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Weatherization Motivations: Moderate Income

(RI-24-RX-Market Research - Moderate Income Study)

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Executive Summary

Rhode Island Energy (RI Energy) is interested in defining the market need and determining appropriate incentive options for a moderate-income weatherization offering to inform possible program design in future years. In 2022, RI Energy offered moderate-income customers with a household income up to 80% of the State Median Income (SMI) weatherization measures for no cost (100% incentivized), but this offering no longer exists.

ILLUME Advising conducted the Rhode Island Energy Moderate-Income Weatherization Customer Interest survey to better understand the relationship between incentive levels, motivators, barriers, and participation in weatherization programs for moderate-income customers. After describing weatherization services, the online survey presented respondents with two sets of questions about their willingness-to-pay for weatherization based on both the Gabor Granger and Van Westendorp market research methodologies. We analyzed responses from customers with a moderate-income (60% to 80% SMI; n=129) as well as customers with a low-income (Less than 60% SMI; n=219) and higher-income (80% to 110% SMI; n=183).

Key Findings

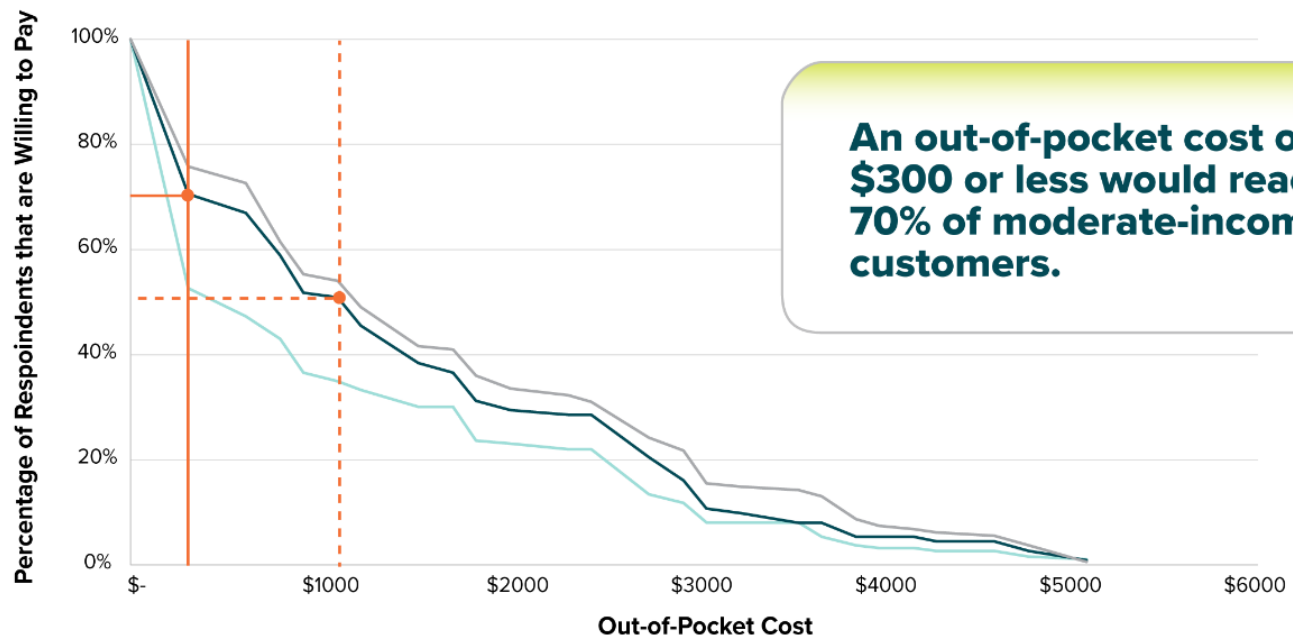
The optimal out-of-pocket cost for weatherization for most moderate-income customers is no more than \$300. Most (70%) moderate-income customers would be willing to pay up to \$300 for weatherization services.

Income fluctuates from year to year for nearly half of respondents.

Respondents experienced increases or decreases in their income that could bring them in and out of eligibility for a moderate-income program.

Moderate income respondents were most comfortable with signing a document to attest their income as their form of income verification, even with the document including language describing penalties if their income does not meet the criteria.

Some customers may not understand that weatherization services can address some of their top issues in their homes.



An out-of-pocket cost of \$300 or less would reach 70% of moderate-income customers.

- Low Income (Less than 60% SMI)
- Moderate Income (60% to 80% SMI)
- Higher Income (80% to 110% SMI)
- (70%, \$313)
- (50%, \$1,125)

Recommendations

Provide incentives for a moderate-income weatherization program that limits the out-of-pocket cost to no more than \$300.

Consider adding flexibility to the income requirements by widening the eligibility band or allowing customers to demonstrate that their income for the year is atypical.

Allow moderate-income customers to sign a document to self-attest their income as a form of income verification for weatherization.

Include messaging and education around the types of problems that weatherization can help fix in the home, such as having parts of the home that are drafty or uncomfortably hot or cold.



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Section 1 Introduction

1.1 Background

In 2022, Rhode Island Energy (RI Energy) offered enhanced incentives for moderate-income customers with a household income up to 60-80% of the State Median Income (SMI). RI Energy provided weatherization measures to moderate-income customers at no cost (100% incentivized) using [Regional Greenhouse Gas Initiative](#) (RGGI) funds and customer self-attestation process for income. When those funds were exhausted, RI Energy used ratepayer Systems Benefit Charge (SBC) funds for the remainder of 2023 and required documentation from customers to demonstrate that they met program requirements. The moderate income offering was not approved in the 2024 Energy Efficiency Plan proceeding and has not been offered in 2024. RI Energy is interested in defining the market need and determining appropriate incentive options to inform possible program design in future years.

ILLUME Advising conducted the Rhode Island Energy Moderate-Income Weatherization Customer Interest survey to better understand the relationship between incentive levels, motivators, barriers, and participation in weatherization programs for moderate-income customers.

1.2 Research Approach

This study surveyed customers to understand their willingness to pay for and barriers to weatherization. Table 1-1 summarizes the key research questions addressed through the survey.

Table 1-1. Key Research Questions

Topic	Research Question
Willingness to Pay	What incentive levels would encourage RI Energy’s moderate-income customers to participate in weatherization programs?
Barriers	What are the non-financial barriers preventing moderate-income customers from participating in weatherization?
Income Verification	How much of a barrier is income verification for enrolling moderate-income customers? What types of documents are customers willing to provide?
Home Needs	What do customers perceive as their priority home needs?

1.2.1 Sample Design

The research team fielded a survey with RI Energy customers to assess interest in weatherization and willingness to pay for weatherization among customers eligible or near eligible for a moderate-income offering. This study was conducted in English and targeted homeowners in single family homes (one to four

units) with incomes below 110% SMI who had an email address on file with RI Energy. Initially the research team sought to focus on recruiting customers with incomes between 60% and 80% SMI¹ for the survey as this is the range that was eligible for the moderate-income offering in the past. Limiting the customers who could complete the survey to those who met the income criteria while keeping the number of RI Energy customers who would receive invitations to the survey to a reasonable amount presented a challenge. We took two approaches to balance these considerations.

First, we applied geographic filters to create our sample frame. Using U.S. Census data, we identified census tracts in Rhode Island more likely to have moderate-income customers based on median income and household size.² We examined median income by household size by census tract and compared it to RI Energy's moderate-income range for each household size. We selected census tracts that had multiple household sizes where the median household income was within RI Energy's moderate-income designation. To simplify the data request process, we translated census tracts into zip codes. From RI Energy customers who lived in those zip codes and had an email address on file, we randomly selected a sample to invite to take the survey.

Second, we modified our target income range during early phases of survey fielding. We invited customers to complete the survey in multiple waves. Initially, we restricted the survey to customers with incomes at 60% to 90% SMI. After an initial soft launch, we expanded the range of eligible income levels to at or below 110% SMI for two reasons: 1) Initial waves had low number of eligible respondents, so we expanded the range to ensure there were enough respondents for the analysis; and 2) Income can vary from year to year, so customers who would not qualify as moderate-income at the time of the survey might qualify in the future. The 110% SMI level was chosen to balance the need to expand the income range accepted in the survey in order to collect enough responses to have statistical significance, while limiting the responses to customers who have an income not vastly different than the 60%-80% SMI range.

In all, we recruited from a total of 22,500 sample cases with valid email addresses and received 1,808 responses. Of those, 531 were eligible completes (homeowners³ with an income between 0% and 110% SMI). Of the 531 eligible completes, 129 were homeowners with an income between 60% and 80% SMI. Table 1-2 summarizes survey distribution efforts and includes the following columns:

- **Attempts** include the total count of respondents who opened, started, or completed the survey.
- **Attempt completes** include the number of respondents who were screened out due to being an employee of RI Energy, not owning their home, living in a type of building that was ineligible, or belonging to an income band that was ineligible.
- **Eligible completes** include respondents who made it past the screener section of the survey.

¹ We used the State Median Income (SMI) rather than the Area Median Income (AMI) because RI Energy income eligibility criteria are based on SMI.

² U.S. Census Bureau, 2022 American Community Survey 1-Year Estimates. Table: B09010. Median Household Income in the Past 12 Months (in 2022 Inflation-Adjusted Dollars) by Household Size. [https://data.census.gov/table?t=Household%20Size%20and%20Type:Income%20and%20Poverty&g=040XX00US44_050XX00US44001\\$140000,44003\\$140000,44005\\$140000,44007\\$140000,44009\\$140000](https://data.census.gov/table?t=Household%20Size%20and%20Type:Income%20and%20Poverty&g=040XX00US44_050XX00US44001$140000,44003$140000,44005$140000,44007$140000,44009$140000)
U.S. Census Bureau, 2020 Census Demographic Profile. Table DP1. PROFILE OF GENERAL POPULATION AND HOUSING CHARACTERISTICS. [https://data.census.gov/table/DECENNIALDP2020.DP1?t=Household%20Size%20and%20Type:Household%20and%20Family&g=040XX00US44_050XX00US44001\\$140000,44003\\$140000,44005\\$140000,44007\\$140000,44009\\$140000](https://data.census.gov/table/DECENNIALDP2020.DP1?t=Household%20Size%20and%20Type:Household%20and%20Family&g=040XX00US44_050XX00US44001$140000,44003$140000,44005$140000,44007$140000,44009$140000)

³ This study focused on moderate-income customers who are homeowners in single family homes. Additional research is needed to address these research questions for moderate-income customers who are renters.

Table 1-2. Overall Survey Responses by Recruitment Wave

Wave	Invitations Sent	Attempts (% of Invitations)	Attempt Completes (% of Invitations)	Eligible Completes (% of Invitations)
Soft Launch 9/27	500	58 (11.6%)	42 (8.4%)	7 (1.4%)
Wave 1 9/4	1000	94 (9.4%)	68 (6.8%)	7 (0.7%)
Wave 2 9/11	1000	117 (11.7%)	77 (7.7%)	46 (4.6%)
Wave 3 9/19	5000	557 (11.1%)	388 (7.8%)	107 (2.1%)
Wave 4 9/23	5000	584 (11.7%)	422 (8.4%)	120 (2.4%)
Wave 5 9/25	5000	568 (11.4%)	414 (8.3%)	121 (2.4%)
Wave 6 9/27	5000	545 (10.9%)	397 (8.0%)	123 (2.5%)
Total	22500	2523 (11.2%)	1808 (8.0%)	531 (2.5%)

While survey fielding had a slow start, after expanding the survey eligibility we received robust responses across income ranges. Table 1-3 summarizes those eligible responses by income range.

Table 1-3. Survey Response Summary by Income

State Median Income (SMI)	Total Eligible Completes	Percentage of Total
Less than 40%	91	17%
40 – 60%	128	24%
60 – 80%	129	24%
80 – 90%	84	16%
90 – 110%	99	19%
Total	531	100%

1.2.2 Survey Fielding

We fielded the survey as an online survey using Qualtrics. Customers received an email invitation to complete the survey on a phone, tablet, or computer from August 27th to October 1st, 2024. The research team sent an initial email and up to two reminders asking recipients to complete the survey.

Customers who completed the survey were entered into a sweepstakes for one of five \$250 gift cards. We provide the full survey instrument in Appendix C.

1.2.3 Analysis

Throughout our analysis, we grouped respondents into one of three income categories, as shown in Table 1-4, below. As noted, due to the initial slow response to the survey, we expanded the eligible income range. However, when we closed the survey, we exceeded our overall target number of completes and had enough completes to analyze subgroups. These groups included low-income (less than 60% SMI), moderate-income (60% to 80% SMI), and higher-income (80% to 110% SMI) respondents. It should be noted that the higher-income group is not a high-income group, but is slightly higher than the moderate-income group. 0 includes survey response breakdowns with different income groupings.

Table 1-4. Income Groups

State Median Income (SMI)	Total Eligible Completes	Percentage of Total
Low-income (Less than 60% SMI)	219	41%
Moderate Income (60% to 80% SMI)	129	24%
Higher Income (80% to 110% SMI)	183	34%
Total	531	100%

1.2.3.1 Willingness to Pay

A key objective of this research is to understand customers' willingness to pay for weatherization. We asked customers about their willingness to pay for weatherization in terms of the out-of-pocket cost that they would be willing to pay for it. Before presenting respondents with questions related to their willingness to pay, the survey provided the following description and explanation of weatherization based on data and feedback from RI Energy program staff:

*Weatherization is a type of home improvement that can make your home healthier and more comfortable while also lowering your energy bills. This involves adding insulation to your home and sealing air leaks. Typically, customers **save 13% on their energy bills** after weatherizing their home. This work is completed by a professional contractor and typically costs \$6,000 for a home in Rhode Island.*

*Rhode Island Energy offers rebates to offset the cost of weatherization. **We want to know how much out-of-pocket costs you would be willing to pay to weatherize your home.** These out-of-pocket costs would be the total amount you would pay after the Rhode Island Energy rebates. Even if there are other factors besides cost that would prevent you from weatherizing your home, please focus on the out-of-pocket cost and answer as honestly as possible.*

We explored willingness to pay through two market research methodologies:

Gabor Granger:^{4,6} We used the Gabor Granger method as our primary analytical approach for assessing willingness to pay. This method determines the maximum amount someone would be willing to pay (in this case, the out-of-pocket cost for weatherization) through a series of questions in which the price goes up or down depending on their response to the price presented to them. Typically, that information is used to create a price and demand curve, which allows us to calculate the price point that maximizes revenue. For this study, we calculated the demand curve and utilized that to understand the percentage of respondents that would be willing to pay for weatherization at various out-of-pocket price points.

Van Westendorp:⁵ We also utilized the Van Westendorp method in our analytical approach for assessing willingness to pay. The Van Westendorp method assesses willingness to pay by asking customers a set of four open-ended questions about the out-of-pocket cost at which the customer feels that the weatherization is too inexpensive, about right, or too expensive. We used these responses to provide greater context for the price point calculated by the Gabor Granger method and understand how that fits within the range of price points respondents gave through the Van Westendorp method.

In this study, we report the mean and median values for these responses as well as the price at which 70% of respondents would be willing to pay for weatherization. We recommend using this last value to be inclusive of more moderate-income customers' optimal price points. Moderate-income is a relatively narrow group of customers to locate and connect with. A lower out-of-pocket cost will help ensure that once moderate-income customers are reached, they can be convinced by the benefits of weatherization and the optimal out-of-pocket costs to participate in the program. The price at which 70% of respondents would be willing to pay for weatherization can inform what level of participation RI Energy could expect where there is some level of out-of-pocket cost required by the customer. This 70% level was chosen to balance the competing priorities of setting appealing incentive levels to encourage customers to participate, while also using program funds to reach as many customers as possible by customers contributing some portion of the cost.

⁴ Lipovetsky, S. S. Magnan, A. Polzi. 2011. Pricing models in marketing research. *Intelligent Information Management*, Vol 3: 167-174. https://www.scirp.org/pdf/IIM20110500007_64675493.pdf

⁵ Qualtrics. Pricing surveys: methods, tips & templates. <https://www.qualtrics.com/experience-management/product/pricing-survey-questions/>

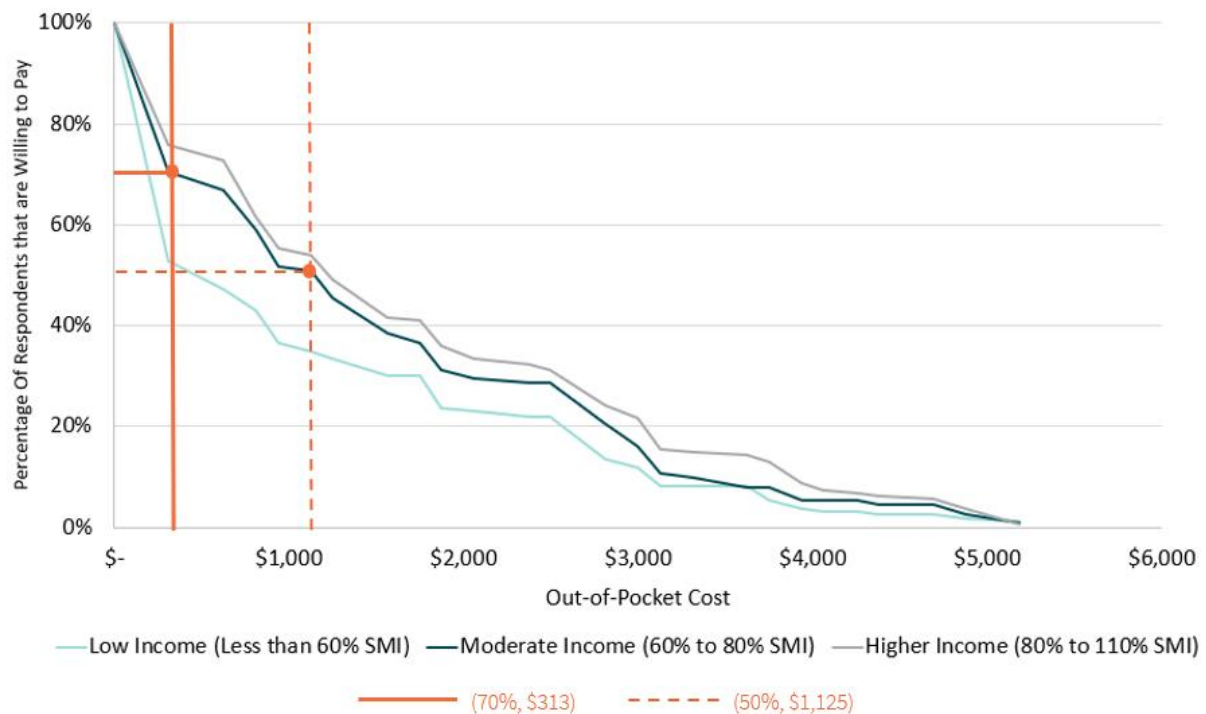
Section 2 Key Findings & Recommendations

This section reports the conclusions and associated recommendations from the study. We provide detailed findings in Section 3.

Key Finding #1: The optimal out-of-pocket cost for weatherization at which most (70%) moderate-income customers will consider paying for weatherization is \$300 or less.

Our research utilized two methods to estimate customers' willingness to pay. One method asked if respondents would be willing to pay a certain price for weatherization and followed up with the question repeated at a higher or lower price depending on whether the respondent had agreed or disagreed with the initial price. We repeated this process four times, and the final price revealed the highest price that the respondent would be willing to pay for weatherization. At an out-of-pocket cost of up to \$1,125, 50% of moderate income customers would be willing to pay for weatherization. To reach more respondents while still encouraging them to contribute to part of the weatherization cost, the price at which 70% of respondents would be willing to pay for weatherization may be more useful. At an out-of-pocket cost of up to \$313, 70% of respondents would be willing to pay for weatherization. The percentage of respondents willing to pay for weatherization goes down as the out-of-pocket cost goes up, shown in **Error! Reference source not found.**

Figure 1. Willingness to Pay for Weatherization Based on Gabor Granger Methodology



The second method we used to estimate willingness to pay allowed respondents to respond with a price in response to four questions about weatherization services, such as the amount at which they would

question whether it was too good to be true or the amount at which it would be too expensive for them to consider it. Through this method, we found that at \$330, 70% of moderate-income respondents would consider the cost to be expensive but would still be willing to do it. Therefore, the two methods support \$300 as an optimal price point to reach 70% of respondents.

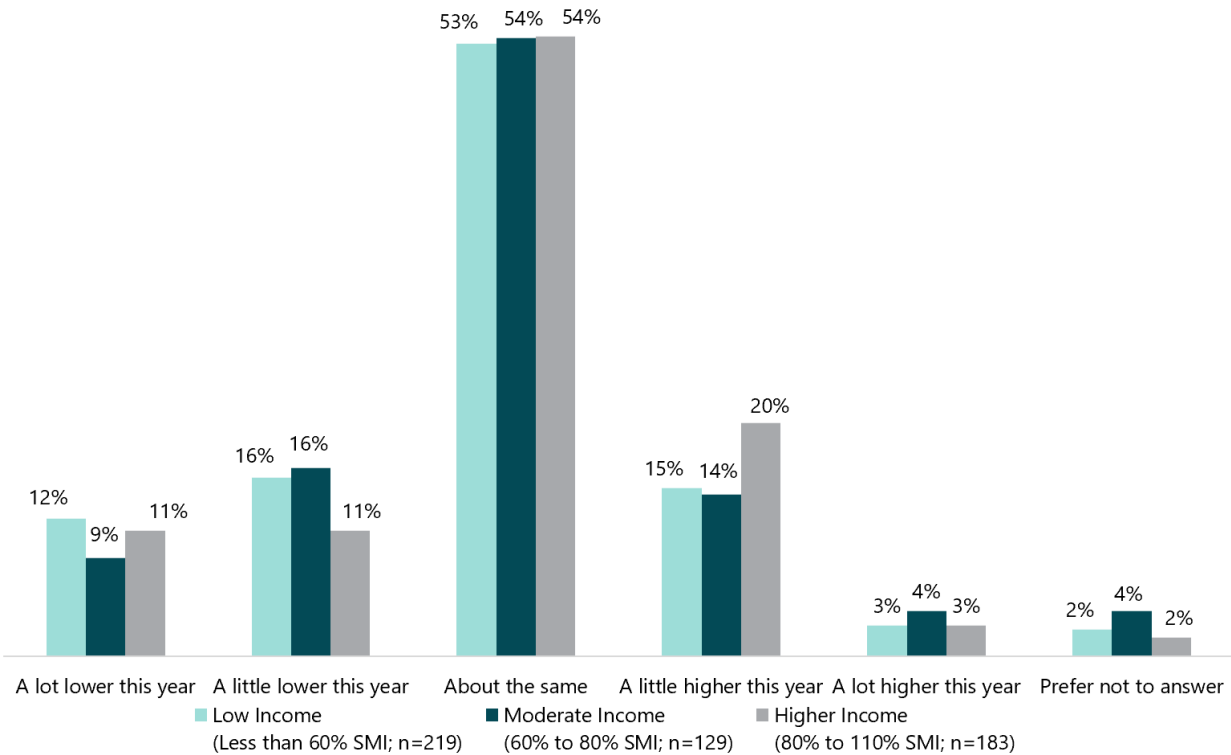
Recommendation: Provide incentives for a moderate-income weatherization program that limits the out-of-pocket cost to no more than \$300.

- **Lower co-pays (or higher incentives) reach more moderate-income customers:** An out-of-pocket cost of \$300 would appeal to about 70% of moderate-income customers. If the program wants to optimize for reaching more moderate-income customers, this out-of-pocket cost will make the program accessible to a greater percentage of customers. If the program has sufficient budget, then lower co-pays (even as low as \$0) and higher incentives will reach even more customers.

Key Finding #2: For many customers, income fluctuates from year to year and this could be a barrier to them participating in a moderate-income offering. Nearly half of respondents experienced increases or decreases in their income that could bring them in and out of eligibility for a moderate-income program.

About half of respondents noted that their income changed compared to last year. While we do not know exactly how much their income changed, these responses suggest that some customers may move in and out of eligibility. For example, some (23%) of higher-income respondents (80% to 110% SMI) reported that their income last year was lower than this year, suggesting that last year they could have been eligible for a moderate-income offering, but this year would not be (Figure 2). On the other hand, 28% of low-income respondents reported that their income was higher last year, suggesting that they may have been eligible for a moderate-income offering last year. Of those who currently have a moderate-income (60% to 80% SMI), 25% reported that last year it was higher, suggesting that last year they may not have been eligible for a moderate income offering but now are. This income fluctuation could be a barrier to customer participation, since customers may become eligible for the program but not be aware that it exists, or they may be aware that it exists but their income may change making them ineligible.

Figure 2. Income Comparisons to Prior Year



Recommendation: Market a moderate-income offering to more customers, including: customers who might be outside the target income range, customers who applied but did not qualify in the past for an income-eligible program, and customers who may have already heard about the program.

- **Frequent marketing to customers:** Since income can vary for some customers from year to year, customers may find themselves eligible in the future for a moderate-income program when they haven't been in the past. Marketing to customers several times throughout the year can remind customers of the offering and allow them to re-assess if changes to their income may make them eligible for a moderate-income offering. If customers have been disqualified based on income in the past, reach out to them to remind them of the program in the following years so that they can reassess their eligibility.
- **Market to customers with a wide range of incomes:** Income can change for customers over time, so marketing to customers regardless of whether they are currently eligible for the program can help to increase their awareness for when they may be eligible in the future. In addition, marketing lists or data that RI Energy might have about customer income could no longer be accurate as income fluctuates from year to year, which can hinder customer participation. By widening the income search based on that data, the program may reach more people who are currently in the qualifying range.

Recommendation: Consider adding flexibility to the income requirements by widening the eligibility band, by allowing customers to demonstrate that their income for the year is atypical, or by allowing customers to demonstrate eligibility using Area Median Income (AMI) in areas where AMI is higher than SMI.

- **Expand eligibility band to 60% to 110% SMI:** Since income can vary, a wider band will include customers whose income is currently higher than moderate income but may be at the moderate-income level in future years.
Generally, willingness to pay responses were higher for the higher-income group (80% to 110% SMI) than the moderate-income group (60% to 80% SMI), but they were not statistically significantly different, suggesting that their appetite for out-of-pocket costs is about the same as the 60 to 80% SMI group.
- **Allow exceptions for changes or atypical years:** This option could consist of qualifying customers with an income in the 60% to 80% SMI moderate-income range in the last three years or allowing customers to use their average income over the last years. Another option could be allowing customers to petition for an exception due to a short-term change in income, such as a change in household composition, employment status, or one-time gift.
- **Use AMI if it is higher than the SMI to determine income eligibility:** This allows the moderate-income offering to be more accessible to customers who live in areas where AMI is higher than SMI.

Key Finding #3: Moderate-income respondents were most comfortable with signing a document to attest their income as their form of income verification (76%), even when the document included penalties if they reported their income inaccurately. This was the most preferred option when compared with providing proof of eligibility with another income-qualifying program, providing pay stubs, or tax documents.

About 55% to 69% of moderate-income respondents indicated that they would also be comfortable with income verification in the form of tax documents, pay stubs, or providing proof of eligibility with another income-qualifying program.

Recommendation: Allow moderate-income customers to sign a document to self-attest their income as a form of income verification for weatherization.

- **Self-Attestation:** This is allowed in some moderate-income weatherization programs. For example, Cape Light Compact in Massachusetts allows self-attestation for their moderate-income weatherization program. To address concerns about ineligible customers participating, RI Energy could select a subset of applicants to review and confirm income eligibility. For example, New Jersey uses the following language on the income affidavit for their community solar program:⁶ *I understand that the information provided on this form may be subject to verification at any time, and upon request, I*

⁶ <https://www.njcleanenergy.com/files/file/CommunitySolar/FY24/2024%20LMI%20Self%20Attestation%20Form%20-%20English.pdf>

may be requested to provide documentation to support the household income or Qualifying Program participation to which I have attested above. Another option could be to follow a similar example to JCP&L, which allows customers to self-attest their income if they live in a prequalified census tract.

Key Finding #4: Some customers may not understand that weatherization services can help address some of their top issues in their homes.

Of the moderate-income respondents that reported that their home had weatherization-related issues such as drafty areas, uncomfortably hot or cold areas, or air problems (n=68), 53% did not report that they needed insulation or air sealing.

Recommendation: Include messaging and education around the types of problems that weatherization can help fix in the home.

- **Mention the issues that weatherization can fix:** Consider adding additional explanations to the website and marketing materials that include the issues that weatherization can solve in customers' homes. For example, "Do you have drafty areas in your home? Weatherizing your home can help fix this by sealing openings throughout your home." Or include a list of issues that are signs that a home could be improved through weatherization.

Key Finding #5: Moderate-income customers have less experience with income-eligible programs and may not realize that they are eligible for benefits. Moderate-income respondents have applied to fewer assistance programs than low-income respondents.

Fewer moderate-income respondents (34%) reported that they had applied to an assistance program compared to low-income respondents (51%). Nonparticipant research in Massachusetts has found that moderate-income customers can be more hesitant to apply to assistance programs because they may have applied to other programs and been denied, causing frustration and deterring future attempts, or because they may be worried that they will take resources away from someone else in greater need by participating.^{7,8}

⁷ Navigant, ILLUME, Cadeo. The Electric and Gas Program Administrators of Massachusetts Part of the Residential Evaluation Program Area. Summary of Findings (MA19R04-NP). Residential Nonparticipant Market Characterization and Barriers Study. February 27, 2020. https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf

⁸ ILLUME, Cadeo. Nonparticipant Market Barriers Study (RI-21-RX-NPStudy). June 16, 2022. https://rieermc.ri.gov/wp-content/uploads/2022/06/ng-ri-nonparticipation-study-report_final_16june2022.pdf

Recommendation: Add messaging to marketing materials that encourages customers to apply even if they have been denied assistance with other programs. Partner with community organizations offering low-income assistance programs that can point customers to a moderate-income weatherization program if they are ineligible for low-income assistance.

- **Encourage customers to apply even if they have been denied assistance elsewhere:** Consider adding language to marketing materials that reinforces that denied assistance in other programs doesn't mean denied assistance in this program.
- **Leverage partnerships to facilitate moderate-income customer referrals if they are ineligible for low-income assistance:** Develop partnerships with other community organizations that offer assistance programs that can refer customers to a moderate-income weatherization offering if they are denied assistance for low-income programs. Ensure these community organizations are aware of the status of the program and the moderate-income threshold (60%-80% SMI). Likewise, if any programs that specifically target moderate income customers operate in the state, RI Energy can develop partnerships to receive referrals of qualifying customers.

Section 3 Detailed Findings

This section presents the detailed customer survey findings supporting the related key findings and recommendations described in this report.

3.1 Weatherization Interest and Barriers

3.1.1 Willingness to Pay for Weatherization

To assess respondents' willingness to pay for weatherization, the survey first presented respondents with a brief description of weatherization, including the average cost and average savings that they could expect from weatherizing their home (See Appendix A.1 for details). After reading this description, respondents were asked if they would be willing to pay certain out-of-pocket prices for weatherization. Respondents were randomly assigned to receive an initial price of \$2,500 or \$3,000, and then they were asked three additional times, with prices increasing or decreasing based on their willingness or unwillingness to pay the preceding price. Some respondents said they were not willing to pay for weatherization at all prices presented to them. These respondents were asked a follow-up question to ask why they would not be willing to weatherize their home. Respondents who indicated that the price was still too high or that they would not be willing to pay anything were treated as being willing to pay \$0 in the Gabor Granger analysis. The results of these responses are detailed in the following section, 0¹ This value indicates the price at which 70% of moderate-income respondents would not be willing to pay for weatherization.

Barriers to Pursuing Weatherization.

shows the mean and median value for each income level's willingness to pay. The confidence interval for the mean value is included, as well.⁹ The first row show results from the Gabor Granger method and the last four rows shows results from the Van Westendorp method. Statistically significant differences between income levels are noted in the footnotes below the table. The value for moderate-income respondents was statistically significantly different than the value for low-income respondents for the price at which weatherization is too expensive ($p < 0.05$) and for the highest agreed to price ($p < 0.10$).¹⁰

⁹ Differences between the mean and median occur when the distribution of responses is not normally distributed (i.e., when the highest frequency of responses is in the middle between the minimum and the maximum). In this case, the highest frequency of responses occurs closer to the minimum, which causes the median to be lower than the mean. This means that there are more respondents that reported lower willingness to pay and fewer respondents that had higher willingness to pay. As an example to help illustrate this point, a similar trend generally exists with income, which is why using metrics such as the State Median Income is better than using the mean income for the state.

¹⁰ We also looked at results by different income groupings and determined in consultation with RI Energy program staff to focus on the 60% to 80% moderate income definition. See Appendix B Extended Survey Analysis for detailed tables with different income groupings.

Table 3-1. Responses to Willingness to Pay by Questions by Income Level

Survey Question	Low-income (Less than 60% SMI)		Moderate Income (60% to 80% SMI)		Higher Income (80% to 110% SMI)	
	Mean (95% CI)	Median	Mean (95% CI)	Median	Mean (95% CI)	Median
Gabor Granger Method						
Highest agreed to price	\$1,023 ^{aa, c} (\$829, \$1,216)	\$313	\$1,381 ^{aa} (\$1,122, \$1,639)	\$1,125	\$1,563 ^c (\$1,335, \$1,791)	\$1,125
Van Westendorp Method						
Questions if weatherization is too good to be true	\$557 (\$430, \$683)	\$100	\$550 (\$428, \$672)	\$250	\$602 (\$491, 714)	\$500
Weatherization is inexpensive, but not so inexpensive that you question the quality of the service or materials	\$727 ^{cc} (\$587, \$866)	\$300	\$840 (\$664, \$1,017)	\$500	\$949 ^{cc} (\$802, \$1,095)	\$625
Weatherization is expensive, but would still consider doing it	\$960 ^c (\$787, \$1,133)	\$500	\$1,259 (\$1,027, \$1,490)	\$900	\$1,502 ^c (\$1,295, \$1,709)	\$1,000
Weatherization is too expensive	\$1,101 ^{a, c} (\$899, \$1,303)	\$501	\$1,563 ^a (\$1,288, \$1,838)	\$1,050	\$1,748 ^c (\$1,521, \$1,975)	\$1,500

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

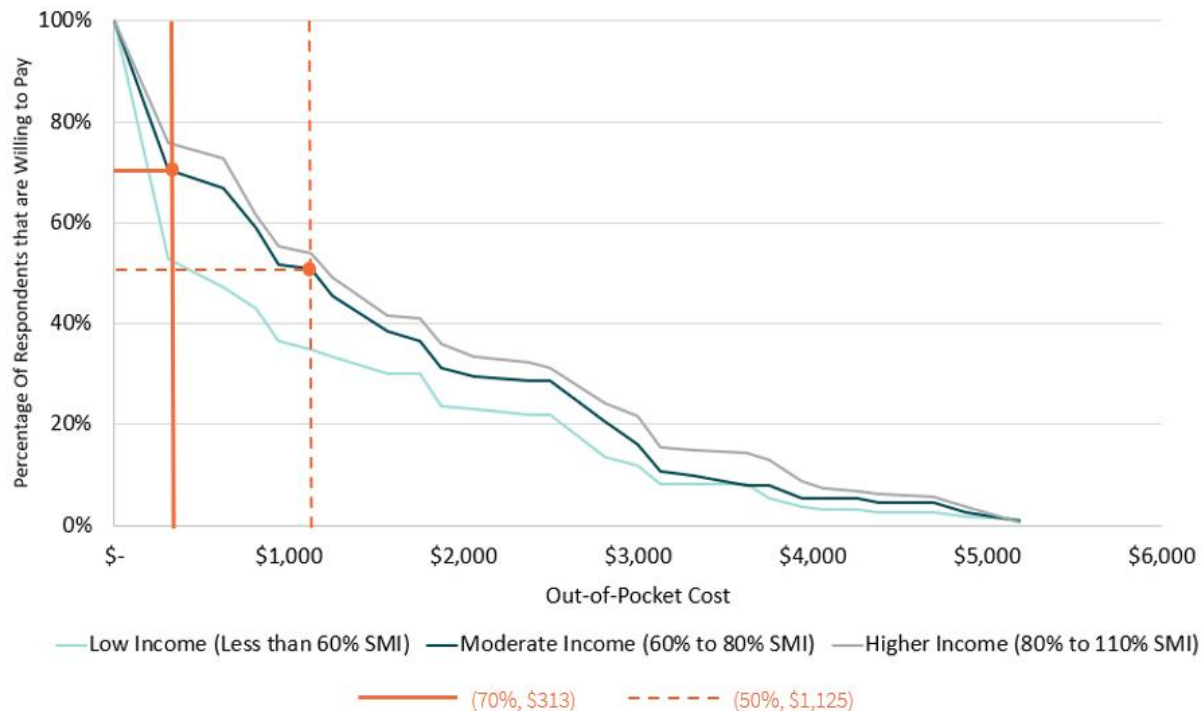
^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{cc} The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

Figure 3 below shows the percentage of respondents who would be willing to pay out-of-pocket costs for each income group, based on the Gabor Granger method. At an out-of-pocket cost of \$1,125 for weatherization, about 50% of moderate-income respondents would be willing to pay for weatherization. About 54% of higher-income (80% to 110% SMI) respondents and about 35% of low-income (Less than 60% SMI) respondents would be willing to pay an out-of-pocket cost of \$1,125 for weatherization.

Figure 3. Willingness to Pay for Weatherization Based on Gabor Granger Methodology



The mean and median values can be useful anchor points for assessing differences between income groups and setting incentive levels, depending on program objectives. Program designs need to balance reaching customers with budget and cost-effectiveness. Moderate income homeowners are a relatively narrow band of customers. In our targeted survey outreach, only 129 respondents out of 1808 attempted completes (7%) were eligible. Thus, this target population may be a small proportion of the population of customers as a whole. To optimize reaching more customers with an appealing incentive offer, we also calculated the out-of-pocket cost at which 70% of moderate-income respondents would be willing to pay for weatherization. Figure 3 and Table 3-2 show that the Gabor Granger method found that with an out-of-pocket cost of \$313, 70% of moderate-income customers would be willing to pay for weatherization. This finding is supported by the Van Westendorp method which shows that with an out-of-pocket cost of \$330, 70% of moderate-income respondents would consider weatherization to be expensive but would still consider doing it. Based on these data, we suggest \$300 for the optimal out-of-pocket cost for most moderate-income customers. If we assume that weatherization costs an average of \$6,000 per home, the out-of-pocket cost of \$300 translates to an incentive of \$5,700 or 95% of project cost. As mentioned above, it should be noted that this moderate-income population may be a small portion of the total population, so consideration should be given to how to balance this incentive amount with the cost of reaching these customers.

Table 3-2. Value at Which 70% of Moderate-Income Respondents Would Be Willing to Pay for Weatherization

Survey Question	Out-of-Pocket Cost that 70% of Moderate-Income Respondents Are Willing to Pay
Gabor Granger Method	
Highest agreed-to price	\$313
Van Westendorp Method	
Questions if weatherization is too good to be true	\$0
Weatherization is inexpensive, but not so inexpensive that you question the quality of the service or materials	\$130
Weatherization is expensive, but would still consider doing it	\$330
Weatherization is too expensive ¹	\$500

¹ This value indicates the price at which 70% of moderate-income respondents would not be willing to pay for weatherization.

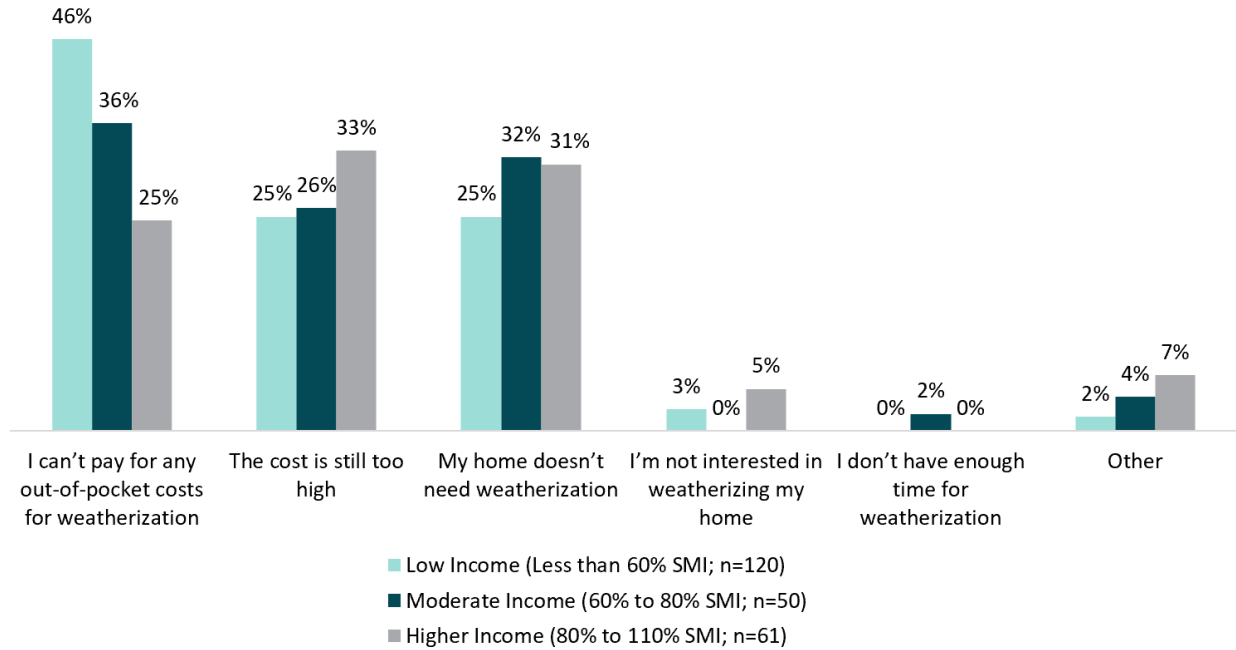
3.1.2 Barriers to Pursuing Weatherization¹¹

Respondents who said "no" to all prices they were asked if they were willing to pay in the Gabor Granger section of the survey were then asked why they would not be willing to weatherize their home.¹² Of those who were asked this (n=231), 52% were low-income respondents, 22% were moderate-income respondents, and 26% were higher-income respondents (Figure 4). Among moderate-income respondents who answered "no" to all prices they were presented with (n=50), the most common barrier was the cost (62%). About one-third (32%) said it was because their home does not need weatherization. Of the 16 moderate-income respondents who said their home does not need weatherization, half had a home that was built before 1970.

¹¹ This survey covered barriers that respondents mentioned in response to not being willing to pay to weatherize their home. This survey did not cover other barriers such as structural problems with the home.

¹² Of these respondents who were asked why they would not be willing to weatherize their home, the respondents who reported that it was because the price was still too high (n=63 total, n=13 moderate income), that they couldn't pay anything to weatherize their home (n=88 total, n=18 moderate income), or who selected "other" as their reason (n=9 total, n=2 moderate income), were considered as willing to pay \$0 in the Gabor Granger willingness to pay model. This means that 33 moderate income respondents, or about 30% (33 respondents moderate income respondents divided by 112 moderate income respondents that answered the question) had a willingness to pay of \$0 in the Gabor Granger method.

Figure 4. Reasons for Not Being Willing to Pay to Weatherize Home

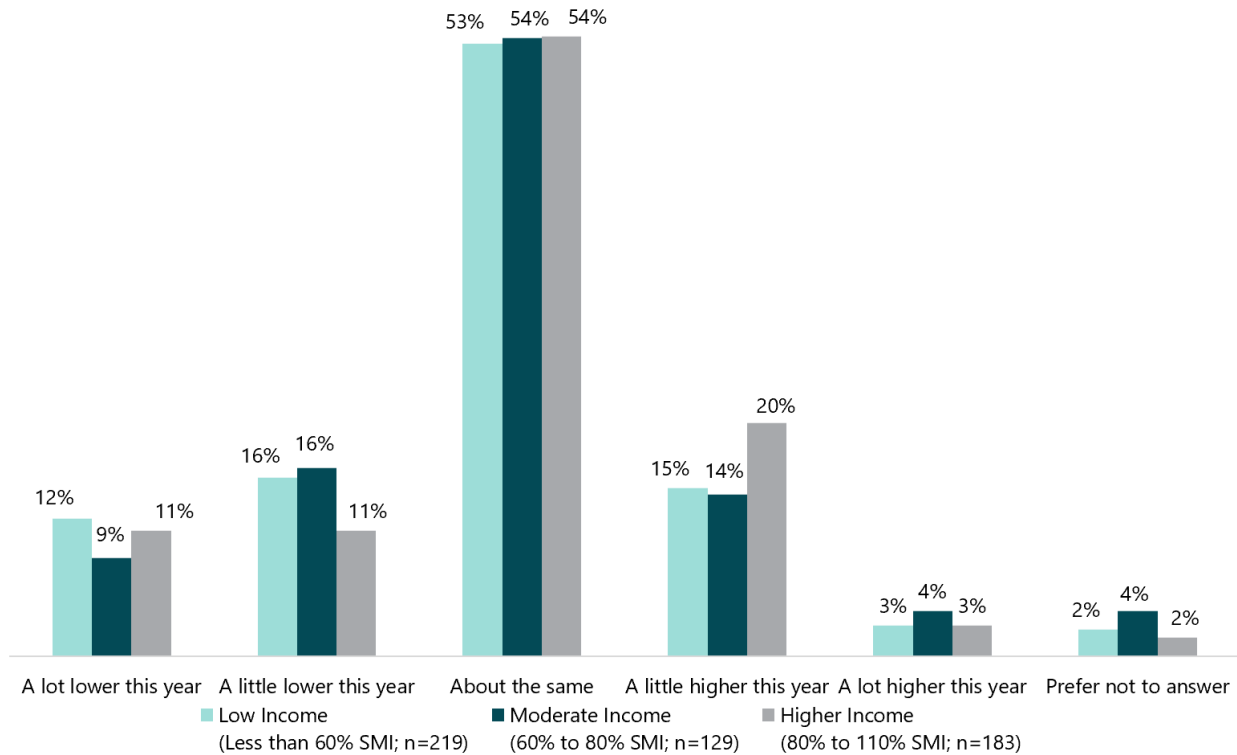


D3 “What is the main reason you would not weatherize your home for this out-of-pocket cost?” n=231

3.1.3 Income and Verification

Nearly half (47%) of respondents indicated that their income has changed since last year (Figure 5). While we do not know exactly how much income changes from year to year, these responses suggest that customers may move in and out of moderate-income status. Among moderate-income respondents, 25% reported that their income is lower this year, suggesting that while they are currently eligible, they may not have been eligible for a moderate-income offering last year. Among higher-income respondents, 23% reported that their income is higher this year, meaning that they may have been eligible for a moderate-income offering last year even though they are currently not eligible. Finally, 28% of low-income respondents reported that their income was higher last year, meaning that they may have been eligible for a moderate-income offering last year. If a moderate-income offering relies on year-old data to target customers for marketing, this finding suggests that extending the marketing to customers below and above moderate income may be necessary, due to changes that can happen in income.

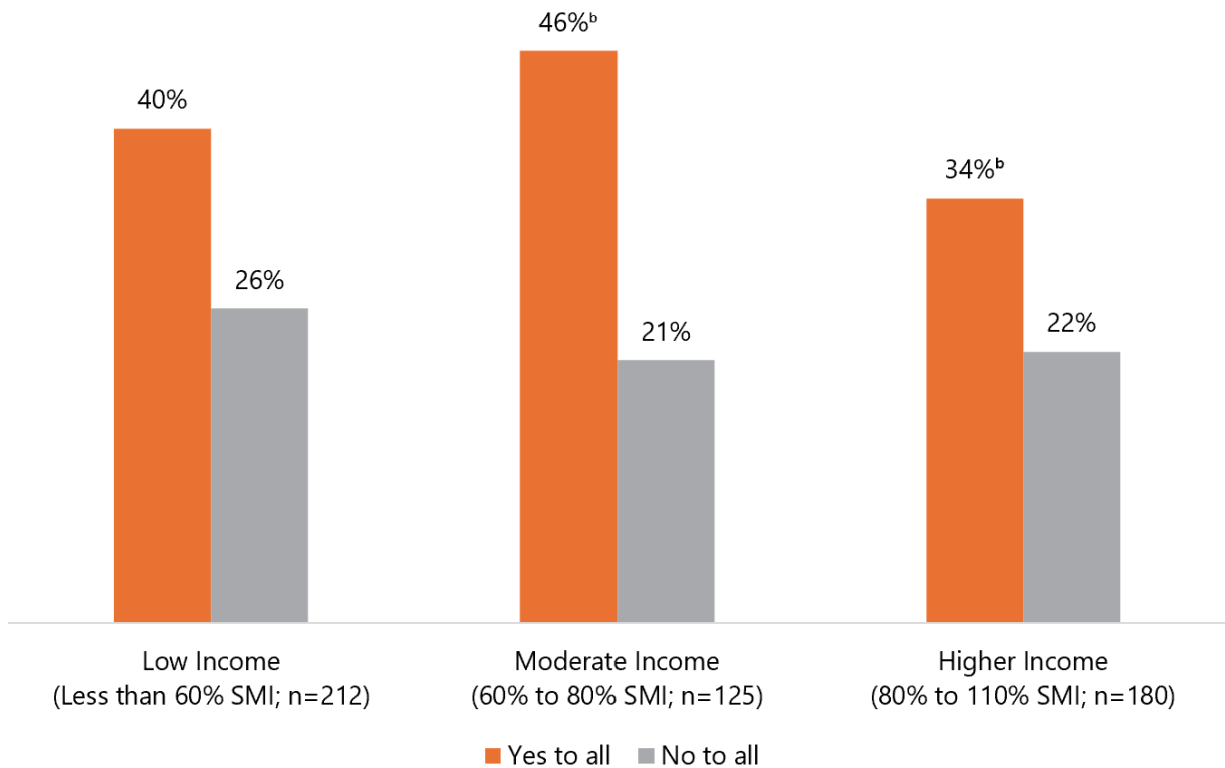
Figure 5. Income Comparison to Prior Year



B17 “We would like to understand how much income varies for Rhode Island Energy customers. How does your income this year compare to last year?” n=531

The survey asked respondents whether they would be comfortable providing various types of income verification. Overall, across all income categories, respondents were divided in their willingness to provide the requested types of documentation including pay stubs, information from taxes, proof of participation in other programs, and signing a document to declare that they meet the income requirements without submitting proof (Figure 6). Slightly under half of all moderate-income respondents (46%) indicated that they would be willing to provide all methods of income verification. Moderate-income customers were the most willing to provide all forms of documentation (46%) and were statistically significantly more willing than higher-income respondents (34%). About a quarter of all respondents (23%), regardless of income category, responded that they would not be willing to do any of the requested income verification methods.

Figure 6. Willingness to Provide All Types of Income Documentation



G1 “... Would you be comfortable providing the following types of income verification?”

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

Respondents tended to be most willing to sign a document and least willing to provide information from their tax documents (Figure 7). Below we provide more detail on verification method preferences.

Pay stubs: Just over half of all respondents (56%, n=517) indicated that they would be willing to provide pay stubs as a form of income verification (Figure 7). Of those who indicated they would not be willing to provide pay stubs (44%), the most common reasons were that the information is private or personal (33%, n=177) or that they are retired, so do not have any pay stubs (23%). Similarly, a significantly greater proportion of respondents who were born before 1965 (47%) responded that they would not be comfortable providing pay stubs compared to those born after 1965 (30%; p<0.001).

Several respondents indicated that they were not interested in or already had weatherization services (16%), and others indicated that they did not have pay stubs because they are unemployed, self-employed, receiving aid, or not working at this time (13%).

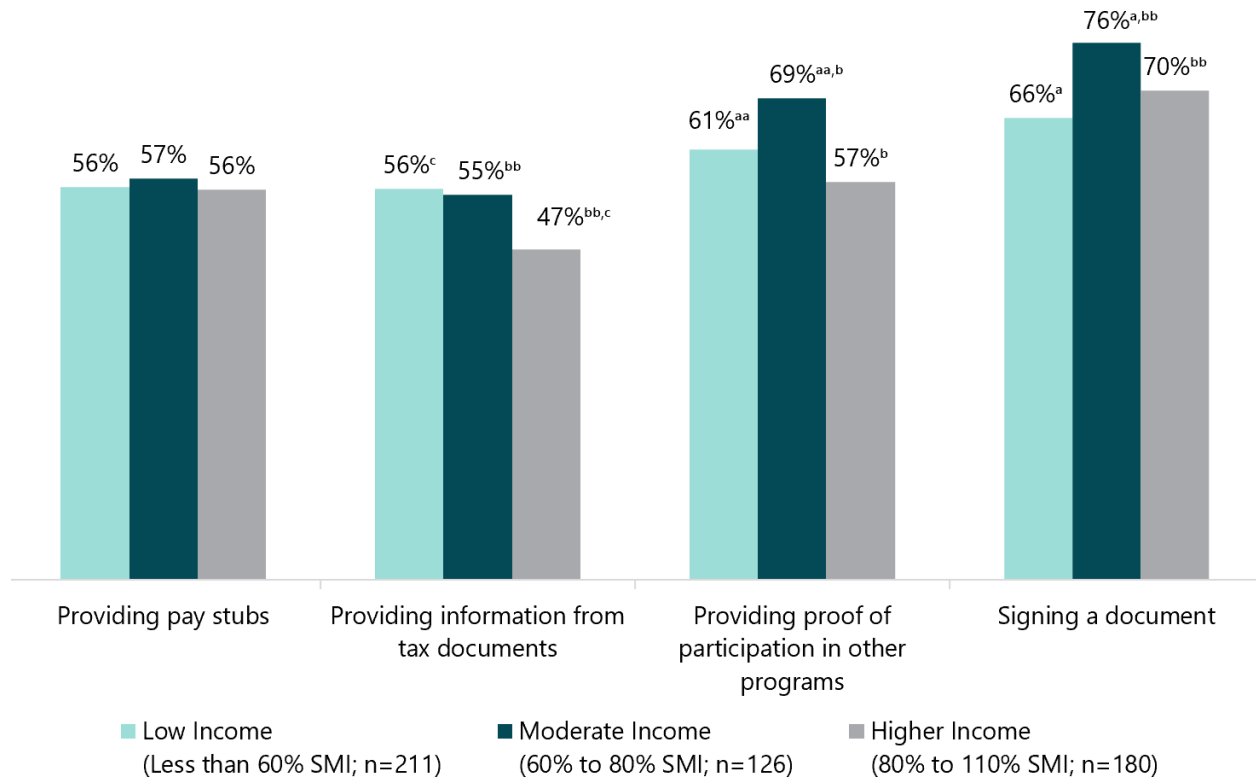
Tax documentation: Just over half of moderate- (55%) and low-income (56%) respondents indicated that they would be comfortable providing tax documentation (Figure 7); however, a lower proportion of higher-income customers (47%) indicated that they would be comfortable providing tax documents compared to the other income categories.

Of those who indicated they would not be willing to provide tax documentation (48%, n=519), the most common reason was that they did not want to because the information is private or personal (48%, n=182). This was followed by concerns about the security and storage of personal information (20%). Others responded with reasons including that their pay stub should be sufficient, that it was too much unrelated information, that they did not understand why this information is necessary, or that it is too much work to collect documents and submit them (14%).

Proof of participation in other programs: Compared to providing pay stubs and information from tax documents, a greater percentage of respondents were willing to provide proof of participation in other programs (62%, n=519, Figure 7). A greater proportion of moderate-income respondents (69%) were willing to provide proof of participation in other programs compared to higher-income respondents (57%), as well as low-income respondents (61%). Of those who indicated that they would not be willing to provide proof of participation in other programs (39%), the most common reasons were, they had not participated in other programs, they did not know if they had participated in other programs, or they did not know if they could find the paperwork from previous participation (34%, n=140). These were followed closely by the response that the information is private or personal (30%).

Self-Attestation: Most respondents, across all income categories, indicated that they were willing to sign a document to declare that their income meets the requirements without submitting proof (70%, n=521, Figure 7). A greater proportion of moderate-income respondents (76%) indicated that they would be willing to sign a document compared to low-income respondents (66%), as well as higher-income respondents (70%). Of those who indicated they would not be willing to sign a document (30%), the most common reason was that the information is private or personal (36%, n=99) followed by not being interested in weatherization or having already had weatherization (25%). Although not as common of a response, some participants indicated that they would not sign without knowing what the penalties are (8%) or that they would prefer to just give proof of their income (4%). Several respondents indicated that they would not be comfortable (5%) because they do not have income or received social security checks. Like responses to pay stubs, a significantly greater proportion of respondents who were born before 1965 responded that they would not be comfortable signing a document declaring their income compared to those born after 1965 ($p<0.001$).

Figure 7. Willingness to Provide Types of Documentation



G1 “... Would you be comfortable providing the following types of income verification?”

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{bb} The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

3.2 Home Priorities and Program Awareness

3.2.1 Home Improvements

Respondents are more likely to identify needing windows and less likely to identify needing weatherization services for their homes.

Across all income categories, the most common home improvement that respondents reported they needed was new windows (32%-39%, Table 3-3) followed by bathroom repairs (19-21%) and insulation (16-24%). More low-income respondents (39%) selected new windows compared to moderate-income customers (32%), whereas more moderate-income respondents (24%) selected insulation as one of their

top concerns compared to low-income customers (16%). More respondents with higher-income also selected insulation as one of their top concerns (21%) compared to low-income respondents (16%).

A greater proportion of higher-income respondents (17%) indicated that they had no present issues or concerns compared to low-income respondents (12%), and a greater proportion of low-income respondents indicated that they are not sure what improvements their home needs (10%) compared to moderate customers (6%).

Table 3-3. Improvements Needed in Home

Home Improvements	Low-income (Less than 60% SMI) ["]	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
New windows	39% ^{aa}	32% ^{aa}	36%
Insulation	16% ^{a,cc}	24% ^a	21% ^{cc}
New heating equipment	19%	21%	17%
Bathroom repair	21%	19%	19%
New roofing	18%	19%	17%
New siding	15%	17%	16%
New cooling equipment	20%	16% ^{bb}	23% ^{bb}
Air sealing	13%	16%	13%
Kitchen repair	11%	10%	12%
New water heating equipment	9%	9%	7%
Health and safety hazards (mold, mildew, asbestos, lead, etc.)	8%	9%	6%
Pest control	7%	4%	5%
Door repair or replacement	1%	1%	1%
Basement repair	1%	1%	0%
Painting (interior or exterior)	2%	0%	0%
Exterior home repairs or upgrades	1%	0%	0%
New large appliances (freezer, fridge, washing machine, etc.)	1%	0%	0%
Full house renovation or remodel	1%	0%	0%
Solar repair or replacement	0%	0%	1%
Not sure	10% ^{aa}	6% ^{aa}	9%

Home Improvements	Low-income (Less than 60% SMI) ^a	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
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No present issues or concerns	12% ^{cc}	13%	17% ^{cc}
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H1. "What are the top three home improvements that are needed in your home?" n=525.

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^{bb} The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

^{cc} The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

Some respondents identify drafty areas and hot and cold spots as issues in their homes, but do not identify needing air sealing or insulation.

Like the home improvement needs, the most commonly selected issue respondents reported in their home (35%, n=516, Table 3-4) was that that they have window issues. A greater proportion of moderate-income customers indicated that they have window issues (39%), knob and tube wiring (8%) and health and safety hazards (13%) compared to higher-income customers, and a greater proportion of higher-income customers reported that they had no present issues or concerns (34%) compared to moderate-income customers (21%) and low-income customers (26%).

A greater proportion of moderate-income respondents indicated that they had drafty areas (34%) compared to low-income respondents (26%); whereas a greater proportion of low-income customers (19%) indicated that they had faulty appliances compared to moderate-income customers (12%) and higher-income customers (10%).

Table 3-4. Issues Reported in Home

Issues in Home	Low-income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
Window issues	35%	39% ^{bb}	32% ^{bb}
Drafty areas	27% ^{aa}	34% ^{aa}	32%
Uncomfortably hot in the summer or cold in the winter	23%	24%	19%
Air problems	22%	20%	19%
Pests such as insects or rodents	19%	16%	17%
Faulty or old appliances or equipment	20% ^{aa,c}	13% ^{aa}	11% ^c
Hazards (asbestos, mold, lead, radon etc.)	10%	13% ^b	6% ^b
Drips, leaks, or water build up	13%	10%	15%
Knob and tube	5%	8% ^{bb}	4% ^{bb}
High costs (electric and/or gas)	0%	1%	0%
Not sure	1%	0%	0%
No present issues or concerns*	27% ^{cc}	21% ^b	34% ^{b,cc}

H2. "Which of the following issues do you have in your home? Please select all that apply." n=516

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{bb} The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{cc} The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

Of the moderate-income respondents that reported they have weatherization-related home issues, such as drafty areas, uncomfortably hot or cold areas in the home, or air problems (n=68), 47% reported that their home needed air sealing and insulation and 53% did not report that their home needed this improvement (Table 3-5). This suggests that many moderate-income respondents may not associate the home improvements of air sealing and insulation with the issues in their home of drafty areas, uncomfortably hot or cold areas, or air problems. To address this, it may be helpful to add additional explanation on the website and marketing materials that list the issues that weatherization can solve in customers’ homes. This could also be framed in terms of listing issues that are signs that a home could be improved through weatherization.

Table 3-5. Weatherization Issues and Improvements reported by Moderate-Income Respondents

		Weatherization-Related Home Improvement Reported Needed in Home	
		Air Sealing and Insulation	None
Weatherization-related issues reported in home	Drafty areas, uncomfortably hot or cold during the summer or winter, air problems (n=68)	47%	53%
	No weatherization-related issues reported in home (n= 61)	13%	87%

3.2.2 Program Awareness and Enrollment

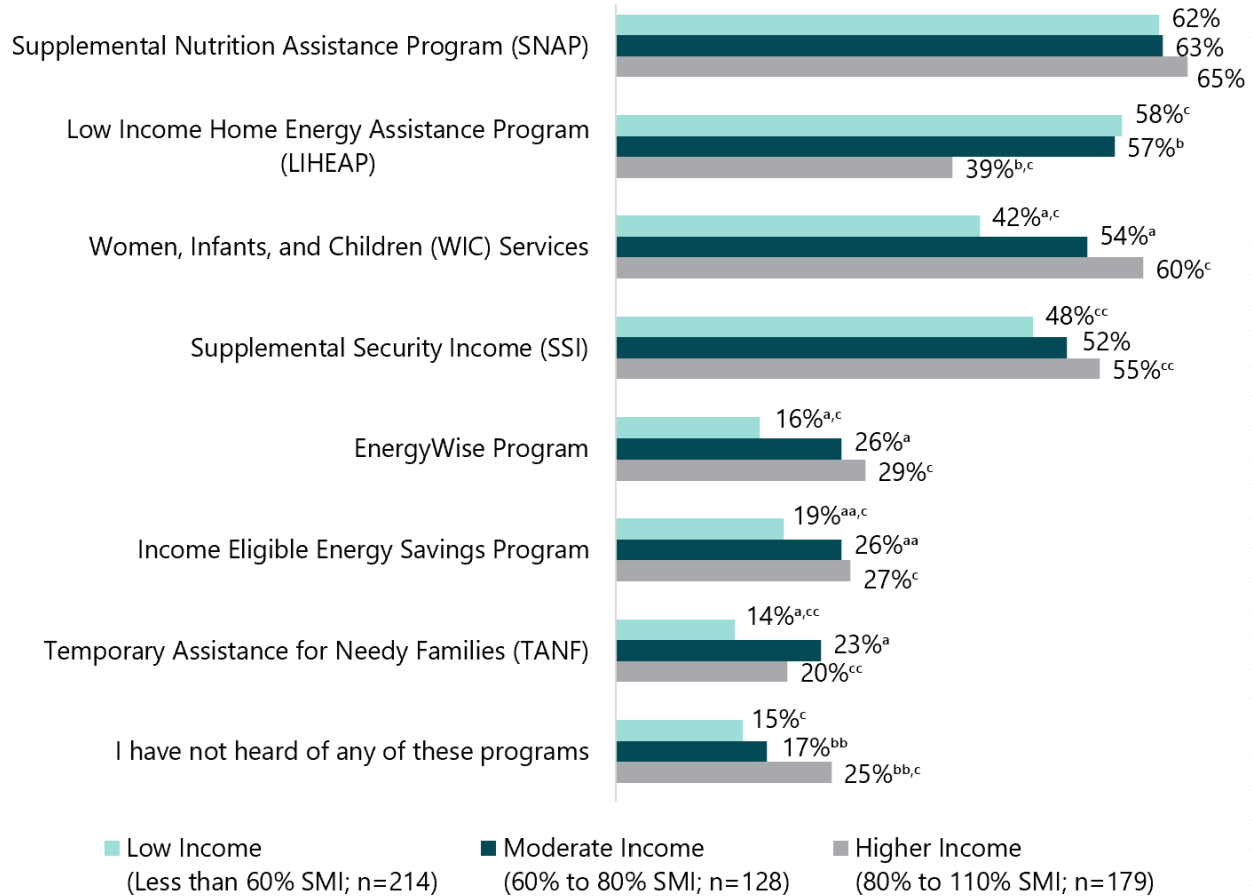
Assistance programs have higher recognition than RI Energy weatherization programs.

Among a list of assistance programs, the program that moderate income respondents, as well as respondents from all other income groups, were most aware of was SNAP (63%, n=521; see Figure 8). Assistance programs such as SNAP may provide opportunities for cross messaging a moderate-income offering.

Some programs had varying levels of recognition by income level. Moderate-income respondents were often as aware or more aware of programs than low-income respondents, though for many programs 50% or less of moderate-income respondents were aware of the program. More low-income (58%) and moderate-income (57%) respondents indicated that they were aware of LIHEAP compared to higher-income respondents (39%). A greater proportion of moderate-income (54%) and higher-income respondents (60%) were aware of the Women, Infants, and Children (WIC) Services compared to low-income respondents. Similarly, a greater proportion of moderate-income (26%) and higher-income respondents (29%) were aware of the EnergyWise program than low-income respondents (16%). Moderate-income customers (23%) also indicated that they were more aware of the Temporary Assurances for Needy

Families (TANF) program compared to low-income customers (14%). Finally, more customers with a higher-income (25%) indicated that they had not heard of any of the programs compared to low-income customers (15%).

Figure 8. Awareness of Income-Eligible Programs



C1. “Prior to this survey, have you heard of any of the following programs? Please select all that apply.” n=521

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{bb} The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{cc} The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

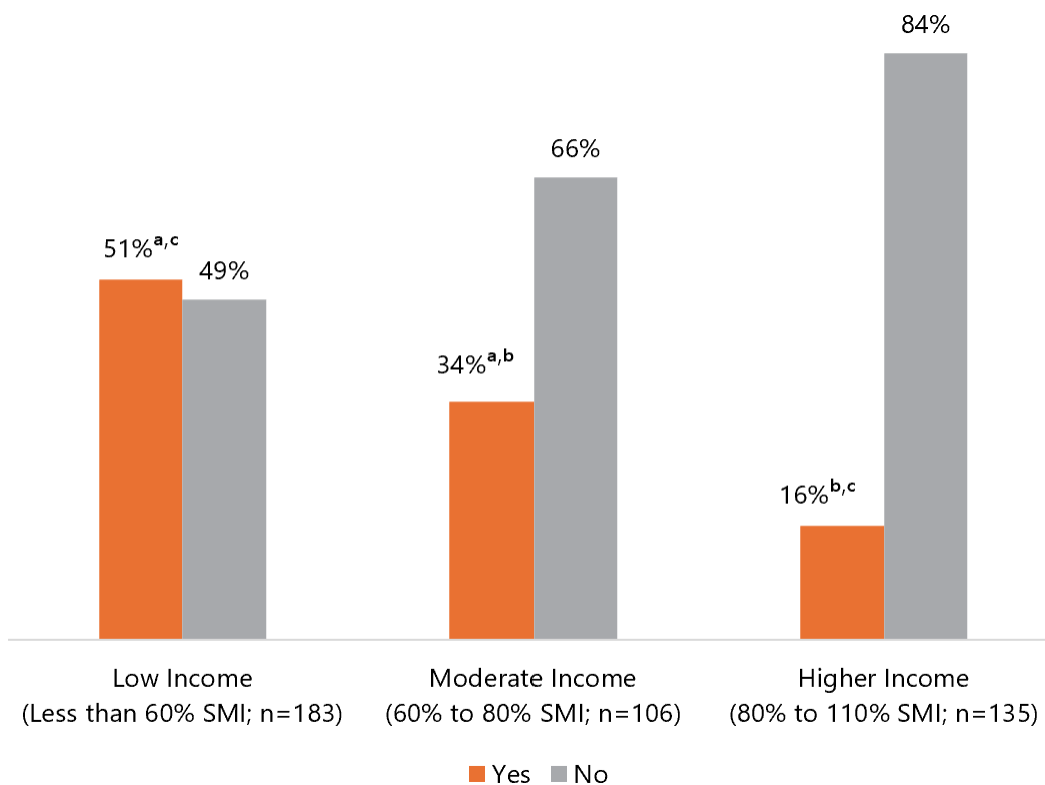
Moderate income customers have less experience applying for assistance programs.

Just over half of low-income respondents indicated that they had applied to one of the assistance programs listed in the figure above (51%, Figure 9). Fewer moderate-income respondents (34%) and higher-

income respondents (16%) than low-income respondents (51%) had applied to one of these programs. This could indicate that moderate-income customers are less familiar with applying for income-qualifying programs, so they may need additional outreach and assistance when applying to a moderate-income program offering. Nonparticipant research in Massachusetts has found that moderate-income customers can be more hesitant to apply to assistance programs because they may have applied to other programs and been denied, causing frustration and deterring future attempts. Another reason they may not apply is that they may be concerned that they will take resources away from someone else in greater need by participating.^{13,14}

Of those who indicated that they had applied to an assistance program, most reported that they were also accepted into the program they applied to (89%, n=151).

Figure 9. Application for Income-Eligible Programs



C2. “Have you ever applied to any of these programs?” n=424

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

¹³ Navigant, ILLUME, Cadeo. The Electric and Gas Program Administrators of Massachusetts Part of the Residential Evaluation Program Area. Summary of Findings (MA19R04-NP). Residential Nonparticipant Market Characterization and Barriers Study. February 27, 2020. https://ma-eeac.org/wp-content/uploads/MA19R04-A-NP-Nonpart-MarketBarriersStudy_Final.pdf

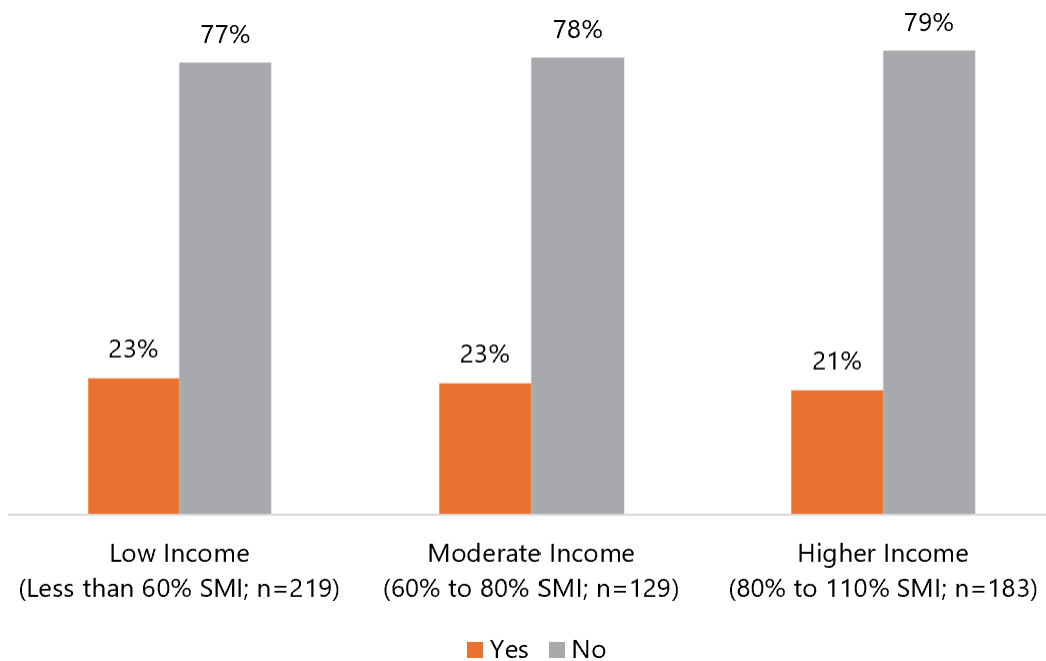
¹⁴ ILLUME, Cadeo. Nonparticipant Market Barriers Study (RI-21-RX-NPStudy). June 16, 2022. https://rieermc.ri.gov/wp-content/uploads/2022/06/ng-ri-nonparticipation-study-report_final_16june2022.pdf

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

Respondents have not participated in RI Energy weatherization programs because they have not heard of the programs or do not think that they qualify.

Respondents were later asked in the survey if they had ever applied to the low-income (Income Eligible Savings Program) or market rate (EnergyWise) weatherization program offered by RI Energy. Most respondents (78%, n=531), across income groups, reported that they have not applied to EnergyWise or the Income Eligible Savings Program for rebates for weatherization services (Figure 10)¹⁵.

Figure 10. Application to EnergyWise or Income Eligible Savings Program



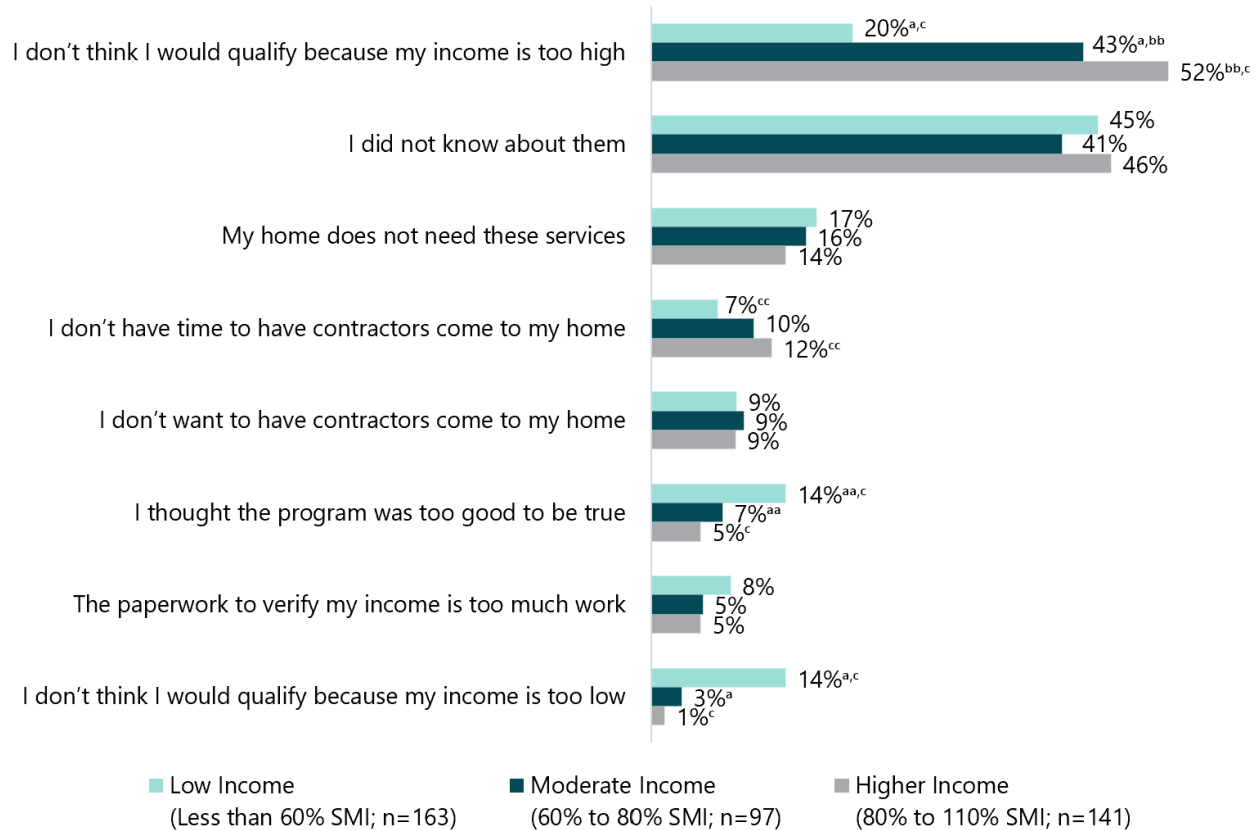
F1. “Rhode Island Energy offers programs that provide rebates for weatherization...Have you applied to either of these programs in the past?” n=531

Slightly under half of all respondents, across all income categories, indicated that they had not applied for the EnergyWise program because they did not know about it (44%, Figure 11). A greater proportion of moderate-income (43%) and higher-income respondents (51%) indicated that they did not apply to EnergyWise because they did not think they would qualify because their income was too high compared to low-income respondents (20%), and a greater proportion of low-income respondents (13%) indicated that they thought they would not qualify because their income was too low compared to moderate-income (3%) and higher-income respondents (1%).

¹⁵ The survey explained that these weatherization programs include home energy assessments, but the survey did not ask about awareness of home energy assessments.

This reinforces that moderate-income customers may require more education and outreach to convey that they could be eligible and are encouraged to apply to a moderate-income weatherization offering.

Figure 11. Reasons for Not Applying to EnergyWise or Income Eligible Savings Program



F2. “Why have you not applied for these rebates through the EnergyWise program? Please select all that apply.” n=401

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^{bb} The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{cc} The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

3.3 Survey Respondent Demographics and Home Characteristics

Table 3-6 below summarizes respondent demographics by income category, which we provide as context around our survey respondents.

While most respondents identify as white (74%), speak English (94%), and many were born between the years 1946 and 1964 (46% Table 3-6), the survey did reach customers with a mix of demographic and home characteristics. Some differences were statistically significant, but not particularly actionable. For example, more respondents with a higher-income (77%) identified as white compared to low-income respondents (67%). Higher-income respondents were also more likely to report speaking English (90%) compared to low-income (80%) and moderate-income respondents (81%). Future research could be done to expand this research to customers who speak languages other than English. A greater proportion of higher-income respondents (62%) also indicated that they had a two-year degree or more compared to moderate income (49%) and low-income respondents (44%). Finally, more low-income respondents (58%) indicated that they were born before 1965 compared to moderate income (50%) and high income (42%).

Table 3-6. Survey Respondent Demographics

Demographics	Low-income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
Total Number of Respondents	219	129	183
Race/Ethnicity (n=529)			
White	67%	73%	77% ^c
Other Race	33%	27%	23%
Race/Ethnicity (Multiple Choice)			
White	69%	77%	78%
Hispanic, Latino, or Spanish origin	12%	9%	5%
Black or African American	6%	6%	4%
Asian	4%		2%
American Indian or Alaskan Native	1%	3%	1%
Middle Eastern or North African	1%	2%	
Native Hawaiian or other Pacific Islander			1%
Prefer not to answer	12%	10%	11%
Language Spoken at Home (n=530)			
English Only	80% ^c	81% ^b	90% ^{b,c}
Other Language(s)	20%	19%	10%
Language Spoken at Home (Multiple Choice)			

Demographics	Low-income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
English	93%	98%	93%
Spanish	11%	9%	3%
Portuguese	3%	5%	2%
Creole	1%	1%	2%
French	1%		1%
Yoruba	1%	1%	
Greek	1%	1%	
German		1%	
Mandarin	1%		
Japanese		1%	
Cambodian	1%		
Dutch			1%
Hebrew	1%		
Tagalog	1%		
Igbo		1%	
Russian		1%	
Prefer not to answer	3%	3%	5%
Education Simplified (n=497)			
Technical college degree or less	56% ^c	51% ^b	38% ^{b,c}
Two-year college degree or more	44%	49%	62%
Education (n=531)			
Some high school or less	4%		
High school graduate or equivalent	24%	18%	11%
Some college, no degree	16%	21%	18%
Technical college degree or certificate	6%	9%	8%
Two-year college degree	11%	9%	10%

Demographics	Low-income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
Four-year college degree	17%	23%	27%
Graduate or professional degree	12%	15%	22%
Prefer not to answer	9%	5%	4%
Year Respondent Was Born Simplified (n=447)			
Before 1965	58% ^{aa,c}	50% ^{aa}	42% ^c
After 1965	42%	51%	58%
Year Respondent Was Born (n=447)			
Gen Z:1996 to present	1%	1%	1%
Gen Y: 1977 to 1995	24%	25%	34%
Gen X: 1965 to 1976	18%	24%	21%
Baby boomer: 1946 to 1964	51%	46%	40%
Silent Gen: 1945 and earlier	7%	4%	2%

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

Table 3-7 below summarizes respondent home characteristics by income category.

Most respondents live with four people or fewer (84%) in homes built before 1960 (56%) that are 1,500 square feet or less. Most respondents use room air conditioners as the main cooling system in their home (46%) and a furnace to heat their homes (56%). Natural gas was the main heating fuel (57%) and natural gas was the main fuel for their water heaters (53%).

More low-income respondents (19%) and moderate-income respondents (19%) indicated that they live with more than four people in their home compared to higher-income respondents (9%). More low-income respondents also reported living in homes built in 1960 or earlier (59%) compared to higher-income respondents (52%). There were no significant differences between income groups in the square footage of their homes or the main heating system they used; however, more low-income respondents (63%) and moderate-income respondents (60%) reported using natural gas as their main heating fuel compared to higher-income respondents (49%), and more low-income respondents (58%) reported using natural gas as their main water heater fuel compared to higher-income respondents (46%).

Finally, a greater proportion of higher-income respondents (46%) reported using central air conditioning or a heat pump compared to low-income respondents (32%).

Table 3-7. Respondent Home Characteristics Summary

Characteristics	Low-Income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
Toal Number of Respondents	219	129	183
Household Size (n=531)			
1-2 people	53%	50%	48%
3-4 people	28%	31%	43%
5 or more people	19%	19%	10%
Year Home Was Built (n=531)			
2015 or later	1%	3%	1%
2000 to 2014	6%	3%	5%
1990 to 1999	4%	5%	8%
1980 to 1989	9%	6%	12%
1970 to 1979	7%	12%	12%
1960 to 1969	13%	16%	10%
Before 1960	57%	53%	51%
Not sure	5%	3%	3%
Square Footage of Home (n=530)			
1,000 sq ft or less	17%	10%	13%
1,001 to 1,500 sq ft	27%	42%	34%
1,501 to 2,000 sq ft	23%	28%	20%
2,001 to 5,000 sq ft	14%	22%	24%
Not sure	19%	9%	10%
Main Heating System (n=529)			
Furnace (includes forced air)	56%	53%	57%
Radiant heat	4%	7%	2%
Electric baseboard	4%	2%	7%
Boiler	29%	28%	25%
Heat pump	1%	4%	4%

Characteristics	Low-Income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
Woodstove	1%	2%	3%
Central air or heat	1%	1%	
Forced water on demand	1%		1%
Delivered fuels (propane, gas, oil) unknown system type	2%	3%	1%
Not sure	1%		
No heat	1%		
Main Heating Fuel Simplified (n=531)			
Natural gas	64% ^c	60% ^b	49% ^{b,c}
Other fuel type	37%	40%	51%
Main Heating Fuel (n=531)			
Electricity	5%	4%	10%
Natural gas	64%	60%	49%
Propane	1%	4%	1%
Wood	2%	2%	3%
Fuel oil	29%	31%	37%
None	1%		1%
Main Water Heater Fuel Simplified (n=531)			
Natural gas	58% ^c	53%	46% ^c
Other fuel type	42%	47%	54%
Main Water Heater Fuel (n=531)			
Electricity	15%	19%	20%
Natural gas	58%	53%	46%
Propane	1%	3%	3%
Fuel oil	20%	19%	28%
Not sure	6%	5%	3%
None		1%	
Main Cooling System Simplified (n=529)			
Central AC or a heat pump	32% ^{a,c}	45% ^a	47% ^c

Characteristics	Low-Income (Less than 60% SMI)	Moderate Income (60% to 80% SMI)	Higher Income (80% to 110% SMI)
Other (No AC, ceiling fans, or room AC)	68%	56%	53%
Main Cooling System (n=530)			
No air conditioning or equipment	13%	5%	7%
Central air conditioning	26%	34%	36%
Ducted or mini-split heat pump	6%	10%	12%
Room air conditioner(s)	47%	47%	44%
Ceiling fans only	8%	3%	2%
Not sure		1%	

a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

aa The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^b The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{bb} The averages for the moderate income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

cc The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.10).

Appendix A Additional Willingness to Pays Survey Details

A.1 Willingness to Pay for Weatherization

A.1.1 Gabor Granger

Before respondents answered questions related to their willingness to pay for weatherization, they were given a brief description of weatherization. This description from the survey is included below. Respondents were required to confirm that they had read this information before proceeding to the willingness to pay questions.

In this section, we are going to ask you about the value you might place on weatherization rebates.

Weatherization is a type of home improvement that can make your home healthier and more comfortable, while also lowering your energy bills. This involves adding insulation to your home and sealing air leaks. Typically, customers save 13% on their energy bills after weatherizing their home. This work is completed by a professional contractor and typically costs \$6,000 for a home in Rhode Island.

Rhode Island Energy offers rebates to offset the cost of weatherization. We want to know how much out-of-pocket costs you would be willing to pay to weatherize your home. These out-of-pocket costs would be the total amount you would pay after the Rhode Island Energy rebates. Even if there are other factors besides cost that would prevent you from weatherizing your home, please focus on the out-of-pocket cost and answer as honestly as possible.

Please ensure you read this information carefully. When you finish, please confirm you have read this by selecting the option below. [SINGLE RESPONSE; FORCE RESPONSE]

1) Yes, I have read this information.

A.1.2 Van Westendorp

After the Gabor Granger willingness to pay questions, respondents were asked questions in the Van Westendorp method. Before they answered these questions, they were given a similar but more concise reminder of weatherization. This reminder from the survey is included below:

Thank you for your responses so far. We have a few more questions related to the out-of-pocket cost for weatherizing your home. For these next questions, think about factors such as quality and price.

As a reminder: Weatherizing your home can lead to a healthier and more comfortable home as well as decreased energy bills. It typically costs \$6,000 for a home in Rhode Island. Customers save 13% on their energy bills on average after weatherizing their home.

Rhode Island Energy offers weatherization rebates to offset this cost. We want to know how much out-of-pocket costs (cost after the rebates) you would be willing to pay to weatherize your home.

Appendix B Extended Survey Analysis

B.1 Survey Results by All Five Income Groups

Table 3-8. Responses to Willingness to Pay by Questions by Income Level

Survey Question	Less than 40% SMI		40% to 60% SMI		60% to 80% SMI		80% to 90% SMI		90% to 110% SMI	
	Mean (95% CI)	Median	Mean (95% CI)	Median	Mean (95% CI)	Median	Mean (95% CI)	Median	Mean (95% CI)	Median
Gabor Grainger Method										
Highest agreed to price	\$1,109 (\$775, \$1,443)	\$0	\$962 (\$726, \$1,197)	\$313	\$1,381 (\$1,122, \$1,639)	\$1,125	\$1,251 (\$956, \$1,545)	\$813	\$1,842 (\$1,504, \$2,180)	\$1,250
Van Westendorp Method										
Questions if weatherization is too good to be true	\$598 (\$387, \$809)	\$50	\$527 (\$368, \$686)	\$200	\$550 (\$428, 672)	\$250	\$603 (\$429, \$777)	\$375	\$601 (\$454, \$748)	\$500
Weatherization is inexpensive, but not so inexpensive that you question the quality of the service or materials	\$770 (\$518, \$1,023)	\$100	\$696 (\$535, \$857)	\$325	\$840 (\$664, \$1,017)	\$500	\$787 (\$619, \$955)	\$500	\$1,094 (\$861, \$1,328)	\$775
Weatherization is expensive, but would still consider doing it	\$985 (\$689, \$1,281)	\$300	\$943 (\$731, \$1,155)	\$500	\$1,259 (\$1,027, \$1,490)	\$900	\$1,309 (\$1,018, \$1,600)	\$925	\$1,678 (\$1,385, \$1,972)	\$1,250
Weatherization is too expensive	\$1,083 (\$736, \$1,430)	\$300	\$1,114 (\$866, \$1,361)	\$600	\$1,562 (\$1,289, \$1,838)	\$1,050	\$1,560 (\$1,223, \$1,898)	\$1,050	\$1,916 (\$1,608, \$2,225)	\$1,500



Table 3-9. Respondent Income Comparison to Prior Year

	Less than 40% SMI (n=91)	40% to 60% SMI (n=128)	60% to 80% SMI (n=129)	80% to 90% SMI (n=83)	90% to 110% SMI (n=100)
A lot lower this year	11%	13%	9%	8%	13%
A little lower this year	10%	20%	16%	11%	11%
About the same	55%	52%	54%	57%	51%
A little higher this year	13%	16%	14%	21%	20%
A lot higher this year	7%	0%	4%	2%	3%
Prefer not to answer	4%	1%	4%	1%	2%

B17 "We would like to understand how much income varies for Rhode Island Energy customers. How does your income this year compare to last year?" n=531

Table 3-10. Reasons for Not Being Willing to Weatherize Home

	Less than 40% SMI (n=54)	40% to 60% SMI (n=66)	60% to 80% SMI (n=50)	80% to 90% SMI (n=31)	90% to 110% SMI (n=30)
I can't pay for any out-of-pocket costs for weatherization	54%	39%	36%	32%	17%
The cost is still too high	19%	30%	26%	32%	33%
My home doesn't need weatherization	24%	26%	32%	23%	40%
I'm not interested in weatherizing my home	2%	3%	0%	3%	7%
I don't have enough time for weatherization	0%	0%	2%	0%	0%
Other	2%	2%	4%	10%	3%

D3 "What is the main reason you would not weatherize your home for this out-of-pocket cost?" n=231

Table 3-11. Improvements Needed in Home

	Less than 40% SMI (n=91)	40% to 60% SMI (n=125)	60% to 80% SMI (n=127)	80% to 90% SMI (n=82)	90% to 110% SMI (n=100)
New windows	39%	39%	32%	34%	37%
Insulation	13%	18%	24%	20%	22%
New heating equipment	24%	14%	21%	13%	19%
New roofing	21%	15%	19%	20%	15%
Bathroom repair	26%	18%	19%	12%	25%
New siding	12%	18%	17%	13%	18%
New cooling equipment	23%	18%	16%	21%	24%
Air sealing	10%	16%	16%	15%	11%
No present issues or concerns	11%	12%	13%	18%	15%
Kitchen repair	15%	8%	10%	13%	11%
New water heating equipment	6%	11%	9%	6%	7%
Health and safety hazards (mold, mildew, asbestos, lead, etc.)	9%	7%	9%	6%	5%
Pest control	7%	6%	4%	5%	5%
Basement repair	0%	1%	1%	0%	0%
Door repair or replacement	0%	1%	1%	1%	1%
Exterior home repairs or upgrades	1%	0%	0%	0%	0%
New large appliances (freezer, Fridge, Washing machine, etc.)	1%	0%	0%	0%	0%
Painting (interior or exterior)	2%	2%	0%	0%	0%
Full house renovation or remodel	0%	1%	0%	0%	0%
Solar repair or replacement	0%	0%	0%	0%	1%
Not sure	9%	11%	6%	10%	9%

H1. "What are the top three home improvements that are needed in your home?" n=525

Table 3-12. Issues Reported in Home

	Less than 40% SMI (n=86)	40% to 60% SMI (n=124)	60% to 80% SMI (n=126)	80% to 90% SMI (n=82)	90% to 110% SMI (n=98)
Window issues	37%	34%	39%	31%	33%
Drafty areas	26%	27%	34%	28%	36%
Uncomfortably hot in the summer or cold in the winter	26%	21%	24%	17%	20%
Air problems	19%	24%	20%	9%	28%
Pests such as insects or rodents	22%	17%	16%	17%	17%
Faulty or old appliances or equipment	11%	9%	13%	6%	6%
Hazards (asbestos, mold, lead, radon etc.)	27%	15%	13%	7%	13%
Drips, leaks, or water build up	14%	13%	10%	13%	16%
Knob and tube	9%	2%	8%	5%	3%
High costs (electric and/or gas)	0%	0%	1%	0%	0%
Not sure	1%	0%	0%	0%	0%
No present issues or concerns	24%	28%	21%	35%	33%

H2. "Which of the following issues do you have in your home? Please select all that apply." n=516.

B.2 Survey Results by Adjusted Combined Income Groups

The following tables show the breakdown of willingness to pay responses for different income groupings. This is available as a reference for RI Energy if different income groupings are of interest to consider.

Table 3-13. Responses to Willingness to Pay by Questions by Adjusted Income Levels: Low-income (Less than 60%), Moderate Income (60% to 90% SMI), Higher Income (90% to 110% SMI)

Survey Question	Low-income (Less than 60% SMI)		Moderate Income (60% to 90% SMI)		Higher Income (90% to 110% SMI)	
	Mean	Median	Mean	Median	Mean	Median
Gabor Granger Method						
Highest agreed to price	\$1,023 ^c (\$829, \$1,216)	\$313	\$1,328 ^{aa} (\$1,135, \$1,521)	\$875	\$1,842 ^c (\$1,504, \$2,180)	\$1,250
Van Westendorp Method						
Questions if weatherization is too good to be true	\$557 (\$430, \$683)	\$100	\$571 (\$471, \$671)	\$300	\$601 (\$454, \$748)	\$500
Weatherization is inexpensive, but not so inexpensive that you question the quality of the service or materials	\$727 ^c (\$587, \$866)	\$300	\$819 (\$695, \$943)	\$500	\$1094 ^c (\$861, \$1,328)	\$775
Weatherization is expensive, but would still consider doing it	\$960 ^{a, c} (\$787, \$1,133)	\$500	\$1,279 ^a (\$1,100, \$1,459)	\$900	\$1,678 ^c (\$1,385, \$1,972)	\$1,250
Weatherization is too expensive	\$1,101 ^{a, c} (\$899, \$1,303)	\$501	\$1,562 ^a (\$1,351, \$1,773)	\$1,050	\$1,916 ^c (\$1,608, \$2,225)	\$1,500

^c The averages for the low-income and higher-income respondents were statistically significantly different for this response (p-value < 0.05).

^{aa} The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.10).

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

Table 3-14. Responses to Willingness to Pay Questions by Adjusted Income Levels: Low-income (Less than 60% SMI), Moderate Income (60% to 110% SMI)

Survey Question	Low-income (Less than 60% SMI)		Moderate Income (60% to 110% SMI)	
	Mean	Median	Mean	Median
Gabor Granger Method				
Highest agreed to price	\$1,023 ^a (\$829, \$1,216)	\$313	\$1,488 ^a (\$1,317, \$1,659)	\$1,125
Van Westendorp Method				
Questions if weatherization is too good to be true	\$557 (\$430, \$683)	\$100	\$581 (\$499, \$663)	\$400
Weatherization is inexpensive, but not so inexpensive that you question the quality of the service or materials	\$727 ^c (\$587, \$866)	\$300	\$904 (\$792, \$1,017)	\$500
Weatherization is expensive, but would still consider doing it	\$960 ^a (\$787, \$1,133)	\$500	\$1,402 ^a (\$1,248, \$1,557)	\$1,000
Weatherization is too expensive	\$1,101 ^a (\$899, \$1,303)	\$501	\$1,671 ^a (\$1,497, \$1,845)	\$1,375

^a The averages for the low-income and moderate-income respondents were statistically significantly different for this response (p-value < 0.05).

Appendix C Rhode Island Energy Moderate-Income Weatherization Customer Motivation Survey Instrument

A. INTRODUCTION



Rhode Island Energy™

a PPL company

Welcome! Your feedback is very important to us and will help us improve our programs for customers like you. This survey should take about 10 minutes. Your responses are confidential and will be used for research purposes only. After you complete the survey, you will be entered into the drawing for one of five \$250 Tango* gift cards.

Please review each question and your responses carefully before continuing to the next question. Once you have entered a response, use the arrow at the bottom right of the screen to get to the next question.

If you need to leave the survey, reopen it by clicking on the link in your survey invitation using the same device you first used to click the link (phone, tablet, computer, etc.). When you reopen the survey this way, your previous answers will be saved, and you can continue with the next unanswered question.

*A Tango gift card is an electronic gift card, which you can redeem at a variety of online retailers or restaurants (including Amazon.com, App Store & iTunes, Google Play CVS, Dunkin' Donuts and more), donate to a charity (like the American Cancer Society), or redeem for an online debit card (Visa® or MasterCard®).

B. SCREENER

[ASK ALL]

B.1 Are you an employee of Rhode Island energy?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Yes [CONTINUE THEN TERMINATE AFTER B.16]
- 2) No

[ASK ALL]

B.2 Do you own or rent your home?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Own
- 2) Rent **[CONTINUE THEN TERMINATE AFTER B.16]**
- 3) Not Sure **[CONTINUE THEN TERMINATE AFTER B.16]**

[ASK ALL]

B.3 Which of the following best describes the building you live in?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) A single-family house detached from any other house
- 2) A row home or townhouse – a single-family house attached to one or more single-family house(s)
- 3) A mobile, manufactured, or trailer home **[CONTINUE THEN TERMINATE AFTER B.16]**
- 4) A multifamily building with two-to-four units (includes duplexes, triplexes, and condos)
- 5) A multifamily building with five or more units **[CONTINUE THEN TERMINATE AFTER B.16]**
- 99) Other, please specify **[OPEN END] [CONTINUE THEN TERMINATE AFTER B.16]**

[ASK ALL]

B.4 How many people live in your home year-round?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) 1
- 2) 2
- 3) 3
- 4) 4
- 5) 5
- 6) 6
- 7) 7
- 8) 8
- 9) 9
- 10) 10
- 11) 11
- 12) 12 or more

[ASK IF B.4 = 1]

B.5 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$23,000
- 2) Between \$23,001 and \$35,000
- 3) Between \$35,001 and \$48,000
- 4) Between \$48,001 and \$54,000
- 5) Between \$54,001 and \$66,000
- 6) Greater than \$66,000 **J.1] J.1]**

[ASK IF B.4 = 2]

B.6 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$31,000
- 2) Between \$31,001 and \$46,000
- 3) Between \$46,001 and \$63,000
- 4) Between \$63,001 and \$70,000
- 5) Between \$70,001 and \$86,000
- 6) Greater than \$86,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 3]

B.7 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$38,000
- 2) Between \$38,001 and \$57,000
- 3) Between \$57,001 and \$77,000
- 4) Between \$77,001 and \$87,000
- 5) Between \$87,001 and \$106,000
- 6) Greater than \$106,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 4]

B.8 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$45,000
- 2) Between \$45,001 and \$68,000
- 3) Between \$68,001 and \$92,000
- 4) Between \$92,001 and \$103,000
- 5) Between \$103,001 and \$126,000
- 6) Greater than \$126,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 5]

B.9 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$53,000
- 2) Between \$53,001 and \$79,000
- 3) Between \$79,001 and \$107,000
- 4) Between \$107,001 and \$120,000
- 5) Between \$120,001 and \$146,000
- 6) Greater than \$146,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 6]

B.10 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$60,000
- 2) Between \$60,001 and \$90,000

- 3) Between \$90,001 and \$121,000
- 4) Between \$121,001 and \$136,000
- 5) Between \$136,001 and \$167,000
- 6) Greater than \$167,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 7]

B.11 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$61,000
- 2) Between \$61,001 and \$92,000
- 3) Between \$92,001 and \$124,000
- 4) Between \$124,001 and \$139,000
- 5) Between \$139,001 and \$170,000
- 6) Greater than \$170,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 8]

B.12 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$63,000
- 2) Between \$63,001 and \$94,000
- 3) Between \$94,001 and \$127,000
- 4) Between \$127,001 and \$143,000
- 5) Between \$143,001 and \$174,000
- 6) Greater than \$174,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 9]

B.13 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$64,000
- 2) Between \$64,001 and \$96,000
- 3) Between \$96,001 and \$129,000
- 4) Between \$129,001 and \$146,000
- 5) Between \$146,001 and \$178,000
- 6) Greater than \$178,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 10]

B.14 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$65,000
- 2) Between \$65,001 and \$98,000
- 3) Between \$98,001 and \$132,000
- 4) Between \$132,001 and \$149,000
- 5) Between \$149,001 and \$182,000
- 6) Greater than \$182,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 11]

B.15 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$67,000
- 2) Between \$67,001 and \$100,000
- 3) Between \$100,001 and \$135,000
- 4) Between \$135,001 and \$152,000
- 5) Between \$152,001 and \$185,000
- 6) Greater than \$185,000 [TERMINATE – SKIP TO J.1]

[ASK IF B.4 = 12]

B.16 Which category best describes your current total annual household income before taxes?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Less than \$68,000
- 2) Between \$68,001 and \$102,000
- 3) Between \$102,001 and \$138,000
- 4) Between \$138,001 and \$155,000
- 5) Between \$155,001 and \$189,000
- 6) Greater than \$189,000 [TERMINATE – SKIP TO J.1]

[ASK ALL]

B.17 We would like to understand how much income varies for Rhode Island Energy customers. How does your income this year compare to last year?

[SINGLE RESPONSE]

- 1) A lot higher this year
- 2) A little higher this year
- 3) About the same
- 4) A little lower this year
- 5) A lot lower this year
- 97) Prefer not to answer

C. PROGRAM AWARENESS

[ASK ALL]

C.1 Prior to this survey, have you heard of any of the following programs? Please select all that apply.

[MULTIPLE RESPONSE; RANDOMIZE]

- 1) Rhode Island's Low-income Home Energy Assistance Program (LIHEAP)
- 2) Supplemental Nutrition Assistance Program (SNAP)
- 3) Supplemental Security Income (SSI)
- 4) Temporary Assistance for Needy Families (TANF)
- 5) Women, Infants, and Children (WIC) Services
- 6) Rhode Island Energy's EnergyWise Program
- 7) Rhode Island Energy's Income Eligible Energy Savings Program
- 97) I have not heard of any of these programs [MAKE EXCLUSIVE]

[ASK IF C.1 = 1 | 2 | 3 | 4 | 5 | 6 | 7]

C.2 Have you ever applied to any of these programs?

[SINGLE RESPONSE]

- 1) Yes
- 2) No
- 98) Not sure

[ASK IF C.2 = 1]

C.3 Have you ever been accepted to any of these programs?

[SINGLE RESPONSE]

- 1) Yes
- 2) No
- 98) Not sure

D. WILLINGNESS TO PAY (PART 1)¹⁶

[ASK ALL]

D.1 In this section, we are going to ask you about the value you might place on weatherization rebates.

Weatherization is a type of home improvement that can make your home healthier and more comfortable, while also lowering your energy bills. This involves adding insulation to your home and sealing air leaks. Typically, customers **save 13% on their energy bills** after weatherizing their home. This work is completed by a professional contractor and typically **costs \$6,000** for a home in Rhode Island.

Rhode Island Energy offers rebates to offset the cost of weatherization. **We want to know how much out-of-pocket costs you would be willing to pay to weatherize your home.** These out-of-pocket costs would be the total amount you would pay after the Rhode Island Energy rebates. Even if there are other factors besides cost that would prevent you from weatherizing your home, please focus on the out-of-pocket cost and answer as honestly as possible.

Please ensure you read this information carefully. When you finish, please confirm you have read this by selecting the option below. [SINGLE RESPONSE; FORCE RESPONSE]

- 1) Yes, I have read this information.

[EACH RESPONDENT STARTS AT A RANDOMLY ASSIGNED PRICE POINT. IF THEY SAY THEY WOULD BE WILLING TO PAY THAT AMOUNT, THEY RECEIVE ANOTHER QUESTION THAT ASKS IF THEY WOULD BE WILLING TO PAY A HIGHER AMOUNT. SIMILARLY, IF THEY SAY THEY WOULD NOT BE WILLING TO PAY THAT AMOUNT, THEY RECEIVE ANOTHER QUESTION THAT ASKS IF THEY WOULD BE WILLING TO PAY

¹⁶ This section utilizes the Gabor Granger method to determine willingness to pay. This method determines the maximum amount someone would be willing to pay through a series of questions where the price goes up or down depending on their response. That information is used to create a price and demand curve, which allows us to calculate the price point that maximizes revenue. For our purposes, we will use the calculated "price point" to inform how much out-of-pocket costs customers are willing to pay for weatherization.

A LOWER AMOUNT. EACH RESPONDENT RECEIVES THREE FOLLOW UP QUESTIONS ON THE PRICE POINT]

D.2 Would you weatherize your home if the out-of-pocket cost to you (cost after the rebates) was \$[PRICE_POINT]?

[SINGLE RESPONSE]

- 1) Yes [FOLLOW UP WITH A HIGHER AMOUNT]
- 2) No [FOLLOW UP WITH A LOWER AMOUNT]

[ASK IF RESPONDENT NEVER ANSWERS YES TO D.2]

D.3 What is the main reason you would not weatherize your home for this out-of-pocket cost?

- 1) The cost is still too high
- 2) I can't pay for any out-of-pocket costs for weatherization [SKIP TO SECTION F]
- 3) I don't have enough time for weatherization [SKIP TO SECTION F]
- 4) I'm not interested in weatherizing my home [SKIP TO SECTION F]
- 5) My home doesn't need weatherization [SKIP TO SECTION F]
- 99) Other, please specify [OPEN END]

E. WILLINGNESS TO PAY (PART 2)¹⁷

[ASK ALL]

E.1 Thank you for your responses so far. We have a few more questions related to the out-of-pocket costs for weatherizing your home. For these next questions, think about factors such as quality and price.

As a reminder: Weatherizing your home can lead to a healthier and more comfortable home as well as decreased energy bills. It typically costs \$6,000 for a home in Rhode Island. Customers save 13% on their energy bills on average after weatherizing their home.

Rhode Island Energy offers weatherization rebates to offset this cost. We want to know how much out-of-pocket costs (cost after the rebates) you would be willing to pay to weatherize your home.

[ASK ALL]

E.2 What is the out-pocket-cost (cost after receiving rebates) for weatherization at which you would question if it were too good to be true?

[OPEN END RESPONSE]

[ASK ALL]

E.3 What is the out-of-pocket cost (cost after receiving rebates) at which you would consider the weatherization to be inexpensive, but not so inexpensive that you would question the quality of the service or materials?

¹⁷ This section utilizes the Van Westendorp method to determine willingness to pay. This method determines willingness to pay by asking customers a set of four questions. Based on responses to these questions, we can create a distribution of responses to each question. We then calculate an optimal price point by overlaying these plots. Similar to above, we will use this "price point" to inform how much out-of-pocket costs customers are willing to pay for weatherization.

[OPEN END RESPONSE]

[ASK ALL]

E.4 What is the out-of-pocket cost (cost after receiving rebates) at which you would consider the weatherization to be expensive, but you would still **consider** doing it?

[OPEN END RESPONSE]

[ASK ALL]

E.5 What is the out-of-pocket cost (cost after receiving rebates) at which the weatherization is too expensive for you to consider doing it?

[OPEN END RESPONSE]

F. RI ENERGY PROGRAM PARTICIPATION

[ASK ALL]

F.1 Rhode Island Energy offers programs that provide rebates for weatherization services to eligible customers. As a first step, this includes a home energy assessment and then installation of recommended weatherization upgrades. These programs include the EnergyWise Program and the Income Eligible Energy Savings Program. Have you applied to either of these programs in the past?

[SINGLE RESPONSE]

- 1) Yes
- 2) No
- 98) Not sure

[ASK IF F.1 = 2 OR 98]

F.2 Why have you not applied for these rebates through the EnergyWise program? Please select all that apply.

[MULTIPLE RESPONSE; RANDOMIZE]

- 1) I did not know about them
- 2) My home does not need these services
- 3) The paperwork to verify my income is too much work
- 4) I don't think I would qualify because my income is too high
- 5) I don't think I would qualify because my income is too low
- 6) I don't want to have contractors come to my home
- 7) I don't have time to have contractors come to my home
- 8) I thought the program was too good to be true

99) Other, please specify [OPEN END]

G. INCOME VERIFICATION

[ASK ALL]

G.1 Some rebate programs at Rhode Island Energy require income verification to access certain levels of rebates. Would you be comfortable providing the following types of income verification?

	YES	NO, PLEASE SPECIFY WHY
a. Providing pay stubs		
b. Providing information from my tax documents		
c. Providing proof of participation in other programs		
d. Signing a document to declare that my income meets the requirements without submitting proof. By signing I am agreeing to terms that apply penalties if that isn't true.		

H. HOME AND EQUIPMENT

Next, please answer a few questions about your home.

[ASK ALL]

H.1 What are the top three home improvements that are needed in your home?

[MULTIPLE RESPONSE <= 3; RANDOMIZE]

- 1) New heating equipment
- 2) New cooling equipment
- 3) Insulation
- 4) New roofing
- 5) New windows
- 6) New siding
- 7) Pest control
- 8) Air sealing
- 9) Bathroom repair
- 10) Kitchen repair
- 11) Mold and mildew removal
- 12) New water heating equipment
- 97) No present issues or concerns [MAKE EXCLUSIVE]**
- 98) Not sure [MAKE EXCLUSIVE]**
- 99) Other, please specify [OPEN END]**

[ASK ALL]

H.2 Which of the following issues do you have in your home? Please select all that apply.

[MULTIPLE RESPONSE; RANDOMIZE]

- 1) Window issues (moisture on windows, broken windows, etc.)
- 2) Uncomfortably hot in the summer or uncomfortably cold in the winter

- 3) Drafty areas
- 4) Drips, leaks, or water build up
- 5) Knob and tube
- 6) Hazards (asbestos, mold, lead, etc.)
- 7) Air problems (humidity issues, poor air quality, odors or smells, etc.)
- 8) Pests such as insects or rodents
- 9) Faulty appliances or equipment (refrigerator, dishwasher, furnace, air conditioner)
- 97) No present issues or concerns **[MAKE EXCLUSIVE]**
- 99) Other, please specify **[OPEN END]**

[ASK ALL]

H.3 When was your home built? Your best guess is fine.

[SINGLE RESPONSE]

- 1) 2015 or later
- 2) 2000-2014
- 3) 1990-1999
- 4) 1980-1989
- 5) 1970-1979
- 6) 1960-1969
- 7) 1960 or earlier
- 98) Not sure [ANCHOR]**

[ASK ALL]

H.4 What is the approximate square footage of your home? Your best guess is fine.

[SINGLE RESPONSE]

- 1) Less than 500 square feet
- 2) 500 - 1,000 square feet
- 3) 1,001 - 1,500 square feet
- 4) 1,501 - 2,000 square feet
- 5) 2,001 - 2,500 square feet
- 6) 2,501 - 3,000 square feet
- 7) 3,001 - 3,500 square feet
- 8) 3,501 - 4,000 square feet
- 9) 4,001 square feet or more
- 98) Not sure [ANCHOR]**

[ASK ALL]

H5 Which of the following best describes the **main heating system** in your home?

[SINGLE RESPONSE]

- 1) Furnace
- 2) Radiant heat

- 3) Electric baseboards
- 4) Boiler
- 5) Heat pump
- 6) Woodstove
- 7) Geothermal

99) Other, please specify **[OPEN END]** **[ANCHOR]**

[ASK ALL]

H6 What is the main fuel used to heat rooms or spaces in your home?

[SINGLE RESPONSE]

- 1) Electricity
- 2) Natural gas
- 3) Propane
- 4) Wood
- 5) Fuel oil

99) Other, please specify **[OPEN END]** **[ANCHOR]**

[ASK ALL]

H.5 What is the main fuel your water heater uses?

[SINGLE RESPONSE]

- 1) Electricity
- 2) Natural gas
- 3) Propane
- 4) Solar
- 5) Fuel oil

98) Not sure **[ANCHOR]**

99) Other please specify **[OPEN END]** **[ANCHOR]**

[ASK ALL]

H.6 Which of the following best describes the main cooling system in your home?

[SINGLE RESPONSE]

- 1) No air conditioning or equipment
- 2) Central air conditioning
- 3) Ducted or mini-split heat pump
- 4) Room air conditioner(s)
- 5) Ceiling fans only

98) Not sure **[ANCHOR]**

99) Other, please specify **[OPEN END]** **[ANCHOR]**

I. DEMOGRAPHICS

We have just a few more questions left. These last few questions are for statistical purposes only. Your responses are voluntary and are kept strictly confidential.

[ASK ALL]

I.1 In what year were you born?

[SINGLE RESPONSE]

- 1) [NUMERIC OPEN END]
- 2) Prefer not to answer [ANCHOR; EXCLUSIVE]

[ASK ALL]

I.2 What is the highest level of education you have completed?

[SINGLE RESPONSE]

- 1) Some high school or less
- 2) High school graduate or equivalent
- 3) Some college, no degree
- 4) Technical college degree or certificate
- 5) Two-year college degree
- 6) Four-year college degree
- 7) Graduate or professional degree
- 97) Prefer not to answer [ANCHOR; EXCLUSIVE]

[ASK ALL]

I.3 Which categories describe you? Please select all that apply.

[MULTIPLE RESPONSE]

- 1) American Indian or Alaska Native (for example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, or Nome Eskimo Community)
- 2) Asian (for example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, or Japanese)
- 3) Black or African American (for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, or Somalian)
- 4) Hispanic, Latino, or Spanish origin (for example, Mexican or Mexican American, Puerto Rican, Cuban, Salvadorian, Dominican, or Colombian)
- 5) Native Hawaiian or Other Pacific Islander (for example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, or Marshallese)
- 6) Middle Eastern or North African (for example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, or Algerian)
- 7) White (for example, German, Irish, English, Italian, Polish, or French)
- 8) Another race, ethnicity, or origin. Please specify [OPEN END]
- 97) Prefer not to answer [ANCHOR; EXCLUSIVE]

[ASK ALL]

I.4 What language(s) do you or others in your home typically speak? Please select all that apply.

[RANDOMIZE, MULTIPLE RESPONSE]

- 1) English [ANCHOR]
- 2) Spanish
- 3) Mandarin
- 4) Cantonese
- 5) Japanese
- 6) Vietnamese
- 7) Korean

- 8) French
- 9) Hindi
- 10) German
- 11) Portuguese
- 97) Prefer not to answer [ANCHOR; EXCLUSIVE]**
- 99) Other, please specify [OPEN END]**

J. TERMINATION

[ASK IF B.1 = 2 OR 98 | B.3 = 4 OR 5 | B.5:B.16 = 1 OR 4]

J.1 Thank you for your interest in this survey. Unfortunately, you are not eligible to take this survey, but we appreciate your willingness to help Rhode Island Energy improve its services to customers.

K. THANK YOU & CLOSING

[ASK ALL]

K.1 Thank you so much for your time today. Rhode Island Energy really appreciates your feedback. Would you like to be entered into the drawing to win one of five \$250 gift cards?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Yes
- 2) No

[ASK IF K.1 = 1]

K.2 The email address we have on file for you is [EMAIL]. If you are selected to receive a gift card, is this the best email to reach you?

[SINGLE RESPONSE; FORCE RESPONSE]

- 1) Yes
- 2) No

[ASK IF K.2 = 2]

K.3 What is a better email?

[OPEN ENTRY – CUSTOM EMAIL VALIDATION; FORCE RESPONSE]

[DISPLAY IF K.2 = 1 OR K.3 = VALID COMPLETE]

If selected to receive the gift card, you will receive an email from Tango Gift Cards with your electronic gift card and instructions on how to use it within the next four weeks. If needed, you can search for an email “From: ILLUME Advising <noreply@tangocard.com>.”