited English proficiency, and moderate- or lower-income customers and provided \$100 incentives to participating organizations.

We interviewed seven groups of National Grid program managers, marketing team members, and implementation contractors to learn from their first-hand experience what has worked well or not as well in reaching customers, and their experience with barriers to participation and potential solutions.

Nonparticipant Customer Surveys

We captured data from over 1,400 customers via multi-mode survey (web and abbreviated mail). The team took numerous actions to increase response rates, including multiple attempts via email and postcard, and \$25 incentives for completing surveys. We provided recruitment materials and the web survey in English, Spanish, and Portuguese.

Nonparticipant Customer Interviews

The Cadeo team completed 24 follow-up, in-depth phone interviews with nonparticipant customers who responded to the survey to dig deeper into barriers and potential solutions. Interviewees received an additional \$100 for their time.

Landlord and Property Manager Interviews

We also gathered feedback from 11 landlord and property managers. Eight participated in an in-depth interview while three opted to complete an online questionnaire. Interviewees and survey respondents provided perspectives on National Grid programming, specifically participation barriers for them or their renters and insights on enhancing engagement strategies. Interviewees and survey respondents received \$100 for their time.



³ Because National Grid was the utility company name at the time the Cadeo team conducted this study, we refer to the utility as National Grid for the remainder of this report.

Survey Methodology

For this study, the Cadeo team attempted to reach as many sampled customers as possible to minimize nonresponse bias and capture the needs and characteristics of the full range of nonparticipating customers. The team employed a multi-mode survey approach with various touchpoints to encourage participation in the study. Nonparticipants in our sample who had email address on file received both email and postcard invitations and reminders. We sent the mail survey approximately one month after launching the web survey, to all sample members who had not responded to the web survey and did not have an email address.

This approach resulted in a 10% response rate. It is noteworthy that with a high effort and financial incentives the survey was unable to gain responses from 90% of sampled respondents, indicating the challenges in reaching nonparticipating customers. The number of undeliverable emails and postcards illustrates the challenge of maintaining accurate customer records. Approximately 4% of the email addresses in our sample were undeliverable as were approximately 6% of the postcards.⁴

Survey nonrespondents differed from respondents in that they were more likely to be renters. Both groups had similar propensity scores.

Web survey and recruitment materials:



Various Touchpoints:

- Invitation Postcards and Emails
- Reminder Postcards and Emails
- Mail Surveys for those without an email address

Incentive:



Responses by mode:



WEB SURVEYS



MAIL SURVEYS

Responses by language:*



ENGLISH



SPANISH



PORTUGUESE

*While 17% of web survey respondents indicated that they spoke a language other than English, 95% completed the survey in English.

⁴ Postcard return reasons included: *Not deliverable as addressed, Unclaimed, Vacant, No mail receptacle, and No such street.*

Survey Sampling Summary

1. The concurrent Participation and Multifamily Census Study (RI-21-RX-Participation) provided a sample frame which contained a list of customers that had not participated in any opt-in National Grid Rhode Island energy efficiency program since 2016.⁵ The list also included demographic characteristics like home ownership and education and identified customers less likely to participate in energy efficiency programs with propensity scores.⁶
2. We removed customer records that had participated in a National Grid energy efficiency program between 2009 and 2015, those that appeared to be a multifamily property owner and those that had business names.
3. From our sample frame of 181,752 nonparticipating customers, we selected a random sample of 14,500 customers with the goal of completing 1,000 surveys. Given the low participation rates among renters and the particular interest from National Grid and other stakeholders to increase participation among renters, we stratified our sample based on those who rent vs. those who own their home. We also stratified by propensity score, over-sampling the bottom 10% of propensity scores to ensure that our sample included those with the lowest propensity scores.
4. During analysis, we weighted the survey data to represent the nonparticipant sample frame.

Table 1. Survey Sampling Details

Sample Strata	Sample Frame	% Of Sample Frame	Survey Sample	% Of Sample	Number of Completed Surveys	% Of Completed Surveys	Response Rate
Bottom 10% Propensity Score							
Owner	4,688	3%	2,850	20%	363	25%	13%
Renter	10,434	6%	4,400	30%	333	23%	8%
Top 90% Propensity Score							
Owner	142,483	78%	4,400	30%	553	38%	13%
Renter	24,147	13%	2,850	20%	213	15%	7%
Total	181,752	100%	14,500	100%	1,462	100%	10%

⁵ The Census study team excluded participants of only the Residential Lighting and/or Home Energy Report programs from their definition of a participant because National Grid does not collect customer information for the Residential Lighting program and the Home Energy Report program is an opt-out program, with customers randomly selected for participation.

⁶ The Census study team developed propensity scores based on models that predict participation and applied those predictors to nonparticipants. The higher the propensity score, the more similar a nonparticipating customer is to a participating one, and the lower the score, the more different they are.

Key Findings

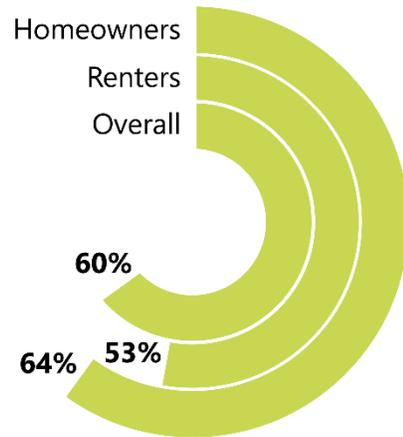
Our research drew out many findings related to nonparticipant characteristics, barriers, and opportunities to reach a wider range of customers. Below are a few that rose to the top.

Participation Barriers

Our research found several consistent themes in the reasons customers do not participate in National Grid's energy efficiency programs:

Nearly 40% of survey respondents were not **aware** that National Grid offers energy efficiency programs and many customers who were aware of the offerings did not **understand** who the programs are for, why National Grid offers them, how to participate, or what benefits to expect.

Aware of Programs



- While customers **trust** National Grid as a source of information, they may not **trust** that the programs and associated benefits are legitimate.
- Customers have many different living situations, home conditions, and other priorities that interfere with their ability to **prioritize** energy efficiency.
- Even with rebates, upfront **costs** are a barrier to participation for both customers and landlords/property managers.
- **Program requirements**, or the perceptions of what they might be, along with expectations for how the program works and the benefits it provides can deter customers from participating
- **Language, communication, culture, and experience** affect someone's ability to participate in National Grid programs.

"Right now, I feel like I'm giving [National Grid] so much money, and why am I not warm?"

-Nancy, homeowner

"...BIPOC communities might have lost their sense of trust and engagement in the 'system' because of how many times they've been blocked against receiving the same benefits..."

-Education equity organization

Solutions for Nonparticipation

Our research revealed the following key themes for addressing nonparticipation:

Understanding - Residential customers, landlords, and property managers we spoke with were not clear on what program participation would look like. They wanted to better understand who programs are for, how they work, and what benefits they provide.

Transparency - Many customers were not clear on what making efficient improvements to their homes or buildings really meant, or how it could benefit them and National Grid. Their bills were already high and difficult to understand, and they did not know why National Grid wants to help them save energy and money. They were also skeptical of being able to see the impacts of making energy efficient improvements on their bills.

Access - Customers want easily accessible, detailed program information, with participation options that meet their needs, in their preferred language, that they can refer to on their own time.

Value - Customers want to know that participating in a program will be worth their time to fill out an application, take part in a home or site visit, and to receive their rebate and/or recommendations.

Autonomy - Customers we spoke with wanted to decide on their own terms, without necessarily having to talk to someone or put their trust in someone new.

Below, we highlight some suggestions for overcoming barriers to participation. Additional detail on these, and additional suggestions, are included in Section 2, Solutions for Nonparticipation.

- Include information on how National Grid programs are funded by customers in program materials to help explain why National Grid has energy saving programs and how they benefit from customers saving energy.
- Use testimonials to illustrate who programs are for, how they work, and to help make energy savings more tangible.
- Educate community organizations that serve key groups of interest on National Grid's energy efficiency offerings. They can in turn recommend them to their clients to help address high bills, comfort, or other issues their clients are experiencing that can be addressed through energy efficiency improvements.
- Diversify language, content, and channel of messaging to ensure messaging is accessible, culturally relevant, and available on the channels that community members are using.
- Tie program services to everyday needs and value to customers.
- Continue to promote financial savings associated with making improvements.

Special Considerations for Renters and Landlords

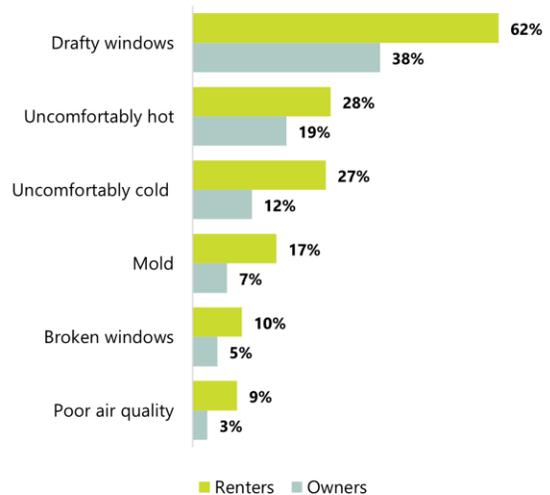
In general, being a renter or landlord/property manager is a deterrent to participating in energy efficiency programs. Most renters we spoke with said that: 1) they have fewer options for participation available to them; 2) they tend not to want to attract the attention of their landlords and are therefore hesitant to contact them; and 3) they fear being evicted or priced out of their homes. Through the nonparticipant survey, we found that compared to homeowners, renters are twice as likely to be uncomfortably cold, three times as likely to report air quality issues, and report mold and condensation at higher rates as well.

Landlords and property managers face challenges not only in timing upgrades but finding the time to plan for them. Most landlords and property managers we interviewed prefer to make changes when the units are unoccupied. Because these are limited windows for them to make equipment changes, they are sensitive to any possible delays that participating in the program may cause.

Some suggestions for increasing participation among both groups include:

- Developing a fast-track path for landlords to access rebates during emergency replacements or limited time periods for making improvements.
- Educating landlords and renters on the non-energy benefits of energy efficiency improvements and use these benefits to help motivate improvements.
- Finding ways to engage renters in energy efficiency by educating them on tenant rights, considering measures renters could take with them to a future home or do themselves like DIY kits for window sealing, or supporting policy changes that grant renters the right to make efficiency improvements.
- Continuing to explore rental market and property management events and groups to connect with rental property decision-makers.
- Finding ways to incentivize or recognize non-bill-payers for efficiency investments to help address the split incentive.
- Working with contractors to promote National Grid programs and rebate-eligible equipment, as the landlords and property managers we spoke with indicated that while energy efficiency is part of their buying decision, it is rarely what motivates the work.

Issues Experienced



"... where landlords aren't paying any utilities, what is the huge incentive to upgrade for efficiency?"

-Landlord

Section 1 Participation Barriers

The findings in this section draw from across all research tasks we conducted as part of this study. Please see Appendix B: Detailed Findings, for findings specific to each of the research tasks.

Our research found several consistent themes in the reasons customers do not participate in National Grid's energy efficiency programs:

- Lack of Awareness and Understanding
- Insufficient Trust
- Competing Priorities
- Being a Renter or Landlord/Property Manager
- Cost
- Program Requirements and Operations
- Differences in Language, Communication, Culture, and Experience

Lack of Awareness and Understanding

Before customers can participate in a program, they must know the program exists and is relevant to them. The lack of awareness of National Grid programs, who they are for, why National Grid offers them, how to participate, and what benefits to expect all prevent participation.

Overall, close to 40% of the customers we surveyed did not know National Grid offers energy efficiency programs that could help them save energy and money.⁷ Furthermore, fewer than half of the organizations we spoke with, most of whom work with populations that have been hard for National Grid to reach, did not know that National Grid offers energy efficiency programs.

We found during our interviews with nonparticipants that the barrier of awareness was compounded by uncertainty over what the programs were for. Some interviewees thought that all programs were for low-income households or only for people in need of services. In these instances, nonparticipants worried that they might take resources from someone else in greater need by participating. Interviewed

"[The] whole concept that there are incentives out there – hard to keep up with. [The] National Grid website is not easiest to navigate (though most utility websites aren't). Wouldn't expect anyone to have awareness of opportunities unless presented to them."

-Municipal sustainability office

⁷ Homeowners were more likely than renters to be aware of National Grid programs (65% vs. 53%).

community organizations added the perspective that some in their communities who learn of the programs anecdotally through friends and family feel that utility offerings are “exclusive to those who know.”

“I don’t want to use resources that someone else may need and don’t want to inquire for programs that could be for someone else.”

-Bari, homeowner

Nonparticipating interviewees were also confused why National Grid would want customers to reduce their energy use, which made them skeptical. Further, we noticed nonparticipants we interviewed did not always correlate their energy use and utility bills. Our interviews with community organizations confirmed that the connection between lowering bills and energy efficiency is not always understood by the clients they serve.

Customers who were aware of the programs, including landlords and property managers, expressed needing

more information about how to participate and what to expect in terms of benefits from participating to make the concept of participating in energy efficiency less abstract.

Insufficient Trust

There are several different aspects of trust that affect a customer’s likeliness to participate. While survey results show that customers trust National Grid as a source of information, they still want reassurance that the programs and associated benefits (e.g., energy and bill savings or useful recommendations) are legitimate. As noted above, some customers do not understand why National Grid wants to help them save energy or money, which can result in distrust of National Grid program offerings.

“I am super skeptical of them as a company and as a monopoly on the energy around here. I don’t trust them.”

-Alli, renter

National Grid’s energy saving programs and reputation have positive impacts on trust. Nonparticipant interviewees who trust that National Grid wants to help them save energy and money mentioned different reasons for that trust including the fact that they are a “big company” who offer programs like solar panel installation “so that the grid is not overburdened.”

In contrast, interviews with customers and community organizations revealed several causes for distrust in National Grid and energy efficiency programs. Interviewees mentioned a lack of choices for energy providers and a distrust of large organizations in general, as well as the following causes of distrust:

a) **High energy bills.** Nonparticipant interviewees mentioned rate increases and high costs, with some mentioning that National Grid is a monopoly with no competition. Similarly, community organizations mentioned that many of their customers' interactions with National Grid are about high bills, being in arrears, or shutoffs, which affect how they view National Grid and their programs.

b) **Not understanding energy bills and how participation will affect energy bills.**

Community organizations mentioned that some people think signing up for National Grid programs will lead to higher bills and some nonparticipant interviewees were skeptical that programs would result in savings based on their previous experiences trying to save energy. As one of the interviewees noted, their bill is "a black box."

c) **Thinking programs are too good to be true.** Without a good understanding of energy bills and the benefits of energy efficiency, some customers are skeptical of program claims and worry about being convinced to make unnecessary changes.



Karla is a Spanish-speaking renter who understands and speaks English very well. As a renter, she thinks she cannot make any upgrades to the home, except for maybe replacing light bulbs. She did not know about National Grid programs. **“Porque alquila no es para ella. No mando en la casa. / Because I am a renter, it is not for me. I don’t make decisions in the home.”** She likes the idea of helping the environment, such as using solar panels. **“Va con la naturaleza. El medioambiente lo necesita mucho. / It goes with nature. The environment needs a lot of help.”**

Karla’s family uses a lot of electricity without too much attention as to how much it costs or how to lower bills, unless her father notices a high bill. She thinks that electricity is essential and that she has to use it. She likes the balanced billing of her gas bill so that she pays the same every month and would like that for her electricity bill.

Karla notices differences in temperature between the first and second floor of her home. The upstairs is either too hot or too cold compared to the downstairs, but she has not asked the landlord or anybody else about it. Karla noted that for Hispanics, in general, especially if they are undocumented, they do not want to ask for help. She thinks that being cold is not only uncomfortable but could also cause her to get sick.

Karla likes and trusts National Grid because they always tell her when there are power outages and when the power is going to come back. She trusts National Grid wants people to save energy and thinks that they are sending messages about saving energy all the time and it is the consumer that doesn’t do it. **“A veces somos nosotros que no lo hacemos / Sometimes it is us who don’t do it.”**

Based on an actual interview, all names and appearances have been changed.

Competing Priorities

Customers have many different living situations, home conditions and other priorities that interfered with their ability to prioritize energy efficiency. This is true even when, in some cases, energy efficiency could be a solution to the problem.

Nonparticipant interviewees mentioned their lack of time, disabilities, childcare needs, and work commitments all as barriers to participating in programs, and among survey respondents, not having time was a top reason for not participating in National Grid programs. Despite this, most survey respondents did not see solutions that might optimize one's time (like evening and weekend or virtual appointments) as ways to make participating easier.

"There are power dynamics that exist that should not be understated. A lot of folks need housing and just need to survive, a family, for example. They might not even know what questions to be asking. If they do, landlords are not receptive to these conversations or the need to fix any part of that."

-State-level policy advocate

Through our interviews with community organizations, we heard about more extreme competing priorities facing some community members, including a lack of affordable housing, homelessness, and serious problems within homes such as pests, lack of running water, or sewage problems. Beyond housing, families may struggle with transportation, food insecurity, medical bills, unemployment, and other bills and needs -- all priorities that surpass energy use and comfort.

Nonparticipant interviewees and landlords and property managers also mentioned the challenges associated with prioritizing work within their home or property. All must balance energy efficiency with maintaining equipment and buildings along with being ready for emergencies. Nonparticipants noted that not being sure how to prioritize home improvements can lead to waiting for an emergency to make changes.

We also found that, in some cases, customers do not prioritize things that could be addressed through energy efficiency because they do not understand how National Grid's programs could help solve some of the issues that they face. For instance, nonparticipant interviewees prioritized affordable and dependable energy delivery and comfort over what they perceived as extra programs and services like energy efficiency. Similarly, most survey respondents considered their energy bill a moderate to large monthly expense and expressed concern that it would increase, indicating that the priority of simply paying their bill might take precedence over program participation or investing in energy efficiency.

Being a Renter or Landlord/Property Manager

In general, being a renter or landlord/property manager is a deterrent to participating in energy efficiency programs. Most renters we spoke with said that: 1) they have fewer options for participation available to them; 2) they tend not to want to attract the attention of their landlords and are therefore hesitant to contact them; and 3) they fear being evicted or priced out of their homes. The community organizations we spoke with echoed these same concerns, with one noting that even though landlords are not allowed to retaliate, they do. Further, survey respondents who were renters reported not wanting to get their landlord's cooperation as the most frequent reason for not participating (or looking into participating). In fact, more than 70% thought their landlord would be unwilling to make energy efficiency improvements.



Lynn is a renter who has made her own investments in long-term rentals in the past. She wants to pay for and take care of things herself, noting ***“I’d rather own something than rent it. I’ve got no credit cards to pay, and no cars to pay off, so that would complicate it with extra bills.”***

Previous landlord experience makes Lynn keep communication to her landlord to a minimum. She does not want her rent to go up and she is skeptical of her landlord making improvements to her building because she thinks it could lead to him selling the building and her having to move. Lynn said, ***“I like to make do, because I don’t want my rent to go up or to not have my lease renewed, so I do little things myself... I don’t want to bother anyone.”***

Lynn is extremely averse to providing financial information, which has prevented her from qualifying for programs in the past. ***“I went for heating assistance a few years ago, but the questions were so personal and invasive. Maybe I’m proud. I don’t have anything to hide, but I don’t want someone to go into my bank account and check what I’ve purchased. It’s invasive.”*** The fear that her landlord might see the income she provides to qualify for a program prevents her from applying for services or programs that might benefit her. She does not want to look weak to her landlord.

Based on an actual interview, all names and appearances have been changed.

The Cadeo team also found that landlords and property managers were difficult to identify and reach for this research, illustrating the difficulty program teams face in reaching them.

Cost

Landlords and property managers face challenges in not only timing upgrades but finding the time to plan for them. Most landlords and property managers we interviewed prefer to make changes when the units are unoccupied. Because these are limited windows for them to make equipment changes, they are sensitive to any possible delays that participating in the program may cause. Additionally, landlords and property managers shared that daily job demands and the added pandemic workforce issues made exploring energy efficiency options a low priority.

"By the time you get all the information (needed to apply), it's become too late to get the rebate, which is frustrating."

-Landlord

"When I bought the appliances, I think [Lowe's] had a financing thing but I just would rather pay it all then, so I don't have to worry about another payment."

-Clayton, homeowner

Upfront costs are a barrier for both landlords/property managers and customers we interviewed. The landlords and property managers most frequently reported costs as the reason for not making efficiency improvements. Managing costs can be more complicated for public housing authorities (PHAs), who can have limited and sometimes unpredictable annual capital improvement budgets.

Another complaint from landlords or property managers who do not pay utility bills was that they do not benefit from the energy savings of the improvements they make.

Even with rebates, many interviewees said the upfront costs of energy efficient appliances were a high barrier. While financing might help, many customers we spoke with were not interested, saying that they prefer to own what they have in their homes, rather than paying for something they could not afford via financing.

Both landlords/property managers and residential customers noted the need to balance resources available for energy efficiency and other building or home maintenance concerns like replacing aging equipment, general maintenance, and emergency repairs.

Program Requirements and Operations

Program requirements, or the perceptions of what they might be, along with expectations for how the program works can deter customers from participating.

Community organizations noted that completing applications for rebates or programs may be especially difficult for community members who do not have internet access or speak a language other than English. Further, many customers may not know how to provide proof of income, electricity bills, or other documentation needed to

"I wouldn't divulge income and I wouldn't divulge some of those personal questions."

-Lenny, renter

apply, or they may be unwilling to share that information. On this note, survey respondents, who may or may not be familiar with program requirements, said that simplifying the application process (23%) and getting help from National Grid to complete the application (18%) would make them more likely to participate.

In addition to difficulties with the application itself, some customers may be unwilling to share income or other personal information. Some nonparticipant interviewees said providing income information was too

invasive and one noted that there is a social stigma to the enrollment process.

Some of the landlords and property managers we interviewed noted their opinion on whether to participate in a program was based on previous experience – noting low incentives, difficulty in applying for some incentives, limited availability, and the length of time it takes to receive incentives, as reasons not to participate.

"[It] seemed like too time-consuming a process and complicated [to apply for rebates]."

-Landlord

Language, Communication, Culture, and Experience

While almost 20% of survey respondents indicated that they spoke a language other than English at home, almost all respondents took the survey in English (95%), with 4% completing in Spanish (n=47) and less than 1% completing in Portuguese (n=3).⁸ Because we offered the recruitment materials and web survey in English, Spanish, and Portuguese and the mail survey only in English, we may not have been able to reach those for whom language and culture are the largest barrier, including customers who speak other languages, are less comfortable with or have more limited access to technology, or are illiterate.

"National Grid needs to ensure that we have contractors that resemble and represent the population and offer multiple languages so there are no barriers there. Language is a potential barrier because people don't feel comfortable with a language barrier."

-Housing provider community organization

The community organizations we spoke to, many of which work closely with populations who that have historically been underserved by National Grid efficiency programs, stressed the importance of using multiple languages in communications like the website and informational materials.⁹ Also having program representatives who resemble and represent the communities National Grid serves. However, simply translating materials is often not enough, organizations also stressed the importance of making sure materials and information are culturally relevant.

Beyond just language, literacy and "understanding the system" or knowing how to communicate with landlords, utilities, and other organizations can prevent people from accessing services there to help them.

⁸ Based on unweighted survey results.

⁹ In addition to Spanish and Portuguese, community organizations we interviewed often translate materials into Mandarin, Criolu or Cape Verdean Creole, and Hmong. The most common languages spoken at home (other than English) by survey respondents included Spanish, Portuguese, French and Italian.

Section 2 Solutions for Nonparticipation

The findings and recommendations in this section draw from across all research tasks we conducted as part of this study. Please see Appendix B: Detailed Findings for findings specific to each of the research tasks.

Our research demonstrates that there are many, sometimes contradictory, reasons why customers do not participate in National Grid's energy efficiency programs. Consequently, overcoming those barriers will require many different solutions. Our research revealed five key themes for addressing nonparticipation: 1) Understanding, 2) Transparency, 3) Access, 4) Value, and 5) Autonomy.

Below, we provide suggestions to help National Grid reach a wider range of customers with differing needs and preferences. We have organized them by theme, but many are interrelated.

Understanding

Residential customers, landlords, and property managers we spoke with did not have a clear expectation of what program participation would look like. They want to better understand who programs are for, how they work, and what benefits they provide.

- **Use testimonials to illustrate who programs are for, how they work, and the benefits they provide.** Both interviewed customers and landlords wanted to see real life examples of people participating in energy efficiency programs to know what to expect from a program or rebate in terms of experience and bill savings. They wanted to see how a home or building *like theirs* saved energy and money. Using testimonials may also help address customer trust in expected bill impacts.
- **Stress that National Grid programs are available to all customers.** This addresses the notion that programs are for low-income households and could help alleviate the concern that participating takes resources from someone else in greater need.
- **Notify customers of energy efficiency programs when they have higher than average energy bills or call about their high bills or comfort.** Survey respondents and

"I think the whole industry is not that well understood by the consumer, including myself, so not able to understand the full implications. Not that they're lying, but that's the way the consumer feels."

-Nancy, homeowner

interviewees did not typically understand National Grid's programs could help solve their high bills or improve the comfort of their home.

- **Integrate information and education on home maintenance and improvement with messaging about energy efficiency and National Grid Programs.** Survey respondents considered National Grid a trusted source of information and the majority have lived in pre-1970 homes for longer than 10 years. The majority also indicated they would try to fix or replace an item themselves. Some of the interviewees noted that owning a home is so much work that while they may intend to get to things like cold spots they do not. This could be done by including tips or videos for different DIY repairs and upgrades in the home on the website, social media, or by providing information in newsletters.

Transparency

Many customers were not clear on what making efficient improvements to their homes or buildings really meant or how it could benefit them and National Grid. Their bills are already high and difficult to understand, and they do not know why National Grid wants to help them save energy and money. They are also skeptical of being able to see the impacts of making energy efficient improvements on their bills.

- **Include information on how National Grid programs are funded by customers in program materials to help explain why National Grid has energy saving programs and how they benefit from customers saving energy.** Some customers do not trust that National Grid wants to help them save energy or money because they do not understand why National Grid offers programs and how it benefits from offering programs, making them skeptical of energy saving claims. Almost two-thirds of survey respondents said that knowing that the program is legitimate would make them more likely to participate.
- **Make energy savings more tangible.** Strategies to help make energy savings less abstract for customers could include:
 - Showing example homes with basic home specifications, the energy efficiency improvements made, and the resulting energy and bill savings in program materials.

"What National Grid should do is explain why National Grid wants me to be energy efficient because to me it's like well, doesn't National Grid just want me to spend more money on gas? Doesn't National Grid want me to be inefficient? So maybe it's on National Grid to explain why they support these programs. That would be interesting and helpful."

-Alli, renter

- Including energy savings in testimonials.
- Education on how to understand an energy bill and how much energy and money customers can expect to save from specific measures and behaviors.
- **Explain energy efficiency and the associated non-energy benefits.** The concept of energy efficiency, and therefore the non-energy benefits, is not well understood. We suggest focusing outreach and marketing materials on the concerns survey respondents most expressed.
 - Healthiness of home
 - Risk of damage to home due to a weather event
 - Using too much energy
 - Drafty windows (most common among renters)
 - High energy bills
 - Pests
 - Hot/cold spots

Access

Customers want easily accessible, detailed program information in their preferred language that they can refer to on their own time. In addition, customers need access to participation options that meet their needs.

- **Diversify language, content, and channel of messaging to ensure messaging is accessible, culturally relevant, and available on the channels that community members are using.** Use *transcreation*, not simply translation, to ensure messages resonate with the target audience.¹⁰ Provide multilingual support throughout the customer journey to move beyond simply raising awareness.
- **Streamline website information and organize it around how people look for information and think about their homes, which does not always align with energy efficiency program designations.** For example, it may be easier

“Outreach needs to be culturally relevant for different communities, and there needs to be an analysis if the programs are actually accessible.”

-State-level policy advocate

¹⁰ Transcreation is a concept used in the field of translation studies to describe the process of adapting a message from one language to another, while maintaining its intent, style, tone, and context. A successfully transcreated message evokes the same emotions and carries the same implications in the target language as it does in the source language. (<https://en.wikipedia.org/wiki/Transcreation>)

for customers to navigate one list of all rebates than to search through lists organized by program. Include details on who can participate (program eligibility) and estimated savings. Consulting with a usability professional and conducting user-testing could lead to a more user-friendly experience for customers unfamiliar with energy efficiency programs and measures.

- **Consider using communications like newsletters that customers can refer to when they are ready for the information.** Several interviewees said that they would refer to a monthly or quarterly newsletter (some noted preferences for email and some for standard mail) with seasonal tips and relevant program information.
- **Consider how people with disabilities make decisions and participate in energy efficiency programs.** An interviewee who is disabled shared that she has more limited access to energy efficient options and information because it is more difficult to access stores.

Value

Customers want to know that participating in a program will be worth their time.

- **Continue to promote financial savings associated with making energy efficient improvements.** Most survey respondents considered their energy bill a moderate to large expense and expressed concern that it would increase. Financial savings was the primary motivator for saving energy or participating in programs for many of the interviewees. And as noted, interviews with nonparticipants and community organizations pointed to the fact that not all customers understand the connection between energy efficiency and lowering energy bills.

"I do compost and I pay a company to do that, but when it comes to electricity and stuff like that, definitely it's all for the money."

-Mick, renter

- **Tie program services to everyday needs and value to customers.** As noted above, customers may not understand that energy efficiency can help address basic needs. Use messaging to highlight the ways these programs can improve their daily lives in ways that matter to them beyond lowering bills – comfort, financial savings (more money to use for necessities), improving the home health, indoor air quality, and keeping pests out through sealing a home. All these benefits came through in our research from issues that customers may not know can be addressed through energy efficiency.

- **Consider changes to design and implementation that will minimize customer time and effort and combat the perception, or reality, that participating takes a lot of time and effort.** Actual or perceived program requirements can deter customers from participating. Some landlords we spoke with who had participated in the past noted that the application process was too time-consuming and involved too much paperwork. Survey respondents, who may or may not have been familiar with actual program requirements, thought that simplifying the application process or getting help from National Grid could make them more likely to participate. Landlords also noted that the length of time to participate is an issue, particularly in emergency or time-sensitive (e.g., during apartment turnover) replacements. Some suggestions to help include:
 - Consider ways to develop a “fast-track” process for the Multifamily program to better promote efficient options and enable program participation even when timing is critical. See Renters and Landlords section below for additional detail.
 - Help in completing program applications or gathering documentation.
 - Simplify the program application process by reducing requirements and prepopulating information where possible.
 - Help in finding contractors as finding reliable contractors is a time-intensive and cumbersome sub-process of incentivized upgrades.
 - Focus on clear communication throughout participation to keep participants, and particularly landlords and property managers, informed on status.
 - Provide rebates faster.

Autonomy

Some customers we spoke with want to decide on their own terms, without necessarily having to talk to someone or put their trust in someone new.

- **Educate community organizations that serve key groups of interest on National Grid’s energy efficiency offerings so that they can in turn recommend them to their clients to help address high bills, comfort, or other issues.** Educating the organizations on National Grid programs and what issues energy efficiency can fix could open new pathways to hard-to-reach demographics.
- **Establish trust by partnering with a wide range of trusted organizations and “champions” from the community.** Collaborate with these organizations to develop strategies that best reach and serve groups of interest. While many of the organizations we spoke to suggested ways they could partner with National Grid to promote programs and support their clients throughout participation, they also suggested partnering with churches, other community organizations and community action program (CAP) agencies,

neighborhood organizations, and landlord groups. Note that using a variety of outreach channels can be a great way to increase trust. In fact, a nonparticipant interviewee noted that having the opportunity to participate in the interview and learn more about why National Grid offers energy efficiency programs increased her trust.

- **Make the decision to participate easier by providing a variety of options to meet differing customer needs and preferences.** Options like on-bill financing and evening or weekend and video appointments appealed to small portions of customers in our research. For customers in the general population who would prefer these options, the flexibility might be what makes it possible for them to participate in National Grid programs. Further, survey respondents commonly indicated needing new large appliances, windows, HVAC equipment, and thermostats.

Renters and Landlords



Timothy is the owner and property manager of numerous 25-unit apartment buildings in Rhode Island and Massachusetts. His Rhode Island tenants tend to be mostly single occupants, and about half are retirees. He has made many improvements at his properties including roofs, parking lots, centralized boilers used for space and water heat, lights, and he is always replacing appliances as needed. He has developed and tries to follow a **“capital improvement master plan.”** Appliances are upgraded if the plan calls for it during tenant turnover. Interior common area work is done in winter and exterior work during spring and fall. For efficiency investments he wants to see a payback in five years or less and considers what rent he can charge.

He also talks with maintenance and leasing staff for insights. Some equipment he replaces when it breaks such as refrigerators and AC wall units. Others, such as boilers and laundry equipment he replaces every 15 years and 10 years, respectively. He noted **“Energy Efficiency is not a factor in my decisions anymore.”** When he upgraded a large, centralized boiler in one of his buildings, he applied for incentives through a Company efficiency program, and he was awarded about two percent of the cost which he determined was not worth the time and effort. He would be interested in an online training session and would especially value testimonials from others like him who have participated in the Company program and can share their stories and benefits.

Based on an actual interview, all names and appearances have been changed.

Landlords and property managers are known to be hard to reach for research and programs. Below we provide suggestions for increasing participation among both groups.

- **Develop a fast-track path for landlords to access rebates during emergency replacements.** Enabling landlords to pre-qualify for short- or medium-term replacements may address the timing challenge. For example, if landlords have aging equipment, allow them to pre-qualify for rebates so that when the equipment fails, they can replace quickly with energy efficient option.
- **Educate landlords and renters on the non-energy benefits of energy efficiency improvements.** Through the nonparticipant survey, we found that compared to homeowners, renters are twice as likely to be uncomfortably cold, three times as likely to report air quality issues, and report mold and condensation at higher rates as well. Additionally, since surveyed renters thought their landlords would be significantly more likely to make needed repairs or health and safety improvements than energy efficiency improvements, messaging focusing on the non-energy benefits of improvements may be more appealing to landlords and property managers.
- **Incentivize or recognize non-bill-payers for efficiency investments to help address the split incentive.** Interviewees pointed out the ongoing issue with rental properties that landlord investment in energy efficient equipment is not always obvious to or appreciated by tenants even when they pay the utility bills. Helping make those improvements more visible to tenants by showing savings on their bill or providing notices that their landlord made improvements that could save them money on their bill could help incentivize landlords who do not pay utility bills. Conversely, if landlords pay the electric bill, the program could look for ways to incentivize residents' investment in efficient equipment.
- **Find ways to engage renters in energy efficiency.** Renters often do not know what energy efficient upgrades they can make, or they do not want to engage their landlord.
 - Including education on the rights and responsibilities of tenants with program promotions and energy saving tips could lead to more participation among renters. Through careful messaging, National Grid can provide helpful resources for customers to understand the Rhode Island Landlord-Tenant Handbook while maintaining good relationships with landlords.¹¹
 - Consider offering measures that renters could take with them to a future home or things renters could do themselves like DIY kits for window sealing, hot water pipe insulation, water saving measures, LEDs, shower timers, water heater setback temperature cards, LED nightlights, and advanced power strips.
 - Support policy changes that will grant renters the right to make efficiency improvements. For example, Hartford, Connecticut grants renters the right to make

¹¹ <https://www.courts.ri.gov/Courts/districtcourt/PDF/Handbook.pdf>

limited energy-saving home improvements without obtaining property owner consent. Improvements include adding weatherstripping, removable interior storm windows, and hot water tank insulation.¹²

- **Continue to explore rental market and property management events and groups to connect with rental property decision-makers to promote National Grid programs and energy efficiency.** Interviewed PHAs and landlords suggested that promoting the program through the Board of Realtors would be a great way to connect to landlords of rental properties and through them, connect with people in transition. They also suggested working with the Institute of Real Estate Management (IREM), National Apartment Association (NAA), Providence Apartment Association, and National Association of Housing and Redevelopment Officials (NAHRO), which also has state level groups to help build credibility for the program.
- **Work with contractors to promote National Grid programs and rebate-eligible equipment.** While we heard from landlords and property managers that energy efficiency is part of their buying decision, it is rarely what motivates the work. Landlords and property managers also mentioned facing more limited choices of equipment for emergency replacements. Working with contractors to help stock and promote energy efficient options could increase participation among landlords and property managers.

¹² ACEEE. 2021. A New Lease on Energy: Guidance for Improving Rental Housing Efficiency at the Local Level. <https://www.aceee.org/sites/default/files/pdfs/u2102.pdf>



Scott is an executive director of a Public Housing Authority in Rhode Island. He oversees hundreds of housing units that serve largely elderly and disabled residents. He felt his agency had been fortunate to have worked with RISE and National Grid to put in entirely new boiler systems in their buildings. **“We would not have been able to do that without them.”** He noted **“The new systems are very energy efficient, and we have saved a great deal of money.”** He added **“It is very unusual for a PHA to have our energy expenses go down for four years.”** His maintenance staff provide direct input for their strategic planning. They categorize work orders (of which they had nearly 1400 in 2021) and do trend analysis to inform where the next investments should be.

Formally, decisions on investments must be approved by the advisory board, but they follow the recommendations of the executive director. They keep a database of appliances and track their age to estimate when replacement will be needed. **“When we get new appliances, we always look for high energy efficiency ratings.”** The next issue he intends to focus on is water consumption. He has been happy to share his experience with National Grid’s efficiency programs with **“anyone who will listen.”** It can help **“save money and eliminate problems.”**

Based on an actual interview, all names and appearances have been changed.

Appendix A Detailed Methodology

Appendix A provides the detailed research questions we sought to answer through this research and the detailed methodology for each of the research tasks undertaken to answer those research questions.

A.1 Key Research Questions

Table 2 displays the key research questions for the study and which research tasks will address them. We describe each of the research tasks in greater detail in subsequent sections.

Table 2. Key Research Questions

Research Topic Area	Research Question	Participation Study Results ¹³	Comm. Interviews	NP Cust. Survey	NP Cust. Interviews	Landlord Interviews
Characterization	What are the key characteristics of nonparticipating customers? (Customer demographics and home characteristics including SF, MF, mobile home, primary heating fuel, etc.).	X	X	X		
Barriers	What are the barriers to participation in different types of EE programs for customers?		X	X	X	
	How do barriers differ by customer characteristics such as renters/owners and low/moderate income?		X	X	X	
Communication	What are the preferred communication channels for nonparticipants?			X	X	
	Do nonparticipants prefer to communicate in languages other than English?	X		X		
	What can National Grid do to better reach nonparticipants?		X	X	X	
Solutions	What communication channels will best overcome concerns about legitimacy of programs? E.g., Faith-based or community organizations?		X	X	X	
	What actions or information from National Grid can help overcome barriers (develop and test specific concepts/program elements)			X	X	
Landlord Barriers	What additional offerings (such as on-bill financing, weekend appointments, etc.) are appealing to nonparticipating customers?			X	X	
	What are barriers to participation for landlords/property managers?					X
	Do landlords understand the benefits of the programs? What additional information do they need?					X
Landlord Solutions	How do renters view landlords as a resource? Or barrier?		X	X	X	
	What solutions or motivators would help overcome barriers? (Develop and test list of solutions including tax incentives; program incentive levels)					X
Landlord Communication	What are landlords' preferred channels of communication about programs?					X
Landlord Overall	Do barriers or preferred solutions differ by size of properties (1 to 4 vs 5 to 20 or larger)					X

¹³ Energy Efficiency Participation and Census Study (RI-21-RX-Participation)

A.2 Detailed Methodology

The Nonparticipant Study used a multi-pronged research approach to reach customers and address the research questions, balancing quantitative and qualitative research activities.

A.3 Task 1: Follow-Up Planning Interviews

To begin the study, the Cadeo team conducted three interviews with National Grid stakeholders including the Consultant team, National Grid's Customer Energy Management (CEM) team, and the Equity Working Group, before finalizing the workplan. The goal of these interviews was to offer stakeholders an additional opportunity to ask questions and provide comments that could further inform the research questions and/or methods for each research task. We provided a summary of these meetings in an appendix to the workplan.¹⁴

A.4 Task 2: Review Participation Study Results and Assess Applicability of Massachusetts Nonparticipant Study

The robust Residential Nonparticipant Market Characterization and Barriers Study conducted in Massachusetts in 2019 relied on multiple data collection efforts to understand the characteristics of and barriers to participation for nonparticipants. As the same consulting team that led that effort, we think it is likely many of the findings from the Massachusetts study are applicable to National Grid's Rhode Island customers as well.

The Cadeo team used the output from the Participation and Multifamily Census Study (RI-21-RX-Participation), Task 4 to understand characteristics of nonparticipants in Rhode Island and to assess similarities between Massachusetts and Rhode Island nonparticipants and the applicability of the Massachusetts findings to Rhode Island nonparticipants.

Because we found that overall, nonparticipants in Massachusetts and Rhode Island are similar, rather than repeat tasks in Rhode Island likely to produce similar results as Massachusetts, we used the Rhode Island nonparticipation study as an opportunity to dig deeper and explore solutions to near universal barriers faced by nonparticipants across National Grid's service territory, with less emphasis on characterizing nonparticipants.

¹⁴ NG RI – Nonparticipation Study Workplan_REVISED_20MAY2021-Appendix.docx provided July 27, 2021.

The Massachusetts nonparticipant study, completed in February 2020, found that nonparticipants are more likely than participants to:

1. Rent their homes
2. Have low-to-moderate household incomes
3. Speak a language other than English and/or have limited English proficiency
4. Live in multi-unit buildings
5. Not have a post-secondary education

Similarly, the Rhode Island Participation and Multifamily Census study reported that, compared to participants, nonparticipants in Rhode Island are more likely to be renters, have low-to-moderate incomes, and to be non-English speakers. Table 3 through Table 5 display the housing characteristics, demographics, and languages spoken for nonparticipants in each state. The Massachusetts data comes from the nonparticipant market barriers study survey which included approximately 990 nonparticipants whereas the Rhode Island data comes from an analysis of the Rhode Island customer and tracking databases. As a result, we were not able to make direct comparisons using the same variables in both states for some characteristics. As shown in Table 3 and Table 4, large percentages of nonparticipants in Rhode Island live in multi-unit buildings and do not have a post-secondary education, like nonparticipants in Massachusetts. Nonparticipants in both states have similar incomes.

Table 3. Nonparticipant Housing Characteristics

	Massachusetts ^a		Rhode Island ^b		Notes
	Percent	(n)	Percent	(n)	
Own or Rent					
Rent & Occupy	35%	349	17%	40,498	In RI data, hard to distinguish occupied vs not occupied rentals based on the data.
Own & Occupy	63%	619	83%	193,834	
Rental property	2%	17			
Building Type					
Detached single-family	56%	547	75%	174,834	RI data doesn't include information on the types of single-family homes or manufactured homes.
Attached single-family	3%	31			
Building with 2 units	11%	112	15%	34,368	
Building with 3 or 4 units	14%	141	7%	16,630	
Building with 5 to 9 units	7%	69	1%	2,671	
Building with 10 to 19 units	3%	26	1%	1,567	
Building with 20 to 49 units	1%	10	1%	2,115	
Building with 50+ units	2%	15	1%	2,058	
Mobile, manufactured, or trailer home	0%	0			
Other	3%	32			
Year Structure Built					
2010 or later	1%	10	2%	5,522	
2000 to 2009	5%	43	6%	13,923	
1990 to 1999	6%	53	7%	17,344	
1980 to 1989	7%	57	11%	25,559	
1970 to 1979	10%	84	9%	22,231	
1960 to 1969	10%	81	11%	25,531	
1950 to 1959	12%	97	15%	34,671	
1940 to 1949	7%	54	6%	14,585	
1930 to 1939	5%	43	7%	15,281	
1900 to 1930	26%	211	20%	46,627	
Before 1900	11%	88	6%	13,058	
Other, please specify:	0.8%	7			

^a https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf

^b NP_SampleFrame_New.xlsx provided to ILLUME for nonparticipant survey sampling.

Table 4. Nonparticipant Demographic Characteristics

	Massachusetts ^a		Rhode Island ^b		Notes
	Percent	(n)	Percent	(n)	
Children in Household					
No Child(ren) at home	71%	708	67%	157,237	
Child(ren) at home	29%	284	33%	77,095	
Single Parent Household					
Not single-parent household	96%	942	94%	221,304	In RI data, we assumed single parent if N children > 0 AND N adults = 1.
Single parent household	4%	36	6%	13,028	
Income Category					
Low-income	39%	362	42%	99,549	RI income levels based on 2020 HUD Table(https://www.huduser.gov/portal/datasets/il/il20/State-Incomelimits-Report-FY20r.pdf) and thresholds are adjusted to account for household size.
Moderate income	14%	129	12%	27,458	
Higher than moderate income	47%	434	46%	107,325	
Educational Attainment					
Less than high school	6%	57	12%	76,562	Education levels are based on the ASC Block Group level counts of people over 25.
High school graduate or equivalent	23%	219	29%	189,874	
Attended some college	16%	152	18%	119,712	
Associate degree	8%	71	8%	55,541	
Bachelor's degree	25%	235	20%	130,327	
Master's or professional degree	18%	174	12%	77,935	
Doctorate degree	4%	36	2%	11,284	
Other	0%	2			
Percent college graduate					
No college	46%	430	33%	219,546	
College	55%	515	67%	441,689	

^a https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf

^b NP_SampleFrame_New.xlsx provided to ILLUME for nonparticipant survey sampling.

Table 5. Nonparticipant Languages Spoken

	Massachusetts ^a		Rhode Island ^b		Notes
	Percent	(n)	Percent	(n)	
Languages other than English Spoken at Home					
Yes	25.4%	252	18%	43,304	RI data includes the primary language spoken at home. There could be households that speak English as the primary language that speak a non-English secondary language.
No	74.6%	740	82%	191,028	
Other Languages Spoken					
Only Spanish	7%	72	8%	17,723	RI data does not include information on combinations of languages.
Only Portuguese	6%	59	2%	5,416	
Only Chinese	1%	7	0%	843	
Only French	1%	14	0%	263	
Only Vietnamese	1%	6	0%	330	
Only Russian	1%	7	0%	106	
Only Arabic	0%	1	0%	390	
Only Italian	1%	11	1%	1,955	
Only Other	3%	34	7%	16,278	
Spanish and Portuguese	1%	9			
Spanish and French	0%	2			
Two languages	3%	26			
Three languages	0%	1			
Four languages	0%	4			

^a https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf

^b NP_SampleFrame_New.xlsx provided to ILLUME for nonparticipant survey sampling.

A.5 Task 3: Interviews with Community Organizations, National Grid, and Program Implementers

National Grid implementation and marketing teams, as well as community organizations, have unique and deep insight into their constituents’ needs. Additionally, community organizations could be a powerful referral source for energy efficiency programs. We conducted qualitative research with these groups to provide insight into customers’ daily needs and perspectives and to gain insights that informed subsequent research tasks.

A.5.1 Community Organization Interviews

The Cadeo team contacted 112 organizations to successfully complete 18 interviews with 17 different community organizations that provide various services to communities in Rhode Island in which customers and nonparticipants reside. The intent of these interviews was to better understand the populations within the communities the organizations serve and to build a solid foundation for follow-up research with customers, landlords and property managers. The interviews assessed the needs, perceptions, and priorities of populations served by these organizations, their households’ conditions, and potential barriers to engage with National Grid-directed programs. We also asked about strategies the organizations use to communicate with and serve their clients as a means of finding potential solutions to investigate further in our nonparticipant customer research.

The Cadeo team used a combination of internet research and snowball sampling (identifying potential organizations or interviewees through other interviews) to identify organizations to interview that represent a diverse range of National Grid customers in Rhode Island to ensure that we heard a broad perspective on experiences. The populations served by organizations we spoke to generally live in rental units and face challenges in finding affordable housing, belong to a minority community, have only a high school education and/or limited secondary education, are low-income, and may not be fluent in English. Table 6 provides additional detail on the populations served by organizations we contacted and those that we interviewed.

Table 6. Populations Served

Primary Populations Served	Organizations Contacted	Interviews Conducted
Minority groups	13	1
Disadvantaged/frontline communities	8	2
Immigrants, refugees	7	2
Faith-based	7	2
Youth/adolescents	27	2
Women	2	0
Senior Citizens	6	0
Income-qualified	12	3
Individuals with developmental disabilities	4	1
Citywide/statewide/all populations	26	5
Total	112	18

The interviews, conducted between July 27, 2021, and September 23, 2021, lasted between 45 and 60 minutes and took place over Zoom. Participants received a \$100 electronic gift card for their time.

A.5.2 National Grid Interviews

We also conducted seven group interviews, lasting about an hour each, with National Grid program managers, marketing team members, and implementation contractors representing the following programs:

- (1) EnergyWise Single Family
- (2) Income Eligible Single Family
- (3) EnergyWise Multifamily
- (4) Income Eligible Multifamily
- (5) ENERGY STAR HVAC (Electric)
- (6) ENERGY STAR HVAC (Gas)
- (7) ENERGY STAR Products
- (8) Residential New Construction
- (9) Residential DR programs

All interviews took place in August 2021. We conducted interviews with these groups because they have valuable first-hand experience with what has worked well or not as well in reaching customers and have insights on barriers for customers.

A.6 Task 4: Nonparticipant Customer Survey

The Cadeo team conducted a multi-mode nonparticipant customer survey to explore solutions to participation barriers and capture customer feedback on areas such as National Grid programs, program communication and messaging, and new program concepts.

A.6.1 Survey Development

To reach as many sampled customers as possible, and reduce nonresponse bias, we conducted a web and mail survey of National Grid Rhode Island customers. The section below describes our process for developing the survey questionnaires for both efforts.

Web Survey. We developed the web survey with less of a focus on customer demographics and more of a focus on solutions to program participation barriers and how National Grid can best tailor their program messaging to the values and concerns of nonparticipating customers.

We used our key research questions to inform the questions included in the survey and collaborated with National Grid Rhode Island program marketing and implementation staff to identify possible approaches, messaging, and concepts to test in the survey.

Mail Survey. Due to space constraints, we developed the mail survey as a condensed version of the web survey, only including the questions we felt were most critical based on our research questions and goals. We included the following questions in the mail survey:

- Type of residence (primary, secondary, etc.)
- Own or rent home
- Trustworthy rating of various sources of information
- Awareness of National Grid programs and rebates
- Relative size of energy bill compared to other monthly expenses
- Preferred method of receiving information about National Grid programs
- Program concepts that would make you more likely to participate
- Languages spoken at home
- Technology in home
- Issues in home (e.g., mold, drafty windows, etc.)
- Number of people in home by age category
- Highest level of education completed
- Employment status of adults in home
- Estimated total annual household income in 2020

A.6.2 Sample Design

The following section describes the strategies the Cadeo team implemented to select the sample frame and survey sample for the nonparticipant survey.

Sample Frame. The concurrent Participation and Multifamily Census Study provided a sample frame which contained a list of customers that had not participated in any opt-in National Grid Rhode Island energy efficiency program since 2016.¹⁵ The list also included demographic characteristics of the customers such as rent/own. We used this sample frame (N=231,400 unique customer IDs) as our population for sampling for the nonparticipant customer survey.

The Census study team developed propensity scores based on models that predict participation and applied those predictors to nonparticipants. The higher the propensity score, the more similar a nonparticipating customer is to a participating one, and the lower the score, the more different they are. The Census study team defined propensity scores as follows in Table 7.

¹⁵ The Census study team excluded participants of only the Residential Lighting and/or Home Energy Report programs from their definition of a participant because National Grid does not collect customer information for the Residential Lighting program and the Home Energy Report program is an opt-out program, with customers randomly selected for participation.

Table 7. Propensity Score Categories

Label	Propensity Score	Description
Low Score	0.00 – 0.13	Low scorers have features participants rarely have. The score is less than the population average rate of participation
Mid Score	0.13 - 0.65	These middle scores suggest that the accounts have no stand-out features either way. The score indicates that they are more likely to participate than the “Average” account, but chances are still less than 50%.
High Score	0.65 – 1.00	These individuals had a high propensity score. Accounts with these scores have a lot in common with participants.

Upon review of the sample frame, we removed customer records that fit the criteria as laid out in Table 8 to isolate residential customers who had not participated in any of National Grid Rhode Island’s programs.

Table 8. Criteria and Counts of Records Dropped from Sample Frame

Criteria	Number Of Unique Customers
Unique customer IDs of recent nonparticipants	231,400
Participated in a National Grid energy efficiency program between 2009 and 2015	46,284
Has 5 or more records associated with their customer ID (likely a multifamily property owner)	179
Has 3 or more buildings associated with their customer ID (likely a multifamily property owner)	68
Name on the account is a business name	1,616
Remaining customer IDs	181,752

Survey Sample. From our sample frame of 181,752 nonparticipating customers, we selected a sample of 14,500 customers with the goal of completing 1,000 surveys, assuming about a 7% response rate. Given the low participation rates among renters and the particular interest from National Grid and other stakeholders to increase participation among renters, we stratified our sample based on those who rent vs. those who own their home. We also stratified by propensity score, over-sampling the bottom 10% of propensity scores. This approach ensured that our sample focused on those with the lowest propensity scores, therefore having the lowest

likelihood of participating in a National Grid Rhode Island program, while still including those nonparticipants with medium/high propensity scores for comparison.

Below in Table 9, is the distribution of propensity score, and renters and owners in the sample frame, along with our survey sample counts and target number of completed surveys.

Table 9. Sample Frame, Survey Sample, and Target Number of Completes

Sample Strata	Sample Frame	% Of Sample Frame	Survey Sample	% Of Survey Sample	Target Number of Completes
Bottom 10% Propensity Score	15,122	8%	7,250	50%	500
Owner	4,688	3%	2,850	20%	200
Renter	10,434	6%	4,400	30%	300
Top 90% Propensity Score	166,630	92%	7,250	50%	500
Owner	142,483	78%	4,400	30%	300
Renter	24,147	13%	2,850	20%	200
Total	181,752	100%	14,500	100%	1,000

A.6.3 Recruitment and Fielding

The following section describes our methodology for recruitment and fielding for the web and mail nonparticipant customer surveys.

Web Survey. We invited all 14,500 nonparticipating customers in our survey sample to participate in the web survey via email (where available) or postcard (for all sample points) on December 1, 2021.¹⁶ The postcard was translated into Spanish and Portuguese. We sent a reminder email after the survey had been in the field for about a week, and a reminder postcard after about two weeks. Customers who completed the web survey had the option between a \$25 Tango e-gift card sent via email, or a \$25 VISA gift card sent via postal mail. The web survey closed on January 24, 2022. Approximately 4% of the emails in our sample were undeliverable.

Mail Survey. We sent the mail survey approximately one month after launching the web survey, to all sample members who had not responded to the web survey and did not have an email address (5,827 customers). The mail survey contained a letter explaining the purpose of the study as well as the mail survey questionnaire and a return envelope. The survey letter had instructions in Spanish and Portuguese directing customers to go to the web survey address to complete the survey in either of those languages. Customers who completed the mail survey

¹⁶ 345 of the 8,429 emails in the sample were undeliverable.

had the option of a \$25 Tango e-gift card sent via email, or a \$25 VISA gift card sent via postal mail. Approximately 6% of the postcards in our sample were undeliverable.

A.6.4 Response

We received a total of 1,462 completed surveys and 196 partially completed surveys that we did not include in the final survey analysis. We closed the web survey approximately one and half months after launching it, after receiving 1,070 completed surveys.¹⁷ We stopped processing returned mail surveys about a month after mailing them, with 392 completed surveys. Table 10 shows the response rates by sample strata.¹⁸ During analysis, we weighted the survey data to represent the nonparticipant sample frame.

Table 10. Nonparticipant Survey Sampling – Response Rate

Sample Strata	Survey Sample	Achieved Number of Web Completes	Achieved Number of Mail Completes	Achieved Number of Total Completes	Achieved Response Rate
Bottom 10% Propensity Score	7,250	513	183	696	10%
Owner	2,850	244	119	363	13%
Renter	4,400	269	64	333	8%
Top 90% Propensity Score	7,250	557	209	766	11%
Owner	4,400	395	158	553	13%
Renter	2,850	162	51	213	7%
Total	14,500	1,070	392	1,462	10%

A.6.5 Analysis of Nonrespondents

Nonparticipant survey nonrespondents differed from survey respondents in that they are more likely to be renters. Propensity scores were similar between the two groups with 48% of respondents having scores in the bottom 10% compared to 50% of nonrespondents. Home ownership varied more with 63% of respondents owning their home compared to 49% of nonrespondents, and 37% of respondents renting their home compared to 51% of nonrespondents. Figure 1 and Figure 2 below show the distribution of propensity score and home ownership for those who did and did not complete the survey.

¹⁷ 1,020 customers completed the web survey in English (95%), 47 completed in Spanish (4%), and 3 completed in Portuguese (<1%).

¹⁸ Note: The home ownership stratum in this table is what was provided in our sample frame; we use self-reported ownership status in the survey analysis.

Figure 1. Distribution of Home Ownership (Respondents vs. Nonrespondents)

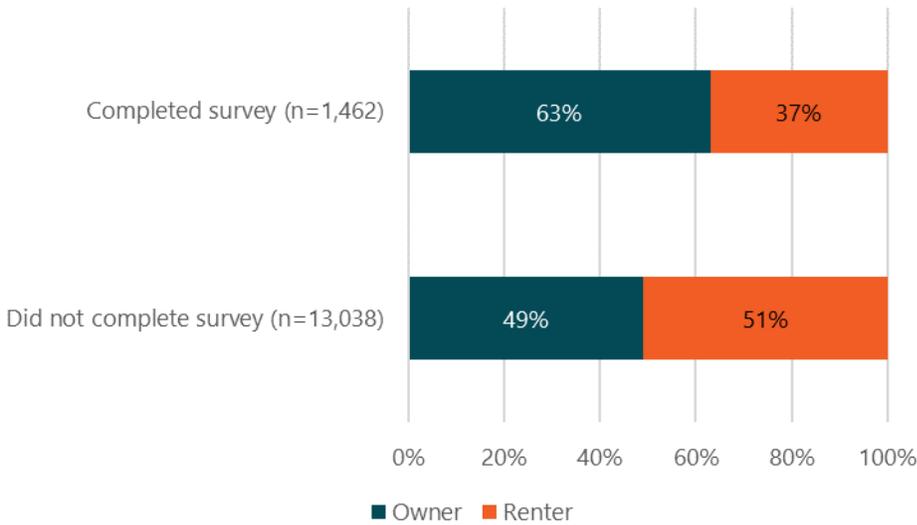
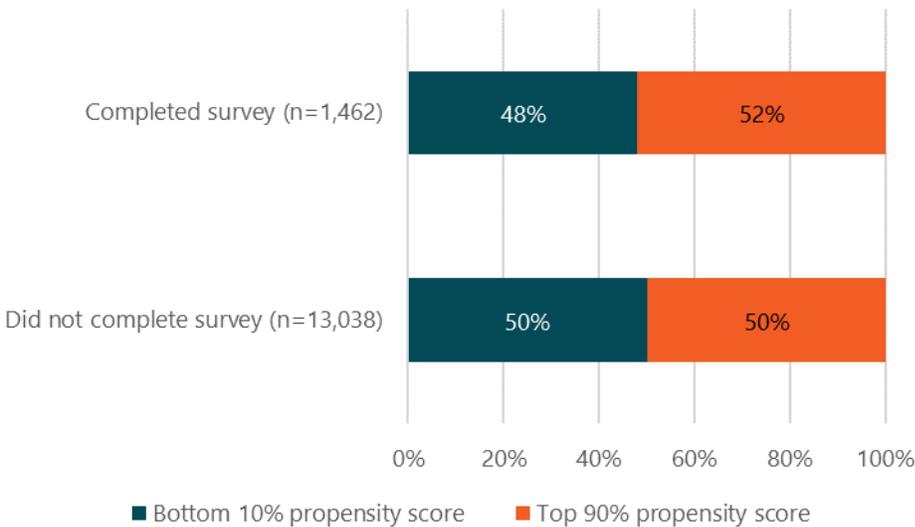


Figure 2. Distribution of Propensity Scores (Respondents vs. Nonrespondents)



A.7 Task 5: Nonparticipant Customer Interviews

To explore barriers and possible solutions to barriers more in-depth, the Cadeo team conducted 24 follow up in-depth phone interviews with nonparticipant customers who completed the survey and indicated an interest in participating in an interview. Due to the large number of interested survey respondents, we removed the question asking respondents if they were interested in participating in additional research from the online survey on December 10, 2021,

with 340 interested respondents. Due to the timing of the mail survey, we did not recruit mail survey respondents for interviews.

From the 340 survey respondents who expressed interest in a follow up interview, we randomly selected 96 respondents to contact for an interview. We compared the distribution of household language, heating fuel (specifically oil), income, home ownership, home type (single-family or multi-family), city, city type (advantaged or disadvantaged), and propensity score within our sample to the survey sample frame to ensure we interviewed a representative sample of survey respondents. After looking at these variables, we added another seven Spanish and Portuguese speakers to the interview sample, which increased the interview sample to 103 survey respondents.

In total, we contacted 76 survey respondents (of the 103 in the sample) using phone and email depending on respondent preference and completed 24 interviews between December 17, 2021, and January 25, 2022. These interviews were conducted via online video conference (with video on or off depending on interviewee preference) and each lasted approximately 45 minutes. Interviewees received \$100 gift cards for their time, which we sent them by their preferred email or standard mail. We spoke with 11 homeowners and 13 renters; at least seven, but no more than 14, low- or moderate-income individuals (several respondents preferred not to answer the income question on the survey); and five Spanish and Portuguese speakers.

A.8 Task 6: Landlord and Property Manager Interviews and Surveys

The Cadeo team used multiple methods to identify and recruit single and multifamily landlords and property managers for this study, conducted several rounds of outreach to identified landlords and property managers, and offered the option of an interview or survey with the target of 20 completed surveys or interviews. Despite these comprehensive efforts, the Cadeo team ultimately conducted eight interviews and three surveys with single and multifamily landlords and property managers. The purpose of these efforts was to gain a deeper understanding of their perspectives on National Grid programming, specifically regarding participation barriers for them or their renters and insights on enhancing engagement strategies.

Because landlords and property managers are well-known to be hard to reach for research efforts, we used a variety of identification and recruitment methods listed shown in Table 11.

Table 11. Landlord and Property Manager Recruitment

Identification And Recruitment Method	Organizations Contacted	Interviews Conducted	Surveys Completed
Emailed and called Public Housing Authorities	26	2	-
Called subsidized housing developments identified through RIHousing.com	37	2	-
Used a community organization contact (from Task 3) to distribute an invitation to participate in our research to their network of landlords and property managers	unknown	2	-
Emailed and called contacts provided by program implementer RISE Engineering	70	1	1
Emailed and called landlords and property managers identified through the customer survey	28	0	1
Emailed and called contacts in list obtained from Data Axle	126	1	1
Total	297	8	3

It is worth noting, that the difficulty the Cadeo team faced in reaching and gaining cooperation from these individuals is illustrative of the difficulty program teams face in marketing their programs to these individuals. In addition to the difficulties reaching these individuals, we found that there is a large degree of turnover among staff and organizations are difficult to identify. Many of the contacts in the lists from RISE and Data Axle were no longer with the companies and many of the phone numbers were no longer in service for organizations that were not rental property landlords or property managers.

Appendix B Detailed Findings

In this section, we provide detailed findings from each of the research tasks undertaken as part of the Nonparticipant Market Barriers Study:

- 1) interviews with community organizations, National Grid, and program implementers,
- 2) surveys of nonparticipating customers,
- 3) follow up interviews with nonparticipating customers who responded to the survey, and
- 4) interviews with landlords and property managers.

In each section, we discuss what we learned from each group regarding program awareness, barriers to participation, and potential ways to overcome barriers to participation.

B.1 Community Organization, National Grid, and Program Implementer Interviews

The primary objectives of these interviews were to learn about the needs of the populations served and potential barriers to participating in National Grid’s programs, potential solutions to overcoming those barriers or reaching populations served, and awareness and perceptions of energy efficiency.

ILLUME conducted 18 interviews with representatives of 17 different community organizations and seven interviews with National Grid program staff and implementers to learn about the communities and cultures of non-participating community members. Our team focused on organizations that serve renters, low-income populations, people with limited English proficiency, front-line communities, and immigrant populations.

B.1.1 Community Organization Awareness of Energy Efficiency Programs

Overall, few representatives of community organizations were familiar with National Grid energy efficiency programs. Of the 18 community organization representatives that we spoke with, eight representatives were familiar with National Grid’s energy efficiency programs. These organizations include prominent advocacy and service organizations in Rhode Island working with renters, large neighborhood organizations, income-constrained community members, and Latinx community members. Four of these interviewees knew of specific programs such as refrigerator recycling, energy audits, and weatherization. The other four interviewees noted that they had heard of energy efficiency programs but were more familiar with programs like heating assistance and budget billing.

B.1.2 Barriers to Energy Efficiency Program Participation

Interviewees identified barriers that prevent National Grid customers they work with in Rhode Island from participating in energy efficiency programs. While presented separately, these barriers often overlap or are closely related. Many customers face multiple or layers of barriers to participation.

Lack of Awareness. Several organizations noted that their clients are likely not aware of National Grid program offerings. The municipal sustainability office stated that the “whole concept that there are incentives out there – hard to keep up with. [The] National Grid website is not easiest to navigate (though most utility websites aren’t).

Wouldn’t expect anyone to have awareness of opportunities unless presented to them.”

One anti-racism community organization mentioned how some homeowners learn of their utility company programs anecdotally through friends and how it feels to some community members like utility offerings are “exclusive to those who know.”

Insufficient Trust. Several organizations we spoke with mentioned that some community members do not trust large organizations, government, or corporations, including utility companies.

The distrust is rooted in several causes: a) interactions with National Grid about high bills, being in arrears, or shutoffs; b) people think signing up for National Grid programs will lead to higher bills; c) programs sound too good to be true. Additionally, one organization noted that some communities have experienced past marginalization and discrimination and may associate National Grid with that system.

“Historically for the people we serve in terms of political processes in trying to get things done they’ve been ignored and isolated so over time you don’t feel like making an effort because you’ve been denied so many times before in the past. White middle-class residents are the one who are more often taking the effort to engage on community benefits whereas BIPOC communities might have lost their sense of trust and engagement in the ‘system’ because of how many times they’ve been blocked against receiving the same benefits. Folks may look at National Grid and see it as part of this ‘system’ and that might detract them from engaging for fear of their voice not being heard. There has to be some level of trust built in to create this progress.”

-Education equity organization

"...there is a distrust of National Grid and people see them as the bad guy. A lot of people start caring about their utility bill under bad circumstances...that's when most people have an interaction with utilities... Community members don't see a community face of National Grid. They don't have anybody out in the community acknowledging what is going on in real life when they're cutting off their lights."

-Faith-based organization

When customers have high utility bills, their interactions with National Grid may primarily be around those high bills. Those interactions with National Grid are viewed negatively, which affects how community members view National Grid's program offers.

Differences in Language and Communication. Rhode Island residents speak a diverse array of languages. Organizations we spoke to work with communities who speak Spanish, Portuguese, Criolu or Cape Verdean Creole, and Hmong. Several noted that they use multiple languages in their communications and see lack of in-language resources as a barrier for National Grid customers. The language barrier extends beyond the website and informational materials to energy efficiency service providers.

Beyond just language, literacy and "understanding the system" or knowing how to communicate with landlords, utilities, and other organizations can prevent people from accessing services there to help them.

"National Grid needs to ensure that we have contractors that resemble and represent the population and offer multiple languages so there are no barriers there. Language is a potential barrier because people don't feel comfortable with a language barrier."

-Housing provider community organization

“Outreach needs to be culturally relevant for different communities, and there needs to be an analysis if the programs are actually accessible.”

-State-level policy advocate

Differences in Culture and Experience. New immigrants and others who are unfamiliar with the Rhode Island’s climate of hot, humid summers and cold winters may not understand program offers and how the programs can help them. This barrier is compounded for those who do not speak or read English. In addition to language, messaging and cultural references can be a barrier. For example, the Childhood Lead Action project noted that when they tried to do outreach in the Nepali community, they found that culturally, people did not talk about health, so they needed to change their messaging to focus on tenants’ rights. They provided information on how to ask a landlord to fix things using

house parties with an interpreter and going door-to-door. Literacy was also a concern.

Rebate Applications and Program Requirements. Community members who lack internet access or speak a language other than English face additional barriers to completing applications for programs and offerings. Community organizations also mentioned that documentation for applications poses a barrier for residents who do not understand how to provide proof of income, electricity bills, or other needed paperwork.

Condition of Housing Stock. Rhode Island has the third oldest housing stock in the country.¹⁹ These older homes often have other maintenance needs that prevent energy efficiency upgrades, such as lead paint and lead pipes, older wiring, mold, or moisture problems. One interviewee noted that the older Rhode Island housing stock is often in need of upgrades that are beyond what utility programs cover. Even with braiding health care funding and other funding streams, repairs such as older wiring are not eligible for utility funding. Another interviewee also mentioned that due to the harsh seasonal changes existing measures, like weather stripping, do not last and need replacing.

According to some organizations we spoke with, concerns about repercussions for code violations may also make some property owners reluctant to participate in programs affiliated with National Grid, due to concerns that program staff will report the violations. Violations may include condition of the building, electrical systems not up to code, and using ineligible attics and basements as rental spaces.

¹⁹ Housingworks RI. 2017. Housing Fact Book. Roger Williams University.
https://www.housingworksri.org/Portals/0/Uploads/Documents/2017_Housing%20Fact%20Book.pdf

“Tenants don’t own the property and landlords don’t pay the energy bills so neither party is incentivized to put money into fixing bad weatherization measures, mold, old wiring and cut down on energy bills.”

-State-level policy advocate

Rental Properties. Interviewees noted that renters face additional barriers as they may be limited in the types of improvements they can make in their homes and communication with landlords or property owners can be inhibited by language, immigration status, dealing with an out-of-state landlord, or dealing with a landlord that lives in the same structure (e.g., owner-occupied triplex).

Renters may not understand their rights or the resources available to them and may fear eviction if they raise any questions about issues in their units.

In addition, interviewees noted the “split incentive” barrier: when renters pay the heating or electrical bill, landlords perceive there is little benefit to spending money to make energy efficiency improvements to the property.

“Many landlords would rather just evict; they aren’t allowed to retaliate but they do.”

*-Child health and safety
community organization*

B.1.3 Challenges Faced by Populations Served

The barriers described above provide opportunities for National Grid to try new approaches to make programs more accessible for customers. However, the community organizations we spoke with also identified several overarching challenges that community members face that may inhibit their awareness of or ability to participate in energy efficiency programming.

Competing Priorities. Through our interviews, we heard about how some community members face housing challenges that surpass concerns about energy use and comfort. These are wide-ranging concerns from a lack of available affordable housing and homelessness to serious problems within homes such as pests, lack of running water, or sewage problems. Beyond housing, families may struggle with transportation, food insecurity, medical bills, unemployment, and other bills and needs.

Establishing and maintaining utility service is a challenge for some community members and takes higher priority than thinking about how much energy is used. One example of complexities faced by community members comes from an organization that supports young adults transitioning out of the foster care system to live independently. The interviewee described that sometimes adults will set up utility service in names of children living in the home to avoid complications with being in arrears. Then, when these children become adults and are

looking to set up service for themselves, they might have unpaid bills in their name. This is a complicated scenario for a newly independent adult to sort out with the utility. While this is a very specific example, it's illustrative of the different scenarios and complications that may take priority over energy efficiency.

High Utility Bills. Community organizations often noted that the community members they serve have high utility bills including water bills, heating bills, and electricity (especially for summer cooling). One interviewee noted that whenever they do surveys about concerns, utility bills is the top concern. Another interviewee noted that there is a group of community members who do not qualify for programs like LIHEAP but are unable to pay their utility bills. The connection between lowering bills and energy efficiency is not always understood, with one interviewee noting that some people may be afraid to participate in program in case it raises their bills.

Stress of Applying to Programs. Interviewees noted that some community members apply to and may receive assistance from several programs such as SNAP and LIHEAP. The process of applying across multiple programs is cumbersome, especially to those who do not speak English, homes that do not have reliable technology or electricity, and immigrants who do not trust or may not qualify for federal programs.

Barriers to Home Ownership. Some community members face barriers to home ownership which, given the challenges faced by renters, limits their ability to participate in energy efficiency programs. Habitat for Humanity noted that some community members are unable to obtain mortgages even if they have a high-enough credit score, because their income is too low. They also noted there are community members with income levels too high to participate in their programs, but they still face financial barriers to home ownership.

First Generation Homeowners. One interviewee noted that first generation homeowners face challenges in knowledge about home maintenance and being aware of existing programs and resources. These community members do not benefit from a generational transfer of knowledge about home ownership. She noted that as a first-generation homeowner she faced unexpected challenges such as dealing with moisture and mold. She also noted she was not aware of National Grid programs until she learned about them from a friend.

B.1.4 Solutions for Nonparticipation

The representatives from community organizations and program staff that we interviewed provided suggestions for potential solutions to address some of the barriers and challenges to community member participation in energy efficiency programs.

Establish Trust by Partnering with a Wide Range of Trusted Organizations and “Champions” from the Community. Champions might also be able to mentor members of the community, helping them through the process of participating in a program. Interviewees

suggested offering referral incentives to leverage word of mouth and spark conversations within communities. Interviewees also suggested that National Grid send representatives to their sites to help customers complete applications. The organizations and community members that customers “trust” will vary by customer, but interviewees commonly suggested:

- Churches: For some community members, faith communities are integral parts of their lives, providing community, and often, social, and financial support.
- Community Organizations: Interviewees from other organizations frequently mentioned Progreso Latino, George Wiley Center, DARE, and CAP agencies as trusted community organizations.
- Neighbors and Neighborhood Organizations: For example, one organization gave an example of a successful vaccination campaign that using members of the community that people recognized. Another interviewee noted that organizations need to build relationships one relationship at a time by targeting smaller, tight-knit groups that have connections to other groups.
- Other Landlords: One interviewee noted that trusted connections are also important for reaching landlords. He shared a successful experience of reaching out to a landlord that had participated in a weatherization program to have that person speak to another landlord that was reluctant to participate.

“A lot of times organizations really focus on how to engage the most people and grow to scale. Whereas the real question is how to build critical relationships one relationship at a time? The strategy we use is to not get as many people as possible but to really build at a grassroots level to build slowly and steadily and authentically and get people involved at an individual and personal level.”

-Education equity community organization

Diversify Language, Content, and Channel of Messaging to Ensure Messaging is Accessible, Culturally Relevant, and is Available on the Channels that Community Members are Using.

Interviewees stressed the importance of having materials and websites translated by humans into languages such as Spanish, Portuguese, Mandarin, and others. Interviewees also stressed the importance of modifying the content of the messaging to resonate with different cultural norms and preferences and having program representatives who resemble and represent the communities National Grid serves. Interviewees suggested a range of messaging platforms including text messages, social media, podcasts, local radio, farmer’s markets, printed flyers, door-to-door (in conjunction with community organizations). Interviewees noted that it takes multiple points of contact before someone acts.

Pair Utility Program Messaging with Other Pertinent Topics for Different Audiences.

Suggestions included:

- Couple messaging about utility programs with messaging about utility customer rights or tenant rights.
- Pair messaging about energy savings with health (healthy communities, healthy children) or home maintenance.
- Combine program messaging with messaging about bill savings or the “free” aspects of the programs.

Streamline Website Information and Organize it Around How People Look for

Information. For example, the website currently organizes information by program, but customers may not understand the program organization and may miss opportunities. A single list of all rebates may help customers.

B.2 Nonparticipant Customer Surveys

This section describes the detailed findings from the nonparticipant customers survey, including a characterization of nonparticipants, and explorations of barriers to participation, communication preferences and strategies, and solutions to nonparticipation. We also explore differences between renters and homeowners, where statistically significant. There were fewer significant differences between respondents with low and medium to high propensity scores. Appendix C Supplementary Tables provides survey crosstabulations by home ownership and propensity score grouping. We weighted the survey data to represent the nonparticipant sample frame.

B.2.1 Characterization of Nonparticipants

Some survey respondents reported that they had participated in National Grid programs despite their records in the tracking data. Most respondents were English-speaking homeowners living above the state median income, in households with no children.

Program Participation. The sample frame excluded customers who were past participants in the National Grid program tracking data. However, approximately one-fourth (22%) of all survey respondents reported previous participation in National Grid energy efficiency programs in either their current home (15%) or in a previous home (7%).

This difference between self-reported participation and participation defined by the tracking data is expected for several reasons: 1) Our sample frame focused on participation from 2009 to present, so it is possible respondents participated prior to 2009, 2) Respondents may have misremembered participating in a program, 3) Participation in a previous home would not have been identified through the Census study, and 4) Inconsistencies in tracking data may have also resulted in inaccurate classification of participation.

Respondents who reported participating in an energy efficiency program most frequently participated in the EnergyWise Single Family program which they knew as the EnergyWise/RISE program (n=76) and the Home Energy Assessment program (n=46).²⁰ Other programs respondents participated in included the Appliance Rebate program (n=43) and the Appliance Recycling program (n=32).

Home and Demographic Characteristics.

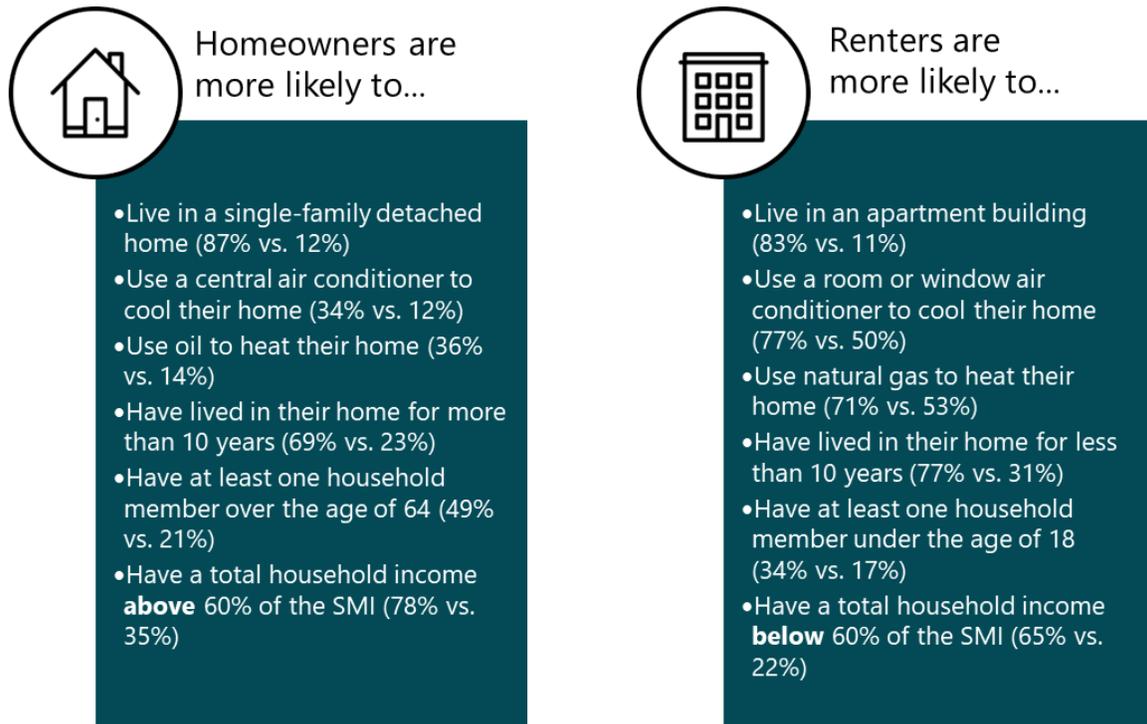
Most respondents reported living in single-family detached homes (77%) and homes built before 1970. Over one-half of those who knew when their home was built reported that their home was built before 1970 (58%).

Most respondents live in adult-only households. About one-quarter reported having a child under the age of 18 living in their home. Over one-half reported having at least one household member aged 18-64 (58%), and slightly less than one-half had a household member over the age of 64 (42%). Overall, 22% of respondents had a total household income below 60% of the Statewide Median Income (SMI). Households with at least one member over 64 (84%) were significantly more likely than households without a member over the age of 64 (57%) to own their homes.

There were several significant differences between the home and demographic characteristics of homeowners and renters, highlighted in Figure 3. Sections C.1 and 0 in Appendix C Supplementary Tables provide additional detail on housing and demographic characteristics.

²⁰ The Home Energy Assessment program is sometimes referred to as EnergyWise or RISE. We left these as separate categories in the participant survey per guidance from National Grid program staff that customers might recognize the program by different names.

Figure 3. Differences between Homeowners and Renters



Languages Spoken. While 17% of respondents indicated that they spoke a language other than English, almost all respondents took the survey in English (95%), with 4% completing in Spanish (n=47) and less than 1% completing in Portuguese (n=3). Renters were more likely than homeowners to speak another language (27% vs. 16%). The most common languages respondents speak were Spanish, Portuguese, and French. We do want to acknowledge that we only offered the web survey in English, Spanish, and Portuguese, and the mail survey in English, potentially introducing some respondent bias towards English-speakers.

B.2.2 Barriers to Energy Efficiency Program Participation

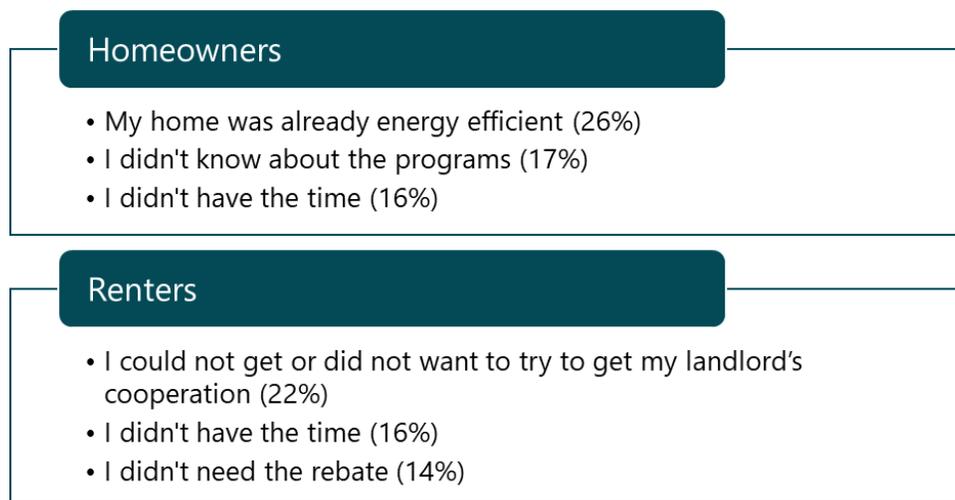
Low program awareness and concerns about bill payments prevented survey respondents from participating in energy saving programs. Other reasons for nonparticipation varied across owners and renters.

Lack of Awareness. Overall, close to 40% of customers did not know National Grid offers energy efficiency programs, indicating a lack of program awareness. In addition, almost three-fourths of all respondents did not know prior to the survey that National Grid offers programs and services to low-income households at no cost. Homeowners were more likely than renters to be aware of National Grid programs (65% vs. 53%). Households with a member over 64, who were also more likely to be homeowners, were more likely than households without a member over 64 to be aware of National Grid programs (67% vs 61%).

Respondents who knew about the offerings were most familiar with the EnergyWise/RISE Program (54%), Appliance rebate program (52%), Home Energy Assessment program (52%), and Appliance Recycling program (46%).

Reasons for Nonparticipation. Owners and renters who knew of the programs but indicated that they had not participated or investigated participating in a National Grid program reported different reasons why (Figure 4). Few respondents who knew of the programs had investigated participating (9%) or started the applications process (1%), but among those who had, thinking they were not eligible was the most common reason for not completing the process of applying.

Figure 4. Reasons for Not Participating in a National Grid Program



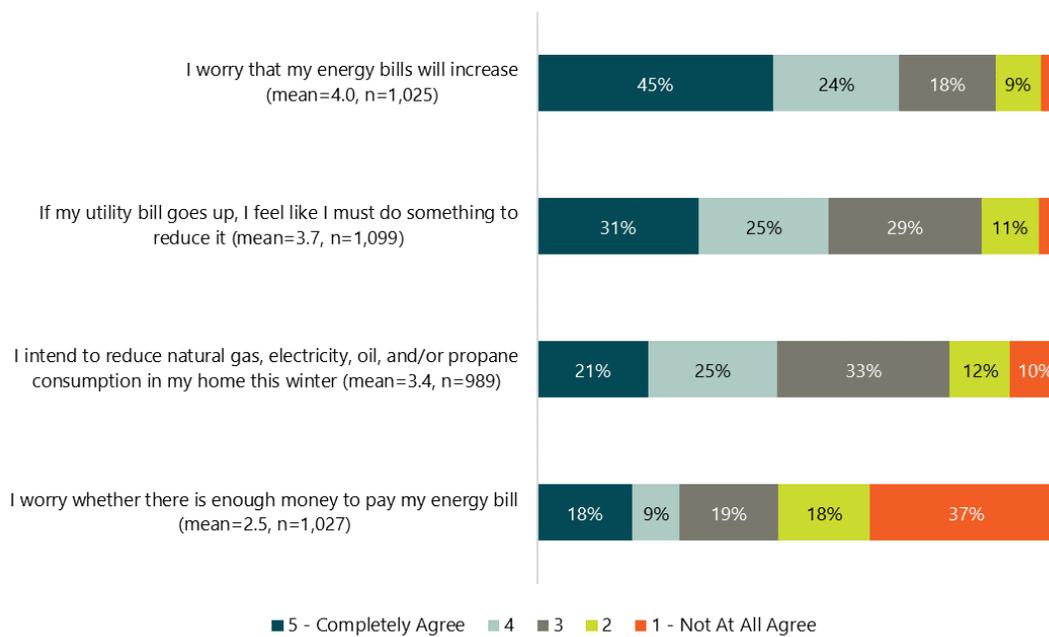
There was also some variation in reasons for not participating in National Grid programs by age of the household. Fifty-nine percent of households with a member over age 64 have never participated or looked into participating in a program compared to 45% of households without a member over age 64. Older households were more likely to say they did not participate because their home was already efficient (28% vs 17%), or they could not afford the improvement (14% vs 6%). In contrast, younger households were more likely to say they did not participate because they did not have the time (24% vs 9%), it seemed too complicated (19% vs 8%), and they were not available to have someone in their home (10% vs 1%).

Concern with Energy Bills. Most respondents considered their energy bill a moderate to large monthly expense and expressed concern that it would increase, indicating that the priority of simply paying their bill might take precedence over program participation or investing in energy efficiency. Most respondents (56%) considered their energy bill to be a moderate monthly expense compared to other monthly expenses and another 31% considered it a large monthly

expense. Over two-thirds of respondents (69%) agreed with the statement “I worry that my energy bills will increase.”²¹

Respondents also expressed feeling like they need to take action to reduce their energy bill if it goes up or if they get an unexpectedly high bill. Over half of respondents (56%) agreed with the statement “If my utility bill goes up, I feel like I must do something to reduce it.”⁶ Further, when respondents get an unexpectedly high bill, they most often try to use less energy (47%), just pay the bill (44%), or call their utility to check if its accurate (33%). Figure 5 provides additional detail on respondent attitudes toward their energy bill.

Figure 5. Agreement with Statements About Energy Bill



B.2.3 Communication and Messaging

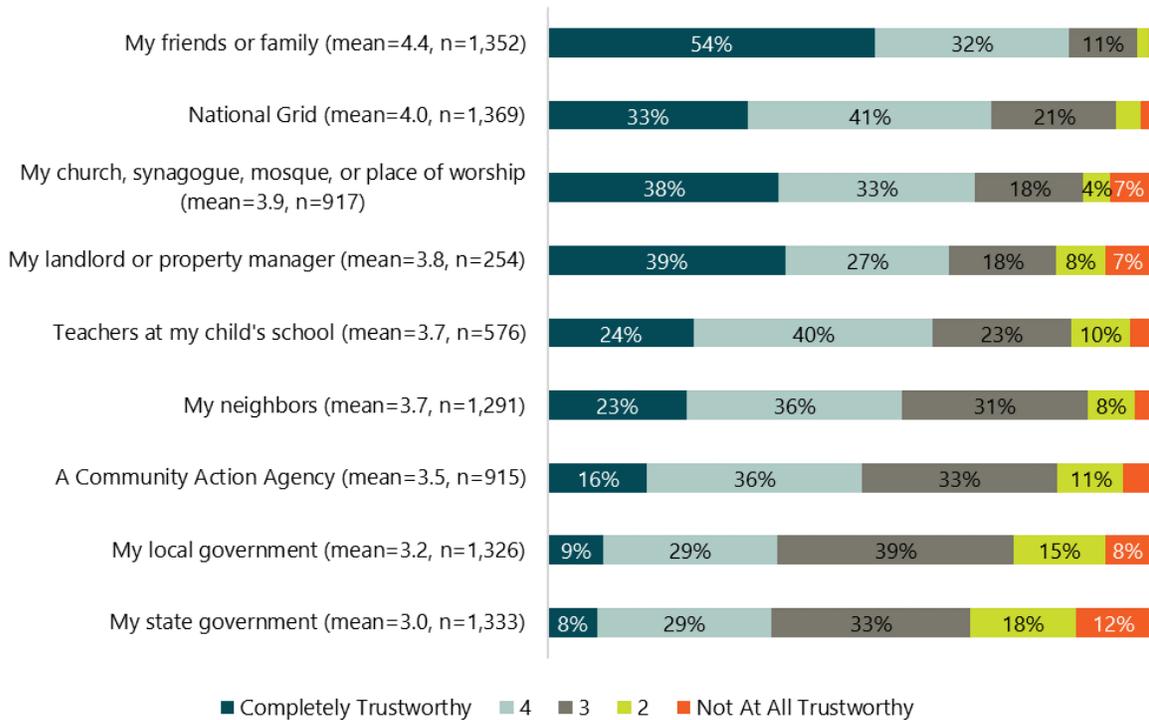
Respondents trust a variety of sources for information and communication preferences ranged across all modes. Health in the home, risk of damage, and high energy use were the top concerns respondents had about their homes. Respondents had high levels of concern for the environment where almost half said they would pay more for products that help the environment.

Trusted Sources of Information. Respondents reported high levels of trust with their friends and family, and National Grid, as sources of information. Among various sources of information, 86% of respondents rated their friends or family and 73% of respondents rated National Grid a 4 or 5 on a scale of 1 to 5 where 1 was “not at all trustworthy” and 5 was “completely trustworthy.”

²¹ Rated the statement a 4 or 5 on a scale of 1 to 5 where 1 was “not at all agree” and 5 was “completely agree”

There were no significant differences between those who indicated participating in a National Grid program and those who did not, when it came to the level of trust with National Grid. However, respondents living in households that have a member over age 64 placed greater trust in National Grid than households that do not have a member over age 64. Figure 6 provides additional detail on how much all survey respondents trust different sources for providing information.

Figure 6. Rating of Trustworthy Sources of Information



Communication Preferences. Respondents expressed interest in a variety of communication channels. Almost one-half of respondents (48%) said they would prefer to receive information about energy efficiency programs via a letter or postcard from National Grid, separate from their bill. Other preferences included an email from National Grid (47%), a flyer included in their bill (43%), and on National Grid’s website (21%). We also found that most respondents use Facebook on a regular basis (63%), with a smaller proportion using Instagram on a regular basis (31%). As shown in Table 12, communication preferences varied with the age of the household, with older households showing greater preference for non-digital communications and younger households showing greater preference for digital communications. Additionally, while regardless of age, almost all households have internet access, older households were significantly less likely to have email (87% vs. 94%), a smartphone (75% vs. 89%), or use social media (69% vs. 85%).

Table 12. Best Way to Reach Customers about National Grid Programs

	Overall	Households with Member Over 64	Households without Member Over 64
A letter or postcard from National Grid, separate from the monthly bill	48%	51%*	44%
An email from National Grid	47%	40%	63%*
A flyer included in my monthly bill from National Grid	43%	50%*	32%
National Grid's website	21%	19%	26%*
Text messages to my mobile phone	15%	12%	21%*
TV/Radio ads	12%	13%	9%
Print media (newspaper/magazine)	12%	18%*	6%
Social media (e.g., Facebook, Twitter, Instagram)	9%	6%	12%*
Through my friends, family, or neighbors	7%	7%	5%
Internet ad	7%	6%	9%
Retail stores (e.g., Home Depot, Best Buy)	6%	6%	6%
Local radio shows/podcasts	3%	4%	2%
Through a member of my community	2%	2%	1%
Other	1%	1%	1%
Respondents (n)	1,417	657	564

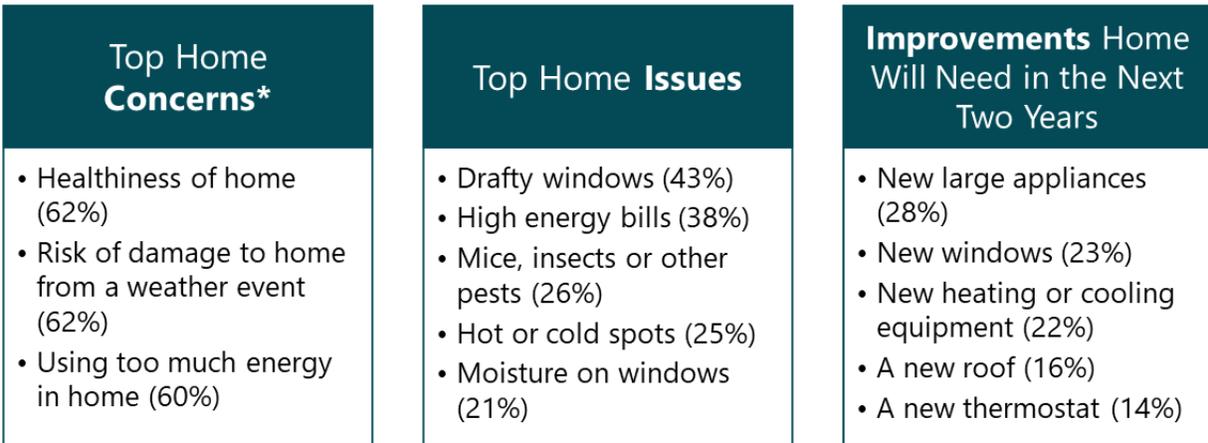
*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Concerns in the Home. To explore opportunities for program messaging or design changes, we asked respondents to 1) rate their concern with potential issues in their home (like drafts, the healthiness of their home, or using too much energy or water), 2) indicate any issues they currently have in their home, and 3) indicate what improvements their home will need in the next two years.

Across these three areas, respondents reported high levels of concern with the air quality in their home, risk of damage to their home from a weather event, drafty windows, and high energy bills. They expected to need large new appliances soon (Figure 7). Table 29, Table 32, and Table 43 in Appendix C Supplementary Tables provide additional detail.

Figure 7. Concerns and Issues in Home



*Rated the statement a 4 or 5 on a scale of 1 to 5 where 1 was “not at all concerned” and 5 was “very concerned.”

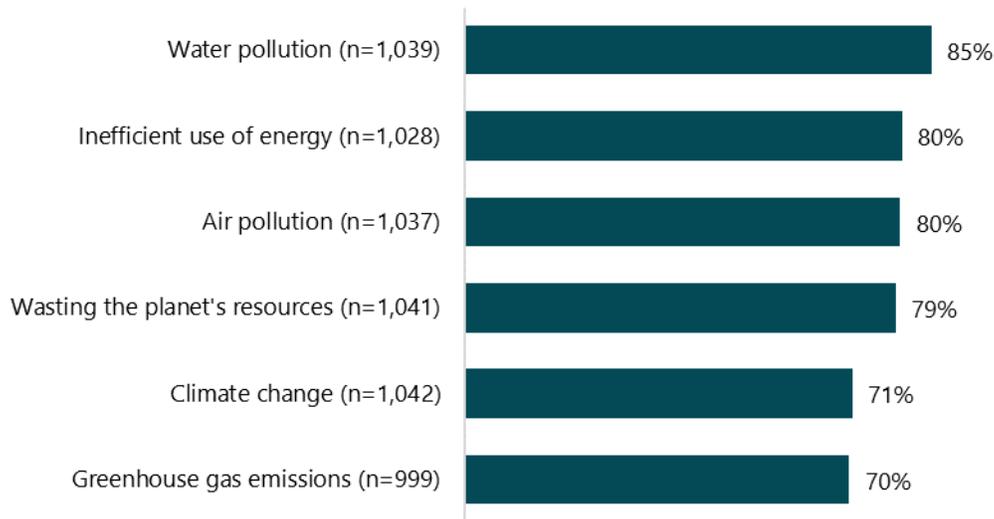
Renters were more likely than homeowners to experience issues with drafty windows in their homes (62% vs. 38%). They were also more likely to be uncomfortably cold in the winter (27% vs. 12%) and uncomfortably hot in the summer (28% vs. 19%). Renters also experienced more issues with mold (17% vs. 7%), broken windows (10% vs. 5%), and poor air quality (9% vs. 3%).

Home Repair and Maintenance. When needing to make repairs in their home, most homeowners said they would either hire a professional (71%) or fix or replace the item themselves (70%). Most renters said they would ask their landlord or property manager to address the issue (89%) or fix or replace the item themselves (41%).

Survey respondents were generally self-sufficient when it comes to maintaining their homes. Over two-thirds (68%) of respondents said they have the knowledge and look to themselves for information about maintaining their home. Another 61% said they would look to friends, family members or neighbors, followed by a home improvement store (54%), and National Grid (29%).

Concerns About the Environment. Respondents reported high levels of concern with various environmental factors including water pollution, climate change, air pollution, inefficient use of energy, greenhouse gas emissions and wasting the planet’s resources (Figure 8).

Figure 8. Concern with Environmental Factors



*Percent of respondents who rated the statement a 4 or 5 on a scale of 1 to 5 where 1 was “not at all concerned” and 5 was “very concerned”

Respondents were also indicated that they were willing to pay more money for products that were environmentally friendly. Almost one-half (45%) agreed with the statement “I often pay more for products that are environmentally friendly.”²²

B.2.4 Landlord Perceptions

Most renters did not think their landlords would be willing to make energy efficiency improvements, just under 40% thought that they would. Some were also worried that making energy efficient improvements in their home would increase their rent (43%) or that their landlord would retaliate in some way if they requested that improvements be made to their home (25%). However, renters thought their landlords would be more receptive to making repairs and health and safety improvements, with 72% indicating that their landlord would be willing to fix broken items in their home and 53% indicating that their landlord would make health and safety improvements in their home.

B.2.5 Solutions for Nonparticipation

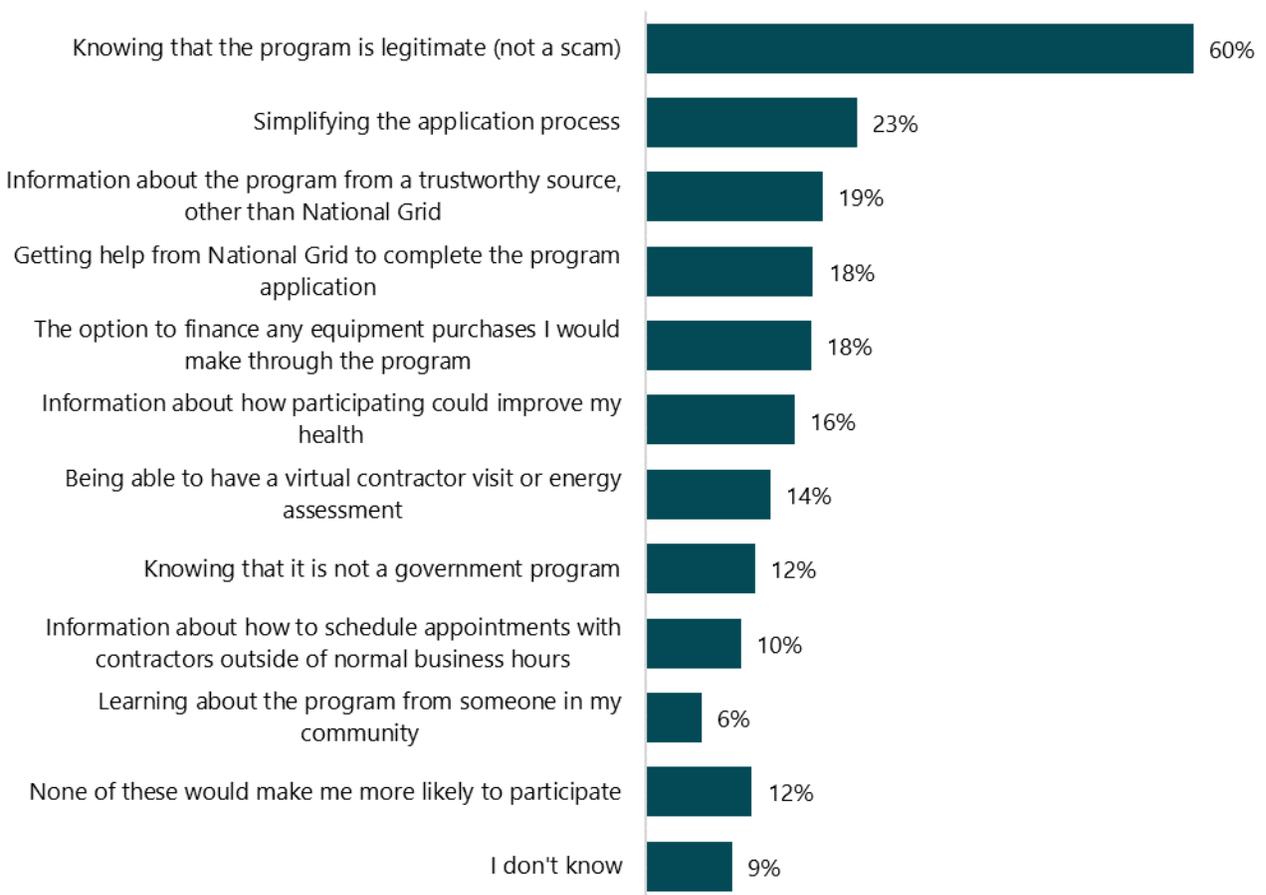
To explore solutions to nonparticipation, we asked respondents to indicate from a list of various potential solutions, which ones would make them more likely to participate in a National Grid program. A substantial portion of respondents (21%) did not think any of the items listed would make them more likely to participate (12%), or they did not know what would make them more likely to participate (9%).

²² Rated the statement a 4 or 5 on a scale of 1 to 5 where 1 was “not at all agree” and 5 was “completely agree.”

By far, the option most likely to encourage participation was knowing that the program is legitimate and not a scam. Almost two-thirds (60%) of respondents said knowing that the program is legitimate (not a scam) would make them more likely to participate. Twenty-three percent of respondents indicated that simplifying the application process would make them more likely to participate and 18% indicated that getting help from National Grid to complete the application would make them more likely to participate.

While almost one-fifth (19%) thought hearing about the program from a trustworthy source other than National Grid would make them more likely to participate, this did not necessarily mean someone in their community. Fewer than 10% thought learning about the program from someone in their community would make them more likely to participate.

Figure 9. Factors that Might Encourage Customers to Participate (n=1,399)



B.3 Nonparticipant Customer Interviews

We conducted 24 in-depth interviews with nonparticipants to expand upon the findings of the survey to 1) understand the barriers that are preventing identified customer groups from

participating in energy efficiency programs; 2) listen to the key words and modes of communication customers prefer for program messaging; and 3) evaluate the potential of new program concepts or other possible solutions to barriers to participation.

We spoke with:

- Eleven homeowners,
- Thirteen renters,
- At least seven, but no more than fourteen, low- or moderate-income individuals (several respondents preferred not to answer the income question on the survey); and
- Five Spanish and Portuguese speakers.

All names have been changed to protect the anonymity of interviewees.

B.3.1 Barriers to Energy Efficiency Program Participation

Nonparticipant customer interviewees revealed broad barriers to program participation across different customer group characteristics. Some barriers, such as trust in National Grid, customer satisfaction, understanding of program requirements/eligibility, and program awareness, National Grid may be able to directly control. Other barriers to program participation are personal and more difficult for National Grid to control, such as a participant having enough time to apply for a rebate, being comfortable with a financial investment, and renting or communicating with a landlord, but important to understand and account for to the extent possible.

National Grid's Energy Saving Programs and Reputation Have Positive Impacts on Trust, But Cost Increases and a Lack of Market Competition Garner Negativity. Overall, interviewees were more likely to express the sentiment of not trusting National Grid than trusting National Grid when it comes to saving them energy or money. Interviewees who did not trust National Grid talked most frequently about National Grid's "rate increases" (six interviewees) and high "costs." They also talked about how National Grid is a "monopoly" with "no competition" and out to make a "profit." One interviewee noted that because of climate change, she "wish[ed] National Grid didn't exist."

"It's a profit agency company, so their bottom line is to make money... rates just keep going up."

-Kerry, homeowner

"I have no choice but to have National Grid."

-Lenny, renter

"Ever since I got here, I felt National Grid is the most well-known gas service provider. I trust them. What I like a lot is that they always let me know when electricity is out and when it is going to be back up. I appreciate it very much."

-Karla, renter

[National Grid helps people save energy because] otherwise they wouldn't be offering all these programs."

-Donald, renter

"I feel that National Grid is a company I can trust. It is safe, it is large, it is the company that provides me with gas. I, on the other hand, I do not trust smaller companies that offer me discounts to sign up for a cheaper rate."

-Benita, homeowner

Interviewees who trust National Grid mentioned different reasons for that trust. Some talked about how National Grid 'offer[s] programs' and 'solar panels' and another mentioned trusting National Grid because they are a 'big company.' Others understood that National Grid has programs 'so that the grid is not overburdened' and therefore trusted the programs. They mentioned their outages, offerings for solar panels, and the interview itself all in terms of positive associations with National Grid.

Low Awareness of Programs, Compounded by the Perception Amongst the Aware that Programs are for Other Types of Customers.

One-third (eight) of the interviewees were unaware of National Grid programs, including two who had made potentially qualifying energy efficiency improvements to their homes recently. Interviewees who use fuel oil in their homes were uncertain about what National Grid offerings were available to them.

Three interviewees who were aware of National Grid's programs had the perception that programs are for low-income households or people who need the services. These interviewees were worried that by participating, they might take a spot in a program away from someone else in greater need. One interviewee also thought on-bill financing was an offering specifically for low-income customers.

A Lack of Understanding as to Why National Grid Has Energy-Saving Programs, General Confusion About National Grid's Business Model, and Uncertainty About Options to Switch to Other Energy Providers.

Interviewees expressed confusion about why National Grid has energy-saving programs and how National Grid benefits from customers reducing energy use and in turn the money they pay National Grid. Interviewees thought the utility business model was profiting from using more energy, which would be contrary to National Grid wanting customers to save energy. Interviewees mentioned competing services available from other energy service providers. They did not understand if they really had the option to switch to a

different service provider and if their energy would still be delivered from the same grid system as National Grid.

Living in a Rental is a Stopping Point for Thinking About Participating in Programs. Most of the renters we interviewed said that being in a rental was a barrier for several reasons: 1)

renters have fewer options for participation available to them (and some thought they did not have any); 2) renters tend not to want to attract the attention of their landlords and are therefore hesitant to contact them; and 3) renters fear being evicted or priced out of their homes.

"Doing all of the windows upstairs in a big house -- it was like 17 windows -- did not make as much of a change as I expected it to. The furnace was a very old furnace and I replaced that. It made a significant difference."

-Nancy, homeowner

First, as many renters noted, they have fewer options than homeowners. Some did not think there were any energy efficiency improvements they could make. As a result, two interviewees who were renters mentioned they would like energy saving solutions that they could take with them when they move to new homes.

Second, renters we interviewed did not want to attract the attention of their landlords even to fix things in their apartments, let alone ask for energy efficiency improvements. Interviewees were hesitant to contact

their landlords and shared examples of times they did not contact their landlords for fixing things in their units.

Instead, they weighed how important something was to fix against their ability to fix it themselves before asking the landlord for help. Renters do not always know how to contact their landlords either. As one interviewee mentioned, her large management company was difficult to reach because there was no single point of contact and there was low responsiveness on their digital communication platform.

Another Barrier for Tenants is a Fear of Getting Priced Out of Their Homes.

One renter mentioned that seeing her landlord make investments in the property increases her fears that she will no longer be able to afford her rental. Three interviewees mentioned fears of rate hikes after speaking with landlords or landlords making improvements to their property that increase the value. Renters may also worry that participating in an income-

"We're the little guys and [the bill is] a black box to us. If I was charged twice for what my electricity is, I don't have a choice, I pay what I pay, it's not like you go to the grocery store and you can see what you're buying. I don't know if it's real or not."

-Patrice, homeowner

qualified program could have repercussions. As one renter noted, there is also a risk to a landlord knowing of a tenant's participation in an income-qualified program because this could create a dichotomy between showing low-income for qualification and wanting to show high income to a landlord.

Uncertainty About What, if Any, Bill Impacts Would Result from Making Energy Efficient Improvements.

Almost all interviewees could provide examples of how to save energy, but they could only guess at the potential impact, which was key to them in deciding to participate. Without knowing how much energy or money they will save, interviewees said it would be difficult to assess if participating is worth their time and money. Most interviewees had prior experience changing behavior or equipment to save energy. While some of these interviewees mentioned that they did notice differences in their bills after the changes, others did not, leaving them skeptical of making future improvements. Interviewees weighed these past experiences with saving energy when predicting benefits of making other changes.

Additionally, there is a perceived lack of correlation between energy use and the utility bill that impacts trust in the accuracy of their bills. Interviewees noted that especially with energy rates increasing, it can be hard to tell if there are any bill savings after making a behavior or equipment change, and over the long term, it is difficult to estimate payback periods for their investments.

Distrust in the Need for Improvements and Program Claims. Two primary reasons for skepticism – being convinced of something unnecessary, and a too-good-to-be-true mentality – are impacting the degree to which interviewees believe National Grid programs are legitimate. One reason for skepticism is that people do not want to be sold on something they do not need. Therefore, interviewees are wary of talking to people from National Grid or being referred to third party companies for fear of spending money on unnecessary improvements or changes. A few interviewees preferred looking at the National Grid website to avoid these interactions. Some

"I don't think I really noticed it on the bill."

-Clayton, homeowner, after getting a new energy efficient refrigerator and deep freezer

"My experience with the solar panels I was going to install was at the beginning, they presented a very great picture of what it was going to look like, my bill was going to go down, I was going to be compensated because other people was going to be able to use it, and the sun was perfect for my house. Everything was great. When I started the paperwork, I was told I needed to get a loan to finance the panels, so it wasn't like I was told at the beginning. They don't give all the information upfront. I didn't like that. I didn't feel safe."

-Benita, homeowner

interviewees were also skeptical that participating in a home energy assessment would provide new information about their home.

Another reason for skepticism is being afraid that companies recommend a product or improvements, only to have its benefits not turn out as promised. This was a more nuanced definition of legitimacy than what we were able to understand from the survey, where legitimacy (defined as programs potentially being scams) was the biggest barrier to program participation.

"I get the solicitation and I look at it. Two things go through my mind: I am really not sure of how it works, and the other is skepticism that if it sounds too good to be true it probably is. What makes this whole landscape confusing is that there are other folks in the business soliciting people, usually alternative power purchases, and it's seamless because it's billed to you, and I think it confuses the landscape, people are skeptical of those offers because there is no guarantee."

-Rick, homeowner

Upfront costs and ability to evaluate the return on investment for energy efficient equipment. Even with rebates, the upfront costs of energy efficient appliances are a high barrier to many interviewees.

Several interviewees said that they prefer to own what they have in their homes, rather than paying for something they could not afford via financing. Another noted that he had previously considered participating but could not afford any of the eligible equipment at that time and felt that rebates were only offered on very expensive equipment.

Interviewees also consider their return on investment when making a financial commitment. For some interviewees, return on investment was their top factor in deciding to participate in a program. They want to know how long the payback period will be to decide if the investment will be worth their time financially. Homeowners consider how long they will be in their homes and consider if they have other more important priorities to invest in for their home maintenance other than saving energy.

"Do you know how many bulbs I would need and what the difference [in savings] would be? What would the cost of the bulb be and what would the savings be? How long would it take me to recoup the cost of the bulbs?"

-Lenny, renter

"When I bought the appliances, I think [Lowe's] had a financing thing but I just would rather pay it all then, so I don't have to worry about another payment."

-Clayton, homeowner

Low Customer Satisfaction and Unmet Needs for Baseline Energy Service. Prerequisites for program participation are meeting the needs of customer satisfaction and baseline energy service. Interviewees had a range of examples of prior experiences with National Grid that impacted their likelihood to sign up for programs. They based their opinion of National Grid on

“Right now, I feel like I’m giving [National Grid] so much money, and why am I not warm?”

-Nancy, homeowner

prior customer service touchpoints, such as positive or negative power outage experiences, interactions with a customer representative in their home or on the phone and seeing National Grid employees doing work in their areas. Additionally, interviewees expressed wanting good, affordable, dependable, and consistent energy delivery and customer service as a baseline expectation. Not having this baseline met is a barrier to participating in programs. Interviewees wanted to feel warm and comfortable with what they have

before they can think about enrolling in what they perceived as extra programs and services like energy efficiency.

Concern Over Sharing Income and Other Personal Information. Some interviewees will not participate in programs if income information is required.

Program requirements, like providing income, are barriers to participation. Three interviewees said providing income information was too invasive and one noted that there is a social stigma to the enrollment process.

“I wouldn’t divulge income and I wouldn’t divulge some of those personal questions.”

-Lenny, renter

"I do a lot of online shopping due to my disability and often see that the "greener" option even for a light bulb cost more. I'm not sure if that's just reflected in online prices and might also be the case for products in store, which prevents me from buying the more energy efficient product altogether."

-Lottie, renter

Living Situations, Home Conditions, and Other Priorities. Interviewees noted a variety of different living situations, home conditions and other priorities that interfered with their ability to prioritize energy efficiency. Interviewees mentioned their lack of time, disabilities, childcare needs, and work commitments all as barriers to participating in programs. They are prioritizing their needs and necessarily de-prioritizing spending time looking for ways to save energy. Particularly for people with disabilities decision-making for energy efficient upgrades is different from the wider population because access to learning about and purchasing products is limited if they cannot go in stores.

Interviewees also noted that having people in the home, living in a historic building, and COVID-19 were all considerations for what improvements they are willing or able to make to their homes.

B.3.2 Communication

Nonparticipant customer interviewees preferred email and bill inserts for how they would like to receive information from National Grid. They used many different words to describe energy and provided a range of efficiency concepts that they associated with energy efficiency. Interviewees get their information from different sources for different purposes, but generally from newspapers for news or CAP agencies for program information.

Interviewees Prefer Eye-Catching Communications They Can Read at Their Convenience.

The most preferred contact method of the interviewees was email because they could read an email whenever convenient as opposed to answering the phone or missing a phone call. One interviewee also noted that an email could be printed if desired. Mail and bill inserts were second most preferred, with some interviewees mentioning that they read every piece of mail and would see something eye-catching. Least frequently interviewees also mentioned preferences for phone calls (because they would not get lost amongst advertisements in an email inbox), Facebook (as one interviewee's only form of social media), or text messaging from National Grid (because texts are very short).

While interviewees prefer initial communications through email or direct mail, they do still want access to program representatives when they have questions. Interviewees expressed wanting phone numbers to call for customer service if necessary and that these numbers should go straight to a person. One Spanish-speaking interviewee noted that phone numbers are especially necessary for those at low reading levels or speaking languages other than English.

Interviewees Turn to Newspapers, Online News, and Television News for Information More Commonly Than Social Media.

Interviewees frequently said that they get general information from newspaper outlets, with one specifically mentioning Apple News. One interviewee said she trusts television and radio news. Two interviewees specifically said they do not get information from social media because they thought it was likely that there would be false information.

Interviewees were familiar with CAP agencies and other organizations providing services for income-qualified residents, including BVCAP, Tri-Town, Habitat for Humanity, Medicaid, and WIC. Those who were familiar noted that they learn about programs for which they are qualified through these agencies.

"The last source I would use to get informed is social media. You can never know if the information is truthful or not. I always go back to the original source to determine if what I read on social media is true or not."

-Yolanda, renter

Interviewees Talked About Electricity Using the Words "Energy," "Electricity," and "Electric" Along with the Notions of Heating and Cooling.

Interviewees used a variety of energy words to describe how they save energy and what services National Grid provides. Interviewees generally referred to the concepts of using or saving energy or money all interchangeably and generally used the words "energy," "electricity" or "electric." Several interviewees connected their energy use with heating, cooling, and plug-in devices, talking about energy in terms of being hot in the summer and cold in the winter when using their heat. "Power" is a word that did not come up in our conversations except for one reference to a "power outage."

The Concept of Energy Efficiency is Best Understood with Examples of Saving Energy.

When asked to describe what energy efficiency meant to them, interviewee responses generally fell into the following categories:

- Most frequently interviewees equated energy efficiency to specific actions and provided an example **energy efficient behavior**, such as, turning or shutting things off, adjusting the thermostat, and buying efficient appliances, bulbs, and devices.
- Interviewees also sometimes provided **synonyms for energy efficiency** such as using "electricity conscientiously" and having less "waste."
- Lastly some interviewees talked about **the environment** and using alternative fuels in the context of energy efficiency. One interviewee each mentioned using less natural gas, using green energy, and using wind or solar. One interviewee associated energy efficiency with helping the environment. Conversely, one interview used the term greenwashing when thinking of energy efficiency, noting how the same companies asking people to save energy are the ones wasting it.

B.3.3 Solutions for Nonparticipation

"[Health benefits are] probably more important than comfort, but still not as important as saving money and using energy that I feel ethically good about."

-Alli, renter

Interviewees provided numerous suggestions for ways to better inform customers like themselves of program benefits, educate them on their program options, and market towards the benefits that are most important to National Grid's customers in Rhode Island. Information on which programs and rebates they are eligible for and how much energy they can save would make it easier for them to make the decision to participate.

Promote Financial Savings. Market to the greatest appeal for interviewees to save energy, which was saving money. Financial savings was the primary motivator for saving energy or participating in programs for half of the interviewees (n=12).

While several interviewees noted

their care for the climate and environment, for them, these still come second to bill savings or incentives when they are deciding to participate in a program. Interviewees wanted to see the impact on their bills when they use less energy, from an energy saving behavior, or even just seasonally. One interviewee said he would be more likely to open notices or emails with dollar savings on the envelope or in the subject line.

Other motivators for saving energy were not top of mind for interviewees. When prompted, eight interviewees thought comfort was a benefit. Fewer noted the benefits of improved health and air quality. Interviewees were mixed on potential re-sale values of their homes being a benefit. Another benefit that an interviewee noted as very important to her in her rental unit was noise reduction from insulation. She had noticed noise reduction after a previous upgrade and was very satisfied with the unanticipated effect.

"I like a lot of information about how to save money. I love saving money."

-Selena, homeowner

"I do compost and I pay a company to do that, but when it comes to electricity and stuff like that, definitely it's all for the money."

-Mick, renter

*"I wonder how feasible it is, ...
Like if you watch 2 hours less of
TV a day you could save this
much on your energy bill. Put
things that people are doing a
lot and see the monetary value.
Or charging your iPad or...
anything that's on for a
prolonged period of time. If you
have electric heat, at 65 instead
of 68 you can save [some
amount of energy and money]."*

-Donald, renter

Clearly Explain Why National Grid Has Energy Saving Programs and How National Grid Benefits from Customers Saving Energy. Interviewees wanted to know why National Grid has energy saving programs. Clearly explaining to nonparticipants how the Company as well as the customer benefit from energy savings would be helpful in fostering understanding and trust. While one interviewee understood that programs could reduce demand and burden on the grid, thereby preventing blackouts, others did not. One interviewee expressed appreciation for being able to ask and learn more about why National Grid has energy saving programs from the interview. She found it helpful to learn more about the utility business model, regulatory mandates and funding, systems benefits charges, and revenue decoupling.

Provide Details on Program Eligibility and Estimated Savings in a Convenient Location and Accessible Format. Many interviewees wanted access to specific program information that they could easily refer to on their own time, such as a newsletter or webpage near where they pay their bills online. They wanted details to help them understand for how long programs run and for what programs they may be eligible, how to participate, and what benefits they might expect. They noted that seeing information on energy and bill savings would help them decide if making an improvement would save them energy and money and therefore be worth their time.

*"There's things National Grid could do, like a pamphlet showing usage of each
appliance. Pictures and visuals from energy suckers."*

-Lynn, renter

Promote Programs Via Customized Testimonials and Referrals Through Partnerships.

Interviewees generally thought testimonials would be more helpful than referrals from previous participants because testimonials could provide real life examples of what to expect from a program or rebate in terms of program experience and bill savings. Interviewees wanted to see how similar homes saved energy and money, which would also help nonparticipants achieve more autonomy in deciding which program or rebate would be right for them. Several interviewees expressed that seeing how someone like them in a home like theirs could save money and energy would be beneficial. One interviewee suggested targeted success stories would be helpful if they sounded like “someone else with a house [the same age as yours] in RI recently got a new water heater and saved this much money.”

“More outreach like this [the interview], more outreach that seems more sincere than an occasional postcard. I think if they made it more personal, even if they had some examples of someone who lived in Providence for example, an honest example, and what the outcome was. Made it more real rather than a cloudy opportunity.”

-Nancy, homeowner

“That would be great. I hear that, not necessarily with National Grid, but we deal with that at work. A lot of households have high levels of lead and I really feel for the tenants because they’re afraid to say anything to their landlords. They don’t want to get evicted because the landlord doesn’t want to make improvements to the apartments. It has happened. So, I think that would be great for tenants to know. The information is included in our promotional materials.”

-Donald, renter

However, interviewees do value referrals from trusted organizations. A few interviewees also suggested that National Grid partner with grassroots organizations to conduct more “sincere” outreach.

Include Education on the Rights of Tenants and Homeowners with Program Promotions and Ways to Save Energy.

Renters and owners of condos said they could use information on their rights to understand in what programs they can participate. Three renters and one condo owner were enthusiastic about coupling energy efficiency messaging with tenants’ rights.

Provide a Variety of Options to Meet Differing Customer Needs and Preferences. Different preferences from interviewees highlighted how there is not a one-size-fits-all solution to nonparticipation. Interviewees want more autonomy in their decision making and the right

option to be available to them, especially in terms of their financial investments. While three interviewees liked the idea of on-bill financing, three others did not. Some thought on-bill financing would have a better interest rate and small monthly payments compared to third party financing. Another interviewee thought on-bill financing could cause a big jump in their bills. Similarly, most interviewees did not think evening or weekend appointments were helpful but having that option would have made the difference for at least one interviewee. Interviewees with disabilities also need variety in program outreach and design that considers how they make decisions or need additional assistance to make energy efficient upgrades.

B.4 Landlord and Property Manager Interviews

The Cadeo team gathered input from eleven residential landlords, rental property managers, and public housing authority representatives. We sought opinions and perspectives on National Grid programming, participation barriers for them or their renters, and insights on enhancing engagement strategies. The team conducted in-depth interviews of eight people, and three respondents opted to fill out an online survey version of the interview instead. Note that we refer to all who participated in this research as “interviewees.” This section describes the results of those data gathering efforts.

B.4.1 Characterization of Landlords and Property Managers

The eleven interviewees identified themselves as:

- Four public housing authority (PHA) representatives (three executive directors and an administrative person)
- Four landlord/property managers
- Two landlord/realtors
- One property manager

The PHAs managed between 17 and 500 units, and the landlords and property managers (referred to in this section as “landlords”) owned and managed from six up to nearly 7,000 units. Buildings ranged from single family residences to buildings with over 100 units.

The PHAs and landlords served similar populations including low to moderate income, single parent, and elderly. The PHAs also reported serving disabled residents, while some of the landlords also served students.

The housing stock they manage was built as long ago as 1804 to as recently as 2016. Most interviewees reported what they consider to be low turnover rates for residents. Nearly all reported having natural gas service, with a few of the smaller more remote properties relying on propane or other fuel for heat.

B.4.2 Barriers to Energy Efficiency Program Participation

Interviewees understood the benefits of energy efficiency to include lower operating costs, lower utility bills for tenants, increased comfort, and higher apartment value. Those who participated (seven interviewees) in National Grid programs did so to get incentives, get recommendations (for savings), save energy and costs, respond to tenant requests, and free up money for other projects. Most who have participated have recommended it to others or would do so if the opportunity arose. A few were less certain of the benefits from participating in the program.

Cost and Financing. Costs and financing of upgrades was by far the most frequently mentioned reason for not making efficiency investments in general. PHAs have limited and sometimes unpredictable (year to year) budgets and all landlords must balance resources available for timely replacement of aging equipment with those needed for emergencies and other maintenance priorities. One PHA director said it was very difficult to compare competing bids for work through the program because contractors use different bid formats making it hard to compare apples to apples.

Workforce and Contractor Issues. Several mentioned challenges finding good, qualified, and reliable contractors who are available to do work, or qualified maintenance personnel to hire. These uncertainties combined with the daily demands of their jobs and added pandemic workforce issues made exploring energy efficiency options a low priority.

Maintaining Aging Equipment and Buildings. Several interviewees mentioned maintaining and finding parts for aging equipment was a challenge. Some landlords who owned very old properties noted that making changes to HVAC and building shell for these older buildings tends to be more expensive than more modern buildings.

Split Incentive Between Bill Payers and Equipment Users. There can be a disconnect between landlords and renters on energy efficiency options because often the owners of equipment and those who pay the energy bills are not the same. This means those who pay more for energy efficient equipment may not benefit directly from the energy savings. One landlord said "... where landlords aren't paying any utilities, what is the huge incentive to upgrade for efficiency?" One PHA suggested it would be helpful to make what they are doing with efficiency investments visible to tenants.

Landlords and Property Managers are Difficult to Identify and Reach. Landlords and property managers were difficult to reach and convince to participate in an interview, particularly those who had not participated in National Grid programs in the past as seven of the eleven interviewees were previous participants. The Cadeo Team's difficulties in finding lists of valid contacts likely reflect some degree of employee turnover and property sales. Even when the team connected with a landlord, their priorities were first solving urgent problems at their properties, getting their units rented, and then meeting the needs of tenants. During the

interview recruiting period, the pandemic and related workforce issues applied additional stresses and added duties to their daily workload. The difficulties the Cadeo Team faced are illustrative of the difficulty program teams face in marketing their programs to these individuals.

Lack of Program Information. One landlord complained that they had a hard time finding information on program offerings and when they did find out about it in the past, it was too late to qualify. Others wanted a fuller understanding of the program processes and expected timeline so they can plan for future projects. One said it “seemed like too time-consuming a process and complicated” to apply for rebates. One PHA observed that smaller PHAs may not be aware of the program.

Experience with the Program. Some of the interviewees had filed for incentives through the program in the past and decided it was not worth the effort. One landlord applied for incentives to replace a boiler system in a 25-unit building (of which they own hundreds). Their rebate was equal to about two percent of the cost of the project which they felt was not enough to justify the time spent on the application. Another landlord observed that some rebates are “super easy” while others are not. For the latter, it seems like “by the time you get all the information (needed to apply), it’s become too late to get the rebate, which is frustrating.” They noted “We tried applying for something at a property before COVID and still haven’t seen anything.” Then went on to say, “if it moved faster, people would take advantage of the opportunity.”

Timing Upgrades During Unoccupied Periods. Six interviewees noted that for most changes to residential equipment they prefer to make them when the units are unoccupied. Because these are limited windows for them to make equipment purchases and install, they are sensitive to any possible delays that participating in the program may cause. Also, they prefer to avoid making equipment changes or upgrades during winter months.

Distrust in Energy Saving Measure Suitability. One landlord and manager of many properties said the utility program estimates of potential savings do not always match the real world because measures are not always received favorably. They gave an example of getting free smart thermostats for one of their buildings from a utility program. Then when their residents could not figure out how to use them, they had to buy and install all new thermostats for the building. They also gave an example of installing low-flow showerheads that people hated and removed.

B.4.3 Landlord and Property Manager Decision-Making and Motivations

The PHA executive directors and property owners we interviewed are typically the primary decision makers for equipment purchasing, though sometimes those decisions require approval from a board or tenant association. Those who employ maintenance, property management, or leasing staff, or who have maintenance contractors for their properties also rely on input from them to inform these decisions. The PHAs we interviewed also consider tenant input, with one larger PHA keeping a complaint database so they can track and categorize complaints to do

trend analyses to inform their decisions. One landlord described getting input from tenants or tenant associations.

While most interviewees were highly motivated by financial savings through incentives and/or lower operating costs, they had mixed opinions on some of the other potential program changes or benefits discussed.

Decision to Replace Equipment. The PHAs and landlords we interviewed almost never base their decision to replace equipment on energy efficiency. They replace equipment when it fails, but generally prefer to not have it reach that point. When they decide to replace working equipment, they consider health and safety issues, age of existing systems, estimated useful life, and the desire to avoid the need for an emergency replacement if it fails. Some landlords and PHAs we spoke to have capital improvement master plans or strategic plans that they follow. The timing of replacements is also often based on tenant turnover which several interviewees noted was not dependent on seasons. They generally avoid work on items like heating systems or building shell measures during winter months.

Choice of Replacement Equipment. While energy efficiency rarely drives the decision to replace equipment or make improvements, once a landlord or PHA has decided to replace equipment (due to failure, or as part of a scheduled upgrade), it is often an important factor in their choice of new equipment. Other things that factor into replacement equipment choices are quality and long-term viability, equipment costs and budget, and effect on operating costs. For landlords, ROI is also important (one landlord said he likes to have payback in 5 years or less). Other important factors for landlords include effects on resale or rental value and aesthetics. Choices of equipment for emergency replacements can also be affected by equipment availability and timeline for installation.

Incentives. All public housing authorities and most landlords we spoke with found incentives, rebates, or instant rebates to be motivating for energy efficient upgrades. One landlord said they received lighting upgrades at some properties and help paying for increased insulation. A PHA said “we are making improvements and there are rebates there, substantial rebates, a good thing.”

Lower Operating Costs. All interviewees placed high value on lowering operating costs. One PHA said the incentives and operating cost savings allow them to put that saved money toward other projects. Another pointed out that cost savings was important because they rarely have their full operating expenses covered through the PHA’s funding. They added that it is a “great program”, and it will “help you save money and eliminate problems.”

Non-Energy Benefits. PHAs and some landlords saw value in efficiency to the extent it can reduce tenant turnover, though as noted previously, none of the interviewees experience high tenant turnover. PHAs and landlords valued increased tenant comfort and PHAs also saw value

in better lighting. Landlords also felt increased apartment value could be another benefit of improved efficiency.

Other Program Changes or Benefits. Tax incentives or credits and evening or weekend appointments, and long-term agreements or MOUs were mostly not motivating for either group, although one landlord found tax incentives very motivating. The level of motivation from several of the offered options (i.e., concierge service, self-paced options, data on efficiency improvements and turnover, data on efficiency improvements and ROI, and financing through National Grid) was highly variable, even within the sub-groups of PHAs and landlords, ranging from very motivating to not at all motivating.

B.4.4 Communication

Most interviewees agreed email would be the best medium for communicating with them about programs. While PHA representatives also indicated a preference for email, they felt that initially introducing the programs through trade associations such as regional and national groups for public housing authorities was important for credibility. They suggest this should be followed up through email and social media. Some specific groups mentioned include:

- Public Housing Executive Directors Group of Rhode Island
- National Housing and Urban Development – State of Rhode Island subgroup
- National Association of Housing and Redevelopment Organizations – newsletters

To reach landlords in general, interviewees thought Facebook groups for property managers and landlords, real estate companies and realtors would be good ways to connect. Some landlords shared the names of organizations whose journals could be good means of telling others about the program offerings. These include:

- Institute of Real Estate Management
- National Apartment Association
- Providence Apartment Association
- Board of Realtors

B.4.5 Solutions for Nonparticipation

Interviewees had some suggestions on ways to increase program participation among their peers.

Share Testimonials About Program Experiences. PHAs and landlords both wanted more information on experiences of past participants including program process (i.e., timing, cost to participate, requirements), expected cost savings, and rebate amounts. Both groups stressed the high value of testimonials saying they would “help very much” or would be “huge.” One option interviewees offered is to increase frequency or use more targeted communication of program offerings, processes and benefits. PHAs mentioned splitting out energy savings for the agency

and the tenant, and landlords were interested in ROI or cash flow analysis and effects on housing appreciation.

Promote the Program Through Professional Groups. One PHA and one landlord who was also a realtor suggested that promoting the program through the Board of Realtors would be a great way to connect to landlords of rental properties and through them, connect with people in transition. Buyers can assess properties and make upgrades. Another landlord and PHA also named trade organizations they work closely with and suggested that the program work with them because it is the “best way” to connect with professional property owners and managers like them.²³

Incentivize or Recognize Non-Bill-Payers for Efficiency Investments. Interviewees pointed out the ongoing issue with rental properties that landlord investment in energy efficient equipment is not always obvious to or appreciated by tenants. One suggested for situations where renters pay the electric bill and landlords invest in electricity saving equipment, that the tenants receive notice on their bill showing what they saved because of the landlord investment. Conversely, if landlords pay the electric bill, the program could look for ways to incentivize residential investment in efficient equipment.

Reduce Participation Burden. Two landlords mentioned the application process as being too time-consuming. One landlord who had participated in a National Grid program said they would like the program processes to be more “time-efficient” and have the program representatives proactively keep customers informed on where their project is in the approval and incentive process. One PHA said the “only negative (with participating) was quite a bit of paperwork that had to be put together and submitted.”

²³ Institute of Real Estate Management (IREM), National Apartment Association (NAA), Providence Apartment Association, and National Association of Housing and Redevelopment Officials (NAHRO) which also has state level groups

Appendix C Supplementary Tables

This section provides survey crosstabulations by home ownership and propensity score grouping. We weighted the survey data to represent the nonparticipant sample frame. For ownership status, we developed weights using the ownership status in our sample frame, however the tables below show ownership status based on respondents' self-report in the nonparticipant survey. Due to this discrepancy, totals by ownership status and propensity score may not sum to the overall total.

C.1 Home Characteristics and Technology Use

Table 13. Type of Residence by Ownership Status and Propensity Score

B1. Type Of Residence	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Primary	96%	97%	95%	93%	97%*
Secondary	2%	2%*	0%	2%	2%
Full-time rental	1%	1%	1%	2%	1%
Part-time rental	0%	0%	0%	1%	0%
Not associated	0%	0%	0%	0%	0%
Other	1%	0%	4%*	3%*	1%
Respondents (n)	1,460	1,019	426	694	765

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: this question was included in the mail survey.

Table 14. Ownership Status by Ownership Status and Propensity Score

B2. Own Or Rent Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Own	82%	100%*	0%	38%	86%*
Rent	18%	0%	100%*	61%*	14%
Other	1%	0%	0%	1%	1%
Respondents (n)	1,462	1,022	428	693	767

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: this question was included in the mail survey.

Table 15. Electric Bill Payment by Ownership Status and Propensity Score

B3. Responsible for Paying Electric Bill	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Yes	98%	-	98%	96%	97%
No	3%	-	3%	4%	3%
Do not have	0%	-	0%	0%	0%
Respondents (n)	200	0	200	55	146

Base: Renters.

Table 16. Natural Gas Bill Payment by Ownership Status and Propensity Score

B3. Responsible for Paying Natural Gas Bill	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Yes	71%	-	71%	64%	73%
No	12%	-	12%	19%	10%
Do not have	17%	-	17%	17%	17%
Respondents (n)	198	0	198	53	146

Base: Renters.

Table 17. Oil or Propane Bill Payment by Ownership Status and Propensity Score

B3. Responsible For Paying Oil or Propane Bill	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Yes	17%	-	17%	15%	18%
No	31%	-	31%	32%	31%
Do not have	52%	-	52%	53%	51%
Respondents (n)	194	0	194	53	142

Base: Renters.

Table 18. Type of Building by Ownership Status and Propensity Score

B4. Type of Building Lived in	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Single-family (detached)	77%	87%*	12%	27%	82%*
Single-family (attached)	1%	1%	2%*	3%*	1%
Manufactured home	1%	1%	1%	1%	1%
Apt with 2 units	8%	7%	24%*	18%*	8%
Apt with 3-4 units	8%	3%	42%*	32%*	6%
Apt with 5-9 units	1%	0%	6%*	9%*	1%
Apt with 10-19 units	1%	0%	4%*	4%*	1%
Apt with 20-49 units	1%	0%	5%*	4%*	1%
Apt with 50+ units	0%	0%	3%*	2%*	0%
Other	1%	1%	1%	1%	1%
Respondents (n)	1,066	709	348	509	553

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 19. Triple-Decker Building by Ownership Status and Propensity Score

B5. Is Building a Triple-Decker?	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Triple-decker	72%	63%	74%	70%	79%
Not a triple-decker	26%	38%	23%	29%	18%
Don't know	2%	0%	2%	1%	3%
Respondents (n)	199	32	166	138	61

Base: Respondents who live in an apt with 3-4 units.

Note: Unweighted results shown due to low number of responses.

Table 20. Year Building was Built by Ownership Status and Propensity Score

B6. Year Building Was Built	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Before 1800	0%	0%	0%	0%	0%
1800-1899	5%	6%	6%	7%	5%
1900 to 1929	11%	12%	14%	14%	10%
1930 to 1949	12%	12%	10%	9%	12%
1950 to 1969	25%	27%*	13%	14%	26%*
1970 to 1989	22%	23%*	11%	14%	23%*
1990 to 2009	14%	14%*	5%	6%	15%*
2010 or later	3%	4%	3%	4%	3%
Unknown	8%	2%	38%*	33%*	6%
Respondents (n)	1,067	711	347	512	556

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 21. Number of Years Lived in Home by Ownership Status and Propensity Score

B7. Number of Years Lived in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
0 to 1 years	2%	2%	5%*	6%*	2%
2 to 4 years	16%	12%	43%*	45%*	13%
5 to 10 years	17%	17%	29%*	17%	17%
More than 10 years	65%	69%*	23%	31%	68%*
Respondents (n)	1,063	708	347	510	553

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 22. Number of Times Moved in Last 5 Years by Ownership Status and Propensity Score

B8. Number of Times Moved in Last 5 Years	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
0	5%	4%	5%	3%	9%*
1	59%	69%*	54%	58%	61%
2	24%	15%	29%*	25%	22%
3	9%	11%	9%	10%	8%
4	2%	1%	2%	3%	0%
5	1%	0%	1%	0%	1%
Respondents (n)	329	104	221	225	104

*Indicates a statistically significant difference between groups ($p < 0.05$).

Base: Respondents who have lived in home for less than 5 years.

Note: Unweighted results shown due to low number of responses.

Table 23. Main Type of Fuel Used to Heat Home by Ownership Status and Propensity Score

B9. Type of Fuel Used to Heat Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Natural Gas	54%	53%	71%*	59%	54%
Electricity	6%	4%	13%*	12%*	5%
Propane	2%	4%*	1%	2%	3%
Oil	34%	36%*	14%	25%	35%*
Other	3%	4%*	1%	2%	3%
Respondents (n)	1,056	709	330	490	551

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 24. Type of Cooling System in Home by Ownership Status and Propensity Score

B10. Type of Cooling System in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Room or window air conditioner(s)	53%	50%	77%*	69%*	51%
Central air conditioner	32%	34%*	12%	27%*	21%
Fans	21%	20%	31%*	19%	33%*
Ductless mini-split air conditioner or heat pump	8%	9%*	2%	3%	8%*
Ground source heat pump	0%	0%	0%	0%	0%
Evaporative cooler or swamp cooler	0%	0%	0%	0%	0%
Air source heat pump	0%	0%	0%	0%	0%
Other	2%	2%*	0%	1%	1%
Respondents (n)	1,059	707	337	495	552

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Table 25. Access to Technology in Home by Ownership Status and Propensity Score

B11. Access To Technology in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Internet	96%	96%*	93%	93%	96%*
Email	89%	90%	87%	86%	90%*
Computer	85%	87%*	73%	75%	86%*
Smart Phone	82%	82%	79%	81%	82%
Printer	69%	74%*	44%	55%	71%*
Tablet (e.g., iPad, Amazon Fire Tablet, Samsung Galaxy Tab)	55%	57%*	44%	47%	56%*
Document scanner (separate from smart phone camera or app)	40%	42%*	26%	31%	41%*
Smart speaker (e.g., Amazon Alexa, Google Home)	31%	32%	29%	28%	32%
Respondents (n)	1,369	959	403	648	718

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Note: This question was included in the mail survey.

Table 26. Social Media Used on a Regular Basis by Ownership Status and Propensity Score

B12. Social Media Used on a Regular Basis	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Facebook	63%	62%	67%	64%	63%
Instagram	31%	30%	42%*	38%*	30%
Twitter	15%	15%	17%	14%	15%
LinkedIn	12%	12%	12%	11%	12%
Pinterest	12%	10%	18%*	13%	12%
TikTok	10%	9%	20%*	18%*	9%
Snapchat	10%	8%	23%*	18%*	9%
Nextdoor	9%	10%*	5%	8%	9%
Reddit	5%	4%	10%*	8%	5%
Something else	2%	2%	1%	1%	2%
I don't regularly use any social media platforms	22%	23%	17%	19%	23%
Respondents (n)	1,050	700	346	526	542

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

C.2 Sources of Information and Concerns about Home

Table 27. Trustworthy Sources of Information by Ownership Status and Propensity Score

C1. Trustworthy Sources of Information	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
A Community Action agency					
Not at all Trustworthy	4%	4%	5%	5%	4%
2	11%	11%	11%	9%	11%
3	33%	34%	27%	30%	33%
4	36%	37%	28%	31%	36%
Completely Trustworthy	16%	14%	29%*	25%*	15%
Respondents (n)	914	638	289	436	478
My church, synagogue, mosque, or place of worship					
Not at all Trustworthy	7%	6%	10%	9%	6%
2	4%	4%	8%	6%	4%

Nonparticipant Market Barriers Study
Appendix C Supplementary Tables

C1. Trustworthy Sources of Information	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
3	18%	18%	19%	17%	18%
4	33%	35%*	21%	26%	33%*
Completely Trustworthy	38%	37%	42%	42%	38%
Respondents (n)	917	649	238	380	486
My friends or family					
Not At All Trustworthy	0%	0%	2%*	2%*	0%
2	2%	2%	1%	2%	2%
3	11%	10%	12%	11%	11%
4	32%	33%	31%	30%	33%
Completely Trustworthy	54%	54%	54%	55%	54%
Respondents (n)	1,352	948	383	635	710
My landlord or property manager^a					
Not At All Trustworthy	2%	-	2%	2%	1%
2	5%	-	5%	5%	4%
3	14%	-	14%	15%	13%
4	30%	-	30%	28%	33%
Completely Trustworthy	50%	-	50%	50%	49%
Respondents (n)	443	0	443	298	145
My local government					
Not At All Trustworthy	8%	7%	10%	11%	7%
2	15%	16%	15%	17%	15%
3	39%	38%	39%	34%	40%
4	29%	30%	25%	26%	29%
Completely Trustworthy	9%	9%	11%	13%	9%
Respondents (n)	1,326	936	366	598	699
My neighbors					
Not At All Trustworthy	3%	2%	7%*	8%*	2%
2	8%	7%	13%*	10%	8%
3	31%	30%	35%	35%	30%
4	36%	38%*	26%	28%	37%*

Nonparticipant Market Barriers Study
Appendix C Supplementary Tables

C1. Trustworthy Sources of Information	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Completely Trustworthy	23%	24%	19%	20%	23%
Respondents (n)	1,290	898	377	592	678
My state government					
Not At All Trustworthy	12%	12%	12%	11%	12%
2	18%	18%*	13%	15%	18%
3	33%	33%	33%	34%	33%
4	29%	29%	30%	26%	29%
Completely Trustworthy	8%	8%	12%	14%*	8%
Respondents (n)	1,334	942	366	612	700
National Grid					
Not At All Trustworthy	2%	1%	4%*	3%*	1%
2	4%	4%	5%	5%	4%
3	21%	21%	21%	19%	21%
4	41%	42%*	27%	34%	41%*
Completely Trustworthy	33%	31%	43%*	39%*	33%
Respondents (n)	1,368	961	392	645	717
Teachers at my child's school					
Not At All Trustworthy	3%	3%	6%	7%	3%
2	10%	10%	7%	6%	10%
3	23%	23%	23%	26%	23%
4	40%	42%	31%	30%	41%*
Completely Trustworthy	24%	23%	32%*	32%	24%
Respondents (n)	576	398	191	266	302

*Indicates a statistically significant difference between groups ($p < 0.05$).

^aBase: Renters only (unweighted).

Note: this question was included in the mail survey.

Table 28. Environmental Concerns by Ownership Status and Propensity Score

C2. Environmental Concerns	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Air pollution					
Not At All Concerned	2%	2%	2%	2%	1%
2	4%	4%	3%	4%	4%
3	15%	15%	14%	13%	15%
4	28%	28%	25%	22%	28%*
Very Concerned	52%	52%	56%	60%*	51%
Respondents (n)	1,037	697	324	438	541
Climate change					
Not At All Concerned	8%	8%*	4%	6%	8%
2	5%	5%	5%	5%	5%
3	16%	17%	13%	10%	17%*
4	19%	19%	22%	20%	19%
Very Concerned	52%	52%	56%	60%*	51%
Respondents (n)	1,042	699	323	485	544
Greenhouse gas emissions					
Not At All Concerned	7%	7%	5%	8%	7%
2	6%	6%	6%	5%	6%
3	17%	17%	15%	13%	17%*
4	25%	24%	31%	22%	25%
Very Concerned	45%	46%	44%	53%*	45%
Respondents (n)	999	672	306	466	521
Inefficient use of energy					
Not At All Concerned	2%	2%	3%	4%	2%
2	3%	3%	4%	2%	3%
3	15%	14%	17%	13%	15%
4	31%	32%	29%	28%	31%
Very Concerned	49%	50%	46%	52%	49%
Respondents (n)	1,028	686	326	480	537
Wasting the planet's resources					

Nonparticipant Market Barriers Study
Appendix C Supplementary Tables

C2. Environmental Concerns	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Not At All Concerned	4%	4%	4%	4%	4%
2	3%	3%	4%	3%	3%
3	14%	15%*	10%	11%	14%
4	25%	24%	27%	21%	25%
Very Concerned	54%	54%	55%	61%*	54%
Respondents (n)	1,041	697	324	485	543
Water pollution					
Not At All Concerned	2%	2%	2%	3%	2%
2	3%	3%	3%	3%	3%
3	10%	9%	13%	10%	10%
4	27%	27%	23%	22%	28%*
Very Concerned	58%	58%	60%	61%	58%
Respondents (n)	1,039	695	331	487	542

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 29. Home Concerns by Ownership Status and Propensity Score

C3. Home Concerns	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Drafts in my home					
Not At All Concerned	9%	10%	6%	11%	9%
2	14%	15%*	9%	10%	14%*
3	24%	25%	19%	19%	25%*
4	26%	24%	29%	28%	25%
Very Concerned	27%	26%	37%*	32%*	26%
Respondents (n)	1,037	694	331	490	540
Having major equipment in my home break down					
Not At All Concerned	7%	7%	10%	13%*	7%
2	15%	14%	16%	12%	15%
3	25%	25%	23%	22%	26%
4	21%	23%	17%	18%	22%
Very Concerned	31%	31%	34%	35%	31%
Respondents (n)	1,039	694	333	489	541
Having my gas or electricity shut off because I couldn't pay my bill					
Not At All Concerned	47%	51%*	21%	35%	49%*
2	13%	14%	9%	12%	13%
3	10%	10%	11%	11%	10%
4	6%	5%	16%*	7%	6%
Very Concerned	23%	20%	44%*	35%*	22%
Respondents (n)	1,023	684	332	494	531
The healthiness of my home (e.g., air quality, presence of mold)					
Not At All Concerned	7%	6%	5%	8%	6%
2	13%	13%	9%	8%	13%*
3	19%	19%	17%	18%	19%
4	21%	20%	23%	19%	21%
Very Concerned	41%	42%	46%	47%	41%
Respondents (n)	1,038	695	332	492	541
The risk of damage to my home from a severe weather event (e.g., hurricane, blizzard, hail)					

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C3. Home Concerns	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Not At All Concerned	4%	2%	9%*	9%*	3%
2	13%	13%	14%	11%	14%
3	22%	21%	26%	22%	22%
4	22%	22%	17%	20%	22%
Very Concerned	40%	41%	35%	37%	40%
Respondents (n)	1,044	700	333	493	545
Using too much gas, electricity, oil, or propane in my home					
Not At All Concerned	7%	7%	6%	11%*	7%
2	9%	10%	7%	6%	10%*
3	24%	25%*	16%	19%	24%*
4	25%	24%	28%	26%	25%
Very Concerned	35%	34%	43%*	39%	34%
Respondents (n)	1,045	701	329	491	544
Using too much water in my home					
Not At All Concerned	13%	13%	13%	14%	13%
2	15%	15%	12%	11%	15%
3	27%	27%	27%	29%	27%
4	22%	22%	23%	21%	23%
Very Concerned	23%	24%	26%	26%	22%
Respondents (n)	1,038	695	332	485	541

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 30. Resources Used for Maintaining Home by Ownership Status and Propensity Score

C4. Resources for Maintaining Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Me/myself	68%	70%*	53%	62%	68%
My friends, family members, or neighbors	61%	64%*	48%	58%	61%
Home improvement store (like Home Depot, Lowes, Dollar Store, Walmart, Target)	54%	58%*	35%	44%	55%*
National Grid	29%	28%	33%	35%*	28%
Websites, blog, or other online sources	23%	24%*	17%	18%	23%
YouTube videos or channels	21%	22%	17%	18%	21%
Contractor or builder	18%	20%*	3%	9%	18%*
My landlord	11%	0%	66%*	43%*	9%
Home improvement magazines	6%	6%	3%	4%	6%
Neighborhood/community group	4%	4%	3%	6%	3%
Members of my church or religious community	3%	3%	4%	5%	3%
Other	3%	4%*	1%	2%	3%
Respondents (n)	940	637	296	445	490

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Table 31. Actions Taken When Something in Home Needs Repair by Ownership Status and Propensity Score

C5. Actions Taken When Something in Home Needs Repair	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Fix or replace it myself (DIY)	65%	70%*	41%	54%	66%*
Hire a professional (e.g., contractor)	60%	71%*	8%	32%	63%*
Ask a friend or family member for help	36%	39%*	19%	28%	37%*

C5. Actions Taken When Something in Home Needs Repair	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Contact my landlord/property manager	16%	0%	89%*	56%*	13%
Ask a neighbor for help	6%	7%*	3%	6%	6%
Other	1%	1%	1%	2%	1%
Respondents (n)	1,052	702	339	501	548

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Table 32. Issues Currently Experiencing in Home by Ownership Status and Propensity Score

C6. Issues Currently Experiencing in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Drafty windows	31%	27%	49%*	44%*	29%
High gas, electricity, oil/propane bills	27%	28%	31%	27%	27%
Mice, insects, or other pests	19%	19%	22%	19%	19%
Hot spots or cold spots	18%	19%	19%	21%	18%
Moisture on windows	15%	15%	15%	19%	15%
Uncomfortably hot in the summer	13%	14%	22%*	21%*	13%
Uncomfortably cold in the winter	10%	9%	21%*	17%*	9%
Drips or leaks	10%	9%	14%*	10%	10%
Low water pressure	8%	7%	11%*	10%	8%
Musty smell	8%	7%	10%	8%	8%
High energy bills	7%	8%	5%	7%	7%
Water in basement	7%	7%	5%	6%	7%
Mold	6%	5%	13%*	11%*	6%
Broken windows	4%	3%	8%*	6%	4%
Poor air quality	3%	2%	7%*	8%*	2%
Other	2%	2%	3%	3%	2%

C6. Issues Currently Experiencing in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
My home does not have any of these issues	28%	29%*	21%	22%	29%*
Respondents (n)	1,382	962	409	669	723

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Note: This question was included in the mail survey.

Table 33. Interested in Learning About Renting Efficient HVAC Equipment by Ownership Status and Propensity Score

C7. Interested in Learning About Renting Efficient HVAC Equipment	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Interested	19%	19%	-	18%	19%
Not interested	81%	81%	-	82%	81%
Respondents (n)	660	660	0	242	418

Base: Homeowners.

Note: Unweighted results shown due to low number of responses.

C.3 National Grid Program Awareness and Participation

Table 34. Aware that National Grid has Programs by Ownership Status and Propensity Score

D1. Aware That National Grid Has Programs	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Aware	64%	65%*	53%	50%	65%*
Not aware	36%	35%	47%*	50%*	35%
Respondents (n)	1,438	1,012	428	687	753

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: this question was included in the mail survey.

Table 35. National Grid Programs Aware of by Ownership Status and Propensity Score

D2. Programs Aware Of	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
EnergyWise/RISE Program	54%	58%*	29%	44%	55%*
Appliance rebate program	52%	55%*	27%	38%	53%*
Home Energy Assessment program	52%	51%	47%	35%	53%*
Heating Assistance/Home Energy Assistance Program (HEAP)	50%	47%	69%*	56%	50%
Appliance Recycling program	46%	48%*	26%	33%	47%*
Home and Water Heating program	16%	17%*	8%	8%	16%*
Income Eligible Energy Savings program	15%	12%	30%*	23%*	14%
0% Financing program	11%	12%	8%	9%	12%
Online Marketplace	10%	9%	13%	10%	10%
Low-E Storm Windows rebate program	8%	9%	4%	5%	8%
Cooling Program	7%	8%	4%	5%	7%
ConnectedSolutions program	3%	2%	5%	2%	3%
National Grid Multifamily program	2%	2%	3%	4%	1%
Other	1%	1%	2%	2%	1%
I haven't heard of any of these programs	3%	3%	4%	6%	3%
Respondents (n)	680	459	179	240	362

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents aware of National Grid programs.

Table 36. Aware of the Income Eligible Energy Savings Program by Ownership Status and Propensity Score

D3. Aware of the Income Eligible Energy Savings Program	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Aware	27%	28%	24%	22%	28%*
Not aware	73%	72%	76%	78%*	72%
Respondents (n)	957	653	294	448	499

*Indicates a statistically significant difference between groups ($p < 0.05$).

Base: Respondents that did not select "Income Eligible Energy Savings program" at D2.

Table 37. Participation in National Grid Programs by Ownership Status and Propensity Score

D4. Participation in National Grid Programs	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
I never participated or looked into participating.	51%	52%	44%	49%	52%
I participated in a program at my current home.	27%	28%	30%	29%	27%
I participated in a program at a previous home I owned or rented.	10%	9%	16%*	13%	10%
I looked into participating in my current home but never signed up.	9%	10%	9%	5%	9%
I started the application process in my current or previous home but didn't complete it.	1%	1%	3%	3%	1%
Other	6%	6%	5%	7%	6%
Respondents (n)	741	500	200	275	394

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents aware of National Grid programs.

Table 38. Programs Participated in by Ownership Status and Propensity Score

D5. Programs Participated In	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
EnergyWise/RISE Program	38%	45%*	7%	18%	40%*
Home Energy Assessment program	23%	22%	19%	18%	24%
Appliance rebate program	21%	23%*	3%	14%	22%
Heating Assistance/Home Energy Assistance Program (HEAP)	20%	13%	56%*	37%*	19%
Appliance Recycling program	16%	20%*	0%	6%	17%
Online Marketplace	10%	12%	3%	10%	10%
Income Eligible Energy Savings program	7%	4%	31%*	14%	7%
0% Financing program	4%	4%	3%	1%	5%
Home and Water Heating program	4%	5%	0%	3%	5%

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D5. Programs Participated In	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Cooling Program	4%	4%	0%	0%	5%
Low-E Storm Windows rebate program	2%	2%	0%	0%	2%
ConnectedSolutions program	1%	1%	3%	3%	2%
Other	3%	2%	7%	9%	3%
I didn't participate in any of these programs	2%	2%	0%	1%	2%
Respondents (n)	201	137	59	79	106

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents who participated in a program at their current home.

Table 39. Looked into Participating at Current Home by Ownership Status and Propensity Score

D6. Looked Into Participating at Current Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Yes	21%	25%*	8%	26%	21%
No	70%	69%	69%	67%	69%
Don't know	9%	6%	23%*	7%	10%
Respondents (n)	56	32	26	27	29

*Indicates a statistically significant difference between groups ($p < 0.05$).

Base: Respondents who only participated in a program at their previous home.

Table 40. Reasons for not Looking into Participating by Ownership Status and Propensity Score

D7. Reason for not Looking into Participating	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
I didn't think I was eligible.	36%	25%	100%	40%	29%
I am not available to have someone come to my home during the day.	29%	38%	0%	0%	29%
It was too difficult to schedule an energy assessment.	14%	25%	0%	0%	14%
It was too time consuming.	14%	25%	0%	0%	14%
The amount of the rebate was not worth the effort.	14%	25%	0%	0%	14%

D7. Reason for not Looking into Participating	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
There were structural or other issues with my home that needed to be fixed first.	14%	25%	0%	20%	14%
Other	14%	25%	0%	20%	14%
Respondents (n)	14	8	1	5	7

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents who only participated in a program at their previous home.

Table 41. Reason for Not Completing Application by Ownership Status and Propensity Score

D8. Reason for Not Completing Application	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
I didn't think I was eligible.	26%	21%	47%	33%	27%
I could not afford the equipment, appliance, or project even with the rebate	21%	21%	11%	10%	21%
I am not available to have someone come to my home during the day	15%	19%	0%	14%	15%
The amount of the rebate was not worth the effort.	11%	15%	11%	0%	12%
I could not find information about the rebate amount	8%	10%	0%	0%	9%
I was confused or needed more information about the process.	8%	6%	5%	19%	6%
It was too time consuming.	8%	10%	16%	14%	9%
I could not get or did not want to try to get my landlord's cooperation.	5%	0%	21%*	5%	6%
I was not comfortable with an energy assessor or contractor coming to my home.	5%	8%	0%	5%	6%
There were structural or other issues with my home that needed to be fixed first.	3%	4%	0%	5%	3%
I did not want to share information required through the process.	2%	4%	0%	0%	3%
It was too difficult to schedule an energy assessment.	2%	0%	11%	0%	3%
Other	26%	27%	11%	19%	27%
Respondents (n)	61	48	19	21	33

*Indicates a statistically significant difference between groups ($p < 0.05$).

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D8. Reason for Not Completing Application	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
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Note: Totals may not sum to 100% as respondents could select more than one option.

*Base: Respondents who started application process in current or previous home **or** looked into participating in current home but never signed up.*

Table 42. Reason for Not Participating in a National Grid Program by Ownership Status and Propensity Score

D9. Reason for not participating in a National Grid program	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
My home is already energy efficient	23%	26%*	5%	10%	24%*
I didn't have the time	16%	16%	16%	19%	16%
I didn't know about the programs	16%	17%	13%	22%	16%
I didn't need the rebate	14%	13%	14%	12%	14%
It seemed too complicated	14%	14%	12%	10%	14%
I didn't know how to participate	12%	11%	13%	15%	12%
My home needs other maintenance first	11%	11%	9%	14%	11%
I could not afford the equipment, appliance, or project	11%	12%*	0%	9%	11%
I am not available to have someone in my house during the day	5%	5%	6%	7%	5%
I didn't have financing options available to me	5%	5%	4%	9%	5%
I thought the program was too good to be true	4%	4%	4%	8%	3%
I could not get or did not want to try to get my landlord's cooperation	3%	0%	22%*	11%*	3%
I couldn't find information about the programs in the language I am most comfortable using	0%	0%	3%	0%	1%
Other	11%	10%	17%	11%	11%
Respondents (n)	332	227	77	117	177

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents who never participated or looked into participating in a National Grid program.

Table 43. What will Home Need the Most in the Next Two Years by Ownership Status and Propensity Score

D10. What Will Home Need the Most in the Next Two Years	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
New large appliances (i.e., refrigerator, dishwasher, stove, clothes washer, clothes dryer)	28%	28%	29%	32%	27%
New windows	23%	22%	35%*	27%	23%
New heating or cooling equipment (i.e., furnace, air conditioner, water heater)	22%	26%*	13%	20%	22%
A new roof	16%	17%*	8%	11%	16%*
A new thermostat	14%	16%	13%	14%	14%
New insulation	13%	13%	17%	18%*	13%
Pest control services (i.e., removal of rodents, insects)	12%	12%	17%*	14%	12%
New small appliances (i.e., dehumidifier, room air conditioner)	12%	12%	18%*	17%*	12%
New siding	8%	9%*	4%	5%	9%
Mold removal	4%	3%	11%*	9%*	4%
Lead removal	1%	1%	2%	2%	1%
Something else	5%	4%	7%	3%	5%
My home won't need any of these things in the next two years	23%	22%	26%	26%	23%
Respondents (n)	1,036	694	322	483	540

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Table 44. Best Way to Reach Customers about National Grid Programs by Ownership Status and Propensity Score

D11. Best Way to Reach Customers About National Grid Programs	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
A letter or postcard from National Grid, separate from the monthly bill	48%	49%*	42%	48%	48%
An email from National Grid	47%	47%	51%	47%	47%
A flyer included in my monthly bill from National Grid	43%	45%*	33%	36%	44%*
National Grid's website	21%	21%	26%	23%	21%
Text messages to my mobile phone	15%	15%	22%*	20%*	15%
TV/Radio ads	12%	11%	13%	10%	13%
Print media (newspaper/magazine)	12%	12%	10%	8%	12%*
Social media (e.g., Facebook, Twitter, Instagram)	9%	8%	13%*	9%	9%
Through my friends, family, or neighbors	7%	7%	8%	7%	7%
Internet ad	7%	7%	9%	6%	7%
Retail stores (e.g., Home Depot, Best Buy)	6%	6%	5%	5%	6%
Local radio shows/podcasts	3%	3%	6%*	5%	3%
Through a member of my community	2%	2%	4%*	3%	2%
Other	1%	1%	2%	2%	1%
Respondents (n)	1,417	997	395	666	743

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Note: This question was included in the mail survey.

Table 45. What would Make Customers More Likely to Participate in a National Grid Program by Ownership Status and Propensity Score

D12. What Would Make Customers More Likely to Participate in a National Grid Program	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Knowing that the program is legitimate (not a scam)	60%	62%*	51%	56%	60%
Simplifying the application process	23%	24%	24%	27%	23%
Information about the program from a trustworthy source, other than National Grid	19%	20%*	13%	17%	20%
Getting help from National Grid to complete the program application	18%	18%	23%*	21%	18%
The option to finance any equipment purchases I would make through the program	18%	21%*	8%	14%	18%
Information about how participating could improve my health	16%	17%	16%	17%	16%
Being able to have a virtual contractor visit or energy assessment	14%	15%*	9%	9%	14%*
Knowing that it is not a government program	12%	13%*	7%	8%	12%*
Information about how to schedule appointments with contractors outside of normal business hours (i.e., nights and weekends)	10%	11%*	6%	7%	11%*
Learning about the program from someone in my community	6%	6%	8%	7%	6%
Other	2%	2%	4%*	2%	2%
None of these would make me more likely to participate	12%	12%	9%	9%	12%
I don't know	9%	8%	17%*	12%	9%
Respondents (n)	1,399	975	410	667	733

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Note: This question was included in the mail survey.

Table 46. Agreement with Statements about Landlord by Ownership Status and Propensity Score

D13. Agreement with Statements about Landlord	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
I fear that making energy efficient improvements in my home would increase my rent.					
Not At All Agree	26%	-	26%	24%	27%
2	15%	-	15%	7%	18%*
3	16%	-	16%	20%	14%
4	19%	-	19%	20%	19%
Completely Agree	24%	-	24%	30%	22%
Respondents (n)	166	0	166	46	120
I fear that my landlord would retaliate in some way if I requested that improvements be made to my home.					
Not At All Agree	46%	-	46%	44%	46%
2	12%	-	12%	13%	11%
3	18%	-	18%	16%	18%
4	11%	-	11%	11%	11%
Completely Agree	14%	-	14%	16%	14%
Respondents (n)	165	0	165	45	121
My landlord and I have a clear understanding about which of us is responsible for improving the energy efficiency of my home					
Not At All Agree	13%	-	13%	17%	11%
2	9%	-	9%	17%*	6%
3	28%	-	28%	17%	33%*
4	17%	-	17%	15%	18%
Completely Agree	33%	-	33%	33%	33%
Respondents (n)	159	0	159	46	113
My landlord would be willing to fix a broken item, like an appliance or fixture, in my home					
Not At All Agree	8%	-	8%	10%	8%
2	8%	-	8%	8%	8%
3	12%	-	12%	16%	11%
4	25%	-	25%	20%	27%
Completely Agree	47%	-	47%	47%	47%
Respondents (n)	184	0	184	51	133
My landlord would be willing to make energy efficiency improvements in my home.					

D13. Agreement with Statements about Landlord	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Not At All Agree	12%	-	12%	18%	10%
2	21%	-	21%	23%	21%
3	28%	-	28%	23%	30%
4	16%	-	16%	18%	16%
Completely Agree	22%	-	22%	20%	23%
Respondents (n)	146	0	146	40	106
My landlord would be willing to making health and safety improvements in my home.					
Not At All Agree	12%	-	12%	16%	11%
2	12%	-	12%	16%	12%
3	23%	-	23%	20%	23%
4	21%	-	21%	18%	22%
Completely Agree	32%	-	32%	30%	33%
Respondents (n)	164	0	164	44	120

*Indicates a statistically significant difference between groups ($p < 0.05$).

Base: Renters.

C.4 Bill Payment and Household Financial Management

Table 47. Relative Size of Energy Bill Compared to Other Monthly Expenses by Ownership Status and Propensity Score

E1. Relative Size of Energy Bill Compared to Other Monthly Expenses	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Small	13%	13%	13%	14%	13%
Medium	56%	57%	51%	56%	56%
Large	31%	29%	36%*	30%	31%
Respondents (n)	1,423	1,004	411	668	746

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: This question was included in the mail survey.

Base: Homeowners **or** renters who are responsible for paying at least one energy bill.

Table 48. Agreement with Statements about Energy Use by Ownership Status and Propensity Score

E2. Agreement with Statements about Energy Use	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
I intend to reduce natural gas, electricity, oil, and/or propane consumption in my home this winter.					
Not At All Agree	10%	10%	7%	8%	10%
2	12%	12%	8%	9%	12%
3	33%	34%	27%	29%	33%
4	25%	25%	25%	22%	25%
Completely Agree	21%	19%	33%*	32%*	20%
Respondents (n)	989	669	317	456	517
I often pay more for products that are environmentally friendly.					
Not At All Agree	10%	9%	9%	10%	10%
2	11%	11%	11%	12%	10%
3	35%	34%	36%	32%	35%
4	30%	32%*	22%	28%	31%
Completely Agree	15%	15%	22%	17%	14%
Respondents (n)	957	652	296	446	499
I worry that my energy bills will increase.					
Not At All Agree	4%	4%	4%	5%	4%
2	9%	9%*	4%	6%	9%
3	18%	19%*	12%	15%	19%
4	24%	24%	23%	22%	24%
Completely Agree	45%	44%	57%*	52%*	44%
Respondents (n)	1,025	693	326	483	535
I worry whether there is enough money to pay my energy bill.					
Not At All Agree	37%	40%*	16%	28%	38%*
2	18%	20%*	9%	12%	18%*
3	19%	18%	21%	20%	19%
4	9%	8%	17%*	15%*	8%
Completely Agree	18%	14%	37%*	26%*	17%
Respondents (n)	1,027	693	323	481	536
If my utility bill goes up, I feel like I must do something to reduce it.					
Not At All Agree	4%	4%	3%	5%	4%

E2. Agreement with Statements about Energy Use	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
2	11%	12%*	4%	7%	11%*
3	29%	31%*	20%	21%	30%*
4	25%	25%	23%	24%	25%
Completely Agree	31%	28%	49%*	43%*	30%
Respondents (n)	1,009	680	325	478	525

I know what actions to take to reduce my energy use.

Not At All Agree	2%	1%	4%*	6%*	2%
2	9%	9%	12%	8%	9%
3	30%	30%	29%	29%	30%
4	33%	34%*	25%	28%	33%
Completely Agree	26%	26%	30%	29%	26%
Respondents (n)	993	677	303	454	520

*Indicates a statistically significant difference between groups ($p < 0.05$).

Base: Homeowners **or** renters who are responsible for paying at least one energy bill.

Table 49. Actions Taken if High Energy Bill is Received by Ownership Status and Propensity Score

E3. Actions Taken if High Energy Bill is Received	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Try to use less energy	47%	47%	51%	49%	46%
Just pay the bill	44%	44%	39%	41%	44%
Call my utility or provider to check if it's accurate	33%	33%	34%	35%	33%
Go online to check if it's accurate	23%	21%	33%*	28%	23%
Ask my utility or provider about payment options or payment plans	10%	8%	22%*	15%*	10%
Look into different rate options (e.g., Time-of-Use, PrePay, FlatBill)	3%	3%	3%	6%*	3%
Contact a Community Action Agency (e.g., BVCAP, CAPP)	3%	1%	10%*	5%*	2%
Talk to my landlord or property manager about getting new appliances, equipment, or insulation that will use less electricity	1%	0%	5%*	5%*	1%
Other	3%	4%*	1%	2%	3%

Nonparticipant Market Barriers Study
Appendix C Supplementary Tables

E3. Actions Taken if High Energy Bill is Received	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Not applicable - My bills are never higher than I expect	7%	7%*	4%	6%	7%
Respondents (n)	1,050	708	338	501	547

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Homeowners **or** renters who are responsible for paying at least one energy bill.

C.5 Demographics and Income

Table 50. Number of People Living in Home (Age Categories) by Ownership Status and Propensity Score

F2. Number of People Living in Home (Age Categories)	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Number of children 6 and younger					
0	93%	94%*	85%	88%	93%*
1	5%	4%	12%*	9%*	5%
2	2%	2%	3%	2%	2%
3	0%	0%	0%	1%	1%
Respondents (n)	1,450	1,022	428	690	760
Number of children 7 to 17					
0	86%	87%*	80%	84%	86%
1	8%	7%	12%*	10%	8%
2	5%	5%	7%	4%	5%
3	1%	1%	1%	1%	1%
Respondents (n)	1,450	1,022	428	690	760
Number of adults 18 to 64					
0	42%	44%*	31%	37%	43%*
1	18%	16%	27%*	25%*	17%
2	29%	28%	33%	27%	29%
3	6%	6%	6%	7%	6%
4	3%	3%	2%	4%	3%
5+	2%	2%*	0%	1%	2%
Respondents (n)	1,449	1,022	428	687	760
Number of adults 65 and older					
0	54%	51%	78%*	66%*	53%
1	24%	25%*	16%	19%	24%*
2	22%	24%*	5%	14%	23%*
3	0%	0%	0%	0%	0%

F2. Number of People Living in Home (Age Categories)	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
4	0%	0%	0%	0%	0%
Respondents (n)	1,449	1,022	428	688	760

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: This question was included in the mail survey.

Table 51. Highest Level of Education Completed by Ownership Status and Propensity Score

F3. Highest Level of Education Completed	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Less than high school	4%	3%	7%*	6%*	4%
High school	18%	16%	27%*	25%*	17%
Some college	18%	18%	22%	18%	18%
Associate degree	12%	12%	10%	10%	12%
Bachelor's degree	25%	26%	23%	21%	26%
Professional degree	14%	16%*	7%	12%	15%
Master's degree	3%	3%*	0%	2%	3%
Doctorate degree	3%	4%*	1%	2%	4%
Declined to respond	3%	2%	3%	3%	2%
Respondents (n)	1,456	1,019	421	694	762

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: This question was included in the mail survey.

Table 52. Employment Status of Adults in Home by Ownership Status and Propensity Score

F4. Employment Status of Adults in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Number of adults employed full time					
0	46%	45%	43%	43%	46%
1	32%	31%	39%*	37%*	31%
2	18%	19%	15%	16%	19%

Nonparticipant Market Barriers Study
Appendix C Supplementary Tables

F4. Employment Status of Adults in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
3	3%	3%	2%	2%	3%
4	1%	1%	1%	1%	1%
5+	0%	0%	0%	0%	0%
Respondents (n)	1,450	1,022	428	690	760
Number of adults employed part time					
0	86%	85%	84%	82%	86%
1	11%	11%	14%	15%*	11%
2	3%	3%	2%	2%	3%
3	0%	0%	0%	0%	0%
Respondents (n)	1,450	1,022	428	690	760
Number of adults that are not employed					
0	86%	87%*	75%	80%	86%*
1	11%	9%	20%*	14%*	10%
2	3%	3%	3%	4%	3%
3	0%	0%	1%	1%	0%
4	0%	0%	0%	0%	0%
5+	0%	0%	0%	0%	0%
Respondents (n)	1,450	1,022	428	690	760
Number of adults that are full time students					
0	91%	91%	88%	88%	91%
1	6%	6%	9%*	9%*	6%
2	2%	2%	2%	2%	2%
3	1%	1%	1%	1%	1%
4	0%	0%	0%	0%	0%
5+	0%	0%	0%	0%	0%
Respondents (n)	1,450	1,022	428	690	760
Number of adults that are partially retired					
0	92%	91%	98%*	95%*	91%
1	7%	8%*	3%	4%	8%*
2	1%	1%*	0%	1%	1%

F4. Employment Status of Adults in Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Respondents (n)	1,450	1,022	428	690	760
Number of adults that are fully retired					
0	54%	52%	77%*	69%*	53%
1	27%	28%*	18%	20%	28%*
2	18%	19%*	4%	11%	18%*
3	0%	0%	0%	0%	0%
Respondents (n)	1,450	1,022	428	690	760

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: This question was included in the mail survey.

Table 53. Household Income Level by Ownership Status and Propensity Score

F5. Household Income Level	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Below 30% SMI	6%	2%	22%*	13%*	5%
30-50% SMI	9%	8%	21%*	17%*	9%
50-60% SMI	7%	6%	11%*	11%*	6%
60-80% SMI	8%	7%	11%	11%*	7%
80-100% SMI	9%	9%	9%	8%	9%
100-115% SMI	5%	6%	3%	5%	5%
115-120% SMI	3%	4%	2%	3%	3%
120-140% SMI	6%	7%*	3%	5%	6%
Over 140% SMI	21%	25%*	3%	9%	22%*
Declined to respond	26%	27%*	16%	19%	27%*
Respondents (n)	1,018	682	329	482	530

*Indicates a statistically significant difference between groups ($p < 0.05$).

Base: Respondents who gave an answer to how many people live in their home.

C.6 Language Proficiency

Table 54. Speak any Languages Other than English by Ownership Status and Propensity Score

G1. Speak any Languages Other than English	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Yes	17%	16%	27%*	20%	16%
No	83%	84%*	73%	80%	84%
Respondents (n)	1,051	703	342	504	547

*Indicates a statistically significant difference between groups ($p < 0.05$).

Table 55. Languages Spoken at Home by Ownership Status and Propensity Score

G2. Languages Spoken at Home	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Spanish	49%	40%	57%*	47%	51%
Portuguese	17%	22%*	11%	12%	21%*
French	7%	7%	7%	10%	4%
Italian	7%	10%*	3%	5%	8%
Arabic	1%	1%	2%	2%	1%
Khmer	1%	2%	1%	2%	1%
Mandarin	1%	1%	1%	2%	1%
Russian	1%	1%	1%	1%	1%
Cantonese	1%	1%	0%	2%	0%
Other	15%	14%	17%	18%	12%
Respondents (n)	274	144	127	132	142

*Indicates a statistically significant difference between groups ($p < 0.05$).

Note: Totals may not sum to 100% as respondents could select more than one option.

Note: This question was included in the mail survey.

Base: Respondents who speak a language other than English.

Note: Unweighted results shown due to low number of responses.

Table 56. Languages Prefer to Get Information in by Ownership Status and Propensity Score

G3. Languages Prefer to Get Information in	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
English	76%	80%	72%	79%	73%
Spanish	20%	15%	24%	20%	20%
Portuguese	2%	2%	2%	0%	4%
French	1%	0%	2%	1%	1%
Italian	1%	1%	0%	0%	1%
Other	1%	1%	0%	0%	1%
Respondents (n)	176	85	89	81	95

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents who speak a language other than English.

Note: Unweighted results shown due to low number of responses.

Table 57. Languages Prefer that Contractors Speak by Ownership Status and Propensity Score

G4. Languages Prefer that Contractors Speak	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
English	67%	69%	66%	66%	67%
Spanish	28%	23%	31%	30%	25%
Portuguese	3%	5%	2%	1%	5%
Italian	1%	2%	0%	0%	2%
Cantonese	1%	1%	0%	1%	0%
Other	1%	0%	1%	1%	0%
Respondents (n)	174	83	90	82	92

Note: Totals may not sum to 100% as respondents could select more than one option.

Base: Respondents who speak a language other than English.

Note: Unweighted results shown due to low number of responses.

Table 58. How Well do you Speak English by Ownership Status and Propensity Score

G5. How Well do You Speak English	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Not at all well	2%	1%	2%	3%	1%

Nonparticipant Market Barriers Study
Appendix C Supplementary Tables

G5. How Well do You Speak English	Overall	Homeowners	Renters	Bottom 10% Propensity Scorers	10-90% Propensity Scorers
Not well	7%	5%	9%	4%	8%
Well	17%	15%	20%	21%	12%
Very well	74%	78%	69%	73%	79%
Respondents (n)	191	93	97	94	71

Base: Respondents who speak a language other than English.

Note: Unweighted results shown due to low number of responses.