August 20, 2019

Process Evaluation

Income Eligible Services Program

National Grid Rhode Island

Developed For

National Grid
40 Sylvan Road
Waltham, MA 02451

Developed By

Cadeo
107 SE Washington Street, Suite 450
Portland, OR 97214

EXECUTIVE SUMMARY

Process Evaluation: Income Eligible Services (IES) Single Family Program

National Grid offers IES to help income eligible customers in Rhode Island improve the efficiency of their homes. Participants receive a range of energy efficiency updates, including heating systems, insulation, appliances and lighting at 100% incentive. In 2018**,** National Grid completed more than 4,000 IES home energy assessments and installed more than 60,000 energy efficiency measures.

This process evaluation focused on identifying opportunities to improve the way IES program is delivered. This evaluation complements Cadeo's impact evaluation of IES in 2018 and was undertaken to inform National Grid's 2020 energy efficiency plan.

Activities

- Stakeholder Interviews (n=25)
- Materials Review
- Participant Surveys (n=150)
- Non-participant Surveys (n=75)
- Program Data Review

Recommendations

1. **Explore an expedited home assessment approach.** The current approach takes too long and limits the total number of customers National Grid can serve.
2. **Pilot Hancock mobile application.** It's possible an available mobile application could expedite assessors' data collection responsibilities and allow them to serve more customers.
3. **Set data-driven expectations about participation timelines.** Assessors are not consistently setting expectations with customers about the time between their home assessment and when they will receive their efficiency upgrades.
4. **Explore opportunities to reduce installation timelines and increase contactor capacity.** National Grid is not currently meeting its internal target for insulating participants' homes following their assessment and should identify opportunities to weatherize homes faster.
5. **Implement post-installation survey.** Changing the timing and focus of the current follow-up survey would help National Grid resolve issues associated with installed measures.
6. **Increase direct engagement with landlords.** Most IES participants own their home. To better serve renters, National Grid should explore more direct engagement with landlords.
7. **Prioritize rebuilding the state's home energy assessor capacity.** Statewide, IES lost six assessors last year; National Grid should take steps to encourage assessor retention.
8. **Clarify waiver process.** Some stakeholders expressed confusion about the waiver process and need more guidance from IES.
9. **Collect additional data.** National Grid should work with IES stakeholders to collect specific additional data that would improve future evaluations.

Table of Contents

Introduction **1**

About Income Eligible Services 1
Evaluation Details 5
Recommendations 6

Methodology **8**

Evaluation Activities 8
About Self-Selection Bias 10

Findings and Recommendations **12**

Program Management and Delivery 12
Program Satisfaction 16
Nonparticipation 27
Role of CAPs 31
Outreach 33
Future Production 34
Communication 35
Data 36

Recommendations Summary **40**

Appendix A. Scope of Work .....

Appendix B. Stakeholder Interview Guide .....

Appendix C. Participant Survey .....

Appendix D. Nonparticipant Survey .....

Appendix E. Participant Survey – Additional Results .....

Appendix F. Nonparticipant Survey – Additional Results .....

Appendix G. 2018 IES Measure and Savings Summary .....

Appendix H. Considerations for Future Evaluations .....

Introduction

This report details Cadeo's process evaluation findings of National Grid's Income Eligible Services (IES) program for single-family customers in Rhode Island. The goal of this evaluation was to provide an independent, third-party assessment of National Grid's IES delivery and, where relevant, identify opportunities to overcome current delivery inefficiencies, barriers to participation, or gaps in service.

About Income Eligible Services

National Grid Rhode Island offers IES to help low-income families and individuals reduce their electric and gas bills by insulating their homes, replacing inefficient appliances and products, and providing energy efficiency education. The IES program provides eligible customers with home energy assessments and energy saving measures to improve the efficiency and comfort of their homes at a 100% incentive via the systems benefit charge (SBC) that funds all National Grid's energy efficiency programs.[1]

Income eligible single-family customers[2] are those who live in one- to four-unit residential buildings and are enrolled in National Grid's fuel discount rate plans (A-60 Electric Low-Income rate and/or 1301 Low-Income Heat rate).[3,4] Customers who qualify for the Low-Income Home Energy Assistance Program (LIHEAP), also known as "fuel assistance", are eligible to participate in IES as well.

IES is an amalgamation of two long-standing National Grid energy efficiency efforts aimed at serving Rhode Island's low-income customers. The first is the Appliance Management Program (AMP), which National Grid began offering in its Rhode Island service territory in 1998, using funds from the rate payer energy efficiency SBC. AMP focuses on upgrading participants' electric end-uses. AMP also includes an energy education component that aims to further reduce energy usage through tailored, customer-specific energy savings tips.

The second effort is funding, also generated through the SBC, National Grid has provided to local Community Action Program (CAP) agencies since 1997 to weatherize customers' homes. Historically, CAPs have combined National Grid funds with funding from the U.S. Department of Health and Human Services (HHS) LIHEAP program to air seal, insulate, and replace inefficient or failed heating systems in eligible homes. While not combined within

[1] IES does not require landlord contributions in the case of rental properties.

[2] Customer that are not income eligible but live in a two- to four-unit building where more than 50% of the units are income eligible can also receive weatherization and health and safety services. This exception is referred to as the "50% rule". More information is provided in the program's Operation Manual, a link for which is provided later in the report.

[3] Income eligibility requirements differ based on the household size (i.e., the number of people living in the home). The 2019 requirements can be found online here: http://www.dhs.ri.gov/Programs/LowIncomeGuidelines.php.

[4] For more information on the A-60 rate, visit: https://www.nationalgridus.com/RI-Home/Rates/Service-Rates.

the same home with National Grid funding[5], the CAPs have historically also used funds from the U.S. Department of Energy's (DOE) Weatherization Assistance Program (WAP) to treat income eligible customers in Rhode Island.

Measures

Program participants receive a home energy assessment, during which a Building Performance Institute (BPI) certified[6] energy assessor identifies opportunities for energy efficiency improvements. In 2018, IES completed nearly 4,000 such assessments.[7] As part of each assessment, the assessor also provides the participant with educational materials and tailored recommendations for decreasing energy usage through behavior changes. During the assessment, the assessor direct installs a variety of energy-saving measures such as efficient lighting, smart power strips and room AC timers. Participants may also qualify for weatherization (air sealing and/or insulation) regardless of their heating fuel (gas, electric or delivered fuels), as well as heating system replacement, the removal or replacement of inefficient appliances, and domestic hot water measures.

National Grid recently added measures to its historical IES offerings. The program's new measures include efficient dehumidifiers, clothes washers and dryers, and mini-split heat pumps. A complete list of IES measures is provided in Appendix G.

Management

In 2013, National Grid contracted with CLEAResult to serve as IES' Lead Vendor. As Lead Vendor, CLEAResult oversees National Grid's low-income programming and works in close collaboration with the State of Rhode Island Department of Human Services (DHS), which administers both LIHEAP and WAP funds in the state. CLEAResult also coordinates with the six Rhode Island CAPs that deliver the IES program: [8]

1. Blackstone Valley Community Action Program (BVCAP) in Pawtucket
2. Community Action Partnership of Providence (CAPP) in Providence
3. Comprehensive Community Action (CCAP) in Cranston
4. Eastbay Community Action in Newport and Riverside
5. Tri-County Community Action Agency in Johnston and Wakefield
6. Westbay Community Action Partnership in Warwick

Each CAP agency employs their own trained energy assessors who complete the AMP or weatherization[9] assessments, which serve as the foundation of IES. The assessors are responsible for associating identified energy efficiency improvements with the appropriate funding source.

---

[5] Per an interviewed stakeholder, DOE WAP and National Grid funding have not been combined (i.e., used for the same home) in the last six years, minimum.

[6] http://www.bpi.org/certified-professionals

[7] There are three types of assessments: AMP, weatherization, and comprehensive (AMP and weatherization).

[8] For more information about these CAPs, visit the Rhode Island Association of Community Action Agencies website: https://www.ricommunityaction.org/agency-services/.

[9] Only one CAP (CAPP) has assessors trained to perform both AMP and weatherization assessments.

If the assessor identifies an opportunity to weatherize and/or upgrade the heating system, the CAP contracts with one of program's approved contractors to install insulation and/or replace the existing heating system. Approved contractors submit customer-specific bids to CAPs for heating system replacements, whereas weatherization contractors agree, bi-annually, with the program on fixed prices for common air sealing and insulation measures.

Funding

Due to National Grid's partnership with the state's CAPs and collaboration with federal and state energy efficiency stakeholders, IES participants often receive energy efficiency measures and/or health and safety improvements funded outside of IES.

As noted above, CAPs can use HHS LIHEAP program funding alongside National Grid's electric and natural gas funding to more comprehensively serve customers. The LIHEAP funding comes in the form of a federal block grant given to Rhode Island. This grant offers DHS the flexibility to use a portion of the state's LIHEAP funding for low-income residential weatherization. According to IES stakeholders interviewed as part of this evaluation, DHS allocated 15% of Rhode Island's total 2018 LIHEAP funding to the weatherization program. As stated by an interviewed stakeholder, the portion of total LIHEAP funding allocated to weatherization in 2018 is typical of most years. The remainder was used to provide eligible customers with fuel assistance. Again, CAPs have historically also utilized DOE WAP funds to serve National Grid customers—although not for the same customer receiving IES National Grid funding.

To understand funding relationships and trends, Table 1 details National Grid, LIHEAP, and DOE contributions dating back to 2012. The table also includes funding amounts for the current program year (2019). As evident below, total funding has increased almost three-fold since 2012—with most of the additional funding coming from National Grid.

Table 1. Funding and Participation Summary (2012-2019)

Year	Funding					Participation	
	National Grid (Electric)	National Grid (Gas)	LIHEAP	DOE WAP	Total	Electric Customers	Gas Customers
2012	$3,549,000	$1,090,200	$3,475,315	$724,000	$8,838,515	2,654	388
2013	$5,000,600	$1,851,800	$3,450,000	$1,209,077	$11,511,477	2,646	398
2014	$7,291,100	$2,732,600	$2,420,000	-	$12,443,700	3,054	539
2015	$7,067,900	$2,682,700	$3,750,000	$ 933,379	$14,433,979	2,851	529
2016	$7,426,400	$3,602,100	$3,120,000	$1,138,064	$15,286,564	3,016	722
2017	$8,210,700	$3,925,300	$2,889,334	$1,158,873	$16,184,207	3,074	700
2018	$9,872,222	$4,224,688	$5,797,291	$1,278,670	$21,172,871	3,850	615
2019	$11,694,728	$5,012,842	$4,728,171	$1,852,790	$23,288,531	N/A	N/A

Figure 1 and Figure 2 provide the same information in graphic form.

Figure 1. CAP Funding Summary (2012-2019)

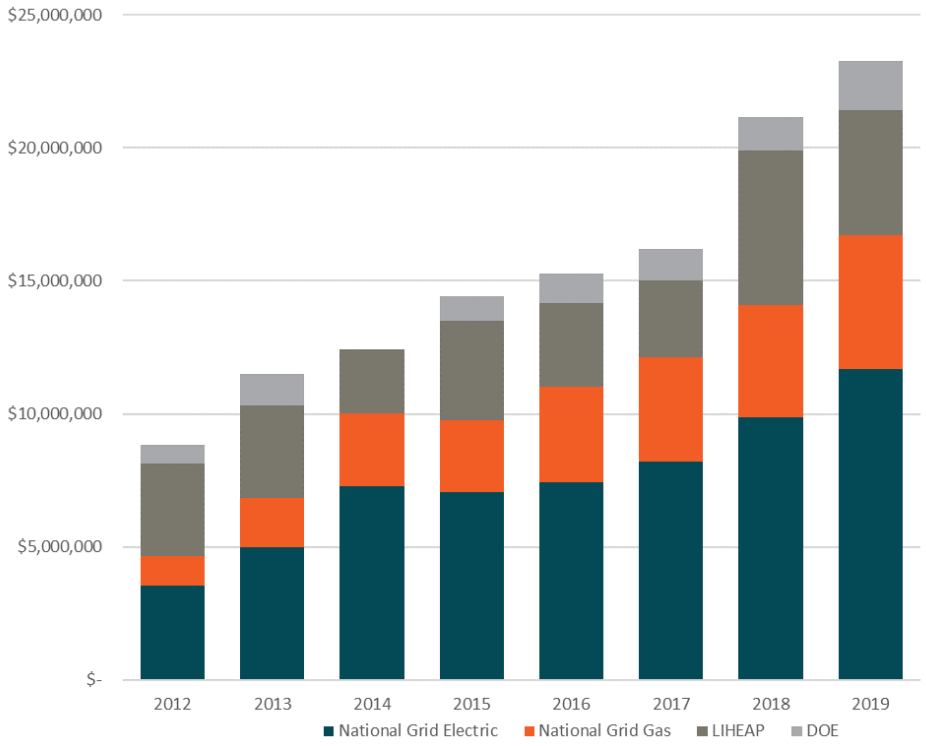
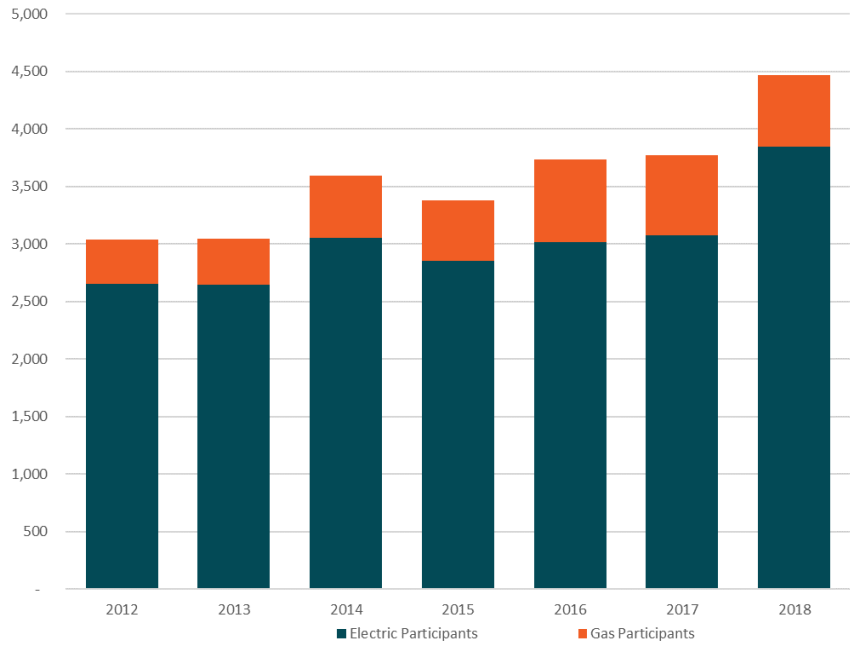


Figure 2. IES Participation by Fuel (2012-2018)



Evaluation Details

Previous Process Evaluation

This evaluation builds off an IES process evaluation completed by The Cadmus Group in 2014. The previous evaluation occurred shortly after CLEAResult became IES' Lead Vendor[10] and examined program years 2011-2013. While we asked interviewed stakeholders about changes in the intervening years of 2014-2017, this study focuses on IES delivery in 2018. Focusing on recent IES implementation while also considering the proposed 2019 delivery yielded more relevant and actionable insights National Grid can prospectively apply.

We also explored how National Grid acted on the previous evaluation's 11 recommendations and what impacts, if any, these actions had on the program. Understanding how National Grid responded to the previous recommendations was helpful to our team as we considered this study's recommendations.

Evaluation Objectives

Cadeo's goal for this process evaluation was to provide an independent, third-party assessment of National Grid's IES delivery. As detailed in this report, our assessment identified IES elements that are functioning as intended, as well as those not being delivered optimally and contributing to delivery inefficiencies, barriers to participation, or gaps in service. Based on this assessment, our evaluation team offers recommendations for IES delivery improvement. National Grid can use the findings and recommendations of this process evaluation to inform the 2020 Energy Efficiency Plan in Rhode Island to the extent feasible.

This process evaluation also complements the IES impact evaluation our team completed last year (August 2018).[11] Collectively, these evaluations provide National Grid with up-to-date, third-party feedback about IES performance from both energy savings (the impact evaluation) and delivery (process evaluation) perspectives.

Considerations for Future Evaluation

In addition to assessing National Grid's response to the nine official recommendations included in this report, the next IES process evaluator should consider further investigating several topics identified during this evaluation process but not fully covered within the scope of the current evaluation. The team has provided a list of these topics for future evaluation consideration in Appendix H.

[10] http://rieermc.ri.gov/wp-content/uploads/2018/03/national-grid-rhode-island-income-eligible-services-process-evaluation.pdf

[11] http://www.ripuc.org/eventsactions/docket/7.%20NG%20RI%20-%20IES%20Impact%20Evaluation%20Report_FINAL_30AUG2018.pdf

Recommendations

In advance of the detailed findings provided in the next section, Table 2 summarizes Cadeo's nine recommendations resulting from this comprehensive process evaluation.

Table 2. Summary of Recommendations

#	Recommendation	Details
1	**Explore the viability of an expedited, non-SWS assessment approach for IES participants**	Stakeholders' previous decision to standardize the weatherization assessment approach statewide—and to do so using the most rigorous required approach—was well-intended goal and logical decision. However, requiring SWS for all non-AMP projects, regardless of the funding source, has slowed CAPs ability to serve more customers, required high levels of QA/QC, and generally frustrated IES stakeholders. National Grid should work with stakeholders to determine if an alternative approach can strike a better balance between consistency, rigor, cost, and efficiency. As one measure of National Grid's success identifying an expedited solution, National Grid should consider tracking the amount of time assessors spend on each time of assessment (AMP, weatherization, and comprehensive).
2	**Work with IES stakeholders to pilot Hancock mobile application and provide additional training**	National Grid should support the piloting of the Hancock mobile application to determine its effectiveness on reducing administrative burden on assessors, as well as support mobile application-specific or additional general Hancock training.
3	**Set consistent, data-driven expectations with participants**	Using available program data, National Grid should work with program stakeholders to determine the appropriate installation timing expectations to set with participants and communicate them consistently to all customers receiving the related measures.
4	**Investigate causes of current longer-than-targeted timeline and explore opportunities to reduce installation timelines by increasing contractor capacity**	National Grid should work with stakeholders to identify opportunities, whether through procedural efficiencies or mechanisms that increase contractor capacity (i.e., the number of contractors that CAPs are comfortable working with, as well the number of total jobs they can complete). Doing so may reduce median participant weatherization installation timelines and bring them into alignment with the program's internal targets.

5	**Implement post-installation survey and follow-up processes**	CLEAResult currently administers an internal customer survey to solicit feedback on their assessment. However, the timing and focus of survey does not enable them to identify—and address—concerns related to weatherization or heating systems. We recommend that National Grid work with CLEAResult to either expand the focus and change the timing of the current survey, or to administer a second survey to weatherization and heating system participants after their installations are complete. National Grid should also establish a process for addressing customer concerns identified via the survey.
6	**Increase direct engagement with landlords**	To overcome this persistent and significant barrier, National Grid should explore implementing policies that require CAPs to engage directly with landlords on behalf of interested tenants as CAP staff are best positioned to explain IES and successfully enlist their participation. Increasing renter participation will also ensure that renters, who also contribute to IES via the system benefits charge, receive an equitable share of program resources.
7	**Prioritize rebuilding and stabilizing assessor capacity**	The evaluation team understands that program stakeholders are already taking steps to mitigate recent assessor attrition. We also understand that National Grid has limited visibility into and control over assessor salaries and benefits, which is the purview of the CAPs. However, National Grid's ability to meet increasing IES goals is directly related to the size and quality of the assessor pool. As a result, National Grid should do whatever it can to promote assessor retention and track the number of assessors, as well as assessor turnover, as indicators of success.
8	**Clarify waiver process**	Through direct communications with CAP managers/assessors and/or revisions to the Operations Manual, clarify the process for approving waivers.
9	**Collect as many of the identified missing data elements as feasible**	Collecting these data will help future evaluators better evaluate IES. However, our team recognizes that additional data collection requires assessors to spend additional time in a participant's home and on paperwork, which this process evaluation found is already an issue. We recommend that National Grid work with IES stakeholders to collect as much of this information as feasible within the larger context of delivering this program.

Methodology

Evaluation Activities

Table 3 briefly describes the five evaluation activities the team completed to meet the evaluation objectives listed above. For more information on each activity, please see the evaluation's Scope of Work provided in Appendix A.

Table 3. Summary of Evaluation Activities

Materials Review. At the evaluation's outset, the team requested program materials from National Grid and CLEAResult including:

- Materials provided to participants before, during, or after their energy assessment
- IES' operations guide and field manual
- Program marketing materials
- Monthly and/or annual IES tracking or participation reports

Reviewing the materials helped our team become more familiar with IES, which in turn allowed us to ask more nuanced questions during the stakeholder interviews. In addition to helping us prepare for the interviews, reviewing the materials enabled our team to better contextualize and interpret statements made during the interviews themselves. In particular, the operations guide and field manual served as important references throughout the evaluation as we heard differing statements regarding IES practices and protocols.

Stakeholder Interviews. The team interviewed a wide variety of key program stakeholders at the start of primary data collection. Each interview's focus varied based on the stakeholder, but generally the interviews focused on IES design, delivery, and marketing, as well as the perceived participant experience. In total, we completed 21 interviews with:

- National Grid Strategy and Implementation Managers (n=1)
- Lead Vendor (CLEAResult) Managers (n=1)
- CAP Senior IES Managers (n=6)
- CAP Field Assessors (n=6)
- Installation Contractors (n=6)
- Department DHS Staff (n=1)

Appendix B provides a copy of the interview guide including different sections for each interviewee type.

Participant Surveys. After interviewing key IES stakeholders and reviewing all the provided IES materials, the team surveyed 150 randomly sampled 2018 IES participants.[12] The team used a multi-mode survey approach: we began by e-mailing each participant a link to the online survey and followed up with unresponsive participants with two phone calls minimum. We also offered an option to take the survey in Spanish over the phone.[13] To encourage participation and compensate participants for their time, we provided all participants who completed the survey (online or over the phone) with a $10 incentive.[14]

Surveying IES participants helped the team understand the customer experience and identify opportunities for program delivery to improve. The survey captured the perspectives of two participant types: those who received direct install measures and/or appliance upgrades and those who received direct install measures and also had their home weatherized and/or a heating system replaced. Our survey sample's participant type proportions (36% and 64% respectively) closely aligned with the proportions for the 2018 IES participant population (31% and 69%). Additionally, the team was interested in customer experiences across homeowners, renters, and landlords. Of survey respondents, 73% identified as homeowners and 27% identified as renters. No surveyed participants identified themselves as landlords.

Appendix C provides a copy of the participant survey and Appendix E includes a full set of results.

Nonparticipant Surveys. The team also surveyed 75 IES nonparticipants.[15] To identify nonparticipants, the team cross-referenced a current list of National Grid's A-60 Low-Income rate customers with a list of customers who participated in IES in the last five years. Using these resources, our team created a sample frame of known income eligible customers not known to be IES participants. Similar to the participant survey, the team offered the option to take the survey in Spanish over the phone.[16]
The nonparticipant survey purpose was to measure regional IES awareness and to gain insight into how National Grid can potentially modify IES delivery to reach

[12] The team sent 755 total participant survey invitations to accomplish the 150 complete responses (a ~20% response rate). The participant survey was live for two weeks, and the team sent three reminder emails and conducted two reminder phone calls.

[13] Two participant survey respondents selected this option. It is worth noting that 14 participant respondents (9%) listed Spanish as the primary language spoken in their home (but took the survey in English online). According to the US Census, 8% of Rhode Island residents primarily speak Spanish in their homes.

[14] We offered all survey respondents the choice of an electronic Amazon gift card or a physical Visa gift card.

[15] The team sent 760 total nonparticipants survey invitations and received 93 complete responses (a ~12% response rate). Eighteen of these respondents identified themselves as an IES participant and were removed from nonparticipant reporting, leaving 75 nonparticipant responses. The nonparticipant survey was live for two weeks, and the team sent three reminder emails and conducted two reminder phone calls.

[16] None of the nonparticipant respondents selected this option. Seven nonparticipant respondents (6%) listed Spanish as the primary language spoken in their home.

these customers. The surveyed nonparticipants reflected a mix of National Grid customers who:

- Have never engaged with IES
- Previously engaged with the program (e.g., investigated or started the application process), but did not complete the process
- Participated in IES in a previous home but not in their current home

Like the participant survey, we used a multi-mode approach for nonparticipants, offered a Spanish option, and provided an incentive ($20 for nonparticipants).[17] Also similar to the participant survey, the team was interested in customer perceptions of the IES program across homeowners, renters, and landlords. Of the 75 surveyed nonparticipants, 47% identified as homeowners, 51% identified as renters, and 1% (one respondent) identified as a landlord.

Appendix D provides a copy of the nonparticipant survey and Appendix F includes a full set of results.

Data Review. Lastly, the team reviewed 2018 IES data provided by InDemand (National Grid's system for tracking funded measures) and Hancock (maintained by DHS and includes information about non-National Grid funded measures). As part of the data review, our team investigated both dataset's quality and completeness to ensure the data could collectively inform accurate future impact evaluations. The team also used the provided datasets to calculate several program- and measure-specific metrics of interest to process evaluation stakeholders.

About Self-Selection Bias

Two surveys—one with participants and one with nonparticipants—lie at the heart of this evaluation. However, it is important to discuss self-selection bias and the potential impact it has on survey results before proceeding to this evaluation's findings.

Self-selection is a bias that occurs when survey respondents have the option to self-select into a survey effort. In the context of this evaluation, that refers to each participant and nonparticipant's decision to respond to the e-mail outreach or to take our call when contacted over the phone. Despite the random sampling approach our team employed, it is possible the respondents who answered the survey may not exactly represent the target population, in this case all 2018 IES participants, due to self-selection bias.

As a result of self-selection, it is possible participants will respond to survey outreach if they had either a very positive or very negative IES experience. It follows that participants with more typical program experiences may

[17] The team offered nonparticipants a higher incentive as they are typically less likely to respond to a survey than participants, who recognize the program name and already received program-related services.

feel less compelled to respond. As a result, it is possible participants on far ends of the participation experience spectrum (either positive or negative) may be overly represented in the surveyed sample relative to all the customer that participated in IES in 2018.

It is important to note that some amount of self-selection bias is present in all opt-in research or evaluations, whether it is explicitly noted or not. This bias means it is important to use care when interpreting the results of the survey as reflective of all 2018 IES participants. While it was not possible to eliminate self-selection bias entirely, our team tried to reduce the impact of self-selection bias on the survey results by varying our outreach methods and offering a second language option. However, it is possible that some questions, especially those related to satisfaction, may exhibit self-selection bias based on the self-selection of participants that had particularly positive or negative experiences. Our team mentions this possibility when relevant in the Findings section below.

While important to acknowledge the possibility and implications of self-selection bias, the team is confident that the survey results reflect the general sentiments and experiences of 2018 IES participants. Our team's confidence stems from the following comparisons in Table 4, which show the sample of participants that completed the survey largely reflect 2018 IES population.

Table 4. Participant Survey Comparisons

Comparison	Surveyed Participants	2018 IES Population*
Participant Type	**36%** (received weatherization and/or heating system) and **64%** (AMP-only)	**31%** (received weatherization and/or heating system) and **69%** (AMP-only)
Home Ownership	**25%** (renter) and **75%** (homeowner)	**33%** (renter) and **67%** (homeowner)

*Based on 2018 IES tracking data

Findings and Recommendations

Our findings draw upon all five evaluation activities listed in Table 3 above and cover the following eight topics:

- Program Management and Delivery
- Program Satisfaction
- Nonparticipation
- Role of CAPs
- Outreach
- Future Production
- Communication
- Data

Please note our program improvement recommendations appear in two places within the report. They are embedded in this section alongside the relevant findings and are also summarized in the following Recommendations Summary section. Also, while Cadeo offers nine official recommendations in this report, our team welcomes National Grid to act on or explore further any of the findings presented in this section that could result in IES delivery improvements—regardless of whether our team offered an explicit recommendation.

Program Management and Delivery

Interviewed stakeholders universally praised CLEAResult's IES management. Stakeholders frequently mentioned CLEAResult's management and field teams' professionalism, as well as its focus on running the program the "right way". Many also commented that CLEAResult brought valuable industry experience from across the nation, as well as the institutional rigor the program needed when it transitioned into the Lead Vendor role. Several of the longer tenured installation contractors interviewed as part of this evaluation were particularly effusive in their praise for CLEAResult's management.

> *"Everything I've seen since CLEAResult came in has been positive."*

Key Documents

As evidence of CLEAResult's program's management infrastructure improvement, interviewees often cited its role in helping create the *State of Rhode Island WAP and National Grid's IES Operations Manual*. According to interviewees, the Operations Manual, collaboratively developed by RI DHS, National Grid and CLEAResult in 2016 and since updated annually, provided program stakeholders—for the first time—with a single program document standardizing program delivery statewide. As stated in the Operation Manual's introduction, the document's purpose was to "provide a comprehensive resource for all rules, policies, and procedures for implementation of the program at all levels. It is the sole source for all administrative and technical documents associated with the program."

According to a wide range of interviewees, the Operations Manual has become what its introduction proposed and what stakeholders hoped: the program's primary reference document. In fact, when our team asked

interviewed stakeholders about a specific program aspect—for example, how the waiver process worked—they often referenced the manual in their response. These comments underscored stakeholders' consistent feedback that the Operations Manual greatly clarified and standardized program delivery and administration across the state.

It is also important to note that creating the Operations Manual and annual maintenance directly addressed two recommendations from the 2014 process evaluation: that National Grid "prioritize finalization of the IES program manual" and "update [it] on an annual basis."

Assessments

CLEAResult, again alongside DHS, National Grid, and other members of the Rhode Island Weatherization Technical Committee[18], also contributed to the development of the Operation Manual's companion document: the *Rhode Island WAP Weatherization Field Guide*.[19] The Field Guide complements the Operations Manual by offering technical guidance to assessors, installation contractors, and quality control staff regarding assessment and treatment protocols for participant homes. Specifically, the Field Guide outlines how the program's requirements align with DOE National Renewable Energy Lab's (NREL) Standard Work Specification (SWS). According to NREL, "SWS are a major component of the Guidelines for Home Energy Professionals project and define the minimum requirements to ensure that the work performed during home energy upgrades is effective, durable, and safe."[20] With the Field Guide's creation, SWS became the program's required approach for weatherization home energy assessments.[21]

The decision to require SWS for all assessments—regardless of whether the customer was going to receive measures funded by National Grid, LIHEAP, or WAP—was driven by stakeholders' goal to use a single, standardized assessment approach statewide. Stakeholders agreed to standardize on SWS because a) DOE required CAPs use SWS when using WAP funding[22] and b) stakeholders identified SWS as the most rigorous approach.

Managers and assessors alike acknowledged the benefits of adopting a standardized approach for conducting assessments across the state. Several described SWS as "the gold standard" for home energy assessments, while others noted its rigor or generally described SWS as a high-quality approach. While the CAPs have not historically combined WAP and IES funding within a customer's home, aligning the assessment requirements for both funding sources would allow them to do so in the future.

---

[18] The Weatherization Technical Committee, which was replaced in April 2019 by the Standardization Committee, consisted of representatives from each agency, DHS and CLEAResult, and various subject matter experts when relevant. The committee was formed to review and disseminate the program's evolving technical standards.

[19] http://wxfieldguide.com/ri/#t=RhodeIslandWxFg%2FTitle%2FTitle.htm

[20] https://sws.nrel.gov/

[21] Assessors do not use SWS for AMP assessments.

[22] DOE WAP funds require SWS; LIHEAP funds do not.

However, many interviewees also pointed out that the rigor associated with selecting SWS as the standardized approach came at a cost. They noted that the additional data collection required by SWS meant assessments took longer and, consequently, that assessors were completing fewer assessments per day.[23] Since CAPs do not combine National Grid and DOE funding, many interviewees questioned whether it was necessary to always use SWS for IES and/or LIHEAP-funded projects and whether the current trade-off (i.e., prioritizing standardization and rigor over efficiency) was best for the IES and the state's low-income community.

Several interviewees went on to advocate for a dual-path assessment approach: SWS when assessors planned to use DOE funds or when the participating home's complexity merited the incremental rigor; otherwise, assessors could employ a less time-intensive assessment option. Whether they suggested an alternative approach or not, most interviewees recognized the implication of exclusively using SWS as the statewide standard: CAPs served fewer total customers. Our team understands the stakeholders are actively working to modify standards in a way that would allow CAPs to complete assessments in less time and thereby enable CAPs to serve more customers.

Recommendation 1:
Explore the viability of an expedited, non-SWS assessment approach for IES participants

Stakeholders' previous decision to standardize the weatherization assessment approach statewide across all funders—and to do so using the most rigorous required approach—was a well-intended goal and logical decision. However, requiring SWS for all non-AMP projects, regardless of the funding source, has slowed CAPs ability to serve more customers, required high levels of QA/QC, and generally frustrated IES stakeholders. National Grid should work with stakeholders to determine if an alternative approach can strike a better balance between consistency, rigor, cost, and expediency. As one measure of National Grid's success identifying an expedited solution, National Grid should consider tracking the amount of time assessors spend on each time of assessment (AMP, weatherization, and comprehensive).

Software and Reporting Requirements

When asked about time demands, most CAP managers and assessors were quick to mention "all the paperwork." They would go on to say the current program requirements—collecting information while at a participating home and then transferring that information into Hancock, the DHS' project management software—is frustratingly time-intensive.[24]

The amount of time interviewed assessors said they spent on "paperwork", the general term assessors used to describe all aspects of data collection and documentation (whether literally on paper or electronically), varied. In general, the assessors estimated spending between 30% and 50% of their total time on paperwork, which they defined as something other than the assessment and interacting with the participants. This means, for many

[23] It is important to note that CAP assessors perform three types of assessments: AMP, weatherization, and comprehensive (AMP and weatherization). Unfortunately, interviewees did not always differentiate between assessment types during interviews; rather they tended to talk about "assessments" more generally. In this case, the team believes the interviewees were primarily referring to weatherization assessments. This is also consistent with the fact that almost two-thirds of the assessors conduct weatherization assessments only.

[24] National Grid requires CAPS use InDemand, but not Hancock.

assessors, that they are spending as much time outside of participants' homes as they are inside participants' homes. One of the six interviewed assessors estimated that he spends, on average, 10 total hours on each participant; only 3 or 4 of which are the assessment itself.[25]

While interviewed assessors offered a variety of time estimates, their overall message was consistent: the current process, from beginning to end, takes too long and they do not feel like they can get to as many customers as a result.

"We can only do one audit per day; when I first started, we could do two. Now the state is bogging us down with a lot of paperwork."

"We used to have a lot more measures that were very specific "click and done;" now I have to put a big narrative behind everything."

Specifically, nearly every interviewee that uses the Hancock software cited the software as a moderate to major pain point. This was particularly true for assessors who spend the most time using it. They indicated entering the necessary data into Hancock often requires double (and sometimes triple) data entry. While all assessors carry iPads into the field and capture required information electronically, they indicated they cannot enter data directly into Hancock from the tablet. Instead, they use the tablet to take photos and input data into a PDF form they then manually transfer into Hancock. Auditors also said they sometimes need to take notes on paper during portions of an assessment (usually when they are in attics or crawlspaces), which can add additional time.

One assessor shared that Hancock has a mobile application that could potentially eliminate a step and allow them to enter data directly into the application on their tablet during the assessment. Given his lack of experience with the application, the assessor was unable to estimate how much time it may save him. He, and other assessors, expressed an interest in trying the application though and viewed it, optimistically or not, as their best opportunity to expedite the current process. We understand the program has explored this option in the past and may make it available to assessors in the future.

"Hancock does offer a mobile app, but DOE has to approve it. The state submitted an application to make this happen. They said it was approved, but it got pushed to the side [not implemented]."

There are several important points to consider related to stakeholders' Hancock concerns:

[25] As noted previously, interviewees did not always differentiate between assessment types (e.g., AMP versus weatherization) during evaluation interviews. Although not explicitly stated, the interviewees implied these times estimates were associated with weatherization audits.

1. Stakeholder Hancock reservations are not new. The previous 2014 evaluation included a recommendation that National Grid "monitor the CAP agencies' concerns with Hancock to minimize its impact on IES."
2. It is critical to acknowledge the stakeholders providing feedback as part of this evaluation may or may not be using Hancock optimally, which could be contributing to its perceived inefficiency and their current dissatisfaction. Regardless, the feedback our team received is valid since it reflects their actual experience working with the software. It also points to the need for more Hancock-specific training, procedural improvements, or both.
3. The collaborative delivery of IES, in partnership with DHS and CAPs, means the Hancock software has a direct effect on IES stakeholders and National Grid customers. However, Hancock is not National Grid's data system and, therefore, National Grid has limited ability to affect Hancock-related changes.

Recommendation 2:
Work with IES stakeholders to pilot Hancock mobile application and provide additional training

National Grid should support the piloting of the Hancock mobile application to determine its effectiveness on reducing assessor administrative burden, as well as support mobile application-specific or additional general Hancock training.

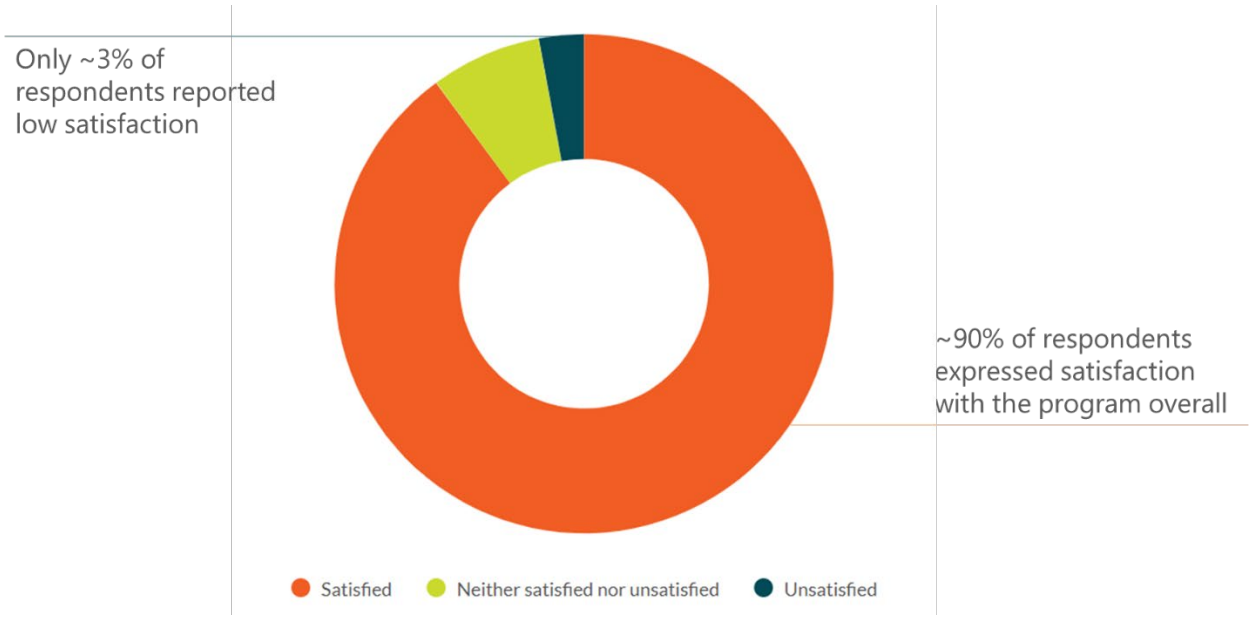
Program Satisfaction

Program Delivery

Surveyed participants expressed a high level of satisfaction with their overall IES experience. As seen in Figure 3, 90% of respondents indicated they were satisfied with the program overall, while only 3% reported low satisfaction. The remaining 7% provided a neutral response – meaning they were neither satisfied nor dissatisfied.

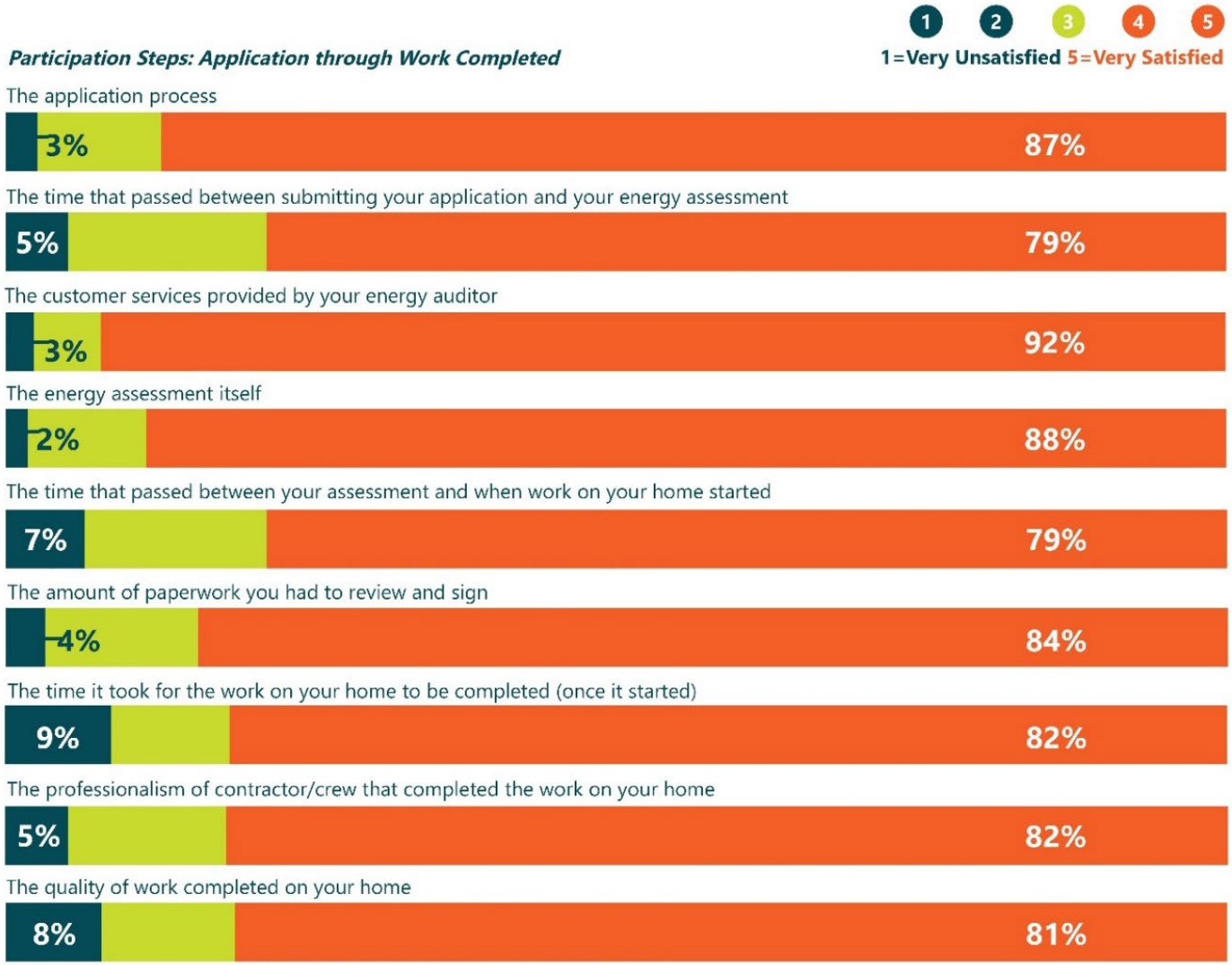
This 90% satisfaction rate is similar to the previous evaluation's overall 2013 satisfaction rating (88%), the first year CLEAResult served as IES' Lead Vendor. Both values are higher than the rate the previous evaluation reported for 2012 (79%), prior to CLEAResult taking over program management. The dissatisfaction rates between the current survey of 2018 participants (3%) and the 2013 participants surveyed as part of the previous evaluation (2%) are also similar.

Figure 3. Overall Program Satisfaction (Participants)



The team also asked participants about specific aspects of their IES experience. Figure 4 on the following page shows participant-reported satisfaction with nine different IES delivery aspects, starting at the beginning of the participants' experience, the application process, and ending with their satisfaction related to the quality of the efficiency improvements made to their home. As evident below, participant satisfaction was high across the board with less than 10% of participants reporting low satisfaction regarding any program element.

Figure 4. Participant Satisfaction with Specific Aspects of Program Delivery



Although satisfaction was generally high for all program aspects, some elements scored particularly well or, in relative terms, lower than most. Table 5 outlines the three highest rated elements. In general, participants were most satisfied with the initial program aspects: the application, the assessment, and the assessor him/herself. Participants were particularly pleased with the customer service provided by their home energy assessor, which indicates the program currently boasts a professional and well-trained set of assessors. Participants frequently said their energy assessors explained every aspect of the assessment, encouraged them to ask questions, and invited participants to accompany them during part of the assessment.

The importance of high-quality, well-regarded assessors cannot be overstated for an in-home energy assessment program such as IES. Assessors serve as the face of the program and, in turn, National Grid by virtue of their in-person participant interactions and the time they spend at participants' homes. Assessors are the primary conduit for IES information and are at the center of each participant's program experience. They are responsible for explaining the program, identifying opportunities, answering questions, and ensuring the customer's comfort. Our participant survey findings suggest the current set of IES assessors employed by the six participating CAPs are successfully fulfilling these important obligations.

"Excellent energy assessor; well versed in all aspects relating to energy use"

Table 5. Program Elements with Highest Participant Satisfaction

Program Element	Satisfied	Dissatisfied
The customer services provided by assessor	**92%**	3%
The energy assessment itself	**88%**	2%
The application process	**87%**	3%

Conversely, the lowest satisfaction ratings were associated with post-assessment elements (Table 6). Among those participants expressing dissatisfaction with post-assessment program elements, the most common complaints were the amount of time it took the program's installation contractor to finish their work (once they started), the quality of the installation contractor's work, and the wait time between their assessment and when the work started.

It is important to note that although these satisfaction rates were lower relative to the other assessed program elements most participants (79-82%) still expressed satisfaction with these same elements. Regardless, the relatively lower rates indicate these are areas National Grid and other IES stakeholders should focus attention on as it works to continuously improve the program.

Table 6. Program Elements with Lowest Participant Satisfaction

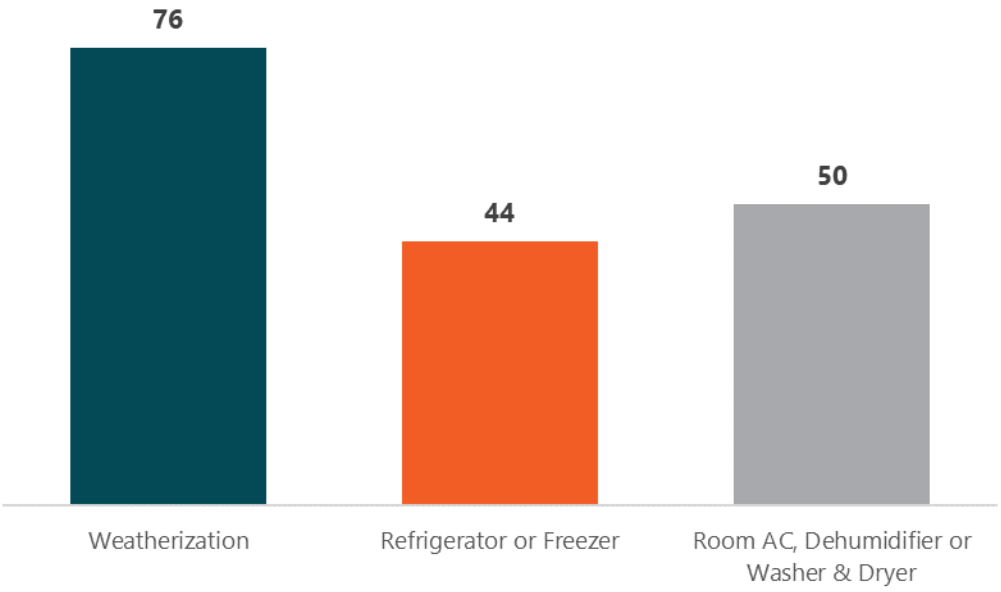
Program Element	Satisfied	Dissatisfied
The time it took for the work on your home to be completed (once it started)	82%	**9%**
The quality of work completed on your home	81%	**8%**
The time that passed between your assessment and when work on your home started	79%	**7%**

Related to Installation Timelines

To explore customer concerns regarding installation timelines empirically, our team turned to the provided program data. We used the data to calculate the median[26] time that passed between customer's home energy assessment and when the program installed the following measures: weatherization, refrigerator and freezer replacements, and a set of less frequently installed appliances (room air conditioners, dehumidifiers, and clothes washers and dryers, which we analyzed in aggregate).

As evident in Figure 5, we found the median participant waited approximately three months (76 days) after their assessment to have their home weatherized.[27] Customers did not wait as long for refrigerator or freezer replacements (44 days) or the other high efficiency appliances (50 days).

Figure 5. Median Days Between Assessment and Measure Installation



[26] Our team chose to use the median value (which reflects the midpoint of the distribution of participant durations between assessment and installation) rather than the average value because averages are more susceptible to extreme values.

[27] For this analysis, the team excluded a) participants with a measure installation date before their assessment date (12.8% of participants across all analyzed measure types), and b) participants with extreme wait times, which the team defined as longer than two years (1.7% of participants).

We also binned the participants into the monthly increments (less than one month from assessment to installation, one to two months between assessment and installation, etc.) to gain another perspective on participant installation time distribution. We found that 15% of weatherization participants had their air sealing and/or insulation installed in less than a month while 23% waited longer than six months (Table 7). As evident below, participants receive their appliances on a faster timeline.

Table 7. Time Between Assessment and Measure Installation

Months	Weatherization		Refrigerator or Freezer		Room Air Conditioner, Dehumidifier or Clothes Washer & Dryer	
	Per	Cumulative	Per	Cumulative	Per	Cumulative
Less than one	15%	-	24%	-	20%	-
1-2 months	19%	34%	46%	70%	42%	62%
2-3 months	17%	51%	16%	86%	15%	77%
3-4 months	11%	62%	5%	91%	6%	83%
4-5 months	9%	71%	2%	93%	3%	87%
5-6 months	7%	78%	1%	94%	2%	88%
6-12 months	14%	91%	3%	97%	6%	94%
More than 12 months	9%	100%	3%	100%	6%	100%

The Operations Manual and Field Guide do not specify a measure installation timeline following the assessment. According to interviewed stakeholders, the program unofficially targets weatherizing participant's homes within a month and delivering the recommended efficient appliance(s) within 8-10 weeks of the assessment. According to our team's analysis program data analysis, the program is not meeting the unofficial weatherization target. It is important to note that installation timelines are a function of both program delivery and customer-specific factors. Non-programmatic factors, such as customer availability and weather, also play a role in the time between the assessment and completed installation,

Interviewed stakeholders also acknowledged that, because the program does not have an official target, assessors may be setting inconsistent expectations with participants regarding their installation timeline. Our survey did not ask participants what work-completion expectations their assessor set but it is possible assessors are either unrealistic about the installation timeline, or they are setting expectations consistent with the program's unofficial targets, which the program is not consistently meeting for certain measures.

Concurrent with the program's attempts to expedite the installation process to meet internal targets, it should also use available program data to consistently communicate realistic

Recommendation 3:
Set consistent, data-driven expectations with participants

Using available program data, National Grid should work with program stakeholders to determine the appropriate installation timing expectations to set with participants and communicate them consistently to all customers receiving the related measures.

measure installation timelines with future IES participants. It is possible that doing so may reduce the proportion of participants that expressed dissatisfaction with how long it took to have their measures installed (see Table 6).

Our team's interviews and analysis did not identify the specific reasons for the longer-than-targeted time between assessment and weatherization. However, a concern raised by one interviewee—that CAPs work with too few contractors—speaks to one possibility.

Currently CAPs have the autonomy to contract with any eligible weatherization contractors that have agreed to complete jobs at the program's fixed price structure.[28] During our interviews, CAP managers around the state were clear they valued this autonomy. CAPs shared that they had, through experience working with a larger set of eligible contractors, identified a subset that they "worked well with". They went on to define "working well" as contractors that provided high quality work and were communicative, responsive, and timely with their invoices and program documentation. Having the CAPs select the contractor also lessens the burden on participants to research and select a contractor themselves, which can be a barrier to executing the recommendations from a weatherization assessment.

The interviewed CAPs gave no indication that their preference to work with a specific set of contractors was prolonging the time it took them to complete jobs. However, it is possible this preference, which essentially decreases the pool of available contractors, is a contributing factor.

Recommendation 4:
Investigate causes of current longer-than-targeted timeline and explore opportunities to reduce installation timelines by increasing contractor capacity

National Grid should work with stakeholders to identify opportunities, whether through procedural efficiencies or mechanisms that increase contractor capacity (i.e., the number of contractors that CAPs are comfortable working with, as well the number of total jobs they can complete). Doing so may reduce median participant weatherization installation timelines and bring them into alignment with the program's internal targets.

When our team asked the small number of weatherization contractors interviewed for this evaluation (n=3), they said they were not capacity constrained. The contractors went on to say that with sufficient notice they could make available whatever number of weatherization teams the program required, including teams dedicated to IES jobs.

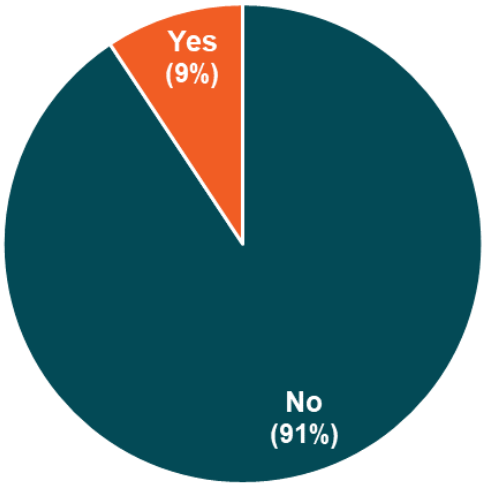
Related to Program Measures

Most participants were also highly satisfied with the energy efficiency measures they received through the program. As seen in Figure 6, 91% of surveyed participants reported no issues with the lighting, appliances, mechanical equipment, or insulation installed as part of IES.[29]

[28] According to information provided by CLEAResult in May 2019 to facilitate the evaluation's interviews, the pool of IES eligible contractors consists of 21 weatherization contractors, 21 heating system contractors, 2 electrical contractors, and 1 chimney repair contractor.

[29] The survey did not differentiate between efficiency measures funded by National Grid versus other funding sources.

Figure 6. Participants Reporting Issues with IES Measures



This means 9% of participants indicated they experienced an issue with one or more program measure(s). Comparable our previous discussion of wait times, there is no established evaluation threshold that defines the number of reported issues considered too many. However, nearly 10% of participants reporting an issue is notable and merits a closer look. When we followed up with each of these participants to better understand their issue, we found their responses coalesced around three themes:

1. **Work quality concerns**. About half of the participants in question mentioned concerns related to quality of work. One respondent offered this comment, which captured the group's general sentiment: "The new fan that was installed in our bathroom caused a leak because it was not installed properly."
2. **Issues with specific equipment**. A third of these participants cited problems with a measure, usually that it was not working as they expected or that they were disappointed with its performance. For example, one participant shared that: "All the lightbulbs that are supposed to last for years are already burning out."
3. **Perception of incomplete work**. The remaining participants' main complaint was that the program did not install a measure they expected to receive. One possible explanation is there was a miscommunication between the program and the participant. Participants may have assumed they would receive a certain

> *"I was supposed to have energy efficiency windows replacing the old double hung windows and an exhaust fan in the 2nd floor bathroom. This never happened. I called and stopped by the office, but still no follow through."*

measure, which is technically part of the program, but may not have been included in their recommended measures.

While it is worthwhile to explore and understand these participant concerns as part of this process evaluation, it is also important to recognize this may be an instance where self-selection bias is overstating the actual proportion of participants that had measure concerns. Whether the actual percentage of total IES participants experiencing an issue with a program measure is 9% or not, the feedback provided by these participants highlights an opportunity for program delivery improvement.

Recommendation 5:
Implement post-installation survey and follow-up processes

CLEAResult currently administers an internal customer survey to solicit feedback on their assessment. However, the timing and focus of survey does not enable them to identify—and address—concerns related to weatherization or heating systems. We recommend that National Grid work with CLEAResult to either expand the focus and change the timing of the current survey, or to administer a second survey to weatherization and heating system participants after their installations are complete. National Grid should also establish a process for addressing customer concerns identified via the survey.

Interestingly, the participants that reported having measure issues as part of the evaluation survey (9% of respondents or 14 individual participants) did not always contact the program to express their concerns. In fact, only half of the 14 respondents indicated that they contacted the program to address the issue. In all instances, the participants contacted their CAP.

Of the seven respondents that reached out to their CAP, most (five) shared that they were dissatisfied with the program's response. This group's chief complaint was that the CAP did not address their concern. It was not clear via the survey whether the CAP's response was appropriate—and the participant just did not like the answer—or whether the CAP could have done more to address the participant's concerns.

Again, it is important to note that this is a very small sample size and self-selection bias may be causing these results to overestimate the actual proportion of IES participants that experience an issue with their program measures and/or are dissatisfied with their CAPs response to their concerns. However, while not statistically significant, these anecdotal findings may highlight the importance of additional follow-up with these participants to close the loop with them, to the extent possible.

Related to Bill Savings

We previously mentioned that the participant survey captured the perspective of two participant types: those who received direct install measures and/or appliance upgrades and those who may have received these measures in addition to having their home weatherized and/or a heating system replaced. The team looked at reported energy bill savings for both participant types as shown in Figure 7.

For participants who only received direct install measures and/or appliance upgrades (i.e., were not weatherized or have their heating system replaced), almost three quarters (73%) of respondents reported that their energy bills

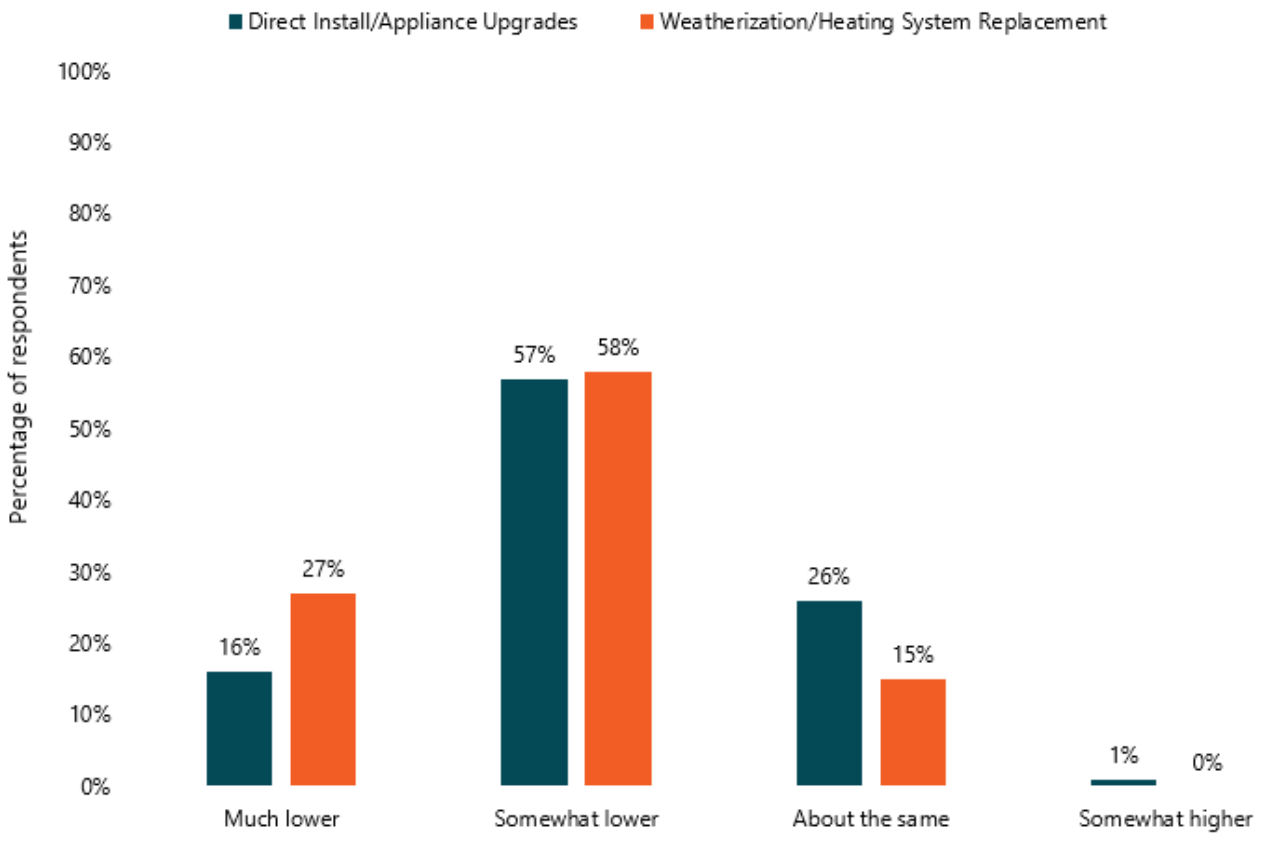
were either "much lower" or "somewhat lower" after participating in IES. The remaining quarter of respondents reported their energy bills stayed "about the same".

Not surprisingly, those participants that had their home weatherized and/or a heating system replaced in addition to direct install measure and/or appliance upgrades reported lower energy bills at an even higher rate. Our survey found that 85% of participants who received more significant work through IES reported "much lower" or "somewhat lower" energy bills. More of this participant type reported "much lower energy bills" and less reported that their energy bills stayed "about the same", which is consistent with what we would expect for customers with more significant energy efficiency improvements made to their homes.

Self-reported changes in energy consumption are not always accurate (due to participant recall issues) or valid (due to participants not considering pre-/post-weather differences[30]), but the fact that most participants reported a decrease in their bill amount is positive—particularly considering that participants experienced an increase in their base usage rate in the fall 2017.

[30] Based on weather data from the Providence airport (KPVD), the 2019 heating season (September 2018-April 2019) was slightly colder (5,346 heating degree days) than the 2018 heating system (September 2017-April 2018, 5,037 heating degree days). This means that the participants self-reported bill savings are not due to a milder winter after participating in IES (both years use a base of 65 degrees to calculate heating degree days.)

Figure 7. Self-Reported Changes in Energy Bills Post-IES



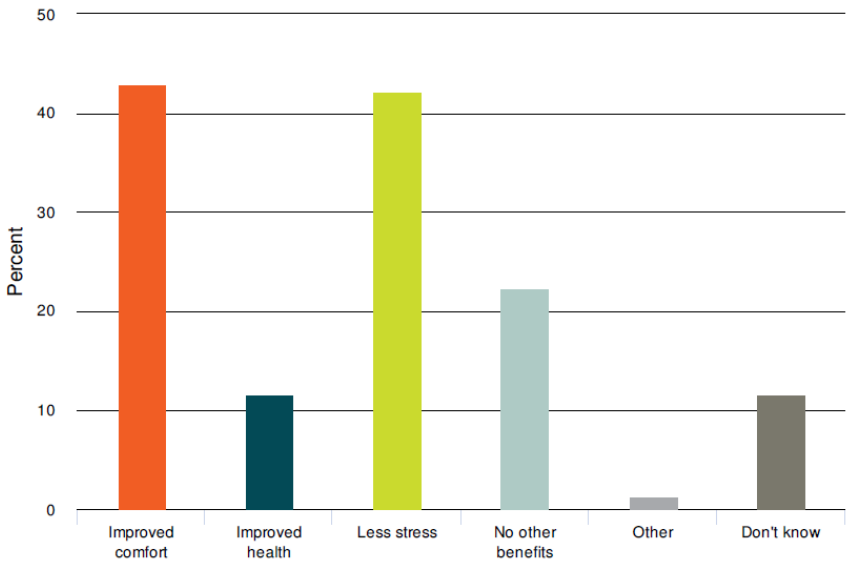
Related to Non-Energy Benefits

Decreased energy bills were not the only IES participation benefit. When asked if they experienced any non-energy benefits since participating, more than 40% of survey participants cited improved comfort and/or less stress (surveyed participants could identify more than one non-energy benefit). 12% of participants reported they or someone else in their home experienced an improvement to their health.

Figure 8 illustrates our non-energy benefit results.

To limit the survey's length, the team did not ask participants to elaborate on benefits. However, we believe improved comfort is likely related to the tightening of participant's homes and the participant's ability to heat it reliably (due to a combination of air sealing, insulation, and/or a new heating system). It is possible participants noting less stress are referring to the decline in their energy bills, as reported above in Figure 7.

Figure 8. Post-IES Non-Energy Benefits



Nonparticipation

Historical Participation

In 2017, National Grid contracted Navigant Consulting, Inc. to complete an Energy Efficiency Program Customer Participation Study.[31] The study investigated several questions relevant to this IES process evaluation and relate to the topic IES participation and nonparticipation. These questions included:

1. How many total National Grid customers qualify for IES?
2. How many of those income-eligible customers are on a National Grid low-income rate?
3. And how many of the customers on a low-income rate have already participated in IES?

In other words, the study offered insight into the size pool of IES qualified customers and the program's ability to serve those customers in recent years. Table 8 summarizes of the relevant findings from the study, which provide important context for this process evaluation.

The Navigant study includes an important caveat related to the values in Table 8 that merits repeating here. The third-party data that Navigant used for the study was missing reliable income data for approximately 25% of National Grid's residential single-family customers. This meant that Navigant was unable to assess whether nearly 89,000 of National Grid residential customers were likely to qualify for IES. Consequently, readers of that report—and the table below—should consider the study's estimates of 85,168 (electric) and 56,451 (natural gas) IES-eligible customers to be as conservative estimates of total customer eligibility.

[31] http://rieermc.ri.gov/wp-content/uploads/2018/03/national-grid-2017-ri-ee-customer-participation-study-final.pdf

Further context is necessary to correctly interpret Table 8, which includes the percent of total eligible customers as determined through the study, that have participated in IES. While these percentages offer a general sense of IES' penetration of this customer segment, it is critical to note that comparison is imperfect; the estimate of total eligible customers is a snapshot value from 2017, whereas the count of historical participation reflects a six-year window (2009-2015) that does not include 2017.

Despite this caveat, IES' historical penetration is clearly much higher for electric customers than gas customers. This is likely due to AMP and program's ability to readily provide customers with efficient lighting upgrades.

Table 8. Key IES Findings - 2017 Energy Efficiency Program Participation Study

National Grid Customers	Electric		Natural Gas	
	Total Customers*	% of Eligible Customers	Total Customers*	% of Eligible Customers
Eligible for IES** (In 2017)	85,168	N/A	56,451	N/A
On Low-Income Rate (In 2017)	27,902	33%	14,462	26%
Participated in IES (Between 2009-2015)	13,947	16%	1,983	4%

*Counts of electric and natural gas customers are not mutually exclusive (i.e., the same customer could be included in both counts).
**Estimated using IES program data (2009-2015), National Grid's low-income rate participation, and third-party customer-specific data (used to identify customers with an income between 0-60% of the area median income). See tables D-1 and D-7 in the Navigant report for more details.

Program Awareness

IES program awareness among surveyed nonparticipants is high; 83% of respondents reported familiarity with IES specifically. This finding is good news and not surprising given our methodology for creating the nonparticipant survey sample frame.

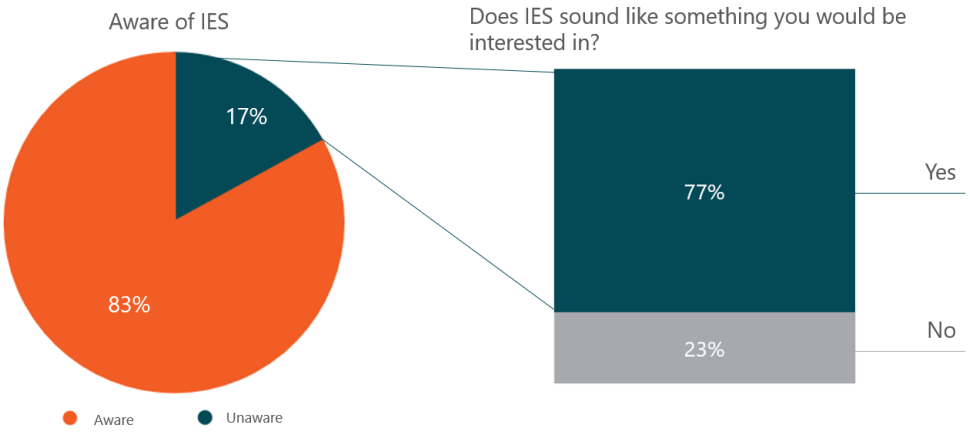
As mentioned in Table 3, we used customers on National Grid's low-income rate code (A-60) to identify customers that meet IES's income requirements but have not yet participated in the program. However, being on the A-60 rate code, by definition, means the customer has previously engaged with National Grid regarding their income and are therefore more likely to have heard about the full range of National Grid's low-income services, including IES. While this group of nonparticipants provided the evaluation team with useful information, it is critical to recognize the 83% awareness rate is likely not representative of the approximately 85,000 and 56,000 electric and natural gas customers in Table 8 estimated to be eligible for IES.[32] We anticipate awareness among qualifying nonparticipants not on National Grid's low-income rate code is lower, although we could only speculate as to how much lower.

We provided surveyed nonparticipants unaware of IES with a brief program explanation, including the income requirements and in-home assessment. Afterwards, we asked if IES sounded like a program they would be interested in participating in. As shown in

[32] The evaluation team did not have access to the third-party data that Navigant used to estimate total customer IES eligibility. The only way to gauge awareness levels for qualifying nonparticipants not already on the National Grid's low-income rate code is to undertake a general population survey. Such survey efforts are expensive and impractical for this process evaluation.

Figure 9, more than three-quarters (77%) of these nonparticipants expressed an initial interest in the program.

Figure 9. Nonparticipant Awareness of and Interest in IES



Nonparticipant Types

Our team identified three types of nonparticipant customers among those that were already aware of IES, regardless of whether they expressed interest in the program as part of the survey. As shown in Table 9, most (75%) indicated they looked into IES but never applied. The remainder either participated in a previous home (but not their current home) or had not looked into the program at all. This finding indicates most nonparticipants are not far from participating (both aware and interested) but have not yet completed the process for a variety of reasons.

Table 9. Nonparticipant Profiles

Nonparticipant Type	% of respondents
I looked into it but did not apply	75%
I participated in a previous home	13%
I have heard of the program but never looked into it	12%

Reasons for Nonparticipation

All nonparticipants, regardless of if they participated in the program in a previous home or were unaware of the program before the survey, cited two primary reasons for nonparticipation:

1. **I am not the decision maker**. Many of the customers indicated they have not participated because they rent their home and therefore cannot make changes to the property without landlord approval. We commonly heard nonparticipants offer statements like this: "Installing certain equipment was beyond my control as a tenant." While renters' options are more limited, they are still eligible for a host of IES measures and would benefit from building shell or heating equipment improvements if the property's landlord was successfully engaged.

According to interviewed stakeholders, some CAPs and their assessors are more actively engaging landlords and assisting renters that need approval for major measure installations. Some reach out to the landlord directly to explain the program's requirements and benefits, whereas other rely more heavily on the tenant to have those discussions with the landlord.

2. **I do not think I am eligible**. Many customers expressed interest in IES but do not believe they would meet the income eligibility requirements. Since the sample frame for the nonparticipant survey was exclusively customers on National Grid's low-income rate, these customers were indeed eligible for the program, which indicates that changes in outreach or communication could drive additional participation.

Recommendation 6:
Increase direct engagement with landlords

To overcome this persistent and significant barrier, National Grid should explore implementing policies that require CAPs to engage directly with landlords on behalf of interested tenants as CAP staff are best positioned to explain IES and successfully enlist their participation. Increasing renter participation will also ensure that renters, who also contribute to IES via the system benefits charge, receive an equitable share of program resources.

We also explored whether any demographic differences existed between surveyed participants and nonparticipants, which could indirectly shed light on reasons for nonparticipation. We found that several similarities, as well as several notable differences as shown in Table 10.

Table 10. Participant and Nonparticipant Comparison

Similar	Details
Families	Participants and nonparticipants were similar in age, both reporting they have children (under the age of 18) living in their home in nearly two-thirds of the homes.
Seniors	Both groups also exhibited similar rates of seniors (16% and 14% for participants and nonparticipants, respectively.)
Different	**Details**
Household Members with Disabilities	28% of the surveyed participants indicated they, or someone else in their home, is disabled (the survey did not differentiate between physical or mental disabilities). This is double the rate for nonparticipants (14%). This finding suggests that qualifying customers with disabilities (or in a household where someone has a disability) may be more accustomed to participating in social service programs (likely through their CAP) and therefore more likely to participate in IES. It is also possible that the health care providers these customers work with are familiar with the program and encourage them to sign up for the program.
Rent vs. Own	Most participants (approximately 75%)[33] indicated they owned their home; this number was only 50% among nonparticipants. As explored further in the next section, this finding is unsurprising given renter's IES participation is limited as major energy improvements like insulation and heating systems require landlord involvement (i.e., authorization). Also, renters by virtue of not owning the home (and therefore not having the authority to make decisions about building shell and/or mechanical systems changes) are less inclined to participate (per the 12% of nonparticipants who heard of the program but have not participated). Renters also typically spend less time in a given home than owners, which could contribute to their interest in making efficiency upgrades.

Role of CAPs

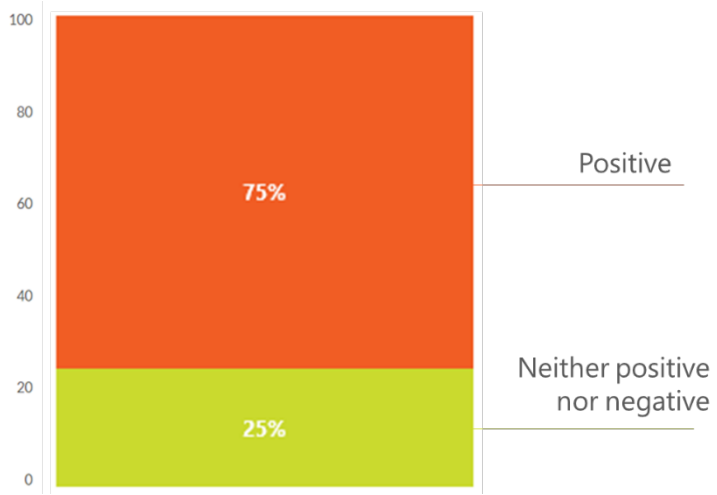
CAPs play a crucial role in raising program awareness. Two-thirds of participants reported first hearing about the program through their CAP, either through LIHEAP or through other CAP staff and services. CAPs also provide participant support throughout the process. In fact, more than half of participants believed the CAP provided the funding for their measures.

CAPs play an important role among nonparticipants as well. Roughly 60% of nonparticipants who were aware of the IES program heard about it through their CAP agency. Further, over 80% of nonparticipants are already working with their CAP agency on something other than IES. This reduces the effort required by National Grid to access nonparticipants already on National Grid's low-income rate– they are already in the door at their local CAP agency.

As seen in Figure 10, most nonparticipants rate their CAP experience highly positive, and no respondents reported a negative experience. This is important as our survey found that two-thirds of nonparticipants said their experience with their CAP makes them more likely to apply.

[33] The percentage of homeowners that completed the participant survey (~75%) is slightly higher than the percentage of homeowners that participated in the program, overall, in 2018 (67%) according to IES tracking data.

Figure 10. Nonparticipant Rating of Non-IES Interactions with CAPs



Paying Contactors

As discussed earlier in the report, one of the CAPs primary roles in IES delivery is managing the program's nearly 50 eligible installation contractors. We interviewed six of those contractors (three weatherization contractors and three heating system replacement contractors) as part of this study. The interviewed contractors generally had positive things to say about the program overall, as well as National Grid, CLEAResult and the CAPs they work closely with to deliver IES.

However, they had one consistent compliant: CAPs pay too slowly. Each acknowledged that slow payment for completed work was not a new issue and something that they have, for the most part, accepted as part of doing business with the program. Contractors offered differing opinions when asked whether the current payment timelines were better, worse, or the same as in the past. Some contractors felt that payments, while slower than they would like, were happening faster than in the past. Others had not noticed a difference or felt payments were taking even longer. Contractors also shared that some CAPs paid faster than others and that they, because of extended payment timelines with some CAPs, decided not to work with those CAPs. However, they shared that staff—across all CAPs—were generally apologetic about the delays and did what they could to pay promptly. Other than differences in payment times, contractors said they saw relatively small differences in their experiences working with various CAPs.

> *"It's not unfair, it's more that some [contractors] are more willing to deal with it. Contractors self-select what they want to do. If you choose to be part, you know it will take a while to get paid."*

One contractor pointed out that payment delays also have a practical implication on the CAPs and program contractors: checking on the status of payments takes time. The contractor said he often calls the CAP to see when he can expect to get paid for a given job and that these regular status checks waste a non-trivial amount of his, and the CAP manager's, time. He said it is not uncommon for his records to disagree with the CAP's records,

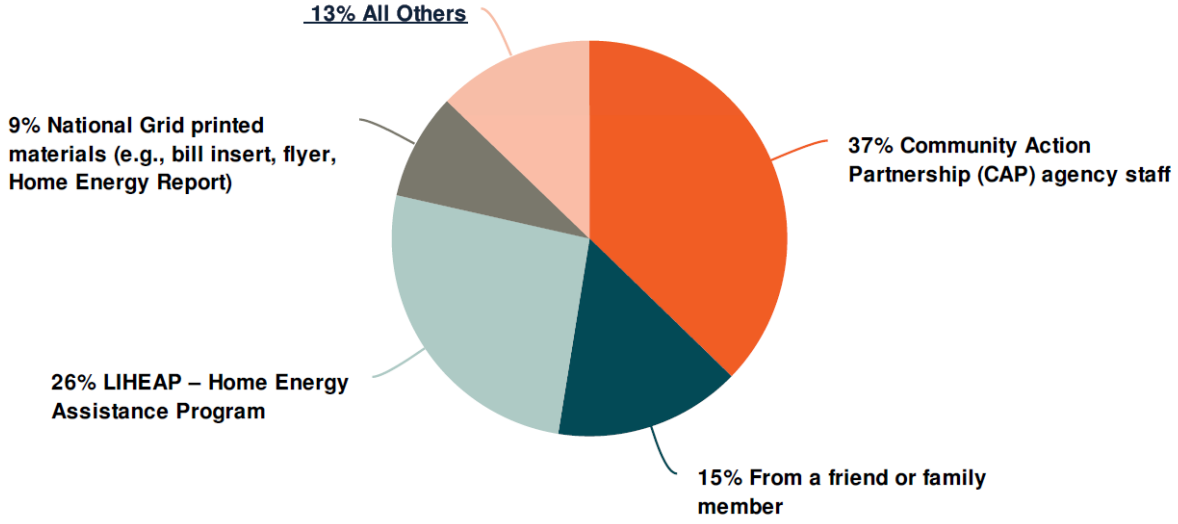
which, again, takes time to resolve. He suggested that the CAPs create an online portal that tracks contractors' payment statuses statewide. He believed the portal would eliminate the time-consuming informal check-in process and add transparency (in terms of both the payment status and amount) to what he felt was currently an inefficient process.

Outreach

Interviewed CAP managers shared that they use a variety of outreach methods to solicit IES participation. None indicated they had difficulty enrolling participants in IES, spending the portion of National Grid dollars allocated to them by CLEAResult[34], or meeting their participation goals. They often noted that many IES participants were existing clients that received LIHEAP or a different social service through their CAP.

The results of the participant survey support the strong connection between CAPs and IES: nearly two-thirds of survey participants said they first heard about IES from their CAP or through LIHEAP, which the CAPs administer. The remainder heard about the program through word of mouth (15%), National Grid marketing materials (9%), or other less common sources (13% in total). It is worth noting that National Grid does not provide each CAP with a marketing-specific budget. However, National Grid maintains a marketing budget for IES that it can use to assist the CAPs with identified marketing needs.

Figure 11. Non-IES Interactions with CAPs (Nonparticipants)

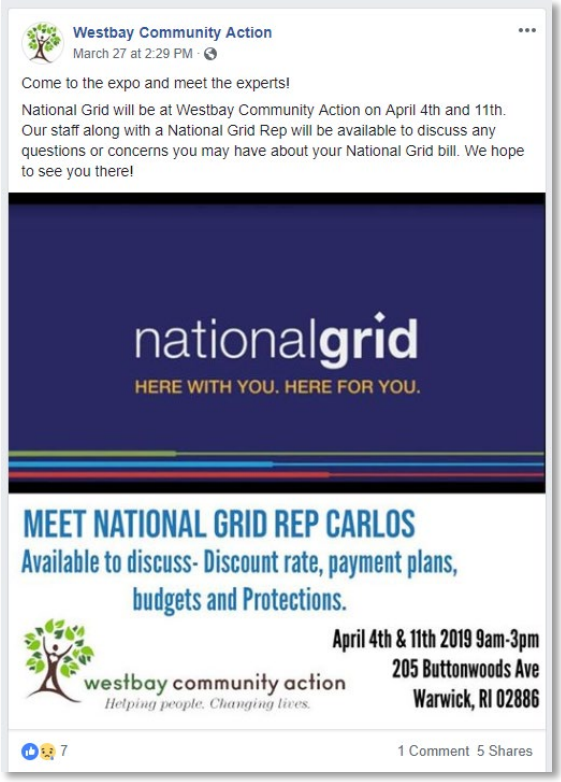


CAP managers expressed significant appreciation of National Grid's recent efforts to promote the program and engage directly with their clients. The CAP managers, along with National Grid and CLEAResult, shared several

[34] As National Grid's Lead Vendor, CLEAResult is responsible for allocating each year's overall IES budget to each CAP. CLEAResult makes allocation decisions based on CAP staffing levels, previous performance, ensuring statewide coverage, and discussions with each agency. Budget flexibility exists should a CAP need additional funding or have excess funding.

more recent outreach activities, which stakeholders agreed were bringing harder-to-reach eligible customers into the program. These activities included:

1. **In-agency National Grid Representatives.** Beginning in February 2019, National Grid began sending representatives to local CAP agencies to promote IES, as well as walk customers in-person through the entire range of National Grid's income-specific offers (e.g., discount rates, payment plan). Several CAPs cited the recurring presence of National Grid representatives at their agency as having a positive impact on customer service and IES enrollment. They noted that National Grid representatives were patient and empathetic with clients, which generated goodwill and fostered trust.
2. **National Grid Call Center Initiative.** CAP managers were also excited about changes National Grid made at its customer service call center. In April 2019, National Grid launched a new initiative in which income-eligible customers who contract the call center are routed to specialists trained in the suite of programs available from National Grid (the initiative also connects other new non-IES eligible customers with programs and services). Stakeholders expected the initiative to succeed and for it to generate increased participation. A comment from one CAP manager captured the sentiment of their peers: "We're excited about one stop shopping approach for customers."



Future Production

According to interviewed stakeholders, the program has consistently met its participation and energy savings goals in recent years—and has the potential to serve even more customers. In fact, a wide range of interviewees (managers, CAPs, and contractors) expressed optimism about their organization's ability to ramp up production if program funding increased.

Several offered caveats, though. They sometimes tied their ability to increase production to resolution of what they perceive as current process inefficiencies. CAP managers and assessors, as noted above, typically cited not requiring the SWS approach for all assessments and/or reducing the time spent on data input by providing all assessors with the Hancock mobile application as the avenues to additional production.

> *"If we need production, we're right here to do it. But we need to be more efficient to make that happen."*

According to one stakeholder, the most critical barrier to increasing production is the declining number of CAP assessors. Statewide, the program is down to a dozen assessors across the six participating CAPs, after having 18 assessors less than a year ago. The assessor shortfall is particularly acute for certain CAPs. One CAP shared that they are down to just one assessor, which greatly slows down their production and prevents them from having a different assessor perform the post-inspection, weakening their quality control process.

Interviewees cited relatively low pay as a reason for assessor attrition. Others mentioned that since assessors receive extensive training as part of the program, it makes them strong candidates for higher paying positions in the industry.

Our interviews revealed that program stakeholders have taken steps recently to address retention, including pay increases. However, more steps may be necessary if the program looks to increase production. CAPs also noted that they need at least six months' notice if National Grid wants to make meaningful changes to their typical budget as the process for hiring and training assessors takes at least that long, particularly because the pay levels can make recruiting candidates more difficult.

Recommendation 7:
Prioritize rebuilding and stabilizing assessor capacity

The evaluation team understands that program stakeholders are already taking steps to mitigate recent assessor attrition. We also understand that National Grid has limited visibility into and control over assessor salaries and benefits, which is the purview of the CAPs. However, National Grid's ability to meet increasing IES goals is directly related to the size and quality of the assessor pool. As a result, National Grid should do whatever it can to promote assessor retention and track the number of assessors, as well as assessor turnover, as indicators of success.

Communication

Interviewed stakeholders cited a variety of ways they interact with each other and stay abreast of program changes. These included both formal (e.g., the Weatherization Technical Committee) and informal (daily calls and e-mails) communication.

In general, stakeholders defined the communication pathways as open, respectful, and productive. Our interviews did reveal two potential improvement opportunities related to communication.

"Seems like there are changes every week; it's difficult to keep up."

The first opportunity relates to the timing of changes. While stakeholders reported they were always notified of program changes, several shared that changes occur often and are usually disseminated through e-mail with, from their perspective, relatively little time to respond. These stakeholders shared that they would appreciate more advance notice of these changes, as well as the opportunity to provide input before program managers officially implemented the change.

The second opportunity relates to the waiver process, most commonly triggered if the cost of the replacement heating system exceeds $7,500. Other reasons for undertaking the waiver process include fuel switching, emergency replacements, chimney lining installation/replacement, or other atypical program situations.

Recommendation 8:
Clarify waiver process

Through direct communications with CAP managers/assessors and/or revisions to the Operations Manual, clarify the process for approving waivers.

Several CAPs and assessors shared that the current waiver approval process slows down their delivery of the programs and adds administrative burden. Some CAPs also advocated for more autonomy ("*Each CAP Director should have the responsibility for their own budget*") as the current process requires waiver approval from CLEAResult (as National Grid's Lead Vendor) or DHS.

It also appears that some confusion exists regarding the exact waiver approval process. Some interviewed assessors were under the impression there are 5 or 6 approvals required for some waivers, which, according to the Operations Manual, is incorrect. CLEAResult estimated that a waiver is required for approximately 40% of heating system replacements (typically because the cost of the new system is greater than $7,500). CLEAResult estimated a much lower waiver rate (5%) for weatherization jobs.

Data

Our team also closely reviewed InDemand and Hancock data outputs to:

1. Ensure program stakeholders, collectively, are tracking the information necessary to inform future evaluations, particularly as it relates to mini-split heat pumps—a new IES measure National Grid is testing.
2. Calculate various timing and participation metrics, both to support the qualitative findings of other evaluation tasks and to answer specific questions raised by IES stakeholders during the evaluation planning process.

Although data tracking is more heavily utilized as part of program impact evaluations, the function of collecting, storing, and reporting complete and reliable program data falls squarely within the purview of a comprehensive process evaluation.

To Support Evaluation

As part of the IES impact evaluation our team completed in June 2018, we created a list of information not included in the datasets provided for that study that would increase future impact evaluations accuracy.[35] Since our team had greater access to program data as part of this process evaluation's data review, we revisited the existing list to remove any fields contained in the data that we had previously identified as missing. Our data review located nearly half of the previously identified "missing" data elements.

We summarize the remaining data elements that would improve future impact evaluations in Table 11. As evident in the table, much of the information focuses on helping future evaluators better understand the existing conditions within participating homes, which serves as the baseline/counterfactual for determining savings.

Recommendation 9:
Collect as many of the identified missing data elements as feasible

Collecting these data will help future evaluators better evaluate IES. However, our team recognizes that additional data collection requires assessors to spend additional time in a participant's home and on paperwork, which this process evaluation found is already an issue. We recommend that National Grid work with IES stakeholders to collect as much of this information as feasible within the larger context of delivering this program.

[35] See "Additional Data Collection" tab in the impact evaluation supporting workbook (NG RI - IES Impact Evaluation Supporting Documentation_FINAL_30AUG2018), which our team submitted alongside the final impact evaluation report.

Table 11. Additional Data Elements that would Improve Future Impact Evaluations

Measure	Field	Rationale
Building	Bathrooms	Supports building simulation. The number of full and half (i.e., no shower) bathrooms impacts water load in most models. When calculating showerhead savings, the variable "proportion effected" is the number of low flow showerheads installed/total number of showers in the home.
Heating system	Distribution type	Used to estimate the percentage of homes with forced air distribution, which impacts electric fan savings calculations for thermostats.
DHW system	Volume	Used in calculating DHW measure savings; would allow evaluators to better customize savings results to IES participants.
	Efficiency	
Aerators	Existing GPM	Used to calculate aerator savings. Existing GPM would allow evaluators to customize savings results to IES participants.
	Install location	Kitchen and bathroom aerators have different savings due to different customer use profiles.
Showerheads	Existing GPM	Existing and efficient case GPM helps inform hot water savings; note that efficient case GPM is unnecessary to collect if all the showerheads the program installs are the same GPM.
Smart strip	Use type	Smart strips controlling home entertainments and home offices generated different savings.

As noted above, our team took a particularly close look at whether the information the program is currently collecting for mini-split heat pumps will inform successful future evaluations. The program installed a small number of mini-split heat pumps in 2018, but stakeholders anticipate installations will grow over time.

To determine if IES is collecting the necessary information for evaluating mini-split heat pump savings, our team assessed whether the provided program data included the information necessary to calculate savings using algorithms listed in the current 2019 Rhode Island Technical Reference Manual (TRM).

Upon reviewing the provided program data, our team found that IES is not currently collecting all the information necessary to populate these algorithms and evaluate mini-split savings. The key information missing is the efficiency level of the baseline heating and (when relevant) central cooling equipment. We recognize it can be difficult/impractical to test existing systems to obtain their exact operating efficiency. However, IES could collect other information which would allow future evaluators to reasonably estimate the efficiency level of existing equipment such as system type, equipment age, and visual condition.[36]

It is important to note that although our team was unable to locate key information for mini-splits in the provided program data, future evaluators can estimate or assume many of these inputs using secondary data if necessary.

[36] At a high level, each of these inputs informs a calculation of a customer's pre- and post-program energy consumption. However, as Cadmus found in their recent MA ductless mini-split heat pump impact evaluation, customer behavior and, relatedly, their equivalent full load hours (EFLH) values for heating and cooling may change after installing a mini-split heat pump. We advise that IES consider not only data about the equipment being installed and replaced, but also changes in the customer's behavior and how it may relate to energy consumption. (e.g., changes in heating and cooling load or installing cooling in homes that did not previously have cooling)

That approach will yield less IES-specific savings, but it would allow future evaluators to at least estimate savings using the best available primary and secondary data. The most important primary data for customizing IES-specific savings, however, is having a better characterization of the existing system efficiency.

Recommendations Summary

In this section, the evaluation team consolidates the nine recommendations offered within the Findings and Recommendations section.

Table 12. Summary of Recommendations

#	Recommendation	Details
1	**Explore the viability of an expedited, non-SWS assessment approach for IES participants**	Stakeholders' previous decision to standardize the weatherization assessment approach statewide—and to do so using the most rigorous required approach—was well-intended goal and logical decision. However, requiring SWS for all non-AMP projects, regardless of the funding source, has slowed CAPs ability to serve more customers, required high levels of QA/QC, and generally frustrated IES stakeholders. National Grid should work with stakeholders to determine if an alternative approach can strike a better balance between consistency, rigor, cost, and efficiency. As one measure of National Grid's success identifying an expedited solution, National Grid should consider tracking the amount of time assessors spend on each time of assessment (AMP, weatherization, and comprehensive).
2	**Work with IES stakeholders to pilot Hancock mobile application and provide additional training**	National Grid should support the piloting of the Hancock mobile application to determine its effectiveness on reducing administrative burden on assessors, as well as support mobile application-specific or additional general Hancock training.
3	**Set consistent, data-driven expectations with participants**	Using available program data, National Grid should work with program stakeholders to determine the appropriate installation timing expectations to set with participants and communicate them consistently to all customers receiving the related measures.
4	**Investigate causes of current longer-than-targeted timeline and explore opportunities to reduce installation timelines by increasing contractor capacity**	National Grid should work with stakeholders to identify opportunities, whether through procedural efficiencies or mechanisms that increase contractor capacity (i.e., the number of contractors that CAPs are comfortable working with, as well the number of total jobs they can complete). Doing so may reduce median participant weatherization installation timelines and bring them into alignment with the program's internal targets.
5	**Implement post-installation survey and follow-up processes**	CLEAResult currently administers an internal customer survey to solicit feedback on their assessment. However, the timing and focus of survey does not enable them to identify—and address—concerns related to weatherization or heating systems. We recommend that National Grid work with CLEAResult to either expand the focus and change the timing of the current survey, or to administer a second survey to weatherization and heating system participants after their installations are complete. National Grid should also establish a process for addressing customer concerns identified via the survey.

6	**Increase direct engagement with landlords**	To overcome this persistent and significant barrier, National Grid should explore implementing policies that require CAPs to engage directly with landlords on behalf of interested tenants as CAP staff are best positioned to explain IES and successfully enlist their participation. Increasing renter participation will also ensure that renters, who also contribute to IES via the system benefits charge, receive an equitable share of program resources.
7	**Prioritize rebuilding and stabilizing assessor capacity**	The evaluation team understands that program stakeholders are already taking steps to mitigate recent assessor attrition. We also understand that National Grid has limited visibility into and control over assessor salaries and benefits, which is the purview of the CAPs. However, National Grid's ability to meet increasing IES goals is directly related to the size and quality of the assessor pool. As a result, National Grid should do whatever it can to promote assessor retention and track the number of assessors, as well as assessor turnover, as indicators of success.
8	**Clarify waiver process**	Through direct communications with CAP managers/assessors and/or revisions to the Operations Manual, clarify the process for approving waivers.
9	**Collect as many of the identified missing data elements as feasible**	Collecting these data will help future evaluators better evaluate IES. However, our team recognizes that additional data collection requires assessors to spend additional time in a participant's home and on paperwork, which this process evaluation found is already an issue. We recommend that National Grid work with IES stakeholders to collect as much of this information as feasible within the larger context of delivering this program.

Our team also revisited the 11 recommendations offered by the previous evaluation in 2014. We asked National Grid's IES management team to indicate whether National Grid had acted in response to each recommendation and provide supporting details. We also, based on our recent interviews, surveys, material review, and data review, offer thoughts regarding National Grid's response to the previous evaluation's recommendations, most notably whether the previous recommendation is still relevant.

Table 13. Summary of Previous Process Evaluation Recommendations and National Grid's Response

#	Previous Recommendation	Implemented?	National Grid Response	Cadeo Comments
1	**Prioritize finalization of IES program manual**	Yes	National Grid worked with CLEAResult and other stakeholders to create the field guide, technical manual, and program operations manual.	Stakeholders roundly praised the creation and maintenance of these key program documents.
2	**Update the IES manual on an annual basis**	Yes	The IES manual is updated on an annual basis.	
3	**Revise the CFL [LED] installation protocol to maximize potential for savings**	No	National Grid implements energy efficiency programs in accordance with the Least Cost Procurement that mandates the company to invest in all cost-effective energy efficiency. With the goal of maximizing all cost-effective savings opportunities and the decreasing cost of LED bulbs, National Grid has continued with full socket penetration in all retrofit programs. IES continues to replace all identified inefficient screw-in lamps (i.e., incandescent and halogens) regardless of their location to maximize savings in a home.	As noted, the current field protocol still calls for replacing incandescent and halogen lamps with LEDs in "all available sockets". This approach may not maximize per-lamp savings but can reasonably be continued until the practice results in savings that are no long cost-effective.
4	**Standardize CFL [LED] installation protocols across all program operations materials**			
5	**Consider requiring AMP auditors to meter appliances for at least two hours**	No	National Grid strives for balance between impactful results and the use of customer time. To date, we have not seen research that indicates a significant difference between 75 minutes and 120 minutes of metering. IES continues to meter appliances for 75 minutes as it allows enough cycling time to determine their eligibility for replacement and work with the customers to evaluate replacement options an keep the audits as streamlined as possible.	Cadeo has also not seen any research indicating a material difference exists between metering for 75 minutes versus two hours. However, if the meter is not being used for anything else during the AMP assessment, assessors might as well meter the unit for as long as possible.
6	**Consider requiring CAP agencies to install all DI measures, standardizing the customer experience**	Ongoing	Historically, many customers experienced issues with programmable thermostats resulting in their removal for various reasons. National Grid is exploring options to standardize the installation of all eligible thermostat options and educate customers on this technology.	The current evaluation did not cover this topic; nor was it raised by any interviewed stakeholders.

#	Previous Recommendation	Implemented?	National Grid Response	Cadeo Comments
7	**Provide high-quality hot water measures**	Ongoing	Ongoing consideration for DHW measures is underway. The program is considering a larger variety of high-quality showerheads to accommodate customer needs.	
8	**Consider increasing the IES Program's health and safety fund limits**	No	The majority of health and safety components are covered by the leverage funding from LIHEAP. National Grid will contribute up to $500 and more as needed on a case by cases basis.	Interviewed stakeholders did not acknowledge any short comings in their ability to mitigate identified health or safety issues in IES participants' homes.
9	**Monitor the CAP agencies' concerns with Hancock to minimize its impact on IES**	Yes	National Grid continuously monitors concerns with Hancock through IES Best Practices monthly meetings.	As detailed in this report, Hancock continues to impact IES although National Grid's ability to influence change is limited since DHS requires that CAPs use Hancock.
10	**Monitor the CAP agencies' concerns regarding connectivity and update the technology used by the auditors in the field, as needed**	Yes	National Grid monitors concerns through IES Best Practices monthly meetings. Also, all auditors are now using iPads.	Interviewed assessors confirmed they have/use tablets, but the "update technology" portion of the previous recommendation can also be applied to the potential need for the Hancock mobile application
11	**Increase National Grid sponsorship awareness through leave-behind materials**	Yes	National Grid has enhanced branding presence through the following: Customer Satisfaction Post Cards, Customer Advocate Billboards, In-person Customer Advocate Sessions, Marketing Materials and other leave behind materials including home energy assessment documents.	National Grid has increased its co-branding of IES documents, but, per the participant survey, most customers associated IES with their CAP agency not National Grid.

Appendix A. Scope of Work

Memorandum

To: Romilee Emerick, National Grid
From: Doug Bruchs, Cadeo
Date: March 7, 2019
Re: IES Process Evaluation Scope of Work (FINAL)

This document details Cadeo's plan for completing a process evaluation of National Grid's Income Eligible Services (IES) program in Rhode Island. IES serves income eligible single-family customers who live in one- to four-unit buildings.

This document, which will serve as the scope of work for the process evaluation, consists of the following sections:

- Introduction
- Tasks
- Data Request
- Timeline
- Budget
- Team
- Project Management

Introduction

The goal of this process evaluation is to assess National Grid's delivery of IES. Our assessment will include identifying elements of IES that are functioning as intended and any aspects that are not currently being delivered optimally or as designed. These include any inefficiencies in the current delivery, barriers to participation, or gaps in service. Based on this assessment, as well as the collective insights of IES program stakeholders, affected customers, and our evaluation team, we will offer recommendations, as necessary, for improving delivery of IES. National Grid will also use the findings of this process evaluation to inform its 2020 Energy Efficiency Plan in Rhode Island.

This process evaluation offers a qualitative complement to the IES impact evaluation that Cadeo completed in August 2018. In addition to providing an overall assessment of IES' delivery, we will also explore the qualitative reasons (e.g., changes in program delivery and/or participant behavior) for the lower natural gas weatherization and heating system savings realized through the impact evaluation.[1] In general, our team will use the process evaluation as an opportunity to gather context for the energy

[1] Relative to the prior impact evaluation, which was completed in 2014 (http://rieermc.ri.gov/wp-content/uploads/2018/03/national-grid-rhode-island-income-eligible-services-impact-evaluation-volume-ii.pdf)

savings determined for all IES measures. This includes both traditional measures, such as lighting and TLC kits, as well as newer IES measures like washers/dryers and dehumidifiers.

This evaluation also builds off National Grid's previous process evaluation of IES, which was completed in 2014.[2] That evaluation looked at National Grid's delivery of IES from 2011 through 2013. It is tempting, largely for continuity reasons, to focus the current process evaluation on the intervening years of 2014 to 2018; however, we believe it is most valuable to assess IES as it is currently delivered. While we will ask interviewed stakeholders about changes over time, we plan to focus this study on IES as delivered in 2018. We believe that focusing on recent IES implementation, while also considering its proposed delivery in 2019, will yield more relevant and actionable insights that National Grid can apply prospectively.

Although the team does not intend to comprehensively assess changes in IES delivery since the previous evaluation period ending in 2013, we will inquire regarding recent program changes and whether they achieved the desired effect. We will also determine if National Grid acted on the 10 recommendations included in the previous evaluation and what impacts, if any, these actions had on the program. Our expectation is not that National Grid will have acted on each of these recommendations; there may be recommendations that are no longer applicable, or, even at the time of the previous evaluation, that National Grid opted not to act on for valid reasons. Rather, our goal is to document National Grid's response to each of the previous recommendations. Understanding how National Grid responded to the previous recommendations will be helpful for our team when we consider potential recommendations as part of this study.

Tasks

The team will use the following six tasks to collectively assess National Grid's delivery of IES:

1. Stakeholder Interviews
2. Materials Review
3. Participant Surveys
4. Nonparticipant Surveys
5. Data Review
6. Reporting

Note that prior to undertaking any of these tasks, Cadeo will lead an evaluation kick-off meeting with National Grid, the Energy Efficiency & Resources Management Council evaluation consultants, and representatives of the Rhode Island Office of Energy Resources. (For the remainder of this scope of work, we refer to this group, collectively, as evaluation stakeholders.) During that meeting, we will discuss each task in terms of goals, associated deliverables, and timeline, as well as how all six tasks interconnect. Following that meeting, our team will revise this evaluation plan document, as appropriate, to reflect any refinements to the scope of the process evaluation.

[2] http://rieermc.ri.gov/wp-content/uploads/2018/03/national-grid-rhode-island-income-eligible-services-process-evaluation.pdf

Task 1: Stakeholder Interviews

As evaluators, we have learned that the first and most important process evaluation task is to have in-depth discussions with the people who run a program every day. These initial discussions provide our team with critical context, as well as the IES-specific language necessary to converse with IES stakeholders and participants and interpret the program's materials.

The IES program is currently delivered by Rhode Island's territory-based Community Action Agency Program agencies and local contractors, with oversight from IES lead vendor CLEAResult. IES also works in close collaboration with the State of Rhode Island Department of Human Services (DHS) weatherization program and LIHEAP, overseen by the federal Department of Energy and Department of Health and Human Services (HHS), respectively.

Collectively, the individuals in Table 1 will offer a broad and insightful assessment of IES' design, marketing, and delivery. Although the exact order of the interviews will vary (based on interviewee's availability), we plan to generally interview the stakeholders in Table 1 in descending order. In our experience, beginning with the utility implementation manager and lead vendor provides the most complete introduction to a program.

Table 1. Stakeholder Interviews

Stakeholder	Number of Interviews*
National Grid Strategy and Implementation Managers	1
Lead Vendor (CLEAResult) Manager	1
Community Action Agency Program (CAP) Senior IES Managers	6
CAP Field Auditors**	6
Installation Contractors**	6
RI DHS Staff	2
Total	**22**

*Represents the total number of interviews with each type of stakeholder. We anticipate that, in some cases, several stakeholders will participate in an interview. At the end of any group interviews, we will notify all interviewees that they are welcome to follow-up with our team individually (via phone or e-mail) if they have additional thoughts that they would like to share but either did not have time during the interview or felt uncomfortable doing so in a group setting.

**Our team received a complete list of active CAP field auditors (24 in total across the six CAPs) and installation contractors (45 statewide). We will randomly sample one auditor from CAP for an interview. For installation contractors, we will interview the two most active weatherization contractors and two most active heating contractors (identified during CAP manager interviews) and two other randomly sampled contractors from the complete active contractor list.

Our interviews will cover a range of topics and vary based on the stakeholder. Table 2 offers an initial summary of the key evaluation topics we expect to cover as part of each interview. Reviewers should not consider the list of topics below to be comprehensive; rather it represents the starting point for our team interview guide development process. We anticipate modifying and supplementing these topics after the evaluation kick-off meeting and as part of the interview guide external review process.

Table 2. Interview Topics

Stakeholder	Relevant Topics
National Grid Implementation Manager	• Overview of current IES delivery, including roles and responsibilities for key program stakeholders, training requirements, QA/QC processes, and implementation challenges • Barriers to participation (common types or groups of customers who participate and those who do not) • IES goal setting process (participants and savings) • Recent IES accomplishments (annual participation rates and budget utilization) • Marketing/outreach strategies • Integration of IES with WAP/DOE, as well as other low-income services (energy and non-energy) offered through CAPs • New marketing and delivery strategies, as well as new measures (e.g., mini-split heat pumps) in 2019; longer-term delivery plans and opportunities/challenges associated with demand response • Other changes in IES delivery over time, • Plans for lighting beyond EISA 2020 • Experience working with InDemand and Hancock Software and thoughts regarding data quality and collection processes more generally • Response to previous process evaluation's findings and recommendations • Reactions to impact evaluation findings for lighting and weatherization • Identification of relevant materials for Task 2 Materials Review • Current evaluation goals (i.e., what specific information would most help inform program delivery) • Opportunities for program delivery improvement
Lead Vendor (CLEAResult) Manager	
CAP Managers	• Overview of current IES delivery, including roles and responsibilities for key program stakeholders, training requirements, QA/QC processes, and implementation challenges • Barriers to participation (common types or groups of customers who participate and those who do not) • Typical customer experience (enrollment paths, wait times, common feedback) • Marketing/outreach strategies • Experience working with InDemand and Hancock Software and thoughts regarding data quality and collection processes more generally, including whether data is gathered electronically or on paper • Dis/Integration of IES with WAP/DOE, as well as other low-income services (energy and non-energy) • In/Ability to comprehensively serve customers (using multiple funding sources) • Prevalence of health and safety and/or repair issues • Identification of relevant materials for Task 2 Materials Review • Opportunities for program delivery improvement

CAP Field Auditors and Contractors	• Feedback received from IES participants, as well as any non-participants who begin the process but do not finish • Perceived effectiveness of energy education • Observation of participants' most pressing energy needs • Integration of IES WAP/DOE, as well as with other low-income services (energy and non-energy) • Total time spent in participating home. Enough? Prioritization strategies? • Ability to comprehensively serve customers (using multiple funding sources); anything missing? • Prevalence of health and safety and/or repair issues • Common installation issues • Appropriateness of current eligibility thresholds for replacing existing equipment • Reactions to impact evaluation findings for lighting and weatherization • Experience working with Hancock Software and thoughts regarding data quality and collection processes more generally, including whether data is gathered electronically or on paper • Opportunities for program delivery improvement
DHS Staff	• Experience working with IES; strengths and challenges • Experience working with Hancock Software and thoughts regarding data quality and collection processes more generally • Integration of IES with WAP/DOE, as well as other low-income services (energy and non-energy) • Opportunities for program delivery improvement, including common types or groups of customers who participate—and those who do not

Timing: Mid-February – March

Deliverables: Draft and final interview guide, weekly updates regarding interview progress

Our team plans to create a single interview guide for all respondents. We envision the guide will include questions that we ask of all interviewees, as well as sections with stakeholder-specific questions. We have found a single guide (versus multiple stakeholder-specific guides) maximizes the efficiency of the interview guide development and review processes. We will send a draft of the interview guide to the evaluation stakeholders to review in mid-February and complete all the in-depth interviews by the end of March.

Task 2: Materials Review

During our interviews with National Grid, CLEAResult, and CAP administrative staff, our team will request the stakeholders share key IES documents (including both print materials and digital distributions). We will work directly with these stakeholders to identify the relevant set of IES materials, but we anticipate our request—and subsequent review—will include the following:

- All materials provided to participants before, during, or after their energy audit, and post work
- Training materials provided to field auditors and/or contractors
- IES-specific audit and/or installation protocols, guidelines or policies
- Program marketing materials

- Monthly and/or annual IES tracking or participation reports
- Information about mix of IES funding sources (utility [by fuel], DOE WAP, other)

Again, the list above is a starting point for our request; we anticipate modifying our request after the evaluation's kick-off meeting and our Task 1 interviews.

Regardless of the specific materials we review, the review process will serve multiple purposes:

- A review of the program's materials helps our team become more familiar with IES. This, in turn, allows us to ask more nuanced questions as part of the participant survey.
- Access to program materials allows us to directly investigate statements made in the interviews. For example, if several interviewed field auditors mention that the program's energy education materials often confuse participants, having and reviewing a copy of the materials allows our team to offer more specific recommendations for improving them.
- Observing the wording and layout of the program materials will allow us to identify opportunities to clarify the program information for participants. This includes the range of languages for which IES materials are available, and the appropriateness of the word choice used. Our proposed team members have completed numerous process evaluations in the past and, as part of those studies, reviewed the relevant program materials. Our exposure to materials used by a range of programs allows us to identify opportunities for improvement for National Grid's IES materials.

As evident in Table 1, our team plans to discuss the coordination and integration of IES with WAP and other complementary programs offered by the CAPS during our in-depth stakeholder interviews. We will not however review the print or online materials associated with for those complementary programs as part of this review.

Timing: March

Deliverable: Analysis of provided materials in draft/final report

Task 3: Participant Survey

After interviewing key IES stakeholders and reviewing all the provided IES materials, our team will shift our focus to the program's participants. To gain perspective, we propose to survey 150 IES participants that received services from IES in 2018.

Defining Participants

For the purpose of this evaluation, we will define an IES "participant" as the customer of record in the program's tracking database. In some instances, this means the participant—and therefore the survey respondent—will be the occupant of the home that received the energy efficiency improvements. The occupant may be the owner of the home or a renter. In other instances, the customer of record may be a landlord or property manager responsible for overseeing the home. These individuals may or may not have been the one who initiated the enrollment process or made the final decision to participate in IES; it could have been the renter.

Each of these participant "types" offers a different and valuable perspective on the delivery of IES. For this reason, as well as to minimize customer disruption and avoid requesting personal information, our team will not require that the key participation decision marker for that particular participating home be the participant surveyed.

While gathering this multitude of perspectives from different types of "participants" provides well-rounded insight into delivery, it also adds complexity to the survey instrument. To ensure we properly identify each participant's situation (e.g., is it an owner-occupied home or a landlord that made decisions on behalf of their tenant?), we will begin each survey with a set of screener questions. Collectively these screener questions will enable us to properly characterize each participant so we can ask them only the relevant evaluation questions.

Sampling

We propose to employ a stratified random sampling approach based on the participant's CAP agency. This approach will ensure representation from all participating agencies. We will sample participants from each agency proportional to that agency's contribution to total statewide participation in 2018.[3] It's possible our team will opt to oversample some of the smaller CAPs to collect more meaningful information about those agencies. We will make a final determination after reviewing IES' 2018 tracking data. Although we will not explicitly stratify by participant type (owner-occupied or landlord), we will track completions by this metric and seek enough responses from each type to provide meaningful insights.

In recent years, our team has increasingly relied on web surveys for participant surveys such as the one we propose. Web surveys are a cost-effective option for reaching a large number of participants. However, we understand that reliable internet access can sometimes be a barrier for customers who qualify for income eligible programs such as IES. As a result, we propose to use a multi-mode approach. We will begin by attempting to complete the survey via an e-mailed survey link and follow up with non-respondents by phone.

According to 2017 Census Data, 5% of Rhode Island's total population speaks Spanish fluently and speaks English less than "very well".[4,5] To minimize survey non-response bias and encourage any primarily Spanish speaking IES participants to take part in the evaluation survey, our team will offer the option of completing the survey, over the phone, in Spanish.[6]

---

[3] The lone exception are customers that received a mini-split heat pump—one of IES' newer measures. The team will include a census of customers that received a mini-split heat pump as a certainty stratum in the survey sample frame to ensure we can gather early feedback on the delivery of this new, key measure. At this time, only two IES participants have received a mini-split heat pump so the certainty stratum will likely be very small and provide only anecdotal feedback on the measure.

[4] https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

[5] All other non-English languages combined are 3.4%.

[6] A Cadeo team member is a fluent Spanish speaker and capable of translating and administering the English version of the survey in Spanish in real time. This approach minimizes the cost relative to formally translated and offering a Spanish version online, thereby making it possible to offer a Spanish survey option within the constraints of the evaluation budget. The Cadeo team member has previously provided similar translation services on customer energy efficiency surveys.

In appreciation of participant's time, and to encourage timely completion of the survey, we plan to offer respondents a $10 gift card. We will offer responding participants the choice of an electronic Amazon gift card or a physical Visa gift card.[7]

We will also encourage completion of the full survey by limiting the length of the survey to no more than an average of 20 minutes. Our team will confirm the average length via an internal pre-testing process and work with National Grid and other IES evaluation stakeholders to prioritize key questions, if necessary.

We anticipate that our participant survey will cover a wide range of topics including:

- Overall experience and satisfaction with the program, including intake experience and the time that elapsed between enrollment and audit, as well as between their audit and measure installation
- Communication and interaction with IES field auditors and installation contractors
- Clarity of provided program materials
- Any non-energy benefits (e.g., improved health or comfort) experienced since participation
- Any changes in behavior (e.g., different thermostat set points) since participation
- Awareness of National Grid's funding of IES
- What specific aspects of the program's delivery they felt worked well and which did not
- Suggestions for improving program processes for future participants.

As with the Task 1 in-depth interview guide, our team will provide National Grid and other IES evaluation stakeholder with the opportunity to review a draft survey instrument prior to fielding any surveys.

Timing: April and May

Deliverables: Draft and final survey instrument, completion of 150 surveys, summary of findings in draft/final report

Task 4: Nonparticipant Survey

We will complement the perspectives provided by IES participants with surveys of income-eligible customers who did not participate in IES. These surveys of approximately 75 nonparticipants will provide our team with important insight into how IES can potentially modify its existing marketing/outreach practices, enrollment procedures, and/or general program delivery in a way that could result in more customers receiving IES services.[8]

Defining Nonparticipants

Like program participants, there are multiple types of nonparticipants. One type are customers who at one point engaged with the program, but—for any number of different reasons—do not complete the process and officially participate. The second type, sometimes referred to as a "true nonparticipant" are customers who have never interacted with the program at all—either because they are unaware, do not realize they

[7] Our team will also explore (through the CAP interviews) whether there is a specific retailer or grocer with locations throughout Rhode Island that would provide a local and more convenient alternative to an Amazon electronic or physical Visa gift card.

[8] The exact number of nonparticipant surveys may vary depending on the information maintained by the CAPs, CLEAResult, and/or National Grid.

are eligible, or are uninterested. As with participants, each nonparticipant type offers different insights toward potential program design modifications.

At a minimum, our team proposes to survey the first type of nonparticipant, since this type of participant interacted directly with IES (or associated stakeholder) and can:

- Share how they became aware of IES
- Explain why they did not go on to participate
- Provide specific recommendations for how IES could be modified to improve the likelihood of their participation

We will work with the CAPs, CLEAResult, or National Grid to gather contacts for this type of IES nonparticipant. If any of these stakeholders are also able to provide contact information for customers who they know meet IES' eligibility requirements but who have not interacted with the program at all, then our team will use a portion of the allotted 75 nonparticipant surveys to survey these true nonparticipants.[9] These nonparticipants would provide additional insight to IES awareness levels and opportunities to engage other qualifying customers.

We will offer nonparticipating customers who respond to our web[10] or phone survey a $20 incentive.; as with participants, this will take the form of an electronic Amazon or physical Visa gift card. The nonparticipant incentive is greater than the participant incentive because nonparticipants, by virtue of their disconnect with IES, are less inclined to agree to partake in this type of evaluation survey.

> *Timing:* April and May
>
> *Deliverables:* Draft and final survey instrument, completion of 75 surveys, summary of findings in draft/final report

Task 5: Data Review

Although data tracking is more heavily utilized as part of program impact evaluations, the function of collecting, storing and reporting complete and reliable program data falls squarely within the purview of a comprehensive process evaluation. Our team included a data review task in this scope of work for three reasons:

1. It is important to maintaining high-quality program data for reporting program savings and participation, as well as enabling effective evaluations.
2. The recent impact evaluation identified some issues with either the quality or completeness of IES tracking data provided.
3. The previous process evaluation included a finding regarding difficulties working with the data tracking software that IES continues to use.

The data review is a discrete evaluation task, but we will start during our stakeholder interviews in Task 1 and continue in this task. As evident in Table 1, we plan to ask each stakeholder type about their

[9] Due to budget constraints, our team cannot undertake random digit dialing or similar effort to identify (using income screening questions) and survey this second type of nonparticipant.
[10] Only possible if CAPs, CLEAResult, or National Grid can provide e-mail addresses

experience working with InDemand (National Grid's system for tracking measures they fund) and the Hancock Software (which is maintained by DHS and includes information about non-National Grid measures). As part of those interviews we will ask each stakeholder about their perception of the data collection process and resulting data quality, as well as how data moves between the various IES stakeholders.

We will supplement what we learn from interviewed stakeholders with our own review of 2018 IES tracking data stored in both InDemand and Hancock.[11] Specifically, our review will assess the comprehensiveness of these different but complementary tracking systems (is it collecting all the necessary information?), their completeness (what portion of fields are populated?), and their quality (are the data values within expected ranges?).

Timing: April

Deliverable: Data request, summary of relevant findings in final report

The goal of this data review task, like the process evaluation overall, is to identify any opportunities for improvement and to ensure adequate data are being collected to support future impact evaluation. Within the context of this data review task, improvement could take different forms: the elimination of redundant data collection or reporting, improving documentation related to data collection or data management, or identifying specific data fields that are more commonly incomplete or inaccurate. Our team understands that IES field auditors have a limited amount of time in participants' homes and that CAP staff administer a multitude of other programs besides IES—often each with their own software. Consequently, we will be judicious with any data-related recommendations and work closely with National Grid and DHS to ensure our team's recommendation are realistic (in terms of level of effort, cost, and time associated with collecting the identified information) before including them in the final report.

In addition, our data review will:

- Take a particularly close look at the information being collected for newer IES measures, such as mini-split heat pump. Our assessment will determine whether IES is currently collecting the necessary data for new measures to inform accurate impact evaluations in the future. If not, our team will recommend changes to the data collection process that will enable successful future evaluations.
- Use provided dates associated with each customer's enrollment, audit and measure installation to calculate average participation timelines. We'll then compare those calculated values to both customer's recollections (gathered via the survey) and the program's goals for serving participants.
- Attempt, data permitting, to determine the distribution of participant types (landlords, renters, etc.).
- Compare the relative costs and savings associated with each measure and/or measure type (if the provided data includes such information).
- Calculate average costs and savings for participants, overall and by CAP

[11] Our team has access to 2015 and 2016 IES tracking data from the impact evaluation and reviewing that data would eliminate the need for an additional data request. However, such a review would not reflect the current state of the program's data collection and management processes.

Task 6: Reporting

Prior to submitting a draft report, our team will create and present a PowerPoint to evaluation stakeholders that summarizes our key evaluation findings. Like the preliminary findings discussion, we led as part of the recent IES impact evaluation, we see this meeting with evaluation stakeholders as an important opportunity to communicate and vet our findings before beginning the more labor intensive process of drafting a final report. We felt the impact evaluation presentation, which identified areas for more inquiry and illuminated stakeholder interests, was key to expediting writing that report and the subsequent review process, and we propose to follow the same blueprint for the process evaluation.

After the presentation, we will shift our focus to documenting our findings. We envision a final report that is oriented around the themes and findings identified across evaluation tasks, not siloed chapters for each evaluation task. We also propose to write a concise report with supporting information and documentation provided via appendices. The report will also include a one-page designed Executive Summary that will employ language and graphics easily understood by the general public, not just energy efficiency industry experts.

Timing: May–June

Deliverables: Preliminary findings presentation, draft and final report (including designed one-page summary)

Data Request

Cadeo requests the following data to complete the evaluation described above. Our data request includes two components – program tracking data and stakeholder contact information – each detailed below.

Program Tracking Data

Since the goal of the Task 4 material review is to assess the comprehensiveness and adequacy of IES tracking data, we ask that National Grid provide our team with the most granular InDesign data available for 2018 IES participants. Similarly, we also ask that National Grid work with DHS to provide the most granular data possible for these same 2018 IES participants from the Hancock software.

The exact format of the data is not important. We encourage National Grid and DHS should provide the data in whatever format is the most complete and easiest for them to provide. However, it is critical that our team can link the two datasets (i.e., map an individual participant between InDesign and Hancock using a unique identifier).

Also, while we've intentionally left our data request open-ended to provide flexibility, we require the following information (provided via InDesign or Hancock) to complete the Task 3 participant survey:

- Name
- Address of Participating Property
- Audit Data
- Phone Number
- E-mail Address (when possible)
- List of installed measures

Stakeholder Contact Information

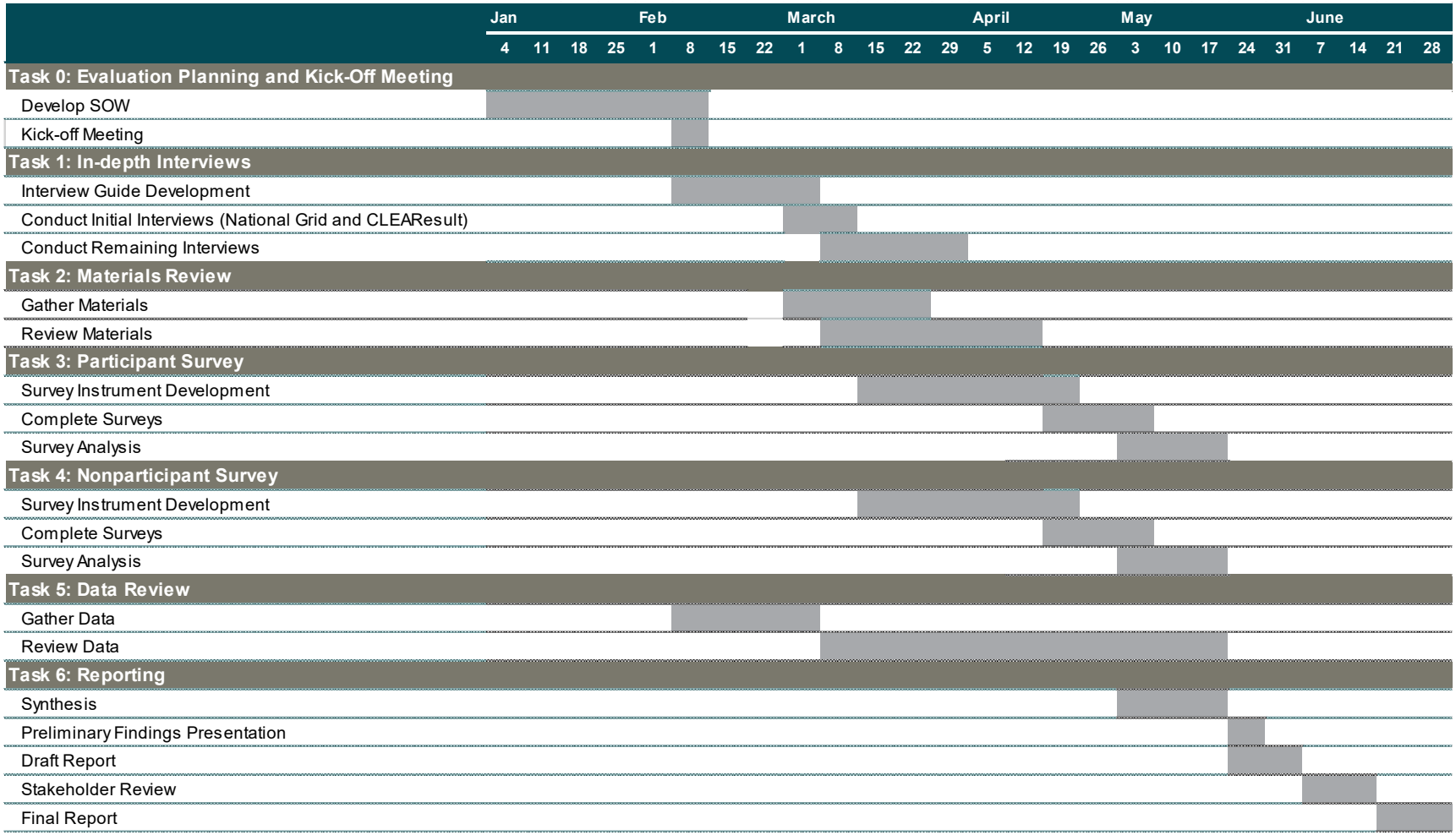
To facilitate our Task 1 interviews, we request contact information (name, role, phone number, and e-mail) for the stakeholder listed below. Please contact Doug Bruchs, Cadeo's evaluation project manager, with any questions regarding this request.

Table 3. Stakeholder Interviews

Stakeholder	Please provide contact information for…
National Grid Strategy and Implementation Manager	All relevant National Grid interviewees (group interview)
Lead Vendor (CLEAResult) Manager	All relevant CLEAResult interviewees (group interview)
Community Action Agency Program (CAP) Administrative Staff	IES' primary point of contact at each of the six participating CAPs
CAP Field Auditors	Two to three field auditors for each of the six participating CAPs
Installation Contractors	Two to three installation contractors for each of the six participating CAPs. If CAPs subcontract installation to independent contractors, please provide a list of such contractors that completed more than 10 jobs (defined as either installing insulation or replacing a heating system) in 2018
DHS Staff	All relevant DHS interviewees

Timeline

We propose to complete the process evaluation described above by the end of June 2019, which will allow National Grid to incorporate evaluation findings in its first draft of the annual plan. We will follow the approximate schedule shown below.



Budget

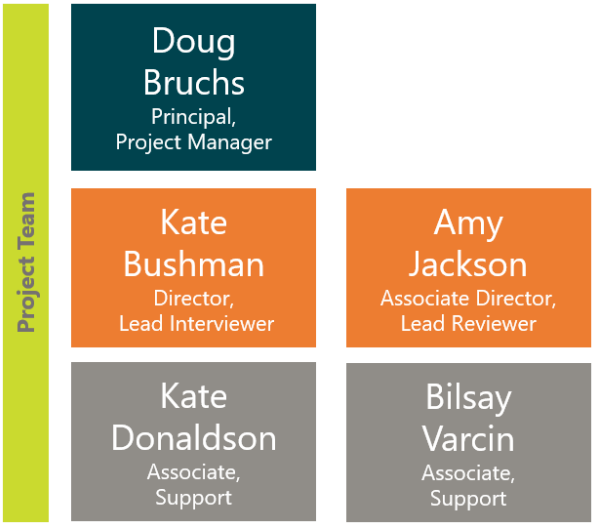
Our team proposes the following budget to complete the draft scope of work described in this document.

Table 4. Evaluation Budget

Task	Budget
Evaluation Planning and Kick-off Meeting	$6,990
Task 1: Stakeholder Interviews	$17,228
Task 2: Materials Review	$7,600
Task 3: Participant Surveys[12]	$28,680
Task 4: Nonparticipant Surveys[13]	$12,028
Task 5: Data Review	$4,460
Task 6: Reporting	$17,575
Project Management	$3,680
TOTAL	**$98,240**

Team

Our process evaluation team includes several team members from the impact evaluation as well as new staff to reflect the change in study focus. Like the impact evaluation, we have formed a small team with dedicated staff members that will enable us to quickly and cost-effectively complete the evaluation.



[12] Includes $1,650 in participant survey incentives

[13] Includes $1,650 in nonparticipant survey incentives

Each team member will have a specific role and set of responsibilities:

- **Doug Bruchs** will be the project manager and serve as National Grid's day-to-day contact. Doug served in a similar role for the IES impact evaluation. He also led a recent process evaluation of National Grid's Home Energy Services program[14] in Massachusetts (March 2018) and, before that, the low income program[15] in Massachusetts (January 2012). In addition to being the project manager and overseeing all six tasks, Doug will lead the development of the participant survey.
- **Kate Bushman** is an experienced process evaluator and an expert interviewer. She, along with Doug and Amy, will interview the identified IES stakeholders. Kate also recently completed a low income-specific literature review for National Grid in Massachusetts.
- **Amy Jackson** will lead our team's review of IES' program materials. As a former program implementer, Amy understands both the nuances and realities of program design and delivery. As such, Amy will also participate in some of the stakeholder interviews and play a major role in identifying evaluation findings across tasks and developing recommendations.
- **Kate Donaldson** has worked closely with Doug, Kate Bushman, and Amy on several projects. She will provide general support for the project and oversee the administration of the participant survey.
- **Bilsay Varcin** became intimately familiar with IES' data as part of the impact evaluation. For this evaluation, he will contribute to our team's data review, as well as develop our sample frame for the participant surveys.

Project Management

The team recommends a recurring half hour project management call every two weeks between Doug Bruchs, our project manager, and Romilee Emerick, National Grid's evaluation manager. These meetings worked well for the impact evaluation and will allow our team to provide informal updates on our progress, as well as triage any issues that arise during the evaluation in a timely fashion.

Again, like the impact evaluation, our team will submit an official status report each month, along with our invoice, by the first Tuesday of every month. The status reports will summarize our recent accomplishments, outline the activities our team will undertake next, and offer updates regarding the evaluation's schedule and budget.

[14] http://ma-eeac.org/wordpress/wp-content/uploads/MA-RES-35-HES-Process-Evaluation-Comprehensive-Report_FINAL_31MAR2018.pdf
[15] http://ma-eeac.org/wordpress/wp-content/uploads/Massachusetts-2011-Low-Income-Program-Process-Evaluation-Final_Part-of-the-Massachusetts-Residential-Retrofit-Low-Income-Program-Area-Evaluation.pdf

Appendix B. Stakeholder Interview Guide

IES Process Evaluation

Comprehensive Stakeholder Interview Guide

This interview guide lists the key topics for Cadeo's in-depth interviews with the following six types of IES stakeholders:

1. National Grid Strategy and Implementation Managers
2. Lead Vendor (CLEAResult) Manager
3. RI DHS Staff
4. Community Action Agency Program (CAP) Senior IES Managers
5. CAP Field Auditors
6. Installation Contractors

This interview guide is a living document. We will update it, as needed, after each interview with questions raised that subsequent interviewees may be able to answer, or for which they can provide additional context. For example, our initial discussions with National Grid, CLEAResult, and DHS will impact the exact questions we ask the Senior IES manager at each CAP. Our discussions with the CAP manager will then, in turn, influence our discussion with the field auditors and installation contractors.

For clarity, we have written out each question in a complete sentence; however, in practice, the interviewer may choose to ask a question slightly differently or in a different order, depending on the flow of the discussion. The ability to adapt is the primary difference between an interview and a survey.

Our team created a comprehensive stakeholder/interview topic matrix (on the next page) to indicate which topics we will discuss with each stakeholder. The team used this matrix to develop the relevant interview modules and specific questions for each stakeholder type.

To successfully balance the need to sufficiently cover these key topics with the need to be flexible, we will use an interview topic checklist for each stakeholder type. This checklist, which includes the key topics to cover with each interviewee. An example of the checklist (for our interview with National Grid) can be found at the end of this document. We will use these checklists as a tool to ensure all we cover all the relevant topics with each stakeholder, regardless of the order the questions are asked.

Table 1. Comprehensive Stakeholder/Interview Topic Matrix

Topic	NG Managers	CLEAResult Manager	RI DHS Staff	CAP Managers	Field Auditors	Installation Contractors
Overview						
Delivery Role	X	X	X	X		
Team Structure	X	X	X	X		
Communication channels	X	X	X	X	X	X
Delivery Challenges	X	X	X	X	X	X
Ability to comprehensively serve customers	X	X	X	X	X	X
Implementation						
Goal setting, tracking and reporting	X	X	X	X		
Metrics (participation & budget)	X	X	X			
New measures/changes	X	X				
Long-term planning (including lighting measures)	X	X	X			
Perceived effectiveness of energy education				X	X	X
Common installation issues including mitigating H&S barriers	X			X	X	X
Feedback received from IES participants and non-participants					X	X
Observations of participants' most pressing needs			X	X	X	X
Outreach						
Outreach and marketing efforts	X	X	X	X		
Opportunities to reach underserved populations	X	X	X	X		
Integration						
Integration with WAP/DOE & other LI services	X	X	X	X	X	X
Opportunities to improve integration	X	X	X	X	X	X
InDemand & Hancock Software experience	X	X	X	X	X	X
Consistency of process/protocol	X	X				X
QA/QC & Training						
Sampling and data collection processes	X	X	X	X	X	X
Quality control, vendor/contractor feedback and reporting	X	X	X	X	X	X
Training	X	X	X	X	X	X
Evaluation						
Reactions to impact evaluation results	X	X				
Response to previous process evaluation recommendations	X					
Goals/Information needs from current evaluation	X	X				
Identification of relevant IES materials for Task 5 materials review	X			X		

1. National Grid Strategy and Implementation Managers

We will interview National Grid program managers Laura Rodormer and Mike Rossacci. The joint interview, which will last approximately 90 minutes, will focus on a delivery overview of IES, health of the program, recent changes, long-term plans and opportunities for improvement.

After this interview—and all other group interviews—our team will send each interviewee an e-mail asking them to e-mail or call us with any additional comments that they did not feel comfortable sharing in a group interview setting, or that they may have forgotten to mention during the interview.

Overview

- Can you briefly describe your role in delivering IES?
- How is the broader delivery team set up? What are the general roles of the different team members, implementers, and contractors?
  Probe:
  - CLEAResult
  - CAPs
  - RI DHS
  - Anyone else?
- How do these IES team members communicate with each other and with you?
  Probe:
  - Formally? Informally?
  - How is it working?
  - Any suggestions for improvement?
- Are there any other important program stakeholders or entities when it comes to marketing and/or delivering the program?
  Probe:
  - Contractors
  - Local Housing Authorities
- What aspects of the current design of IES are working well? Not so well?

Implementation

- How do you set participation and/or savings targets for IES? How/when do you track your progress?
  Probe:
  - Who provides input for goal setting and who approves final goals?
  - What is taken into consideration?
  - At what levels are targets set (e.g. measure level? program level?)
  - Are goals set per quarter? Per season? Per year? How frequently do you track (report out on) progress toward goals?
  - How do you manage goals in relation to budget?

    - When and how are goals shared with other IES team members? How and with whom do you share progress?
- How many participants did you have in 2018? How does that compare to your goal? [If meaningful over/under] Why was that?
- Do you have specific policies and budget to address H&S barrier mitigation? What are they?

  Probe:
    - Is participation increasing or declining?
    - Does this differ for certain customer types (e.g., race, ethnicity, primary language, renter vs. owner, home type, geographies, etc.?
    - Do you feel you are able to comprehensively serve customers?
- What about budget; were you on budget in 2018? [If meaningful over/under] Why was that?
- Were any measures discontinued or changed? Why and with what effects?
- Are you focusing on increasing uptake of underutilized measures (e.g. duct sealing)? How?
- Have you added new measures for this program year? What's the uptake so far?
- Are there future measures you may be considering?

  Probe:
    - Are you considering fuel switching/strategic electrification?
    - How do you envision this measure being incorporated into IES? (note: high cost)
- Do you have a near- or medium-term plans to changes to how you deliver IES? If so, what are they?
- How do you think the potential removal of lighting measures in the future will impact the program?
- Are there any delivery challenges you'd like to address?

Outreach

- How do you market IES?

  Probe:
    - Who are the different audiences to whom you market?
    - How are different market actors identified and targeted (e.g. landlords, homeowners, housing authorities, etc.)?
    - How is the messaging for each group different?
- Have you tried any new marketing or outreach tactics lately?

  Probe:
    - Why did you add or change the marketing approach?
    - Have you seen an impact from the additions/changes?
    - How effective do you think program marketing and outreach is currently?
- How successful do you think IES has been reaching the people who most need IES services? Why is that?
- Who isn't being reached as successfully? (**Probe**: Certain customer types/ geographies?)

- What have you tried to reach these customers?
  Probe:
  - What's worked? What hasn't?
  - What's next?
- [If not previously stated] What are the most common reasons that eligible customers do not end up participating?

Integration

- Can you talk about how IES integrates with WAP/DOE and other low-Income services (energy and non-energy) offered through the CAPs?
  Probe:
  - What are the benefits and the costs of this integration?
  - Do you think the collaboration with WAP and LIHEAP enhances or inhibits the [rate payer funded] IES program? How?
  - Are there opportunities for better integration?
- I understand that National Grid's uses InDemand and that RI DHS manages Hancock. Do you work with Hancock at all or just InDemand? What has been your experience working with InDemand and/or Hancock Software (ask as appropriate)? How else uses InDemand – CAPs?
- Do the CAPs all follow the same processes and protocols? (**Probe:** Are they consistent with each other or very different?)

Quality Control & Training

- Can you please tell me about the IES' quality assurance and/or quality control processes?
  Probe:
  - How do the QA/QC requirements of other funding source impact IES participants?
  - How well do you think the current collection process is working well?
  - Do you think the data is getting captured and reported accurately?
  - Do you feel they are adequate?
  - Do you have the staffing necessary to meet your QA/QC plan?
  - Are there any specific elements that could be improved? (If necessary: to streamline processes, minimize customer disruption, improve auditor/installer feedback, increase the quality of data collected.)
- How do you track and report QA/QC related results/data?
  Probe:
  - How do you access QA/QC data?
  - What do you look at/use the most?
  - How is it useful/actionable are the data overall?
- Can you tell me about auditor training?
  Probe:
  - What kind of training do they currently receive?

- Are they required to be certified (if so, what types of certification)?
- Do you feel the auditors come in with adequate training and / or have access to adequate training?
- What about installation contractors? (same questions)

Evaluation

- How do you feel about the previous process evaluation's recommendations?

Table 2. Recommendations from Previous Evaluation

Previous Recommendation	**Implemented? (Y/N or N/A)**
Prioritize finalization of IES program manual	
Why or why not?	
Results:	
Update the IES manual on an annual basis	
Why or why not?	
Results:	
Revise the CFL [LED] installation protocol to maximize potential for savings	
Why or why not?	
Results:	
Standardize CFL [LED] installation protocols across all program operations materials	
Why or why not?	
Results:	
Consider requiring AMP auditors to meter appliances for at least two hours	
Why or why not?	
Results:	
Consider requiring CAP agencies to install all DI measures, standardizing the customer experience	
Why or why not?	
Results:	
Provide high-quality hot water measures	
Why or why not?	
Results:	
Consider increasing the IES Program's health and safety fund limits	
Why or why not?	
Results:	
Monitor the CAP agencies' concerns with Hancock to minimize its impact on IES	
Why or why not?	
Results:	
Monitor the CAP agencies' concerns regarding connectivity and update the technology used by the auditors in the field, as needed	
Why or why not?	
Results:	
Increase National Grid sponsorship awareness through leave-behind materials	
Why or why not?	
Results:	

Evaluation (continued)

- What was your reaction to the impact evaluation findings? (Probe: lighting and weatherization? Surprised? Not surprised?)
- What are you hoping to get from this evaluation—is there specific information that would help you to improve delivery of the program?
- As you know, our evaluation includes a materials review task. What materials should we review to better understand the program (e.g. internal process documentation, org chart, training materials, etc.) and provide feedback about potential improvements? Can you provide these?

2. CLEAResult (Lead Vendor) Program Manager

We will interview David MacLellan, the Program Manager from CLEAResult, which is IES' lead vendor. If the Program Manager would like to include additional resources from CLEAResult (a Field Manager, for example) in the interview, we will conduct a group interview. The interview, which will last approximately an hour, will focus on a delivery overview of IES, health of the program, recent changes, long-term plans and opportunities for improvement.

Overview

- Can you briefly describe your role in delivering IES?
- How is the broader delivery team set up? What are the general roles of the different team members, implementers, and contractors?
  Probe:
  - National Grid
  - CAPs
  - RI DHS
  - Anyone else?
- How do these IES team members communicate with each other and with you?
  Probe:
  - Formally? Informally?
  - How is it working?
  - Any suggestions for improvement?
- Are there any other important program stakeholders or entities when it comes to marketing and/or delivering the program?
  Probe:
  - Contractors
  - Local Housing Authorities
- What aspects of the current design of IES are working well? Not so well?

Implementation

- Do you participate in the goal setting process or does National Grid give you a participation/savings goal? How/when do you track your progress?
- I understand that IES participation in 2018 was up/down [based on National Grid interview] Why do you think that was the case?
  Probe:
  - Is participation increasing or declining?
  - Does this differ for certain customer types (e.g., race, ethnicity, primary language, renter vs. owner, home type, geographies, etc.?
  - How do you track the incentive budget? (per customer, per measure, etc.)
- Do you have specific policies and budget to address H&S barrier mitigation? What are they?
- Do you feel you are able to comprehensively serve your customers?

- Are there opportunities to be more efficient with the budget—perhaps to reach out to more customers?
- Can you talk about the new measures that were added to IES this year? How's that going so far?
- How involved is CLEAResult in near- and medium-term planning? Are there plans to change the way IES is currently delivered?
- How do you think the potential removal of lighting measures in the future will impact the program?
- Were any measures discontinued or changed? Why and with what effects?
- Are you focusing on increasing uptake of underutilized measures (e.g. duct sealing)? How?
- Have you added new measures for this program year? What's the uptake so far?
- Are there future measures you may be considering?
  Probe:
  - Are you considering fuel switching/strategic electrification?
  - How do you envision this measure being incorporated into IES? (note: high cost)

Outreach

- How do you market the program? Have you tried any new marketing or outreach tactics lately?
  Probe:
  - Who are the different audiences to whom you market?
  - How are different decision makers identified and targeted (e.g. landlords, homeowners, etc.)?
  - How is the messaging for each group different?
- Have you tried any new marketing or outreach tactics lately?
  Probe:
  - Why did you add or change the marketing approach?
  - Have you seen an impact from the additions/changes?
  - How effective do you think program marketing and outreach is currently?
- How successful do you think IES has been reaching the people who most need IES services? Why is that?
- Who isn't being reached as successfully? (**Probe**: Certain customer types/ geographies?)
- What have you tried to reach these customers?
  Probe:
  - What's worked? What hasn't?
  - What's next?
- [If not previously stated] What are the most common reasons that eligible customers do not end up participating?

Integration

- Can you talk about how IES integrates with WAP/DOE and other low-Income services (energy and non-energy) offered through CAP?
- What are the benefits and the costs of this integration?
- Do you think the collaboration with WAP and LIHEAP enhances or inhibits the [rate payer funded] IES program?
- Are there opportunities for better integration?
- I understand that InDemand is National Grid's software and that RI DHS manages Hancock. What has been your experience working with InDemand and/or Hancock Software (ask as appropriate)? Who else uses InDemand – CAPs?
- Do the CAPs all follow the same processes and protocols? (**Probe:** Are they consistent with each other or very different?)

Quality Control & Training

- Can you please tell me about the IES' quality assurance and/or quality control processes?
  Probe:
  - How do the QA/QC requirements of other funding source impact IES participants?
  - How well do you think the current collection process is working well?
  - Do you think the data is getting captured and reported accurately?
  - Do you feel they are adequate?
  - Do you have the staffing necessary to meet your QA/QC plan?
  - Are there any specific elements that could be improved? (If necessary: to streamline processes, minimize customer disruption, improve auditor/installer feedback, increase the quality of data collected.)
- How do you track and report QA/QC related results/data?
  Probe:
  - How do you access QA/QC data?
  - What do you look at/use the most?
  - How is it useful/actionable are the data overall?
- Can you tell me about auditor training?
  Probe:
  - What kind of training do they currently receive?
  - Are they required to be certified (if so, what types of certification)?
  - Do you feel the auditors come in with adequate training and / or have access to adequate training?
  - What about installation contractors? (same questions)

Evaluation

- What was your reaction to the impact evaluation findings? (Probe: lighting and weatherization? Surprised? Not surprised?)

- What are you hoping to get from this evaluation—is there specific information that would help you to improve delivery of the program?
- As you know, our evaluation includes a materials review task. What materials should we review to better understand the program (e.g. internal process documentation, org chart, training materials, etc.) and provide feedback about potential improvements? Can you provide these?

3. RI DHS Staff

We will interview two DHS managers separately; the interviews will last approximately 60 minutes each.

Overview

- Can you briefly describe how you interact with IES? What is your role?
- What are the general roles of the different team members?
  Probe:
  - National Grid
  - CLEAResult
  - CAPs
  - Anyone else?
- How do these IES team members communicate with each other and with you?
  Probe:
  - Formally? Informally?
  - How is it working?
  - Any suggestions for improvement?
- Are there any other important program stakeholders or entities when it comes to marketing and/or delivering the program?
  Probe:
  - Contractors
  - Local Housing Authorities
- From your perspective, what aspects of the current design of IES are working well? Not so well? Why do you think that is?

Implementation

- Tell me about working with IES day-to-day. Are there specific strengths and challenges you can call out?
- What metrics do you track related to IES? (**Probe**: participants, dollars) Are there other metrics that you would be useful? What and why?
- Do you set goals to which you track for participation or in other areas?
- How/when do you track your progress?
- How has performance been recently relative to those metrics?
- Does this differ for certain customer types (e.e, race, ethnicity, primary language, renter vs. owner, home type, geographies, etc.?
- What are your observations about customers most pressing needs?
- Do you feel IES comprehensively serves customers? (If there are gaps, what are they?)
- Are there measure and/or incentive that should be added or modified?
- Are you involved in long-term planning for IES, or do you incorporate IES into your own long-term planning?

Outreach

- Do you feel like the program is successfully reaching historically underserved populations? How?
- Do you have any suggestions for how IES could improve marketing or outreach efforts to improve in this area?
- How does the process of generating leads and marketing the program work? Are there opportunities for improvement for your current process?

Integration

- Can you talk more about how IES integrates with WAP?
- What are some opportunities for improving the coordinated delivery?
- How do you feel about your ability to comprehensively serve customers (using multiple funding sources)?
- Do you work at all with InDemand? If so, can you talk specifically about the interactions between InDemand and the Hancock Software? Can you talk about your experience working with the Hancock Software?

QA/QC

- Do you conduct field visits or other QA/QC activities? What types of activities?
- What is your perspective on the current QA/QC processes for IES participants?
  Probe:
  - How do the QA/QC requirements of other funding source impact IES participants?
  - How well do you think the current collection process is working well?
  - Are there any specific elements that could be improved? (If necessary: to streamline processes, minimize customer disruption, improve auditor/installer feedback, increase the quality of data collected.)
- Do you receive reports from other entities within the IES program (such as National Grid or CLEAResult)?
  Probe:
  - What is included in the reports?
  - Is the data adequate?
  - Are there other data points you would find useful?
  - How do you feel about the quality/accuracy of the data you're receiving?
- Do you have any concerns about auditor training?

Evaluation

- What are you hoping to get from this evaluation—is there specific information or insight that you were hoping to get?

4. Community Action Agency (CAP) Managers

National Grid and CLEAResult have provided our team with the lead IES manager at each of the six participating CAPs. We will complete individual interviews with each, which will last approximately 45 minutes.

Overview

- Can you briefly describe your role in delivering IES?
- From your perspective, what role do the different team members play?
  Probe:
  - National Grid
  - CLEAResult
  - DHS
  - Anyone else?
- How do these IES team members communicate with each other and with you?
  Probe:
  - Formally? Informally?
  - How is it working?
  - Any suggestions for improvement?
- From your perspective, what aspects of the current design of IES are working well? Not so well? Why do you think that is?

Implementation

- Do you set goals for program participation or other types of goals?
  Probe:
  - How do you track your progress to goal?
  - Do you receive reports from other entities for tracking purposes?
- Can you talk about your general experience delivering IES?
- Are there specific strengths and challenges you can call out?
- How long does it typically take a customer to progress from initial contact, through enrolling, to receiving their audit, to receiving their measures and then completing the QC process?
- Do you have a wait list?
- What health and safety barriers to you see (such as knob and tube, asbestos, or other situations that prevent full weatherization)? How and when are they identified?
  Probe:
  - How frequently does your team encounter health and safety barriers?
  - How are health and safety barriers identified, tracked and addressed?
- When health and safety issues are encountered in a participant's home, how often (what percentage) of the projects move on to full or partial weatherization? (**Probe:** What is the protocol for projects that can't even be started because of health and safety concerns?)
- What are the most pressing needs you've observed in your customer base?

- How do you feel about the effectiveness of the energy efficiency component of the program?
- How do you think the likely removal of lighting measures in the future will impact the IES program?
- Do you have any thoughts on program process that could be improved, or ways that IES could serve more customer or generate more savings?
- Who are your two most active contractors (installers) in both weatherization and heating?

Outreach

- How do you market the program? Have you tried any new marketing or outreach tactics lately? (**Probe:** how effective do you think program marketing and outreach is currently?)
- How successful do you think IES has been reaching the people who most need IES services? Why is that?
- Who isn't being reached as successfully? (**Probe**: Certain customer types/ geographies?)
- What have you tried to reach these customers?
  Probe:
  - What's worked? What hasn't?
  - What's next?
- [If not previously stated] What are the most common reasons that eligible customers do not end up participating?

Integration

- Can you talk about how IES integrates with WAP and other low-Income services (energy and non-energy) you offer?
  Probe:
  - What works? What does not?
  - Are there opportunities for better integration?
  - What are they?
- How do you feel about your ability to comprehensively serve customers using the multiple funding sources available to you?
- Do you think the collaboration with WAP and LIHEAP enhances or inhibits the [rate payer funded] IES program?
- I understand that InDemand is National Grid's software and that RI DHS manages Hancock. Do you work with InDemand and Hancock, or just one? What has been your experience working with InDemand and/or Hancock Software (ask as appropriate)?

Quality Control and Training

- How do you feel about the quality of the data being collected—do you think the collection process is working well?

- Do you manage your data electronically? What systems do you use? Are program data kept on individual computers, a network, in the cloud?
- Do you feel the auditors are getting adequate training? What kind of training do they currently receive?
- Do you (or does CLEAResult) inspect the work of the auditors and/or installers?
- If an inspection is failed, what corrective actions are taken (to fix the issue and to address it with the auditor/installer)?

Evaluation

- What are you hoping to get from this evaluation—is there specific information that would help you to improve delivery of the program?
- What are some materials we could review? Can you provide both customer-facing (marketing) materials as well as internal documents (process documents, for example)

5. CAP Field Auditors

We will interview one auditor from each CAP, which we will select randomly using the full list of auditors provided by National Grid and CLEAResult. These half dozen individual interviews will last about half an hour.

Overview

- How long have you been completing energy audits?
- How do lines of communication work?
  Probe:
  - How do you communicate your schedule availability?
  - How are your audit appointments communicated to you?
  - How are re-schedules and no-shows handled?
  - If you encounter issues at an audit site, what is the communication protocol?
- To start, can you give me the 60 second version of what a typical audit for you looks like for you?
  Probe:
  - How long are you typically in a customer's home?
  - Do you usually have enough time?
  - How do you prioritize your time in customers' homes?
  - What aspect of the audit takes the longest/is most difficult/problematic?
  - How long do you spend on an analysis and report after the site visit?
  - How many audits do you usually do in a day/week?
  - What other job responsibilities do you have besides completing audits?

Implementation

- What specific feedback, whether good and bad, have you received from IES participants?
- Tell us about customers who get an audit, but do not move forward with weatherization.
  Probe:
  - How often does this happen?
  - What are the main reasons?
  - Are there frequently recurring pre-weatherization issues?
- How appropriate do you think the current eligibility thresholds are for replacing existing equipment?
- Do you feel customers are comprehensively being served by the program?
- What have you observed are customer's most pressing needs?
- Can you talk about how you provide energy education as part of IES?
  Probe:
  - How much time do you typically spend on energy education?
  - How effective do you think energy education materials are?
  - Are there specific elements of the energy education that customers seem to latch on to?

    - Conversely, are there elements they have a hard time following/understanding?
    - Do you have any suggestions for improvements? Are missing any significant savings opportunities with the current audit format?
- What health and safety barriers to you see (such as knob and tube, asbestos, or other situations that prevent full weatherization)?
  Probe:
    - How frequently do you encounter health and safety barriers?
    - Have you ever had to discontinue an audit for health and safety reasons?

Integration

- What are participants' most pressing needs?
- I understand that the CAPs "braid" together funds from different sources, like IES and WAP, do best serve customers. Can you talk to me about that integration process and what it means for you when in a customer's home?
  Probe:
    - How much are you thinking about specific funding sources during the audit?
    - How well do these funding source complement each other and allow you to comprehensively serve customers?
    - How do you feel about your ability to comprehensively serve customers using the multiple funding sources available to you?
    - Are there gaps? What are they?
    - Are there opportunities for better integration?
- What are some opportunities for improving program delivery?

Quality Control and Training

- Please tell me about your data collection process.
  Probe:
    - Do you input data during the audit using an electronic device or afterward?
    - Do you use Hancock software?
    - Can you tell me about your experience using Hancock? What does it do well? What doesn't work as well?
- Did you feel you received adequate training? What ongoing training is available? From whom?
- How is your work checked for accuracy? How does that process work?
  Probe:
    - How are the results of the check communicated to you?
    - If there are any concerns, how are they addressed?
    - Does the process work? Could it work better?

Evaluation

- Is there anything else you would like us to know? Anything else that you think could improve your ability to either serve more customers or provide greater savings to participants?

6. Installation Contractors

Our team received a complete list of active installation contractors (45 statewide). We will interview the two most active weatherization contractors and two most active heating contractors (identified during CAP manager interviews) and two other randomly sampled contractors from the complete active contractor list. Given the more limited role of installation contractors, these interviews will last about 20 minutes.

Overview

- How large is your company? Are you focused only on weatherization installation, or do you do audits and other work?
- How do you get assigned jobs/projects for the IES program?
  Probe:
  - How do you communicate your schedule availability?
  - How is your schedule (IES projects, specifically) communicated to you?
  - How are re-schedules and no-shows handled?
- If you encounter issues at a project site, what is the communication protocol? What percentage of your business/work is conducted through the IES program?

Implementation

- What specific feedback (good and bad) have you received from IES participants?
- What feedback do you get from other IES team members? The auditor or CAP? The state? The utility?
- From your perspective, what are participants' most pressing needs?
- Are customers being comprehensively served by the program, or are there gaps that could be filled?
- Do you have any suggestions for improvements?
- Are there typical installation issues you run into frequently - things that make installation impossible, more difficult, or time consuming?
- What health and safety barriers to you see (such as knob and tube, asbestos, or other situations that prevent full weatherization)?
  Probe:
  - Do you usually know about possible health and safety barriers in advance? (Is correcting them part of the job?)
  - How frequently do you team encounter health and safety barriers?
  - Have you ever had to discontinue a project for health and safety reasons?
- Do you educate the customer/resident when you install a new system about how to use it properly/efficiently? Do you think they listen?
- Do you have any contact with Hancock or InDemand software? (If so, what do you use it for?)
- Do you work directly with the CAP agencies?
  Probe:
  - Are they consistent (processes and procedures (more or less) indistinguishable from each other)?

- Do you know who the auditor was for each job? Are they consistent with each other?
- Do you feel you get the information you need related to the job before you arrive? Are there ever surprises that should have been caught in the audit (like health and safety issues)?
- Did you receive any program-specific training? (For example, how to correctly fill out program forms or eligible measure requirements.)

Quality Control and Training

- Can you talk to me about the program's QA/QC process?
- **Probe:**
  - How well does the process work for you?
  - What the most common feedback you receive?
  - Do you feel the QA/QC (inspection) process is fair?
  - How often are called back to a job?
  - Do you have any suggestions for improving the process? Suggestions can relate to communications with contractors like you, or for improving the process for the customer.

Evaluation

- Is there anything else you would like us to know as part of this evaluation?

Example: Topic Checklist: National Grid Implementation and Strategy Managers

	Overview
	Delivery Role
	Team Structure
	Communication channels
	Delivery Challenges
	Ability to comprehensively serve customers
	Implementation
	Goal setting and tracking
	Metrics (participation & budget)
	New measures/changes
	Long-term planning (including lighting measures)
	Perceived effectiveness of energy education
	Common installation issues
	Feedback received from IES participants and non-participants
	Observations of participants' most pressing needs
	Outreach
	Outreach and marketing efforts
	Opportunities for reaching historically underserved populations
	Integration
	Integration with WAP/DOE & other LI services
	Opportunities to improve integration
	InDemand & Hancock Software experience
	Consistency of process/protocol
	Quality Control and Training
	Data collection process
	Quality control
	Training
	Evaluation
	Reactions to impact evaluation results
	Actions taken in response to previous process evaluation recommendations
	Goals/Information needs from current evaluation
	Identification of relevant IES materials for Task 5 materials review

Appendix C. Participant Survey

Income Eligible Services Process Evaluation

Participant Survey (Online Version)

Introduction

Hello <Customer Name>,

As a participant in the National Grid Income Eligible Energy Services program (also known as Rhode Island Weatherization Assistance Program), we'd like to invite you to take a short survey about your experience. We are interested in hearing about your home's energy assessment, as well as the no-cost energy efficiency services that you received.

Si prefiere tomar esta encuesta en español, por favor llamenos al numero: 503-994-1669.

Your time is valuable. **As a thank you for completing the survey, you'll be able to choose a $10 Amazon e-gift card or a $10 Visa gift card**. Gift cards are limited; only the first 150 respondents will be offered this opportunity. The survey should take no more than 10 minutes to complete.

[Survey Link]

Thank you for helping us improve our program!

Sincerely,
Income Eligible Energy Services Team
National Grid Rhode Island

[Email Footer]

If you would like to verify the legitimacy of this research, please contact Romilee Emerick at National Grid by calling (781) 907-3709.

If you prefer not to receive National Grid survey invitations by email, you can unsubscribe here: <insert link>.

Cadeo, an independent research firm, is conducting this research on behalf of National Grid and using SurveyGizmo to gather feedback from program participants. This message was sent by Cadeo, 1660 L St NW, Suite 216, Washington, DC 20036.

Awareness

1. How did you *first* learn about the Income Eligible Energy Services Program? Select the best one.
    a. Community Action Partnership (CAP) agency staff
    b. From a friend or family member
    c. My landlord or property manager told me about it
    d. LIHEAP – Home Energy Assistance Program
    e. TV/Newspaper
    f. Billboard
    g. National Grid printed materials (e.g., bill insert, flyer, Home Energy Report)
    h. National Grid customer representative and/or call center
    i. National Grid's website
    j. 211info.org
    k. A different Website - Which? **[Open field]**
    l. Social Media - Which? **[Open field]**
    m. Senior Center
    n. State Government Agency - Which? **[Open field]**
    o. Social Worker
    p. Phone Call
    q. Event (community event, expo, RI Home Show, etc.)
    r. Other **[Open field]**
    s. Don't' know

2. What are the most important reasons why you decided to get a home energy assessment (also known as an energy audit)? **Select all that apply.**

    [Program survey to accept multiple responses]

    a. To learn more about how I use energy in my home
    b. To lower my energy bills
    c. To help the environment
    d. To make my home more comfortable
    e. To make my home healthier (example: improve the air quality)
    f. To get free lightbulbs
    g. To get free weatherization services to my home
    h. To improve or get a new heating system
    i. Other **[Open field]**
    j. Don't know

Home Assessment Experience, Energy Education, and Satisfaction

3. Did the energy auditor that visited your home… [**Select all that apply**]?

   [Program survey to accept multiple responses]

   a. Introduce themselves and the program when they first arrived
   b. Explain everything they were going do before they did it
   c. Invite you to accompany them for all or specific parts of the assessment
   d. Encourage you to ask questions
   e. Did not attend the energy assessment **[SKIP TO Q5]**
   f. Don't remember

4. Did the energy auditor give you tips on how to save energy? (Examples: turning off lights when you are not in a room or setting your thermostat lower at night.)
   a. Yes, they gave me lots of good tips on how to save energy.
   b. Yes, they gave me a few energy tips.
   c. No, they didn't give me any tips for how to save energy.
   d. I don't remember
   e. I don't know

5. Have you changed any of your energy related behaviors or habits since participating in the program? (Examples: how you set your thermostat or use lights.)
   a. Yes
   b. No
   c. Don't know

[IF Q5 = Yes]

6. What's changed? **Select all that apply.**
   a. How you cool your home
   b. How you heat your home
   c. How you wash dishes
   d. How you do laundry
   e. Turn off lights when you are not in the room **[SKIP TO Q11]**
   f. Turn off TV(s) when not watching **[SKIP TO Q11]**
   g. Unplugged unused electronics **[SKIP TO Q11]**
   h. Unplugged a second refrigerator (when not in use) **[SKIP TO Q11]**
   i. Your dehumidifier settings **[SKIP TO Q11]**

j. Your water heater temperature settings **[SKIP TO Q11]**
k. Your refrigerator and/or freezer temperature settings **[SKIP TO Q11]**
l. Other **[Open field]** **[SKIP TO Q11]**

[IF Q6 = A]

7. How did how you cool your home change? **Select all that apply.**
    a. Use your programmable thermostat more
    b. Raised air conditioner setting on your thermostat (allow your home to get warmer in the summer)
    c. Lowered air conditioner setting on your thermostat (keep your home cooler in the summer)
    d. Reduced the amount of time you run your air conditioner
    e. Increased the amount of time you run your air conditioner
    f. Use cross-ventilation, less air conditioning (open your windows more)
    g. Substitute fan(s) for air conditioner(s)
    h. Other **[Open field]**

[IF Q6 = B]

8. How did how you heat your home change? **Select all that apply.**
    a. Use your programmable thermostat more
    b. Raised heater setting on your thermostat (keep your home warmer in the winter)
    c. Lowered heater setting on thermostat (allow your home to be cooler in the winter)
    d. Reduced the amount of time you run your heater
    e. Increased the amount of time you run your heater
    f. Limit use of space heaters
    g. Other **[Open field]**

[IF Q6 = C]

9. How did how you wash dishes change? **Select all that apply.**
    a. Wash laundry in cold water
    b. Run spin cycle on washer a second time before drying
    c. Line dry clothes
    d. Combine clothes in dryer loads
    e. Other **[Open field]**

[IF Q6 = D]

10. How did how you do laundry change? **Select all that apply.**
    a. Rinse Dishes in cold water, or pre-rinse in basin
    b. Use air dry option on dishwasher
    c. Other **[Open field]**

11. Tell us about the printed educational materials you received **Select all that apply.**
    [Program for multiple selections]
    a. You didn't receive any printed educational materials
    b. They were easy to understand
    c. You didn't read them
    d. You read them, but they were hard to understand
    e. There was too much paperwork
    f. They were not written in my language
    g. Other **[Fillable field]**

12. Who provided the funding for the work that was done on your home? **Select all that apply.**

    [Allow multiple answers]

    a. The State of Rhode Island (Department of Human Services)
    b. The US Government (Department of Energy)
    c. National Grid
    d. Your CAP agency
    e. You and other customers (through the system benefits charge on your monthly utility bill)
    f. Don't know
    g. Other **[Open field]**

13. Have you had any issues with any of the energy efficiency measures installed through the program?
    a. Yes
    b. No **[Skip to Q19]**
    c. Don't know **[Skip to Q19]**

[IF Q13 = Yes]

14. What kind of issues? **[Fillable field]**

15. Did you contact the program about your issue?
    a. Yes
    b. No **[Skip to Q19]**

[IF Q15 = Yes]

16. Who did you contact? **[Fillable field]**

17. How satisfied were you with the program's response to your issue?
    a. Not at all satisfied
    b. Not very satisfied
    c. Neither satisfied nor dissatisfied **[Skip to Q19]**
    d. Somewhat satisfied **[Skip to Q19]**
    e. Very satisfied **[Skip to Q19]**
    f. Don't know **[Skip to Q19]**

[Q17 = A or B]

18. Why do you say that? **[Fillable field]**

19. Please rate your satisfaction with the different aspects of the program. **1 means you were not at all satisfied and 5 means you were very satisfied.**

Not at all satisfied…Very satisfied

	1	**2**	**3**	**4**	**5**	**N/A**
The application process						
The time that passed between submitting your application and your energy assessment						
The customer service provided by your energy auditor						
The energy assessment itself						
The time that passed between your assessment and when work on your home started						
The amount of paperwork you had to review and sign						
The time it took for the work on your home to be completed (once it started)						
The professionalism of contractor/crew that completed the work on your home						
The quality of work completed on your home						

[IF ANY RESPONSES TO Q19 = 1 or 2]

20. Please tell us more about why you were dissatisfied with this/these program elements. **[Fillable field]**

21. How would you rate your satisfaction with the program **overall? 1 means you were not at all satisfied and 5 means you were very satisfied.**

Program Benefits

22. Have you noticed a difference in your energy bills? Would you say your utility bills are…
    a. Much lower **[Skip to Q23]**
    b. Somewhat lower **[Skip to Q23]**
    c. About the same **[Skip to Q23]**
    d. Somewhat higher
    e. Much higher
    f. Don't know **[Skip to Q23]**

[IF ANY RESPONSES TO Q22 = D or E]

23. Have there been any other changes in your home (such as people moving in or new appliances) that may have caused your bills to increase? **[Fillable field]**

24. Have you experienced any other benefits not related to your utility bills? **Select all that apply.**
    a. Improved comfort
    b. Improved health
    c. Less stress
    d. No other benefits
    e. Other **[Fillable Field]**
    f. Don't know

Scheduling

25. How many total home visits did you receive as part of the program? This includes your energy assessment, visits by contractors, inspection(s), or any other visits related to your participation in the program.
    a. Two **[Skip to Q27]**
    b. Three **[Skip to Q27]**
    c. Four **[Skip to Q27]**
    d. Five **[Skip to Q27]**
    e. More than five
    f. Don't know or remember **[Skip to Q27]**

[IF ANY RESPONSES TO Q26= E]

26. How many total visits? **[Fillable field]**

27. How would you describe scheduling home visits as part of the program?
    a. **Very easy:** Scheduling wasn't an issue at all
    b. **Somewhat easy:** Scheduling was a little tricky but not too bad.
    c. **Neither easy nor disruptive**.
    d. **Somewhat disruptive:** Scheduling was difficult but you could make it work.
    e. **Very disruptive:** Scheduling was really hard for you - either because of the total number of visits or the need to take time off of work.
    f. **Don't know**

Word-of-Mouth

28. Have you recommended the program to a friend or family member?
    a. Yes
    b. No
    c. Don't know

[IF Q28 = A]

29. What did you tell them? **[Fillable field]**

[IF Q28 = B]

30. Why not? **[Fillable field]**

Demographics

31. Please check all that apply
    a. You are a senior citizen (65 years or older)
    b. You have children under the age of 18 living in your home
    c. You have a senior citizen living in your home
    d. You and / or someone living in your home are disabled
    e. None of the above

32. Which best describes you?
    a. You own and live in the home that received energy efficiency services
    b. You own, but do not live in the home(s) that received energy efficiency services
    c. You rent the home that received energy efficiency services
    d. Something else. **[Fillable field]**

33. What is the primary language spoken in your home?
    a. English
    b. Spanish
    c. Portuguese
    d. French
    e. Haitian Creole
    f. Mandarin, Cantonese, or other Chinese language
    g. Other **[Fillable field]**
    h. Prefer not to share

Final Thoughts

34. Our goal is to offer the best possible program. How we can improve the program for others? **[Fillable field]**

35. Is there anything else you want us to know your experience? **[Fillable field]**

Incentive Logistics

36. Thank you for your time and thoughts! Please select the gift card you prefer (select one):
    a. Amazon e-Gift Card (electronic delivery, please allow 2 to 3 days)
    b. Visa Gift Card (must provide a postal address, please allow 2 to 4 weeks)

[IF Q36 = A]

37. Select the email address where you would like your Amazon gift card to be sent:
    a. The email address used for this survey
    b. A different email address **[Fillable field]**

[IF Q28 = B]

38. Please provide the best mailing address to send your Visa gift card to: **[Fillable fields for name, address, city, and zip code]**

Appendix D. Nonparticipant Survey

Income Eligible Services Process Evaluation
Nonparticipant Survey (Online Version)

Introduction

Hello <Customer Name>,

National Grid would like to invite you to participate in a brief online survey (5-10 minutes) regarding the energy efficiency programs available to their residential customers. **As a thank you for completing the survey, you'll be able to choose a $20 Amazon e-gift card or a $20 Visa gift card**. Gift cards are limited; only the first 75 respondents will be offered this opportunity.

[Survey Link]

Si prefiere tomar esta encuesta en español, por favor llamenos al numero: 503-994-1669.

Thank you for helping us improve our program!

Sincerely,
Income Eligible Energy Services Team
National Grid Rhode Island

[Email Footer]

If you would like to verify the legitimacy of this research, please contact Romilee Emerick at National Grid by calling (781) 907-3709.

If you prefer not to receive National Grid survey invitations by email, you can unsubscribe here: <insert link>.

Cadeo, an independent research firm, is conducting this research on behalf of National Grid and using SurveyGizmo to gather feedback from program participants. This message was sent by Cadeo, 1660 L St NW, Suite 216, Washington, DC 20036.

Awareness

1. Are you aware that the State of Rhode Island and National Grid run programs to help customers improve the energy efficiency of their homes?
    a. Yes
    b. No **[Skip to Q3]**
    c. Don't know **[Skip to Q3]**

2. Have you heard of National Grid's Income Eligible Services (IES) program, or the Rhode Island Weatherization Assistance Program (WAP)?
    a. Yes **[Skip to Q4]**
    b. No
    c. Don't know

3. These programs help customers reduce their utility costs and save energy by installing energy efficiency appliances, heating systems, and insulation. Customers that qualify, based on their income, receive these energy improvements at no cost. The programs are run by local community action agencies, sometimes called CAPS, that offer a wide variety of energy and non-energy social services.

    To participate, you apply for an energy assessment (also known as an energy audit), which requires verifying your income eligibility. If eligible, an energy auditor will come to your home and identify opportunities to improve its energy efficiency. Someone will need to be present for the assessment.

    Does this sound familiar to you now?
    a. Yes
    b. No **[Skip to Q14 - Unaware Nonparticipant Module]**
    c. Don't know **[Skip to Q14 - Unaware Nonparticipant Module]**

Aware Nonparticipants: Ask Q4 through Q13

4. How did you *first* learn about these programs? Select the best one.
    a. Community Action Agency (CAP) **[Skip to Q5]**
    b. From a friend or family member
    c. My landlord or property manager told me about it
    d. LIHEAP – Home Energy Assistance Program
    e. TV/Newspaper
    f. Billboard
    g. National Grid printed materials (e.g., bill insert, flyer, Home Energy Report)
    h. National Grid customer representative and/or call center
    i. National Grid's website
    j. 211info.org
    k. A different Website - Which? **[Fillable field]**
    l. Social Media - Which? **[Fillable field]**
    m. Senior Center
    n. State Government Agency - Which? **[Fillable field]**
    o. Social Worker
    p. Phone Call
    q. Event (community event, expo, RI Home Show, etc.)
    r. Other **[Fillable field]**
    s. **Don't know**

5. **[If Q4 = A]** Which one?
    a. Blackstone Valley Community Action Program (BVCAP) in Pawtucket
    b. Community Action Partnership of Providence (CAPP) in Providence
    c. Comprehensive Community Action (CCAP) in Cranston
    d. Eastbay Community Action (Lower Bay Region) in Newport
    e. Eastbay Community Action (Upper Bay Region) in Riverside
    f. Tri-County Community Action Agency (Northern Region) in Johnston
    g. Tri-County Community Action Agency (Southern Region) in Wakefield
    h. Westbay Community Action Partnership in Warwick
    i. I don't recall which agency

6. **[IF Q4 = A]** Did you receive any services from **[answer to Q5],** related to energy efficiency or some other social service?
    a. Yes **[Skip to Q8]**
    b. No
    c. Don't know

7. **[If Q4 = B through S]** The program is run through Community Action Agencies or CAPs located around Rhode Island. Have you ever interacted with one of the six Rhode Island CAPs that deliver these energy efficiency programs, as well as various social services? **Select all that apply**
    a. Yes, Blackstone Valley Community Action Program (BVCAP) in Pawtucket
    b. Yes, Community Action Partnership of Providence (CAPP) in Providence
    c. Yes, Comprehensive Community Action (CCAP) in Cranston
    d. Yes, Eastbay Community Action (Lower Bay Region) in Newport
    e. Yes, Eastbay Community Action (Upper Bay Region) in Riverside
    f. Yes, Tri-County Community Action Agency (Northern Region) in Johnston
    g. Yes, Tri-County Community Action Agency (Southern Region) in Wakefield
    h. Yes, Westbay Community Action Partnership in Warwick
    i. Yes, but I don't recall which agency
    j. No **[Skip to Q9]**
    k. Don't know **[Skip to Q9]**

8. **[If Q6 = A or Q7 = A through I]** What services did you receive? **Select all that apply.**
    a. Fuel Assistance (LIHEAP, money toward bills)
    b. A different energy service **[Fillable field]**
    c. A non-energy service (e.g., Head Start, rental assistance, food-related services)
    d. Prefer not to say
    e. Don't know

9. Earlier you mentioned that you are aware of National Grid's Income Eligible Services (IES) program, or the Rhode Island Weatherization Assistance Program (WAP). Do any of the following describe you? **Select all that apply.**
    a. I participated in the IES/WAP program in a previous home I owned or rented
    b. I started the application process for the IES/WAP program in my current home but didn't complete it
    c. I looked into participating in the IES/WAP program in my current home but never signed up
    d. Other **[Fillable field]**

10. **[If Q9 = A]** How long ago was that?
    a. Within two years
    b. 2-5 years ago
    c. 6-10 years ago
    d. More than 10 years ago
    e. Don't know

11. **[If Q9 = A]** Have you explored participating in your new home?
    a. Yes **[Skip to Q21]**
    b. No
    c. Don't know **[Skip to Q21]**

12. **[If Q11 = B]** Why not? **[Fillable field]**

13. **[If Q9 = B or C]** Why didn't you complete the process? **Select all that apply.** **[All responses proceed to Q21 – Wrap Ups]**
    a. It was too time consuming
    b. It was too difficult to schedule an energy audit
    c. I was not comfortable with an energy auditor coming to my home
    d. I did not want to share information related to my income
    e. It did not appear I was eligible at the time
    f. Other **[Fillable field]**

Unaware Nonparticipants: Ask Q14 through Q20

14. Does this sound like something you would be interested in?
    a. Yes **[Skip to Q16]**
    b. No
    c. Don't know **[Skip to Q16]**

15. **[If Q14 = B]** Why not? **[Fillable field]**

16. As mentioned above, the program is run through Community Action Agencies or CAPs located around Rhode Island.

    Have you ever interacted with one of the six Rhode Island CAPs that deliver these energy efficiency programs, as well as various social services? **Select all that apply.**
    a. Yes, Blackstone Valley Community Action Program (BVCAP) in Pawtucket
    b. Yes, Community Action Partnership of Providence (CAPP) in Providence
    c. Yes, Comprehensive Community Action (CCAP) in Cranston
    d. Yes, Eastbay Community Action (Lower Bay Region) in Newport
    e. Yes, Eastbay Community Action (Upper Bay Region) in Riverside
    f. Yes, Tri-County Community Action Agency (Northern Region) in Johnston
    g. Yes, Tri-County Community Action Agency (Southern Region) in Wakefield
    h. Yes, Westbay Community Action Partnership in Warwick
    i. Yes, but I don't recall which agency
    j. No **[Skip to Q21]**
    k. Don't know **[Skip to Q21]**

17. **[If Q16 = A through I]** What services did you receive? **Select all that apply.**
    a. Fuel Assistance (LIHEAP, money toward bills)
    b. A different energy service – Which? **[Fillable field]**
    c. A non-energy service (e.g., Head Start, rental assistance, food-related services)
    d. Prefer not to say
    e. Don't know

18. **[If Q16 = A through I]** How would you rate your interaction with your CAP agency?
    a. Very positive
    b. Somewhat positive
    c. Neither positive nor negative
    d. Somewhat negative
    e. Very negative
    f. Don't know

19. **[If Q16 = A through I]** Why do you say that? **[Fillable field]**

20. **[If Q16 = A through I]** How does your previous experience with your CAP agency impact the likelihood of applying for an energy efficiency assessment for your home?
    a. I'm much more likely to apply
    b. I'm somewhat more likely to apply
    c. It doesn't impact my decision
    d. I'm somewhat less likely to apply
    e. I'm much less likely to apply
    f. Don't know

Wrap ups: Ask to All

21. How likely are you to sign up for the IES/WAP energy program?
    a. Very likely **[Skip to Q24]**
    b. Somewhat likely **[Skip to Q24]**
    c. Neither likely nor unlikely
    d. Somewhat unlikely
    e. Very unlikely
    f. Don't know **[Skip to Q24]**

22. **[If Q21 = C, D, or E]** Why not? **Select all that apply.**
    a. It sounds too time consuming
    b. It would be hard for me to schedule and/or be home for an energy audit
    c. I am not comfortable with an energy auditor coming to my home
    d. I do not want to share information related to my income
    e. I do not believe I am eligible for this program
    f. I need more information about the program
    g. I would need input from a family member/partner
    h. I am renting my home, so I am not the decision maker
    i. Other **[Fillable field]**

23. **[If Q22 = F]** What further information would you need to decide? **[Fillable field]**

24. What is the best way to get in touch with you about programs like this? **Select all that apply**.
    a. Community Action Partnership (CAP) agency staff
    b. From a friend or family member
    c. My landlord or property manager told me about it
    d. LIHEAP – Home Energy Assistance Program
    e. TV/Newspaper
    f. Billboard
    g. National Grid printed materials (e.g., bill insert, flyer, Home Energy Report)
    h. National Grid customer representative and/or call center
    i. National Grid's website
    j. 211info.org
    k. A different Website - Which? **[Fillable field]**
    l. Social Media - Which? **[Fillable field]**
    m. Senior Center
    n. State Government Agency - Which? **[Fillable field]**
    o. Social Worker
    p. Phone Call
    q. Event (community event, expo, RI Home Show, etc.)
    r. Other **[Fillable field]**

House Information

Now, we'd like to ask you a few quick questions about your home.

25. . How would you rate the energy efficiency of your home?
    a. Very good
    b. Good
    c. Neutral
    d. Poor
    e. Very poor
    f. Don't know

26. Why do you say that? **[Fillable field]**

27. Is your house insulated?
    a. Yes, all/most of it
    b. Yes, some of it
    c. No, none of it
    d. Don't know

28. About how old is your heating system?
    a. Less than 1 year
    b. 1-5 years
    c. 6-10 years
    d. 11-20 years
    e. 21-30 years
    f. More than 30 years
    g. Don't know

29. Do you have or use any of the following technologies in your home? **Select all that apply.**
    a. LED lightbulbs
    b. Programmable thermostat
    c. Smart power strips
    d. Efficient showerheads
    e. Other **[Fillable field]**
    f. **No, none of these**

Demographics

30. Please check all that apply:
    a. You are a senior citizen (65 years or older)
    b. You have children under the age of 18 living in your home
    c. You have a senior citizen living in your home
    d. You and/or someone living in your home has a disability or uses medical equipment that runs on electricity
    e. None of the above

31. Which best describes you?
    a. You own and live in your home
    b. You own but do not live in your home(s)
    c. You rent the home you live in
    d. Something else **[Fillable field]**

32. What is the primary language spoken in your home?
    a. English
    b. Spanish
    c. Portuguese
    d. French
    e. Haitian Creole
    f. Mandarin, Cantonese, or other Chinese language
    g. Other **[Fillable field]**
    h. Prefer not to share

Incentives

33. Thank you for your time and thoughts! Please select the gift card you prefer (select one):
    a. Amazon e-Gift Card (electronic delivery, please allow 2 to 3 days)
    b. Visa Gift Card (must provide a postal address, please allow 2 to 4 weeks)

34. **[IF Q33 = A]** Select the email address where you would like your Amazon gift card to be sent:
    a. The email address used for this survey
    b. A different email address

35. **[IF Q33 = B]** Please provide the best mailing address to send your Visa Gift Card to: **[Fillable fields for name, address, city, and zip code]**

Appendix E. Participant Survey – Additional Results

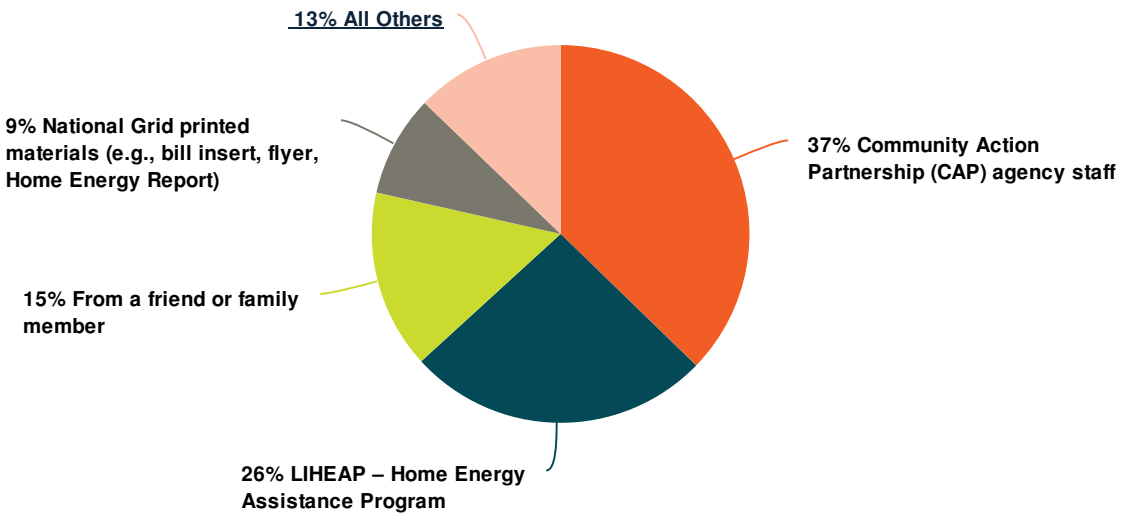
Participant Survey Results

Response Counts

Completion Rate:	**100%**	
	Complete	150

Totals: 150

1. How did you first learn about the Income Eligible Energy Services Program? Select the best one.



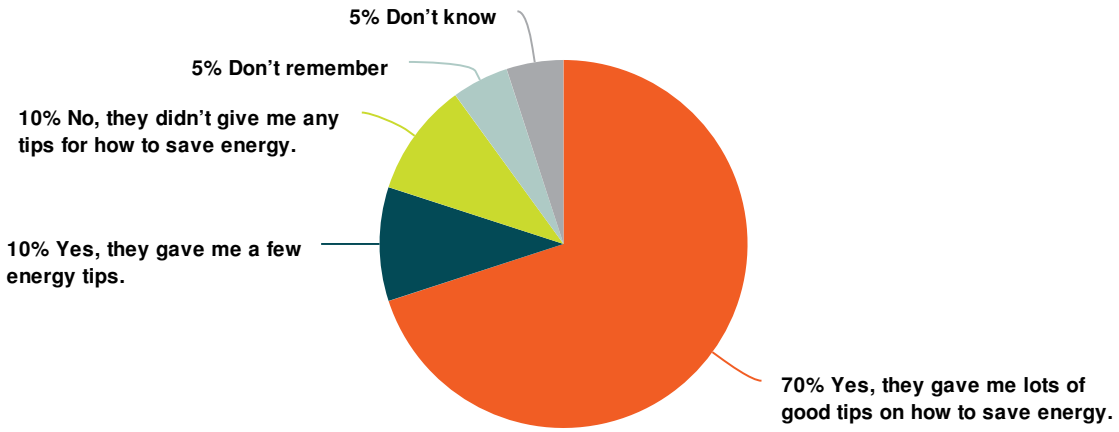
2. What are the most important reasons why you decided to get a home energy assessment (also known as an energy audit)? Select all that apply.

Value	Percent	Responses
To learn more about how I use energy in my home	38.3%	57
To lower my energy bills	89.9%	134
To help the environment	35.6%	53
To make my home more comfortable	40.9%	61
To make my home healthier (example: improve the air quality)	32.9%	49
To get free lightbulbs	10.1%	15
To get free weatherization services to my home	26.8%	40
To improve or get a new heating system	16.1%	24
Other	0.7%	1

3. Did the energy auditor that visited your home... Select all that apply.

Value	Percent	Responses
Introduce themselves and the program when they first arrived	91.9%	136
Explain everything they were going do before they did it	87.8%	130
Invite you to accompany them for all or specific parts of the assessment	68.2%	101
Encourage you to ask questions	70.3%	104
Did not attend the energy assessment	2.0%	3
Don't remember	4.1%	6

4. Did the energy auditor give you tips on how to save energy? (Examples: turning off lights when you are not in a room or setting your thermostat lower at night.)

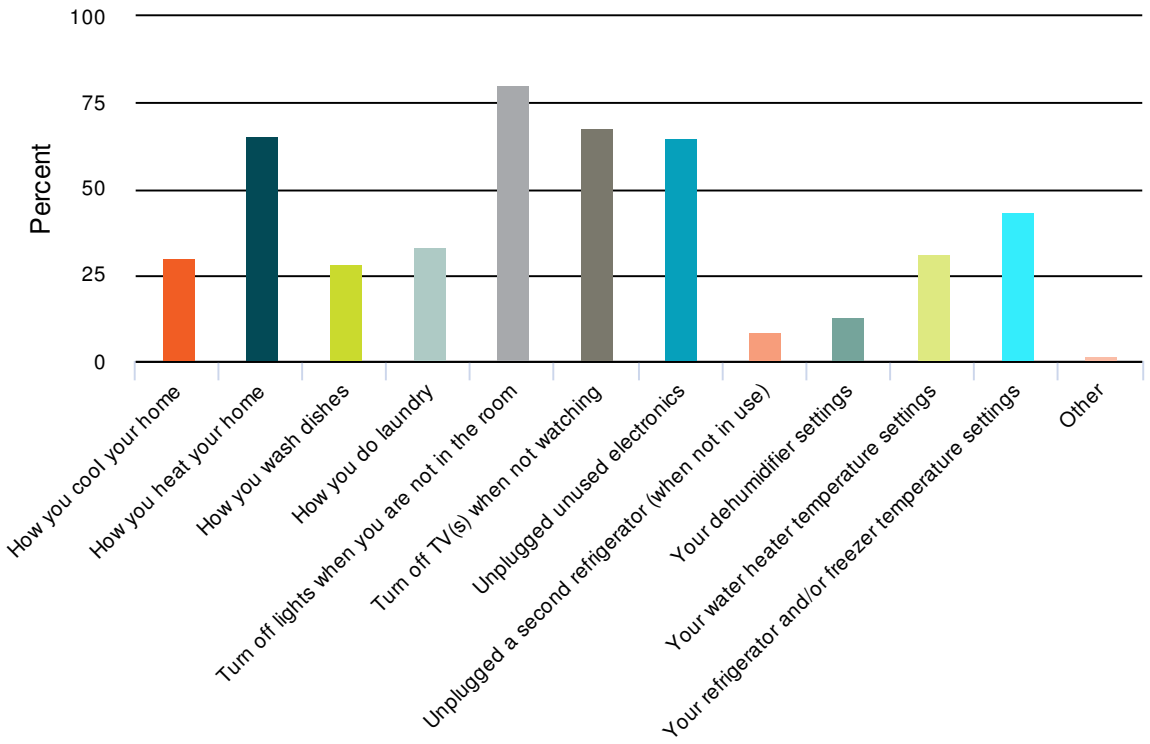


5. Have you changed any of your energy related behaviors or habits since participating in the program? (Examples: how you set your thermostat or use lights.)

Value	Percent	Responses
Yes	91.0%	131
No	9.0%	13

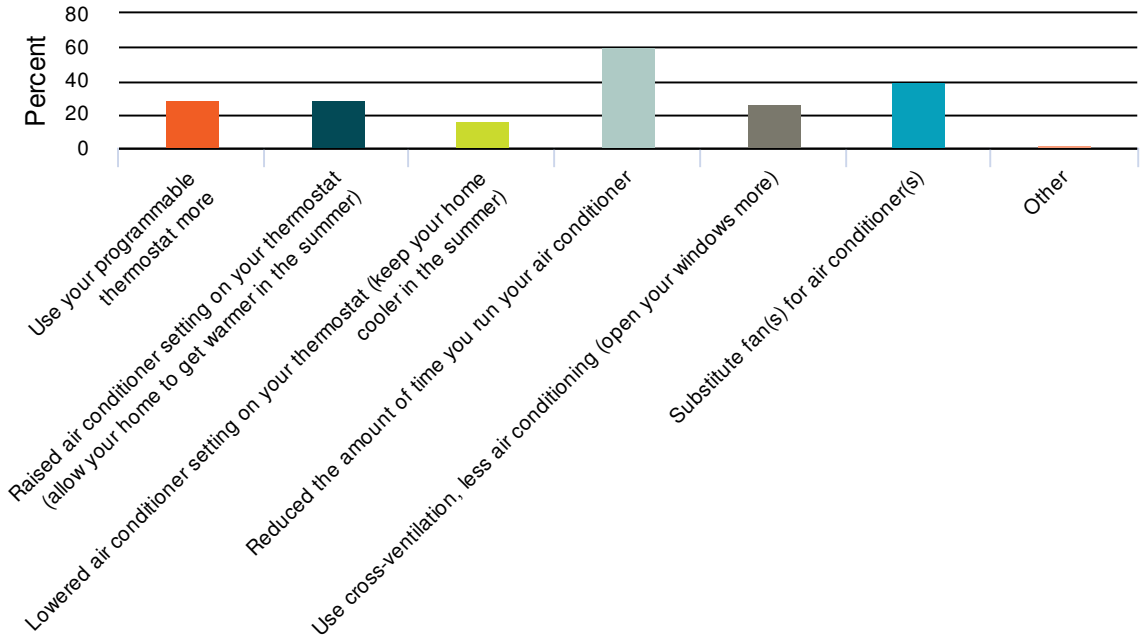
Totals: 144

6. What's changed? Select all that apply.



Value	Percent	Responses
How you cool your home	29.8%	39
How you heat your home	65.6%	86
How you wash dishes	28.2%	37
How you do laundry	33.6%	44
Turn off lights when you are not in the room	80.2%	105
Turn off TV(s) when not watching	67.9%	89
Unplugged unused electronics	64.9%	85
Unplugged a second refrigerator (when not in use)	8.4%	11
Your dehumidifier settings	13.0%	17
Your water heater temperature settings	31.3%	41
Your refrigerator and/or freezer temperature settings	43.5%	57
Other	1.5%	2

7. How did how you cool your home change? Select all that apply.



Value	Percent	Responses
Use your programmable thermostat more	28.9%	11
Raised air conditioner setting on your thermostat (allow your home to get warmer in the summer)	28.9%	11
Lowered air conditioner setting on your thermostat (keep your home cooler in the summer)	15.8%	6
Reduced the amount of time you run your air conditioner	60.5%	23
Use cross-ventilation, less air conditioning (open your windows more)	26.3%	10
Substitute fan(s) for air conditioner(s)	39.5%	15
Other	2.6%	1

8. How did how you heat your home change? Select all that apply.

Value	Percent	Responses
Use your programmable thermostat more	44.7%	38
Raised heater setting on your thermostat (allow your home to get warmer in the winter)	4.7%	4
Lowered heater setting on your thermostat (keep your home cooler in the winter)	64.7%	55
Reduced the amount of time you run your heater	38.8%	33
Increased the amount of time you run your heater	3.5%	3
Limit use of space heaters	24.7%	21

9. How did how you wash dishes change? Select all that apply.

Value	Percent	Responses
Hand wash dishes	8.3%	3
Rinse Dishes in cold water, or pre-rinse in basin	80.6%	29
Use air dry option on dishwasher	27.8%	10
Other	11.1%	4

10. How did how you do laundry change? Select all that apply.

Value	Percent	Responses
Wash laundry in cold water	81.8%	36
Run spin cycle on washer a second time before drying	25.0%	11
Line dry clothes	36.4%	16
Combine clothes in dryer loads	31.8%	14
Other	15.9%	7

11. Tell us about the printed educational materials you received. Select all that apply.

Value	Percent	Responses
You didn't receive any printed educational materials	19.5%	29
They were easy to understand	68.5%	102
You didn't read them	7.4%	11
You read them, but they were hard to understand	0.7%	1
There was too much paperwork	2.0%	3
They were not written in my language	1.3%	2
Other	3.4%	5

12. Who provided the funding for the work that was done on your home? Select all that apply.

13. Have you had any issues with any of the energy efficiency measures installed through the program?

Value	Percent	Responses
Yes	9.7%	14
No	90.3%	130

Totals: 144

14. Did you contact the program about your issue?

Value	Percent	Responses
No	50.0%	7
Yes	50.0%	7

Totals: 14

15. How satisfied were you with the program's response to your issue?

Value	Percent	Responses
Not at all satisfied	57.1%	4
Not very satisfied	14.3%	1
Very satisfied	28.6%	2
	Totals:	7

16. Please rate your satisfaction with the different aspects of the program.1 means you were not at all satisfied and 5 means you were very satisfied.

	1	2	3	4	5	Responses
The application process Count Row %	1 0.7%	3 2.0%	15 10.2%	24 16.3%	104 70.7%	147
The time that passed between submitting your application and your energy assessment Count Row %	2 1.4%	5 3.4%	24 16.2%	30 20.3%	87 58.8%	148
The customer service provided by your energy auditor Count Row %	2 1.3%	2 1.3%	8 5.3%	25 16.7%	113 75.3%	150
The energy assessment itself Count Row %	2 1.4%	1 0.7%	14 9.6%	36 24.7%	93 63.7%	146
The time that passed between your assessment and when work on your home started Count Row %	6 4.0%	4 2.7%	22 14.8%	42 28.2%	75 50.3%	149
The amount of paperwork you had to review and sign Count Row %	3 2.1%	2 1.4%	18 12.4%	43 29.7%	79 54.5%	145
The time it took for the work on your home to be completed (once it started) Count Row %	9 6.2%	4 2.7%	14 9.6%	39 26.7%	80 54.8%	146
The professionalism of contractor/crew that completed the work on your home Count Row %	7 4.7%	1 0.7%	19 12.8%	27 18.2%	94 63.5%	148
The quality of work completed on your home Count Row %	8 5.4%	4 2.7%	16 10.8%	32 21.6%	88 59.5%	148
Totals Total Responses						150

17. How would you rate your satisfaction with the program overall? 1 means you were not at all satisfied and 5 means you were very satisfied.

Value	Percent	Responses
Satisfied	89.9%	125
Neither satisfied nor unsatisfied	7.2%	10
Unsatisfied	2.9%	4
		Totals: 139

18. Have you noticed a difference in your energy bills? Would you say your utility bills are...

Value	Percent	Responses
Much lower	18.7%	28
Somewhat lower	54.0%	81
About the same	20.7%	31
Somewhat higher	0.7%	1
Don't know	6.0%	9
		Totals: 150

19. Have you experienced any other benefits not related to your utility bills? Select all that apply.

Value	Percent	Responses
Improved comfort	42.9%	63
Improved health	11.6%	17
Less stress	42.2%	62
No other benefits	22.4%	33
Other	1.4%	2
Don't know	11.6%	17

20. How many total home visits did you receive as part of the program? This includes your energy assessment, visits by contractors, inspection(s), or any other visits related to your participation in the program.

Value	Percent	Responses
Two	37.7%	46
Three	24.6%	30
Four	13.9%	17
Five	9.0%	11
More than five	14.8%	18
		Totals: 122

21. How would you describe scheduling home visits as part of the program?

Value	Percent	Responses
Very easy: Scheduling wasn't an issue at all	63.3%	95
Somewhat easy: Scheduling was a little tricky but not too bad.	21.3%	32
Neither easy nor disruptive	6.0%	9
Somewhat disruptive: Scheduling was difficult but you could make it work.	2.0%	3
Very disruptive: Scheduling was really hard for you - either because of the total number of visits or the need to take time off of work.	1.3%	2
Don't know	6.0%	9

Totals: 150

22. Have you recommended the program to a friend or family member?

Value	Percent	Responses
Yes	84.5%	120
No	15.5%	22

Totals: 142

23. Please check all that apply.

Value	Percent	Responses
You are a senior citizen (65 years or older)	16.1%	24
You have children under the age of 18 living in your home	51.0%	76
You have a senior citizen living in your home	7.4%	11
You and / or someone living in your home are disabled	28.2%	42
None of the above	16.1%	24

24. Which best describes you?

25. What is the primary language spoken in your home?

Value	Percent	Responses
English	89.3%	134
Spanish	9.3%	14
Mandarin, Cantonese, or other Chinese language	0.7%	1
Other	0.7%	1

Totals: 150

Appendix F. Nonparticipant Survey – Additional Results

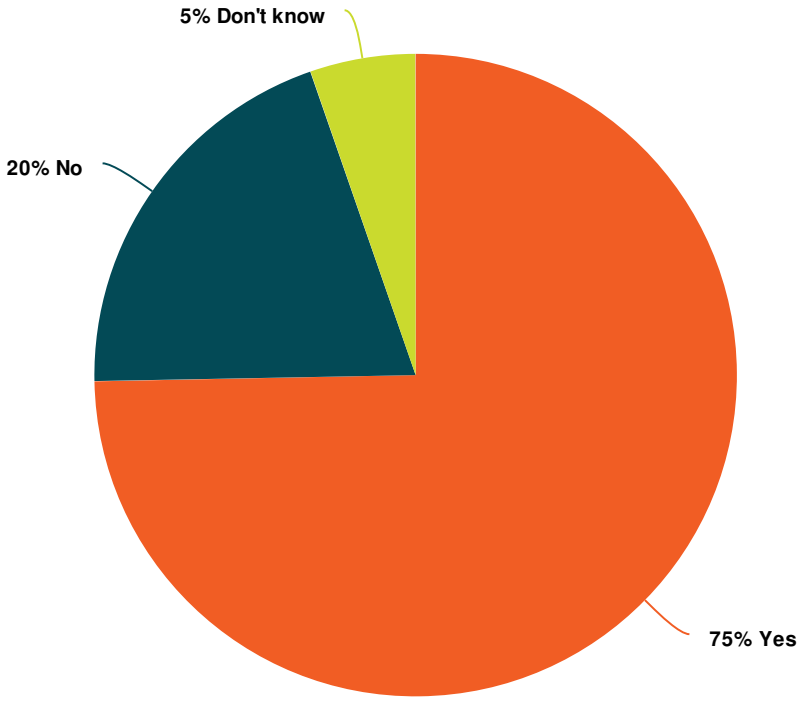
Nonparticipant Survey Results

Response Counts

Completion Rate:	**100%**	
	Complete	75

Totals: 75

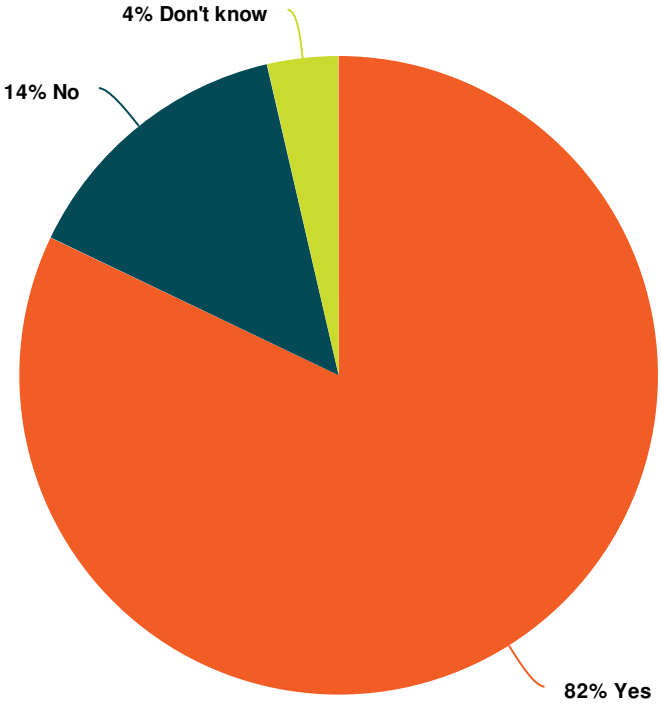
1. Are you aware that the State of Rhode Island and National Grid run programs to help customers improve the energy efficiency of their homes?



Value	Percent	Responses
Yes	74.7%	56
No	20.0%	15
Don't know	5.3%	4

Totals: 75

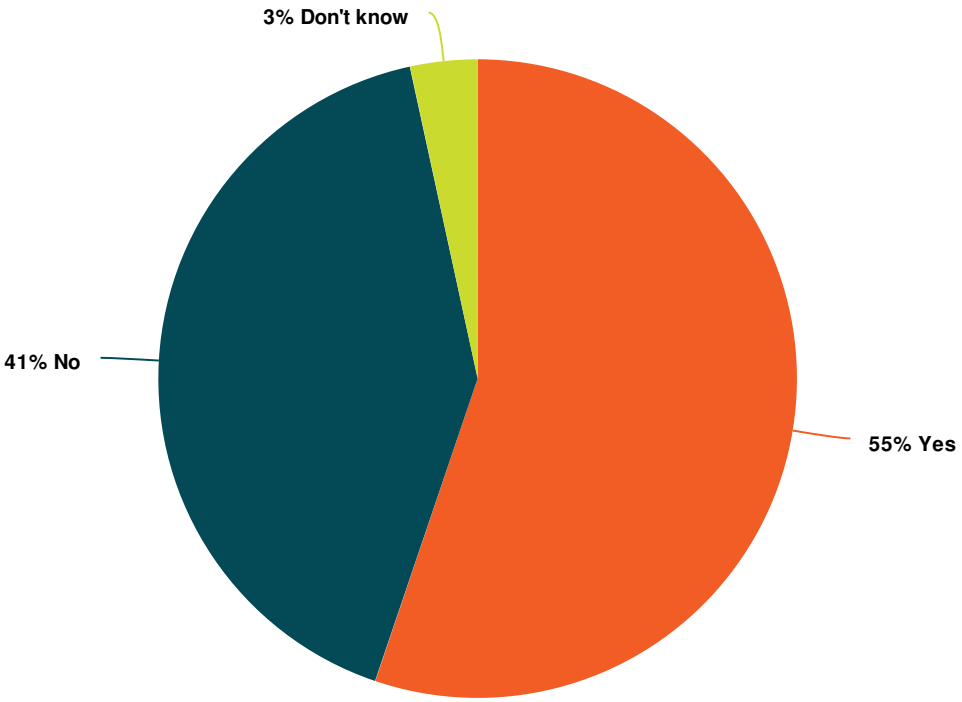
2. Have you heard of National Grid's Income Eligible Services (IES) program, or the Rhode Island Weatherization Assistance Program (WAP)?



Value		Percent	Responses
Yes		82.1%	46
No		14.3%	8
Don't know		3.6%	2

Totals: 56

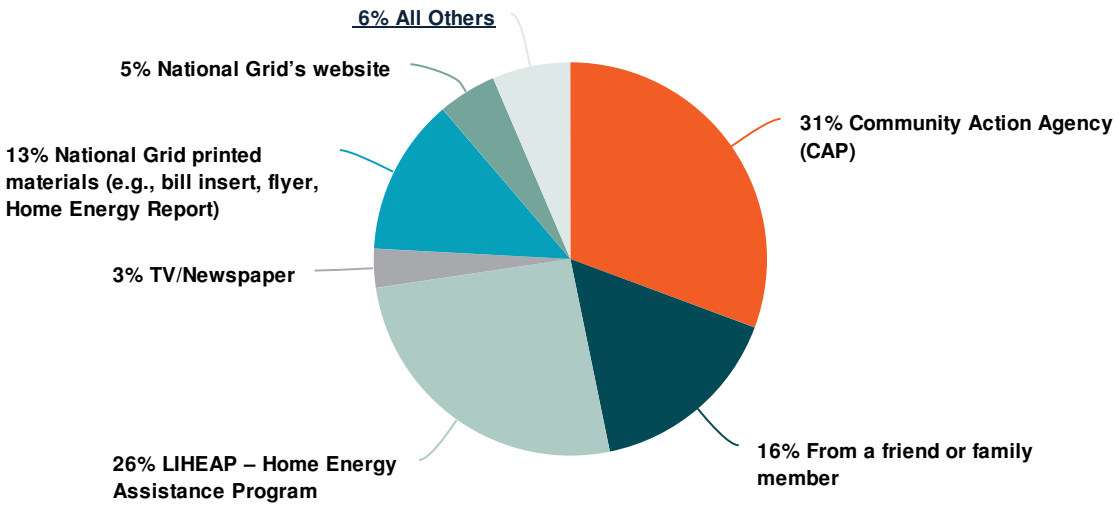
3. These programs help customers reduce their utility costs and save energy by installing energy efficiency appliances, heating systems, and insulation. Customers that qualify, based on their income, receive these energy improvements at no cost. The programs are run by local community action agencies, sometimes called CAPs, that offer a wide variety of energy and non-energy social services. To participate, you apply for an energy assessment (also known as an energy audit), which requires verifying your income eligibility. If eligible, an energy auditor will come to your home and identify opportunities to improve its energy efficiency. Someone will need to be present for the assessment. Does this sound familiar to you now?



Value		Percent	Responses
Yes		55.2%	16
No		41.4%	12
Don't know		3.4%	1

Totals: 29

4. How did you first learn about these programs?



Value	Percent	Responses
Community Action Agency (CAP)	30.6%	19
From a friend or family member	16.1%	10
LIHEAP – Home Energy Assistance Program	25.8%	16
TV/Newspaper	3.2%	2
National Grid printed materials (e.g., bill insert, flyer, Home Energy Report)	12.9%	8
National Grid's website	4.8%	3
211info.org	1.6%	1
Event (community event, expo, RI Home Show, etc.)	1.6%	1
Other	1.6%	1
Don't know	1.6%	1

Totals: 62

A different Website - Which?	Count
Totals	0

Social Media - Which?	Count
Totals	0

State Government Agency - Which?	Count
Totals	0

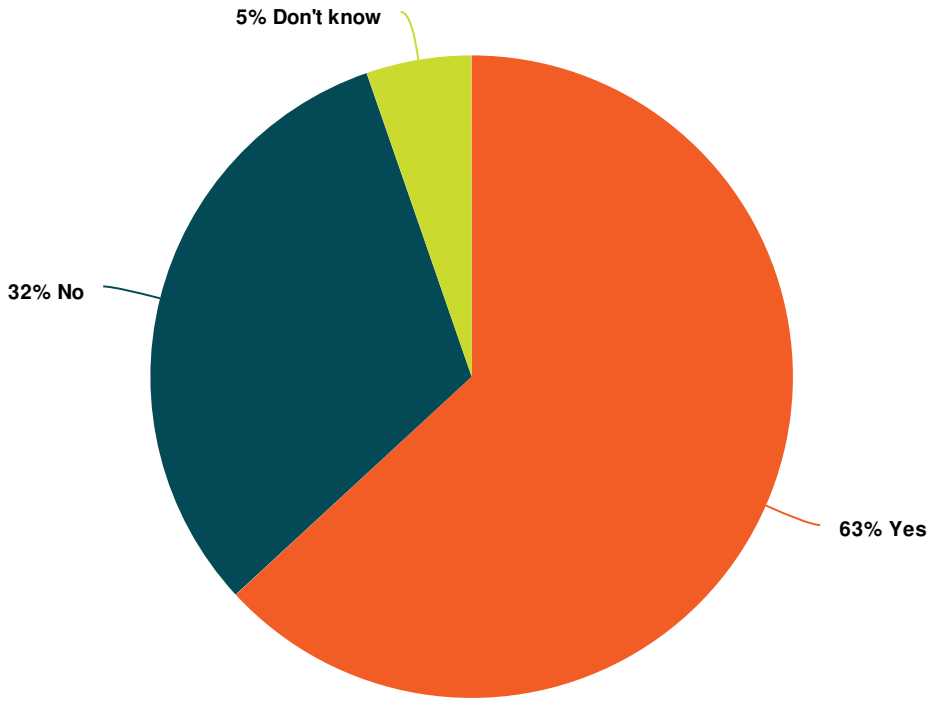
Other	Count
Health Source	1
Totals	1

5. Which one?

Value	Percent	Responses
Blackstone Valley Community Action Program (BVCAP) in Pawtucket	15.8%	3
Community Action Partnership of Providence (CAPP) in Providence	26.3%	5
Comprehensive Community Action (CCAP) in Cranston	5.3%	1
Eastbay Community Action (Upper Bay Region) in Riverside	10.5%	2
Tri-County Community Action Agency (Northern Region) in Johnston	5.3%	1
Tri-County Community Action Agency (Southern Region) in Wakefield	5.3%	1
Westbay Community Action Partnership in Warwick	26.3%	5
I don't recall which agency	5.3%	1

Totals: 19

6. Did you receive any services from your CAP related to energy efficiency or some other social service?



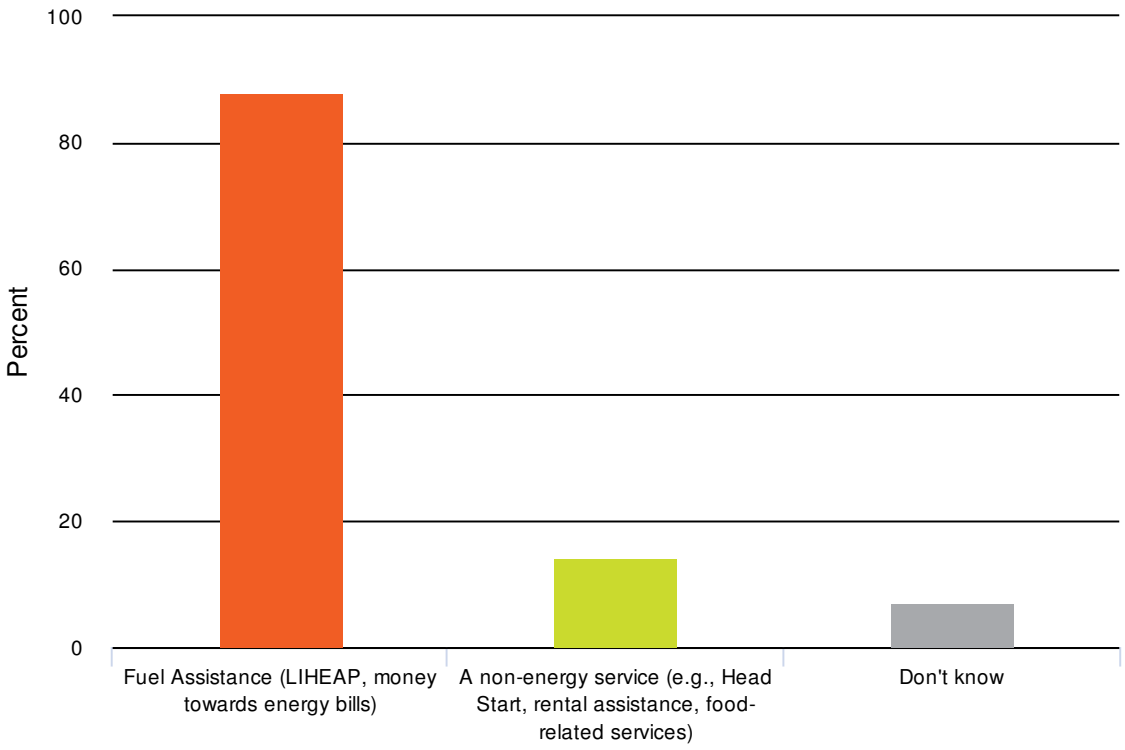
Value		Percent	Responses
Yes		63.2%	12
No		31.6%	6
Don't know		5.3%	1

Totals: 19

7. The program is run through Community Action Agencies or CAPs located around Rhode Island. Have you ever interacted with one of the six Rhode Island CAPs that deliver these energy efficiency programs, as well as various social services? Select all that apply.

Value	Percent	Responses
Yes, Blackstone Valley Community Action Program (BVCAP) in Pawtucket	11.6%	5
Yes, Community Action Partnership of Providence (CAPP) in Providence	11.6%	5
Yes, Eastbay Community Action (Lower Bay Region) in Newport	7.0%	3
Yes, Eastbay Community Action (Upper Bay Region) in Riverside	9.3%	4
Yes, Tri-County Community Action Agency (Northern Region) in Johnston	9.3%	4
Yes, Tri-County Community Action Agency (Southern Region) in Wakefield	2.3%	1
Yes, Westbay Community Action Partnership in Warwick	11.6%	5
Yes, but I don't recall which agency	7.0%	3
No	27.9%	12
Don't know	4.7%	2

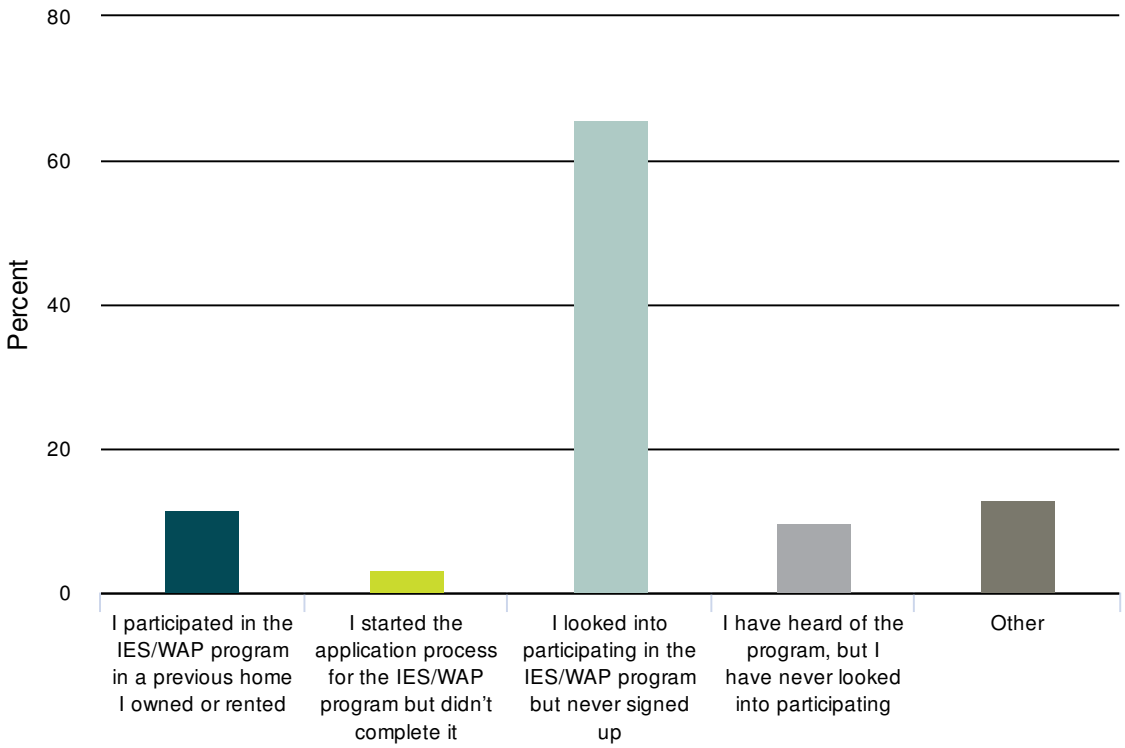
8. What services did you receive? Select all that apply.



Value	Percent	Responses
Fuel Assistance (LIHEAP, money towards energy bills)	88.1%	37
A non-energy service (e.g., Head Start, rental assistance, food-related services)	14.3%	6
Don't know	7.1%	3

A different energy service - Which?	Count
Totals	0

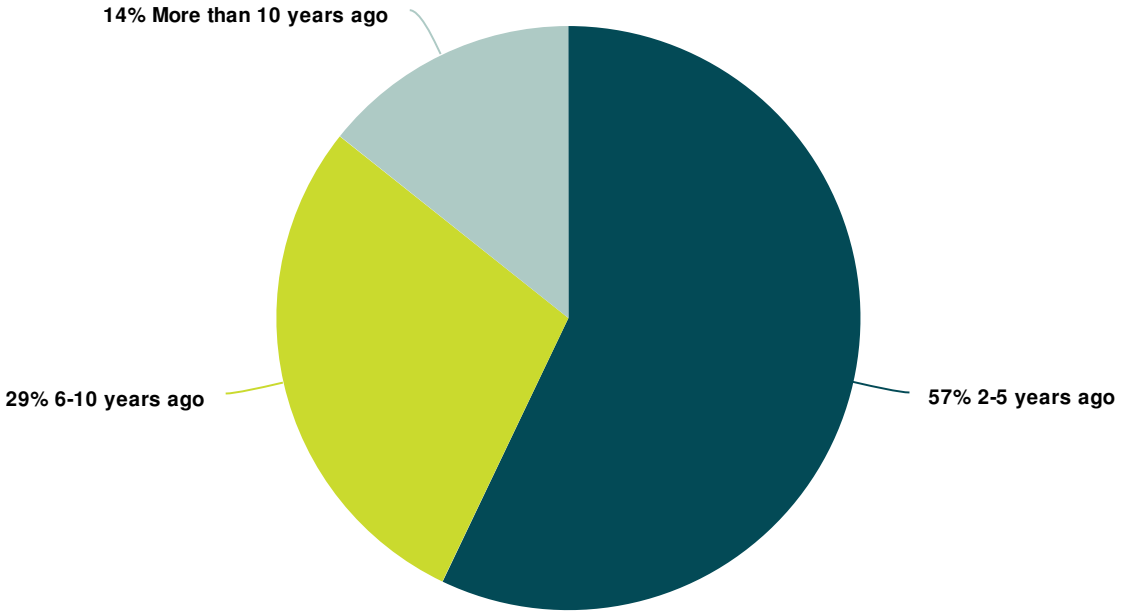
9. Earlier you mentioned that you are aware of National Grid's Income Eligible Services (IES) program, or the Rhode Island Weatherization Assistance Program (WAP). Do any of the following describe you? Select all that apply.



Value	Percent	Responses
I participated in the IES/WAP program in a previous home I owned or rented	11.5%	7
I started the application process for the IES/WAP program but didn't complete it	3.3%	2
I looked into participating in the IES/WAP program but never signed up	65.6%	40
I have heard of the program, but I have never looked into participating	9.8%	6
Other	13.1%	8

Other	Count
don't know	1
Totals	1

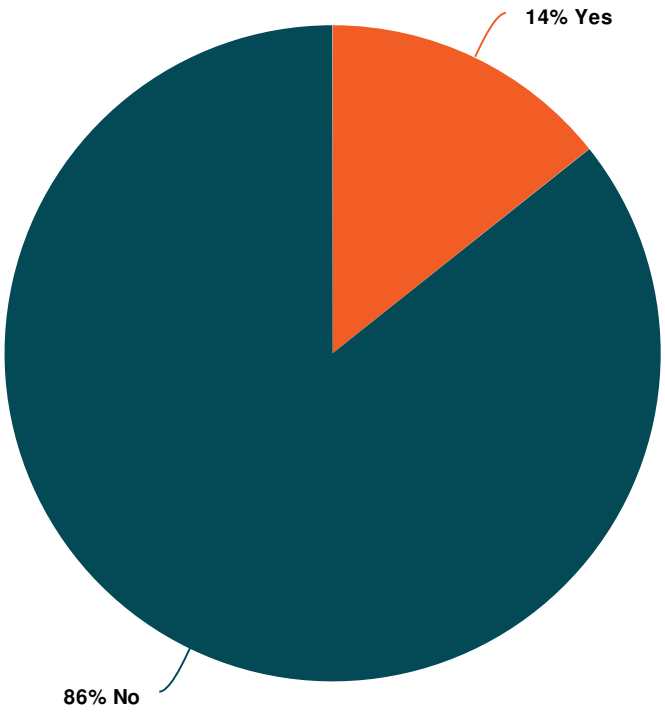
10. How long ago was that?



Value		Percent	Responses
2-5 years ago		57.1%	4
6-10 years ago		28.6%	2
More than 10 years ago		14.3%	1

Totals: 7

11. Have you explored participating in your new home?



Value	Percent	Responses
Yes	14.3%	1
No	85.7%	6
		Totals: 7

12. Why not?

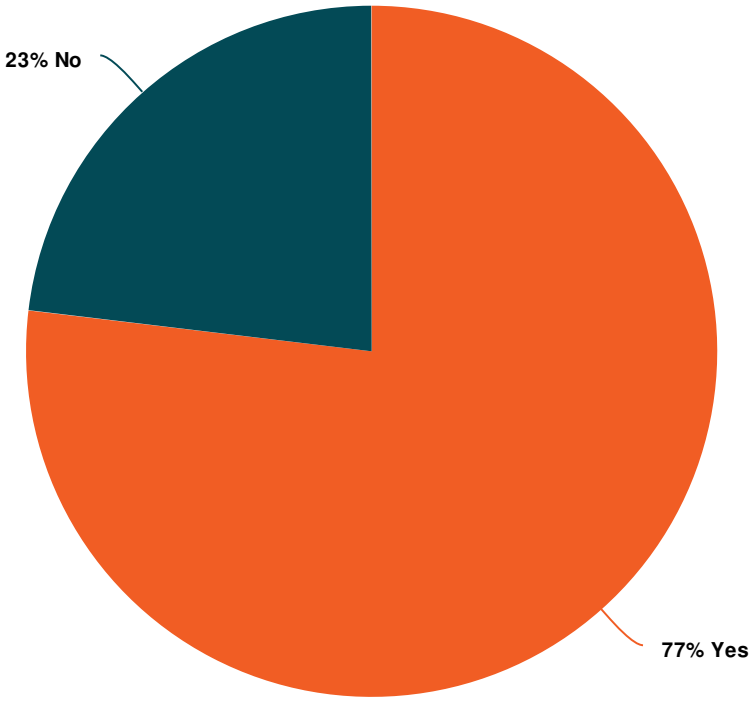
ResponseID	Response
10	Landlord is not interested .
35	I make too much money
49	I am now renting.
79	Got too busy, but I would like to.
86	I rent at the moment
90	Don't think I will qualify.

13. Why didn't you complete the process? Select all that apply.

Value	Percent	Responses
It was too time consuming	11.3%	7
It was too difficult to schedule an energy audit	9.7%	6
I was not comfortable with an energy auditor coming to my home	12.9%	8
I did not want to share information related to my income	4.8%	3
It did not appear I was eligible at the time	35.5%	22
I found the application confusing	4.8%	3
I rent my home and am not the decision maker	6.5%	4
I have not yet had the chance to participant, but I plan to	6.5%	4
Other	12.9%	8

Other	Count
I did not have everything needed to submit in time	1
I didn't want to.	1
It didn't occur to me to have them come to do the audit.	1
can't remember	1
left a message and never got a call back	1
Totals	5

14. Does National Grid's IES program sound like something you would be interested in?



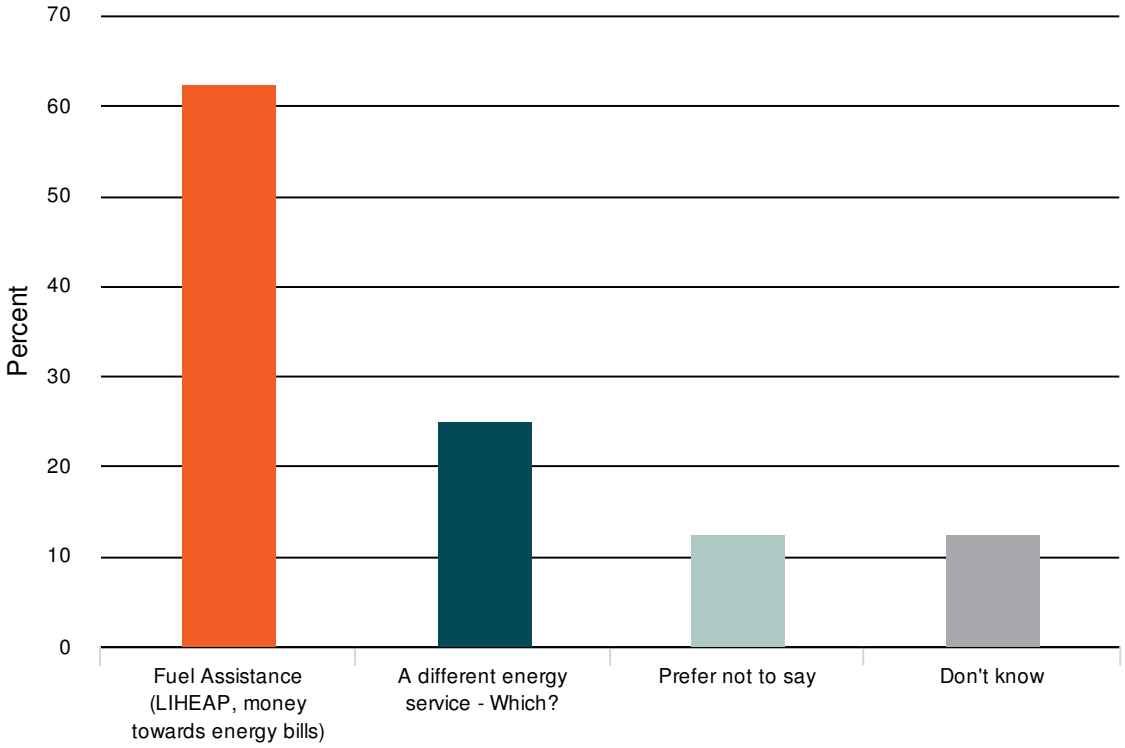
Value	Percent	Responses
Yes	76.9%	10
No	23.1%	3

Totals: 13

15. As mentioned above, the program is run through Community Action Agencies or CAPs located around Rhode Island.Have you ever interacted with one of the six Rhode Island CAPs that deliver these energy efficiency programs, as well as various social services? Select all that apply.

Value	Percent	Responses
Yes, Blackstone Valley Community Action Program (BVCAP) in Pawtucket	16.7%	2
Yes, Community Action Partnership of Providence (CAPP) in Providence	8.3%	1
Yes, Comprehensive Community Action (CCAP) in Cranston	8.3%	1
Yes, Eastbay Community Action (Upper Bay Region) in Riverside	8.3%	1
Yes, Tri-County Community Action Agency (Northern Region) in Johnston	8.3%	1
Yes, Westbay Community Action Partnership in Warwick	8.3%	1
Yes, but I don't recall which agency	8.3%	1
No	25.0%	3
Don't know	8.3%	1

16. What services did you receive?



Value	Percent	Responses
Fuel Assistance (LIHEAP, money towards energy bills)	62.5%	5
A different energy service - Which?	25.0%	2
Prefer not to say	12.5%	1
Don't know	12.5%	1

A different energy service - Which?	Count
Totals	0

17. How would you rate your interaction with your CAP agency?

Value	Percent	Responses
Very positive	37.5%	3
Somewhat positive	37.5%	3
Neither positive nor negative	25.0%	2
	Totals:	8

18. How does your previous experience with your CAP agency impact the likelihood of applying for an energy efficiency assessment for your home?

Value	Percent	Responses
I'm much more likely to apply	37.5%	3
I'm somewhat more likely to apply	25.0%	2
It doesn't impact my decision	25.0%	2
Don't know	12.5%	1
	Totals:	8

19. How likely are you to sign up for the IES/WAP energy program?

Filter: #21 Question "How likely are you to sign up for the IES/WAP energy program?" is one of the following answers ("Very likely","Somewhat likely","Neither likely nor unlikely","Somewhat unlikely","Very unlikely")

Value	Percent	Responses
Likely to sign up	67.2%	43
Unlikely to sign up	15.6%	10
Neither likely nor unlikely	17.2%	11
		Totals: 64

20. Why not? Select all that apply.

Value	Percent	Responses
It sounds too time consuming	14.3%	3
It would be hard for me to schedule and/or be home for an energy audit	19.0%	4
I am not comfortable with an energy auditor coming to my home	14.3%	3
I do not want to share information related to my income	4.8%	1
I do not believe I am eligible for this program	23.8%	5
I need more information about the program	23.8%	5
I would need input from a family member/partner	4.8%	1
I am renting my home, so I am not the decision maker	38.1%	8
Other	4.8%	1

Other	Count
we might sell our home	1
Totals	1

21. What further information would you need to decide?

ResponseID	Response
62	how it works and if i'm eligible
66	what they do for me
71	Do I qualify if I'm already receiving LIHEAP?
91	details about program

22. What is the best way to get in touch with you about programs like this? Select all that apply.

Value	Percent	Responses
Community Action Agency (CAP)	29.3%	22
From a friend or family member	8.0%	6
My landlord or property manager told me about it	1.3%	1
LIHEAP – Home Energy Assistance Program	34.7%	26
TV/Newspaper	4.0%	3
Billboard	1.3%	1
National Grid printed materials (e.g., bill insert, flyer, Home Energy Report)	42.7%	32
National Grid customer representative and/or call center	20.0%	15
National Grid's website	22.7%	17
211info.org	2.7%	2
Social Media - Which?	8.0%	6
Senior Center	1.3%	1
State Government Agency - Which?	1.3%	1
Social Worker	2.7%	2
Phone Call	20.0%	15
Event (community event, expo, RI Home Show, etc.)	2.7%	2
Other	6.7%	5

A different Website - Which?	Count
Totals	0

Social Media - Which?	Count
Facebook	2
Facebook	2
Instagram	1
facebook instagram	1
Totals	6

State Government Agency - Which?	Count
Totals	0

Other	Count
Email	2
email	2
Totals	4

23. How would you rate the energy efficiency of your home?

Value	Percent	Responses
Very good	5.3%	4
Good	33.3%	25
Neutral	33.3%	25
Poor	17.3%	13
Very poor	5.3%	4
Don't know	5.3%	4

Totals: 75

24. Is your home insulated?

Value	Percent	Responses
Yes, all/most of it	25.7%	19
Yes, some of it	39.2%	29
No, none of it	10.8%	8
Don't know	24.3%	18
	Totals:	74

25. How old is your heating system?

Value	Percent	Responses
1-5 years	18.7%	14
6-10 years	20.0%	15
11-20 years	17.3%	13
21-30 years	9.3%	7
More than 30 years	5.3%	4
Don't know	29.3%	22
	Totals:	75

26. Do you have or use any of the following technologies in your home? Select all that apply.

Value	Percent	Responses
LED lightbulbs	74.7%	56
Programmable thermostat	34.7%	26
Smart power strips	33.3%	25
Efficient showerheads	13.3%	10
No, none of these	17.3%	13

Other	Count
Totals	0

27. Please check all that apply:

Value	Percent	Responses
You are a senior citizen (65 years or older)	13.7%	10
You have children under the age of 18 living in your home	58.9%	43
You have a senior citizen living in your home	2.7%	2
You and/or someone living in your home has a disability or uses medical equipment that runs on electricity	13.7%	10
None of the above	24.7%	18

28. What best describes you?

Value	Percent	Responses
You own and live in your home	46.6%	34
You own but do not live in your home	1.4%	1
You rent the home you live in	50.7%	37
Something else	1.4%	1
		Totals: 73

Something else	Count
Co-ownership	1
Totals	1

29. What is the primary language spoken in your home?

Value	Percent	Responses
English	93.2%	68
Spanish	5.5%	4
Other	1.4%	1
		Totals: 73

Other	Count
Khmer	1
Totals	1

Appendix G. 2018 IES Measure and Savings Summary

Table 14 details measure installation and resulting savings (by fuel type) for IES in 2018. For more information about IES' performance in 2018, including costs and cost-benefit results, see National Grid's Electric and Gas Energy Efficiency Programs 2018 Year-End Report.[37]

Table 14. 2018 IES Measure Summary

Measures	Units	Total Savings (kWh)	% of Total Electric Savings	Total Savings (MMBtus)	% of Total Natural Gas Savings	Total Savings (MMBtus)	% of Total Oil Savings	Total Savings (MMBtus)	% of Total Propane Savings
AC Replacement	1,497	149,700	3.5%						
Clothes Washer and Dryer	1,039	318,140	7.3%	875	6.2%	337	2.0%	13	2.2%
Dehumidifier	870	170,085	3.9%						
Aerators or Showerheads	30	1,474	0.0%	23	0.2%	4	0.0%		
Ductless Mini-split HP	3	8,244	0.2%						
TLC Kits	2,721	375,498	8.7%						
Freezer Replacement	201	97,284	2.2%						
Heating System	1,033	43,032	1.0%	13,201	93.6%	5,557	32.9%		
LED Bulbs	37,588	1,454,656	33.5%						
LED EISA EXEMPT	9,504	498,010	11.5%						
LED Reflectors	1,011	57,829	1.3%						
Other	8	8,855	0.2%					3	0.5%
Refrigerator Replacement	1,688	648,192	14.9%						
Smart Strips	3,783	283,725	6.5%						
Weatherization	454	221,231	5.1%			10,987	65.1%	579	97.3%
Total	**61,430**	**4,335,954**	**100%**	**14,100**	**100%**	**16,885**	**100%**	**595**	**100%**

[37] http://www.ripuc.org/eventsactions/docket/4755-NGrid-Year-End%20Report%202018%20(5-15-19).pdf

Appendix H. Considerations for Future Evaluations

Cadeo and the evaluation stakeholders who reviewed the current process identified the following topics and/or activities the next IES process evaluation should consider investigating.

- **Program Comparisons**. The current evaluation's scope did not include a literature review. As a result, it was not possible for our team to compare certain IES metrics calculated as part of this evaluation (e.g., length of time between assessment and insulation installation) to other low-income or market rate programs. Including a literature review task as part of the next evaluation would enable the next evaluator to offer context for such findings.
- **Assessment Metrics**. Assessors interviewed as part of this evaluation offered anecdotal estimates of the number of assessments they were able to complete per day, as well as the average number of hours they spent assessing a home (both inspecting the home and completing the associated paperwork). Future evaluators should consider collecting the granular data necessary to empirically determine the number of assessments per day, as well as the average time per AMP, weatherization, and comprehensive assessment. Doing so will allow evaluators to track changes in this important program delivery metric over time.
- **Participation Metrics**. We understand that National Grid is tracking participants' homeownership status as well as the primary language spoke in each home. Future evaluations could use this information, as well as any other available, demographic information to track IES' ability to enroll historically harder-to-reach customers.
- **Marketing**. The current evaluation asked interviewees about marketing but did not attempt to map out the budget associated with each type of marketing activity. If National Grid plans to continue to grow IES, it may benefit from a focused look at marketing expenditures and the value associated with each marketing activity.