2017 Income Eligible Process Evaluation Findings (RES 38)

Final Report

Prepared for:

The Electric and Gas Program Administrators of Massachusetts
Part of the Residential Evaluation Program Area

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# TABLE OF CONTENTS

**Executive Summary** ........................................................................................................ iv

- Background and Objectives iv
- Methodology iv
- Key Findings vi

**Program Administration** ................................................................................................. vi
**Current Marketing Strategies** ............................................................................................... vii
**Opportunities for Engagement** ........................................................................................... viii
**Consistency in Program Delivery** ....................................................................................... viii
**Measures for Further Consideration** .................................................................................. ix

**Summary of Recommendations and Considerations** ......................................................... ix

## 1. Introduction .................................................................................................................... 1

1.1 Stakeholders 2
1.2 Research Objectives 5

## 2. Detailed Findings .......................................................................................................... 7

2.1 Program Administration 7
2.2 Current Marketing Strategies 9
  - 2.2.1 Marketing through Mass Save 10
  - 2.2.2 Co-Branded Materials 10
  - 2.2.3 Cross-Program Outreach 11
  - 2.2.4 Marketing to Multifamily Property Owners 13
  - 2.2.5 Marketing Effectiveness 15
2.3 Opportunities for Engagement 16
  - 2.3.1 Customer Awareness 16
  - 2.3.2 Drivers and Barriers of Participation 18
  - 2.3.3 Other Multifamily Engagement Opportunities 19
2.4 Consistency in Program Delivery 20
  - 2.4.1 Time to Service 20
  - 2.4.2 Audit Procedures 21
  - 2.4.3 Implementation Challenges 22
2.5 Measures for Further Consideration 26

## 3. Recommendations and Considerations ....................................................................... 28

3.1 2017 Process Evaluation Recommendations 28
3.2 2011 Process Evaluation Recommendations Status Update 30

**Appendix A. Research Questions by Objective** ............................................................... A-1

- A.1 Objective 1. Program Administration A-1
- A.2 Objective 2. Current Marketing and Outreach Efforts A-1
- A.3 Objective 3. Opportunities for Engagement A-1
- A.6 Other Research Questions A-2

**Appendix B. Methods** .................................................................................................. B-1
TABLE OF TABLES

Table 1. Primary Data Sample .......................................................................................... v
Table 2. Summary of Recommendations ....................................................................... viii
Table 3. Summary of Considerations ........................................................................... ix
Table 4. RES 40 Survey: Customers Unaware of the Income Eligible Program .......... 17
Table 5. Data Points for Assessment of Implementation Effectiveness .......................... 25
Table 6. Summary of Identified Technologies for Consideration as Income Eligible Measures ................................................................. 27
Table 7. 2017 Income Eligible Program Process Evaluation Recommendations .............. 28
Table 8. Table of Considerations .................................................................................. 29
Table 10. RES 40 Survey: Housing Type and Renter/Owner Status of Survey Participants .... B-6
Table 11. RES 40 Survey: Fuel Type of Survey Participants .......................................... B-6
Table 12. Summary of Identified Technologies .............................................................. D-2
Table 13. Existing Program Measures ........................................................................... D-4
Table 14. Summary of LEAN and the PA's Recent Measure Considerations ..................... D-5
Table 15. Summary of Identified Technologies for Consideration as Income Eligible Measures ................................................................. D-5
Table 16. Agency Interview Participants ..................................................................... H-1
Table 17. Key Research Questions ................................................................................. J-1
Table 18. Full Names of Agencies and Acronyms ........................................................... K-7

TABLE OF FIGURES

Figure 1. Income Eligible Implementation Stakeholder Diagram ........................................ 4
Figure 2. Multifamily Property Owner Referral Process .................................................... 15
Figure 3. Income Eligible Process Evaluation Activity Timeline ..................................... B-1
Figure 4. Agencies Interviewed by Region .................................................................... B-3
Figure 5. Program Materials Characteristic Classification Scheme ................................. B-7
Figure 6. Single-Family Process Map ........................................................................... K-8
Figure 7. Multifamily Process Map .............................................................................. K-8
EXECUTIVE SUMMARY

Background and Objectives

The Massachusetts Program Administrators (PAs) requested the Massachusetts Residential Retrofit evaluation team (Navigant, ILLUME Advising, and Cadeo Group, hereafter referred to as “the evaluation team” or “the team”) to conduct a process evaluation of the Income Eligible Program.

The PAs, in collaboration with the Low-Income Energy Affordability Network (LEAN) and partnering community action agencies and other agencies have implemented successful programming for income eligible customers for two decades. The Income Eligible Program serves both single-family and multifamily buildings, helping to reduce energy costs in buildings occupied by families living at or under 60% of the state’s median income (SMI) for single-family and at least 50% of households in a multifamily building living at or below 60% of the area’s median income (AMI).¹

The most recent process evaluation of the Income Eligible Program was completed in 2012 and covered the 2010-2012 implementation period. According to interviews with program staff and stakeholders, the Income Eligible Program experiences both new and continuing challenges and opportunities. Given the changing landscape of lighting and program cost-effectiveness, the program specifically faces the need to increase the effectiveness of marketing and customer engagement (particularly with “smaller” multifamily buildings²) and identify energy saving opportunities. Further, this study aims to address questions raised in the study planning stages about whether or not the program is delivered in a consistent way across implementing agencies, and whether or not potential variance in customer experiences related to varying program delivery methods may affect customer satisfaction.³

The evaluation team designed a targeted process evaluation to investigate these issues. The next section describes the evaluation team’s approach to research.

Methodology

The team gathered data from four primary sources to complete this targeted process evaluation: 1) in-depth interviews with PA and LEAN staff; 2) in-depth interviews with agencies including lead agency and sub-agency staff; 3) interviews with multifamily property owners and managers; and 4) observational ride-alongs with select implementing agency staff (e.g., installation specialists, auditors, quality control inspectors) combined with in-person customer interviews while onsite with customers.⁴

Table 1 provides details of the team’s target and final sample counts.

¹ The 60% SMI eligibility criteria described above is the ultimate indicator for determining customers’ income eligibility for participation in the Income Eligible Program. Of note, the Mass Save website provides a description of program eligibility followed by a list of other Massachusetts social service programs with similar income eligibility criteria. Example programs include food stamps (SNAP), Women’s Infant’s and Children’s Nutrition Program (WIC), Mass Health, and the National School Lunch Program. As an introduction to this list, the website states, “If you are receiving assistance from one of the other programs listed below, you are likely eligible to receive the Utility Discount Rate and the energy efficiency services described above” (see https://www.masssave.com/en/saving/income-based-offers/income-eligible-programs/).

² The PAs do not have a formal definition of “small” multifamily buildings. For the purposes of this evaluation, small includes multifamily buildings with 5 to 25 units.

³ Findings presented below were that there is no such effect.

⁴ Most customers interviewed were single-family program participants.
## Table 1. Primary Data Sample

<table>
<thead>
<tr>
<th>Study Participants</th>
<th>Response Target</th>
<th>Actual Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Administrator and LEAN Staff</td>
<td>10-15 in-depth interviews</td>
<td><strong>Total interviews: 9</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Seven PA interviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Two LEAN staff interviews&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Agency Staff</td>
<td>Up to 15 telephone interviews</td>
<td><strong>Total interviews: 15&lt;sup&gt;b&lt;/sup&gt;</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Seven lead agency interviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Eight sub-agency interviews</td>
</tr>
<tr>
<td>Multifamily Property Owners/Managers</td>
<td>15-25 interviews</td>
<td><strong>Total interviews: 15 owners or managers of...</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nine large (20+ unit) buildings that previously participated in the program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Five small- to midsized (5-20 units) buildings that previously participated in the program&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Auditors/Quality Control Inspectors and Customers (onsite)</td>
<td>Up to 15 job sites</td>
<td><strong>Total job sites: 15</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 customer job sites, specifically:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nine audits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Two mid-term quality control inspections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Four end-of-project quality control inspections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At these job sites, the team conducted a total of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 10 audit/quality control inspection observations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 11 customer interviews, specifically:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Eight customers receiving an audit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Three customers receiving a quality control inspection</td>
</tr>
</tbody>
</table>

<sup>a</sup> Two out of three members of LEAN leadership staff were successfully recruited for in-depth interviews. The research team attempted to recruit the third; however, the third was unavailable to participate at the time of the recruitment effort. <br> <sup>b</sup> The team conduct separate lead or sub-agency interviews with agencies that served in both capacities. These agencies are counted in both the lead and sub-agency interview totals. <br> <sup>c</sup> One small- to midsized (five-20 units) building property owner/manager that had not previously participated was also successfully recruited, but excluded from findings as a sample of one nonparticipant small building owner is insufficient to draw substantive conclusions about the program experience of this subgroup of potential participants. This report refrains from drawing such conclusions.

The team also completed the following secondary research and analysis:

- Industry scan of technologies offered in income eligible programs outside of Massachusetts, reviewing literature from 10 sources
- Review of marketing material and outreach messaging, assessing 58 marketing-related documents and materials from four PAs and eight agencies
- Review of previous evaluation results and recommendations<sup>5</sup>

Key Findings

This section provides the most notable findings, organized by research topic. These key findings largely apply to both the single-family and the multifamily programs.

Program Administration

- Some PAs perceived the market for single-family and for larger multifamily buildings as at-risk for reaching a point of service saturation. However, agencies did not share this perception. Such agencies cite factors like an aging housing stock, fluctuations in household incomes and program eligibility, renter mobility, and the ability to reservice homes with an AMP audit every 3-5 years as factors that keep the market generally open and accessible for recruitment of new customers.

Current Marketing Strategies

- While agency staff and customers reported being familiar with the Mass Save brand during interviews and ride-alongs, they did not associate Mass Save with the Income Eligible Program (or vice versa). In fact, most interviewees associated Mass Save with other programs that offered rebates for upgrades. They did not connect the Mass Save brand and the Income Eligible program. Both agency and PA staff spoke in interviews about wanting as much statewide marketing done for the Income Eligible Program as is done for the Moderate Income offering through Mass Save. While some agencies and PAs filled the perceived marketing gap with their own materials, others were more reliant upon the materials available through Mass Save due to limitations of staff time or other agency-level resources. However, relying on the Mass Save brand alone may not be the most effective marketing strategy to raise awareness about the Income Eligible Program.

- Materials that include both the names of the agency and the PA add legitimacy to the program as customers’ familiarity with the agency is reinforced by the idea that the program is backed by their local utility. In ride-alongs and agency interviews, we learned that auditors and other agency staff use co-branded materials to build trust with customers; however, not all agencies have access to co-branded materials. 7

- Agencies use both internal and external cross-program outreach strategies to identify and engage customers in the program. All agencies leverage customers from the Low Income Home Energy Assistance Program (LIHEAP) and Utility Discount Rate programs as primary sources of outreach and engagement. Similarly, some agencies have success engaging customers through internally operated programs like Women, Infant, and Children (WIC) assistance, Temporary Assistance to Needy Families (TANF), and free or reduced school lunches. Some agencies also recruit customers externally through programs run by their community partners. The cross-promotion of programs, beyond LIHEAP and the Utility Discount Rate program, is a particularly successful approach to engaging customers.

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6 Multifamily buildings and multi-unit single-family buildings require at least 50% of tenants to meet income thresholds to service the whole building. As renters with higher and lower incomes move in and out of units, the proportion of eligible to ineligible tenants shifts creating fluctuations in the number of whole buildings that can be served through the program.

7 Of the materials gathered from agency interviews and ride-alongs, two agencies shared co-branded materials with the research team. As this study was not a comprehensive inventory of marketing materials, there may be other co-branded materials used by more agencies.
• Most agencies and PAs do not have a way to measure the efficacy of their marketing strategies, though they agreed it would be useful. Tracking this information in a consistent way across Massachusetts would help inform best practices in marketing.

Opportunities for Engagement

• A group of customers exist that are unaware of the Income Eligible program offering. The extent to which income eligible customers are unaware of the program requires further investigation. According to interviews with PA project managers, lack of awareness is one of the largest barriers to participation. PA project managers believed this was especially true for small and midsized property owners, however, additional research is needed to determine levels of awareness among potential multifamily customers. The PAs, LEAN, and the EEAC are undertaking this research in 2019.

• According to interviews with customers, auditors, and agency staff, the leading barrier to participation for homeowners and renters (both single-family and multifamily) appears to be limited personal availability, which can make it difficult for agencies to schedule appointments in a timely manner.

Consistency in Program Delivery

• Most agencies served customers with an initial audit within 2 weeks to 1 month from when the customers applied to the program, according to interviews with agency staff. The duration of time from initial customer contact through completion of upgrade installation varies depending on the upgrades installed. The evaluation team does not have access to data to objectively verify these reports, but this timeframe was consistent across all interviewees.

• Interviews reported similar implementation processes across agencies. Some agency-specific variations do occur, mostly in the home energy assessment phase; however, as identified by agency staff in interviews and confirmed by auditors during ride-alongs, these variations are reflective of each agency’s resources (e.g., staff expertise, number of staff) and service region (e.g., customer demand, time to travel between service sites, etc.), and do not seem to influence experiences or customer satisfaction.8

• PAs and agency staff described time to train (and associated costs) as a barrier to recruiting new, less experienced staff and compounded this concern with the fear that once trained up and certified, these staff could seek out other, higher paying jobs. However, in ride-alongs, several auditors and inspectors reported working with the program for more than 10 years and said they are driven more by the intrinsic value of helping others than by wage. They were proud of their work, in part, because of the strict program requirements for training and certification and felt that they were a part of a highly skilled network of professionals (the other auditors and inspectors implementing the program across the state). There is an opportunity to emphasize the comprehensive training and intrinsic value of the work in recruiting potential new hires.

• The study revealed the need to reduce implementation challenges streamlined data management practices at the agency level. In interviews and during ride-alongs, agencies reported collecting, storing, and reporting program participant data using different systems including software, spreadsheets, and in some cases, paper. While neither agencies nor PAs described these

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8 In interviews with customers from different regions of the state and served by agencies with differing resources, customers consistently reported being satisfied with the program and their interactions with the agency.
varying practices as problematic for gathering and reporting program performance measures, these practices create barriers to accessing participant data for the purposes of examining processes quantitatively and understanding the overall effectiveness of program implementation.

- The Best Practices Working Group, managed by LEAN and attended by PAs and agency representatives, serves as the hub for communication between stakeholders about program policies and directives. In addition to participation in the working group, agency representatives reported having great relationships with their PA contacts and feeling supported when they reached out by phone or email as needed.

**Measures for Further Consideration**

- Based on a literature review, the team identified six measures that are not currently offered or that were previously considered for inclusion in the program that are worth further consideration.9

**Summary of Recommendations and Considerations**

Table 2 and Table 3 summarize the recommendations and considerations from the 2017 Income Eligible Process Evaluation study.

<table>
<thead>
<tr>
<th>Number</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explore strategies for identifying and reaching smaller multifamily property owners.</td>
</tr>
<tr>
<td>2</td>
<td>Identify crucial participant data points needed to quantitatively assess effectiveness of program implementation processes.</td>
</tr>
<tr>
<td>3</td>
<td>In accordance with DOE requirements and schedules, utilize an electronic audit tool approved by DOE to collect and store participant and performance measure data, including key data points needed to quantitatively assess the effectiveness of program implementation processes. Note that other data (e.g. data required to meet DOE paper requirements) may still be collected and stored using paper.</td>
</tr>
<tr>
<td>4</td>
<td>Explore how statewide Mass Save marketing resources can be better used at the local level, especially among agencies and PAs with fewer marketing resources.</td>
</tr>
<tr>
<td>5</td>
<td>Investigate the viability of establishing a thorough, statewide assessment of marketing effectiveness with ongoing tracking and monitoring of marketing material performance metrics.</td>
</tr>
<tr>
<td>6</td>
<td>Review the measure list identified as part of this study and determine whether there is value in conducting additional research to develop Massachusetts- and low-income-specific applicability factors, costs, and savings.</td>
</tr>
</tbody>
</table>

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9 According to new information from LEAN received in July 2018, all measures listed have either been considered or were presently being considered by the Best Practices Working Group at the time of this report. The Best Practices Working Group began considering these measures in March of 2018 in response to the Industry Scan and Literature Review Memo included in Appendix D. LEAN noted that fuel optimization policy was pending at the General Court and air source heat pumps (ASHPs) economics had been under comprehensive review for some time, and as of September 2018, were somewhat clarified by the General Court.
<table>
<thead>
<tr>
<th>Number</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explore opportunities for PAs and agencies to expand the development of co-branded materials to all service areas across the state.</td>
</tr>
<tr>
<td>2</td>
<td>Identify and share best practices in cross-program outreach to promote the Income Eligible Program. Key programs for cross-program outreach include other programs offered by agencies and other programs offered by outside agencies, all of which target similar populations.</td>
</tr>
<tr>
<td>3</td>
<td>Investigate opportunities for PAs to directly connect with front-line implementing staff outside of structured meetings and regular technical support conversations. Consider an annual or biannual statewide event hosted by the PAs to discuss program policies, insights, and to network.</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

The Income Eligible Program is a statewide initiative of the Massachusetts Program Administrators (PAs). The program is designed to provide insulation and weatherization, air sealing, heating system, lighting and appliance upgrades, and other energy efficiency measures to income eligible families residing in single-family or multifamily homes. Single-family customers are homeowners and renters living in buildings with one to four units. Multifamily customers are renters living in buildings with five or more units. The program also targets property owners and managers (or landlords) of multifamily buildings, as they give final approval for renters to participate in the program for instances in which they, rather than the renter, pay the energy bill. Eligible families have a household income at or below 60% of the state median income. Whole buildings with multiple units qualify for services when at least half of the tenants meet the household income criteria.

The PAs have been offering income eligible programming for more than 20 years. At the time of this study, the program was implemented by 22 community action agencies, all connected through the Low-Income Energy Affordability Network (LEAN). All 22 agencies offered programming for single-family customers, and six offered programming for multifamily customers. Eight agencies operated as lead agencies that liaised between the seven PAs and the 14 other agencies to manage the distribution of program funds and provide technical support with program implementation. Agencies use program funds to deliver three types of home energy assessments through the Mass Save Income Eligible Program: the weatherization audit, the Appliance Management Program (AMP) audit, and the heating system audit.

- **Weatherization audit.** Often referred to as a general home energy assessment, the weatherization audit brings an energy specialist, or an auditor, into the customer’s home to assess its current energy use. As deemed necessary, this audit can result in the customer receiving free weatherization upgrades. Weatherization upgrades are installed by a contractor after the audit. Types of weatherization upgrades include air sealing, weather stripping and insulation. Weatherization audit can be done once for each residence.

- **Appliance Management Program (AMP).** The Appliance Management Program is an electrical audit that focuses on the efficiency of a home’s electric usage. During this audit, auditors install energy savings products at no cost to the resident. Types of measures typically installed include LED light bulbs, advanced power strips, low-flow showerheads, faucet aerators, and programmable thermostats. Customers may also qualify for home appliance replacements such as refrigerators, washing machines, and air conditioners. AMP audits are available to rate payers every 3-5 years, depending on the policies and procedures of the local PA.  

- **Heating system audit.** If a home’s heating system is electric, then the heating system audit may be included in the electrical audit. If the home is heated by gas or oil, then an auditor with the required certifications and areas of expertise must conduct a separate heating system audit. Eligible customers can receive clean and tune or new, more energy efficient heating units such as...
boilers, furnaces, and oil heaters at no cost. Services identified through a heating system audit can be assessed as needed and depends on available measures and customer need.

1.1 Stakeholders

The roles of program stakeholders have not changed since the previous process evaluation. The following selection from the 2011 Low Income Program Process Evaluation report describes these roles in detail:11

**Lead Agencies and Sub-Agencies**

PAs with large service territories commonly work with a lead agency to streamline management of numerous sub-agencies. In addition to implementing the program directly to clients within the region they serve, lead agencies contract with local sub-agencies to coordinate reporting, invoicing, budgets, and goals, for the regions that they serve. The lead agencies are responsible for reporting all necessary information from sub-agencies to their respective PAs, thus streamlining program implementation and communication among numerous agencies.

Sub-agencies are responsible for implementing the program in their region, and they work directly with the lead agencies. Income eligible program participants work directly with agencies in their local community for all aspects of the program; whether the agency is a lead vendor or a sub-agency.

In Massachusetts, the agencies typically employ their own energy audit staff and manage a network of third-party installation contractors.

Agencies provide the following services:

- Managing multiple funding sources (including the PAs and US Department of Energy [DOE] funding),
- Determining participant eligibility,
- Scheduling and conducting audits,
- Arranging for installation of energy efficiency measures
- Reporting progress and invoicing funding sources, and
- Conducting quality control.

**LEAN**

LEAN was established in 1998 by the lead agencies of the income eligible weatherization and fuel assistance program network. The PAs coordinate program efforts through LEAN to: (1) ensure consistency throughout the state, and (2) provide

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services required for implementing the coordination requirements of the
[Massachusetts Green Communities Act of 2008]. This approach retains the
advantages of central coordination while avoiding creation of a new or central entity.

These are the essential services provided by LEAN:

- Coordination among electric and gas PAs, the Energy Efficiency Advisory
  Council, and its consultants, and the Department of Housing and Community
  Development (DHCD), administrator of US DOE and [Health and Human
  Services (HHS)] weatherization programs) with the objective of standardizing
  implementation.

- Coordination within the income eligible weatherization and fuel assistance
  program network, including among lead agencies and between lead agencies
  and sub-agencies.

- Coordination with potential vendors outside the income eligible weatherization
  and fuel assistance program network for certain segments of the income
  eligible residential market, e.g., large multifamily buildings.

- Assistance in monitoring and evaluating existing programs to improve cost-
  effectiveness and develop new program features. This encompasses
  developing evaluation strategies, coordinating with evaluators, synthesizing
  statewide lessons from program evaluations, and coordinating a best practices
  effort.

- Support for the training of the income eligible weatherization and fuel
  assistance program network with the objectives of quality, cost-effectiveness,
  and consistency.

- Regulatory support in negotiations with and proceedings before the
  Department of Public Utilities (DPU) and the Department of Energy Resources
  (DOER).
Figure 1. Income Eligible Implementation Stakeholder Diagram

Note: Lead agencies act as both lead agencies and implementers in at least part of their service territories.

This diagram represents information as of August 2018. The full names of agencies along with maps of process of implementation for both the single-family and multifamily programs can be found in Appendix K.
1.2 Research Objectives

The PAs hired the evaluation team to provide this process evaluation of the single-family and multifamily Income Eligible Program with four primary areas of concern: marketing effectiveness, outreach innovation, consistency in customer experience, and future savings. Each area was clarified and defined during initial stakeholder interviews with the PAs and LEAN:

- **Marketing effectiveness.** Stakeholders recognized that customers have many competing demands for their attention, and that there was a need to review marketing and communication strategies to determine if messaging was sufficiently dynamic to address the varied needs of the target markets.

- **Outreach innovation.** Preliminary study planning interviews with program implementation stakeholders indicated an increasing challenge to reach and cost-effectively serve both single-family and multifamily customers. Given the program’s tenure, stakeholders believed that the program has already served a considerable portion of eligible customers with higher penetration in single-family and larger (+20-unit) multifamily buildings. Others saw untapped potential for new customers among smaller multifamily buildings (five to 20-unit buildings).

- **Consistency in customer experience.** Stakeholders were curious about the level to which services were implemented consistently across the Commonwealth. They believed that the delivery of consistent programming could impact overall customer satisfaction and customer engagement. Stakeholders were particularly interested in understanding how consistently customers experienced similar times to service and similar auditing procedures—one long audit versus several short audits.\(^\text{13}\)

- **Future savings.** Stakeholders expressed concerns with meeting energy savings goals cost-effectively in the next program cycle as traditionally leveraged measures like energy efficient lamps became more mainstream and accessible to customers outside of the program. They were interested in exploring what additional cost-effective measures could be considered for the next program cycle, and what measures were currently being used by similar programs in other states.

To address these concerns, this process evaluation aimed to identify barriers and challenges in implementation of the Income Eligible Program. The evaluation team designed this study to meet the following objectives:

1) Describe progress in serving single-family and multifamily customers and identify perceptions of market saturation.

2) Document current outreach and marketing efforts and uncover challenges with these efforts, and opportunities for successful outreach strategies that could be used in the future.

3) Identify barriers and opportunities for addressing harder-to-engage target populations, including renters and smaller multifamily buildings.

4) Describe consistency and variance by region and agency in customer experience, agency practices, and program implementation.

5) Explore current and future concerns for achieving savings in a cost-effective way to include the consideration of cost-effective measures (e.g., strategies to replace lost lighting savings) and administrative costs.

\(^{13}\) Time to service is defined as the amount of time that passes from the point of the initial customer contact to the first audit of the customer’s home.
The team developed a set of research questions for each objective. Appendix A contains a full list of research questions, organized by research topic:

1) Program administration,
2) Current marketing strategies,
3) Opportunities for engagement,
4) Consistency in program delivery, and
5) Measures for further consideration.

The methodology for this research is discussed in detail in Appendix B, “Methods.”

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14 Note that this report includes a slightly revised version of objectives and research questions. The team revised these for brevity and clarity and to remove minor elements not addressed due to prioritizations in the data collection protocol process.
2. DETAILED FINDINGS

This section describes the detailed findings from the 2017 Income Eligible Process Evaluation. Findings are organized by research topic and research question.

2.1 Program Administration

This section describes progress in serving single-family and multifamily customers and identify perceptions of market saturation. This section addresses the following research questions:

- To what extent do PAs and stakeholders—including community action agencies (CAAs) and other implementing agencies—feel they have been able to reach and serve the single-family and multifamily markets?
- Do agencies have the resources they need to run the program?
- What portion of each organization’s activities relates to income eligible weatherization?
- What are perceptions of market saturation (available future weatherization potential) of the target segments (e.g., 1-unit single-family, 2-4-unit single-family, +5 unit multifamily)?

To what extent do PAs and stakeholders, including CAAs, feel they have been able to reach and serve the single-family and multifamily markets?

PAs and stakeholders felt they were able to reach and serve both the single-family and multifamily markets.

What portion of each organization’s activities is related to income eligible weatherization?

System benefits charge funds accounted for most of overall agency energy efficiency program portfolio budgets—in some cases they accounted for about 90%. Several agency representatives commented that they felt they could rely on Rate Payer funding more than they could rely on other sources, like federally funded programs. They felt that other funding sources were more likely to be cut or reduced over time. Among other home energy programs within agency portfolios were:

- Weatherization Assistance Program (WAP), funded by US DOE\(^\text{15}\)
- Low Income Home Energy Assistance Program (LIHEAP), funded by US Department of Health & Human Services\(^\text{16}\) and the sole source of funding for the HEARTWAP program (described below)

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Do agencies have the resources they need to run the program?

Agencies reported that levels of funding for the Income Eligible Program met their needs for service delivery. PAs reported that, throughout the year, funds previously allocated to one agency can be transferred to another as demand shifts from original estimates. Similarly, within amounts allocated to an agency, funds can be shifted between the single-family and multifamily programs where agencies implement both program types.

Among agencies, there is a belief that system benefits charge funds (program funds generated from rate payers) for major pre-weatherization repairs do not meet the needs of the customers and their aging housing stock. Common types of major repairs include the decommissioning of knob and tube wiring, or water damage. These issues are identified during the audit phase of program implementation as the auditor makes visual inspections and asks the customer about details of the house (i.e., age, and repairs), and where they occur. Any major repairs identified must be addressed before program services can be delivered, or the household is deferred from participating the program.

Agencies navigate varying funder requirements and approved uses of fund sources to address major repairs. LEAN and the PAs indicated that there are sufficient repair funds available through the Income Eligible Program and that such customers are served with system benefits charge funds alone whenever possible. Further, the PAs, LEAN, and some lead agencies described that agencies can make special requests for additional funding to cover repairs under the Income Eligible Program when needed; approval is granted on a case-by-case basis. Not all agencies understood that this request could be made—especially staff working for sub-agencies and front-line agency staff like auditors and quality control specialists that do not always communicate directly with LEAN and/or the PAs. In interviews, both LEAN and the PAs described clearly communicating with their contacts at agencies about leveraging their repair funds, agency staff with regular contact with LEAN and/or the PAs confirmed. This indicates that there is an opportunity to enhance communication to agency staff regarding program policy.

What are perceptions of market saturation (available future weatherization potential) of the target segments (e.g., 1-unit single-family, 2-4-unit single-family, +5-unit multifamily)?

In interviews, PAs and some agencies described that they perceived increasing levels of saturation in both the single-family and multifamily markets, concerned that there may not be enough new and eligible customers left to serve in the upcoming 2019-2021 program cycle. Several agency representatives reported in interviews or during observations that, while the program has been active for 20 years, there are still plenty of single-family and (larger) multifamily customers to serve in their territories. Agencies attributed the need for services to an ever-aging housing stock, shifts in customers’ eligibility status,

19 While funds can be transferred from one agency to the next or from the MF program to the SF program within a PAs service area, funds are not transferred between PAs.
20 There are limits to repair funding and considerations to fund repairs can be complex. The expense is not always justifiable.
renter mobility, and the ability for the program to provide a new electrical audit to previously served homes after 7 years. Furthermore, agencies discussed struggling to meet the demand for the program. This was especially common in the western part of Massachusetts where homes still are heated primarily by oil and kerosene. Agencies reported that while many homes fueled by oil and kerosene had been served with some weatherization services, increasing oil prices resulted in high demand for retrofitted heating systems that they were unable to meet in 2017.

2.2 Current Marketing Strategies

This section documents current outreach and marketing efforts, and uncovered marketing challenges and opportunities for successful outreach strategies (see also Appendix C). The section addresses the following research questions:

- What marketing and outreach strategies are currently employed to reach customers, and how do those strategies vary by agency, territory, and/or PA as well as target market (e.g., single-family, multifamily, owner, and renter)?
- What sources do customers perceive as the most trustworthy for learning about the program?
- What marketing and outreach strategies have been particularly successful in reaching and encouraging participation in the Income Eligible Program?
- Are PAs and CAAs effectively encouraging customers from other programs to participate in the Income Eligible Program?
- What other programs (e.g., rate programs) should be referring potential participants to the Income Eligible Program?
- Are there specific subgroups, such as the number of units, that are easier or more difficult to engage?
- How might the outreach, marketing, and messaging strategies need to shift to reach and engage target groups not yet served through the program?
- How effectively do existing marketing materials and communication strategies engage customers?
What marketing and outreach strategies are currently employed to reach customers, and how do those strategies vary by agency, territory, and/or PA as well as target market (e.g., single-family, multifamily, owner, and renter)?

PAs and agencies use a variety of marketing and outreach strategies to reach customers. Stakeholders encouraged customers to participate in the Income Eligible Program through broad marketing strategies (e.g., Mass Save or PA-specific media ads or ads on billboards and buses), localized marketing strategies (e.g., local flyers and brochures), and community-based outreach strategies like cross-program participant recruitment. Strategies varied somewhat by agency, PA, and territory. While PAs and agencies in all areas used multiple approaches to marketing, those with more resources (urban) did more local marketing and those in more rural areas used more community-based outreach strategies. There is overlap between marketing and outreach to single-family customers and multifamily customers in that multifamily renters were reached through the same strategies as single-family homeowners and renters. Most agencies that implemented multifamily programming did not create marketing materials or conduct direct outreach to reach multifamily property owners independently of support they received from LEAN.

2.2.1 Marketing through Mass Save

Mass Save brand materials may not be effective in raising awareness about the Income Eligible Program, specifically. The team learned from PAs, agencies, and customers that marketing provided by Mass Save and the PAs is broad, and that people recognize the brand. However, several auditors and agency representatives were unaware that the program was a part of Mass Save and spoke in interviews and during observations about how they wished the Income Eligible Program received as much attention as the Mass Save (Moderate Income) program. This indicates that the association between the Mass Save brand and the Income Eligible Program was loose among customers and implementing staff alike. Most agencies and PAs preferred to use their own materials to reach homeowners and renters in their service regions. Of note, smaller agencies and PAs more often reported relying on materials produced by Mass Save, and usually comment that, although they would like to create their own materials, they did not have the resources (e.g., marketing budget, staff time) available to do so.

2.2.2 Co-Branded Materials

What sources do customers perceive are most trustworthy for learning about the program?

Information from another study indicates that customers may rank their utility as their first choice in trustworthy sources for information about energy efficiency and ways to save on energy costs. However, as with many income eligible segments, some customers may be wary of participating in programs offered by their utilities if they have unpaid energy bills. Customers in the study also highly ranked heating professionals, word of mouth, and community action agencies as trustworthy sources. The team observed auditors who spoke as representatives of their agencies more so than of local utilities. When the team probed as to why, auditors explained that they need to quickly establish trust with customers (both single-family and multifamily) to help them feel comfortable about letting auditors into their home. Customers tend to have a relationship with the agency, enroll in the program through the

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22 The team noted that auditors referred to the utilities in the very general sense as, “the electric company,” “the gas company,” or “the utility.” Auditors did not tend to use PA names or phrases like “PAs” or “Program Administrators.”
agency, and think of the Income Eligible Program as a program of the agency. Auditors believe that speaking as representatives of the agency helps them establish trust and maintain a healthy rapport with customers. The team did speak with customers who associate the program with their agency more so than they associated it with the utility, although these customers were already participating in the program through their agency.

Materials like flyers and brochures that are co-branded with the names of both the local PA and the local agency build trust and increase program legitimacy by addressing hesitations customers had with either the agency or the utility. Auditors and quality control specialists indicated that they preferred to distribute co-branded marketing materials to customers, believing that co-branded materials were among the most effective strategies to reach and encourage participation in the Income Eligible Program.

2.2.3 Cross-Program Outreach

What marketing and outreach strategies have been particularly successful in reaching and encouraging participation in the Income Eligible Program?

A particularly successful approach to encouraging participation in the program is outreach to LIHEAP and Utility Discount Rate participants. Similarly, agencies that offer other programs that target the population successfully reach customers by cross-promoting all internally operated programs to all potentially eligible customers. Some agencies successfully recruit customers by using their partnerships with other social service agencies, and cross-promote programs.²³

Are PAs and CAAs effectively encouraging customers from other programs to participate in the Income Eligible Program?

2.2.3.1 Outreach to LIHEAP and Utility Discount Rate Program Participants

Participants in the LIHEAP program and the Utility Discount Rate programs are prime targets for referral to the Income Eligible Program, and all agencies that were interviewed used these resources.²⁴ All customers who qualified for fuel assistance or discounted energy bill rates also qualified for the Income Eligible Program, and as such, these programs served as direct pipelines for agencies to funnel in new customers to the program.

²³ Additionally, the PAs and the Executive Office of Health and Human Services (EOHHS) conduct data matches to identify customers who are eligible for the Utility Discount Rate based on the customer participation data for other income eligible social service programs with income eligibility requirements at or below 60% SMI. According to LEAN, this partnership has been responsible for an increase in the number of utility discount customers. Because the PAs share lists of utility discount customers with agencies for Income Eligible Program recruitment purposes, this partnership also benefits the Income Eligible Program.

²⁴ LEAN reported that there is an important distinction to be made between (1) marketing of the Income Eligible Program to customers that participate in the Utility Discount Rate program, who (among other marketing efforts) are all contacted by the implementing agencies which receive the participating customer lists from the PAs, and (2) marketing of the Utility Discount Rate program and LIHEAP themselves. Marketing of the Utility Discount Rate program and LIHEAP helps to increase the number of identified income eligible customers to whom the Income Eligible Program can be successfully marketed. Marketing of the Income Eligible Program is thus, in part, a two-step process -- promote LIHEAP to increase the number of customers that participate in the Utility Discount Rate program, and promote the Income Eligible Program to the customers that participate in the Utility Discount Rate program. LIHEAP, for which income screening is performed by the LEAN, is the principal entree for low-income customers to the discount rate. (The data match described at p. 23, n. 25 is another.) The advantage to low-income customers of this approach is that it puts customers in contact with the Low-Income Network and thus increases the probability that low-income customers will receive all the energy assistance for which they are eligible, i.e., energy efficiency, discounted rates, LIHEAP, and other programs such as arrearage management.
Agencies most relied on the LIHEAP participation as a primary source of direct customer recruitment. While all interviewed agencies said they referred LIHEAP program participants to the Income Eligible Program, some skipped the referral step and streamlined efforts by bundling their application for services. In these instances, customers’ applications for fuel assistance were merged with their applications for the Income Eligible Program, or those customers who applied for fuel assistance were automatically enrolled in the Income Eligible Program. This approach saved time for agency staff and customers alike.

Agencies also heavily relied on Utility Discount Rate program participation as a secondary source of direct customer recruitment. The PAs distribute lists of discount rate customers to agencies, usually once per year in either December or January. All interviewed agencies found these lists useful for identifying customers for outreach. However, some noted challenges with the lists, including outdated contact information, or for those agencies implementing only single-family programming, the inclusion of customers living in multifamily buildings.

What other programs (e.g., rate programs) should be referring potential participants to the Income Eligible Program?

2.2.3.2 In-House Cross-Promotion of Programs

Most agencies provide multiple services for the target population and cross-promote programs within the agency. During interviews with agencies and auditor ride-alongs, agency staff described using marketing materials like brochures that were inclusive of all income eligible programs that the agency offered, sometimes beyond energy efficiency programs. These enabled agencies to recruit qualifying participants across programs. Among programs that target similar populations are Women, Infant, and Children (WIC) assistance, Temporary Assistance to Needy Families (TANF), and free or reduced school lunches. This practice appears to have a heavy impact on customer participation in that qualifying customers—who otherwise might not have known to apply for the program—receive information about it and become more likely to participate.

Among the customers the team spoke with, most were generally unfamiliar with the agency programs that were available to them. They were more aware that agencies were a source for services and relied on agency staff to tell them which programs they should apply for. Agencies described promoting the Income Eligible program as another way for the customers to save money. Among other potential factors, this may reflect high levels of trust in the agency, and/or it may be that it was easy for the customers to let the agency lead them into applying for other programs that may make their lives easier by reducing financial burdens.

2.2.3.3 External Cross-Promotion of Programs

Many agencies have professional relationships with other local social service organizations that serve the same target population. Often, these agencies and organizations work together to cross-promote programs. For example, one agency provided program and income eligibility materials for employers to leave in break rooms to reach working poor who may not know that they are eligible. Columbia Gas, which serves the Springfield area, reported attending events with its local agencies at least twice per month and the western-serving Eversource team reported working with a local agency to drop inserts into food boxes.
2.2.4 Marketing to Multifamily Property Owners

Through this study, the team spoke with 15 multifamily property owners. Nine owned larger buildings (20+ units), six owned smaller buildings (5-20 units). Of the smaller building owners, five had previously participated in the Income Eligible Program and one had not.

Almost all of the multifamily property owners interviewed said they heard about the program through word of mouth. For larger property owners, the source was typically property management associations, such as the DHCD, or Community Development Corporations (CDCs). Word travels through these organizations during meetings and on their websites. One participant working for a large public housing authority explained that the agency reached out to their organization directly to notify them that the Income Eligible Multifamily Program had money available and solicited their participation.

For smaller building owner participants, some reported hearing about the program through associations while others explained that they had heard of another small building property owner’s experience with the program and decided to pursue it themselves. In this second case, the positive experience relayed by the referring property owner was very influential in spurring potential participants to sign up. The one smaller property owner that had not previously participated in the program reported being familiar with the program and having heard about it through a CDC.

Marketing and outreach strategies to multifamily property owners conducted through LEAN, and in coordination with the Low-Income Multifamily Advisory Committee. The committee which includes representation from property owners, public housing, CDCs, and non-profit low-income housing. LEAN confirmed outreach to the groups identified by property owners during interviews and included landlord groups and networks and individual owners identified from utility customer lists. LEAN reported that most contact with multifamily property owners is to prioritize projects already identified by owners, owner groups, and representatives (e.g., CDCs, DHCD, and large for-profit owners). LEAN said a small amount of marketing is also done via local media outlets like organizational newsletters and planned direct media marketing.

*Are there specific subgroups, such as the number of units, that are easier or more difficult to engage?*

During observations and interviews, study participants indicated that it was more difficult to engage property owners of smaller multifamily buildings with 5-20 units. PAs and agency representatives alike reported that property owners and managers of smaller, 5- to 20-unit, multifamily buildings were difficult to identify and hard to reach once identified. Unlike larger multifamily building owners, smaller building owners tend to have no publicly available information about who they are, or how to contact them. The evaluation team experienced similar challenges when recruiting this group into the study, as noted in the Methods section.

*How might the outreach, marketing, and messaging strategies need to shift to reach and engage target groups not yet served through the program?*

Other than feedback gathered through multifamily property owner interviews, little is known about how to effectively engage this sub-population, which indicates that outreach strategies may need to shift to reach and engage more multifamily property owners. The team suggests that PAs conduct additional research to explore strategies for identifying and reaching smaller, multifamily property owners.
2.2.4.1 The LEAN Pipeline

LEAN manages the multifamily program application web portal. Property owners apply to the program online. Once an application is submitted, LEAN reviews the application to verify eligibility. LEAN works with property owners and managers to verify that at least 50% of the units the building meet income eligibility requirements. As noted on the LEAN multifamily website, one of the following types of documentation is required as part of the application:

1. A deed restriction that explicitly states the development has reserved at least 50% of the units for households earning 60% or less of AMI. Please note that any other wording in the deed restriction is not acceptable. If it is not explicit, then you will need to provide item 2 or 4 instead.

OR

2. A recent income survey (done within the last 12 months) showing that at least 50% of the units are earning 60% AMI or less. The survey should not contain tenants’ names or any other personal information. It should contain a unit by unit itemization of income with a calculation at the end showing the number of units meeting the requirement, the total number of units, and the percentage that meet the requirement. Our standard template is available upon request.

OR

3. For shelters, a letter from the Executive Director or another individual with signatory authority stating that the property is used as a shelter is sufficient. The letter should indicate the level of income of the clients served. If clients have to identify their income to you in order to receive services, you can state that in the letter. We do not require shelters to submit an income survey.

OR

4. Other type of documentation determined in conjunction with us on a case-by-case basis. Furthermore, if the project is a (1) Low-Income Housing Tax Credit (LIHTC) Property or (2) Project-Based Section 8 property then it is eligible for the program. These properties may submit LIHTC or Section 8 documentation in lieu of the four options stated above. PLEASE NOTE: Section 8 vouchers do not automatically qualify tenants or a project. Although tenants must meet the 60% AMI limit to obtain vouchers, they may keep the vouchers from year to year even if their incomes increase. If the project utilizes Section 8 vouchers, the applicant must submit item 1, 2, or 4.

LEAN then refers the property owner to a lead agency that oversees the geographic service area that the multifamily property is in. Then the lead agency either services the building themselves (if they are both a lead and sub-agency) or sends the job on to the sub-agency that serves the area. This pipeline of multifamily property owner referrals is illustrated below in Figure 2.
2.2.5 Marketing Effectiveness

*How effectively do existing marketing materials and communication strategies engage customers?*

2.2.5.1 Customer Feedback

To explore how effectively existing marketing materials and communication strategies engage customers, the evaluation team showed a selection of marketing materials that emphasized energy savings, comfort, or the offering of assets like heating systems and appliances to customers. This section provides a summary of customer feedback, for more details on the Marketing Materials Review Memo refer to Appendix C.

Among the 11 customers that the evaluation team interviewed, preferences in marketing materials varied and were highly subjective. However, certain messaging strategies resonated more with some customers than others. Four customers said they like more visual images and diagrams over written program details, while 2 others found written detail more informative and useful than pictures. One customer said words like “free” are particularly appealing while another said the word made them feel uncomfortable about participating in the program.

National Grid found similar themes as part of nine low-income-specific focus groups in March 2017. The focus groups were divided into three types of income eligible customers: homeowners, renters, and landlords. As part of the focus groups, National Grid had each group review and provide feedback regarding a set of marketing materials including a brochure, emails, an infographic, and a video. Overall, customers preferred marketing designs that were uncluttered, easy-to-read, and contained infographics. They stated a preference for information that is succinct and targets them. Differentiations between types of programs should also be clear and show income eligibility requirements.

Other focus group findings show that income eligible customers were receptive to information about
energy efficiency programming, especially when the materials were branded with National Grid, easy to access, and easy-to-understand. Homeowners suggested adding information about energy efficiency messaging directly onto their bill so that they can see it quickly and easily and know that it comes from a trusted source. Landlords suggested that National Grid use PA-dedicated staff to act as the primary point of contact to the landlords.

2.3 Opportunities for Engagement

This section presents information gathered to identify the customer experience and opportunities for addressing harder-to-engage target populations, including renters and smaller multifamily buildings. The section addresses the following research questions:

- How do customers learn about the program?
- What are customers' participation barriers?
- What additional resources and/or information would better enable the PAs and CAAs to more effectively engage and serve the single-family and multifamily markets with the Income Eligible Program?
- Are there opportunities for multifamily outreach efforts to use major maintenance cycles or capital improvements to engage customers?

2.3.1 Customer Awareness

Through the survey, we asked potentially eligible customers (based on income and household size) if they were aware of the Income Eligible program prior to taking the survey. Of the 207 potentially eligible respondents (all single-family), 56% (115) said they were unaware of the program and 12% (24) were aware but had not participated.

As noted, this analysis is based on customers that self-reported income and household size indicative of eligibility. However, this approach does not guarantee the population is eligible. Therefore, as another reference point, the analysis identified respondents that participated in at least one other bill payment or social service program with income requirements (e.g. LIHEAP, Utility Discount Rate program, SNAP, WIC) as indicators of eligibility. Of the 207 potentially income eligible customers who participated in the survey, 57% (118) reported participating in one of these programs. Of those, 46% (54) were unaware of the Income Eligible Program.

Finally, per design, the program uses the Utility Discount Rate and LIHEAP programs to target potential participants. Analysis shows a higher awareness rate when selecting only those respondents that reported participated in either of those services.

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25 The 13 programs with similar eligibility criteria listed in the survey included the utility discount rate program, arrearage management, assistance for energy bills from your utility or other state or federal resources, Emergency Supplemental Security Income (SSI), government assistance for housing, Aid to the Elderly, Disabled, and Children (EAEDC), Food Stamps (SNAP), Head Start, MassHealth (Medicaid), National School Lunch or School Breakfast Programs, Transitional Aid to Families with Dependent Children (TAFDC), Veterans DIC Surviving Parent or Spouse, Non-Service Disability Pension, or Service Benefits (Chapter 115), and Women with Infants and Children (WIC).
Table 4. RES 40 Survey: Customers Unaware of the Income Eligible Program

<table>
<thead>
<tr>
<th>Group</th>
<th>Percent Unaware</th>
<th>Percent Aware</th>
<th>Percent Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>All self-identified Income Eligible Program eligible customers (n=207)</td>
<td>56%</td>
<td>35%</td>
<td>8%</td>
</tr>
<tr>
<td>Respondents that participated in a bill payment and/or social service program within the last three years (e.g., Utility Discount Rate, LIHEAP, SNAP, WIC) (n=118)</td>
<td>46%</td>
<td>46%</td>
<td>8%</td>
</tr>
<tr>
<td>Respondents that reported receiving LIHEAP assistance (n=78)</td>
<td>38%</td>
<td>51%</td>
<td>10%</td>
</tr>
<tr>
<td>Respondents that reported receiving Utility Discount Rate from PA (n=66)</td>
<td>36%</td>
<td>53%</td>
<td>11%</td>
</tr>
</tbody>
</table>


This analysis indicates that, anywhere from about 45% to 55% of the population is eligible, but unaware of the program. While the targeted outreach through the Utility Discount Rate and LIHEAP program is effective, there is likely a segment of the population unaware of and/or not participating in those efforts that are also not being reached by the Income Eligible program.

How do customers learn about the program?

During interviews, most homeowners and renters (single-family and multifamily) reported hearing about the program through their local community action agency, usually after participating in another program offered by that agency. Results from a previous evaluation also indicated that customers who were aware of the Income Eligible program may have learned about it through their community action agency, and also indicated that direct mail was a common source of program awareness. These findings provide a preliminary indication that communication from customers’ local community action agencies and direct mail efforts (either from the community action agency or from other entities like Program Administrators) may be how most customers learn about the program. A marketing effectiveness study would provide additional clarity on what marketing and outreach strategies best reach potential customers. Thorough assessment of marketing effectiveness is only possible with more ongoing tracking and monitoring of marketing performance metrics.

While some PAs and agencies track program referrals and collect information on how customers hear about the program, this information is not often collected systematically and is too broad to inform marketing strategy. Stakeholders reported that limited staff time and administrative resources were barriers to gathering and analyzing information about marketing strategies in a way that could influence future practices. Google Analytics and inexpensive marketing intelligence tools can enable program marketing managers to review website traffic, email views, form fills, and asset downloads. Agencies could compare the timing of outreach waves or recruitment campaigns with increased website traffic or application submittals. The number and location of print materials disseminated should be noted as well. All this insight can help inform decisions about marketing effectiveness: whether a campaign reached the right people at the right time, and what messages or assets customers respond to or seek out.

2.3.2 Drivers and Barriers of Participation

During interviews, customers reported participating either because they had an urgent need such as a repair they could not afford (e.g., furnace, water heater, refrigerator, or stove replacement) and sought out specific services, or because they were generally in need and sought support from as many services as possible. Others participated because they wanted to save money by lowering their energy bills.

What are customers’ participation barriers?

Customers and agency staff alike reported that customer availability is the greatest barrier to program delivery. Customers have limited availability in their personal schedules and finding time for an appointment like a home energy audit, regardless of the length of the audit, can be a challenge. The customers that are eligible for the program tend to work multiple jobs and may work during the day, at night, and/or on the weekends. Beyond scheduling energy audits, these customers must balance their work schedules with other life activities like caring for their children or going to the laundry mat, the bank, or the grocery store.

2.3.2.1 Multifamily Maintenance Activities

Are there opportunities for multifamily outreach efforts to use major maintenance cycles or capital improvements to engage customers?

Multifamily property owners described enrolling in the multifamily program to address planned replacement of equipment such as capital improvement projects. Income eligible multifamily program participants were generally satisfied with the range of energy efficiency measures offered through the program. Almost all interviewees reported replacing boilers and lighting in their properties. Multifamily property owners said that planned replacement is usually governed by capital needs assessments, annual audits, or other formal review processes, and that it is scoped far in advance. In this process, building owners and property managers can consider energy efficiency updates, create long-term plans for facilities, and consult with the program on future work. Several interviewees that have capital needs assessments at regular intervals (annually or biannually) mentioned that they create a list of projects that they hope the program can help fund. Furthermore, many interviewees admitted that equipment is only replaced during these capital needs assessment cycles, so this is the critical time for the program and other utility incentive programs to get involved.

According to interviewees, the relationships with program administrators and agencies have been critical to their positive program experience. In most cases, interviewees described their internal capital improvement process as annually assessing their properties, creating a list of potential projects, and working with the multifamily program to determine what can be done based on the funding available and anticipated energy savings. While historical participants who own and operate multiple properties have come to view the program as part of their recurring property management process, participants were clear that they respect the program’s decision-making process and understand that funds are limited at any given time. One interviewee mentioned that their organization is thoughtful about which projects they bring to their lead agency in an effort to maintain the relationship and ensure that they stay a good partner to the program.
2.3.3 Other Multifamily Engagement Opportunities

2.3.3.1 Tenant Comfort

Multifamily program participants described how the program improved tenant comfort. As an example, one interviewee discussed the lighting upgrades made to the parking lots at one property. Prior to participating, the parking lots were dark and made tenants uncomfortable. Through the program, property owners put in new, high quality lighting in the parking lots that resulted in both energy savings and improved tenant satisfaction and comfort. Other interviewees mentioned that improved heating and cooling in buildings allowed them to better control and maintain consistent temperatures. This is especially important for income eligible housing serving the elderly. As one interviewee put it, the program helps with their goal of providing affordable, comfortable, and healthy living for their tenants.

2.3.3.2 Common Spaces over Residential Units

Most multifamily participants have made energy efficiency updates through the program predominantly to common areas and/or building-wide mechanical systems, such as boilers. It is more difficult to perform large-scale maintenance work in-unit with a tenant in residence due to the inconvenience to the tenant of having work done in their space. Some property managers will take on small improvements (e.g., replace light bulbs and give tenants smart strips while the unit is occupied), and when the unit is turning over they will replace appliances and do any larger-scale projects. Many of the participants interviewed mentioned refrigerators as an important equipment funded through the program.

2.3.3.3 Tenant Incentives to Reduce Energy Bills

In some income eligible properties, particularly in buildings using gas or oil, the property management company pays the utility bills, not the tenant. As residents are not seeing the utility bill, it is difficult to incentivize tenants to make energy efficient improvements to their space or modify their behavior to use less energy. The program can help property owners and managers by helping upgrade lighting, refrigerators, and other technologies to make the apartment units as efficient as possible. Then, the property manager can work within their buildings to raise awareness of energy use among tenants. One interviewee is trying to tackle this by hosting an energy consumption reduction challenge for the summer months, to see which tenant can save the most and begin the process of having tenants understand what their energy use is and how to save.

2.3.3.4 WegoWise for Larger Building Owners

The program offers a free one-year WegoWise subscription to all program participants. WegoWise is an online platform where building owners and managers can track and benchmark their building’s energy savings. Data from the platform can be shared back with the program. Utilization of the platform is not required for program participation, and the offering is considered an optional benefit to participants.

A majority of the multifamily interviewees use the platform to benchmark and track their property data and indicated that it is a valuable tool. In interviews, many large and small participants reported that they have their entire building portfolio on WegoWise and continued to pay for a subscription after the free trial.
ended (a year after participating). These interviewees most commonly said that tracking energy savings over time and understanding building performance were the two most beneficial aspects of the platform.

A few interviewees, especially small building owners, found the initial time and effort necessary to input building data into WegoWise to be a barrier. For these participants, the upfront time and cost to gather the data and upload it to the platform can be prohibitive. Some small participants explained that they can already compare their energy bills for buildings across months and, therefore, have not needed WegoWise yet. However, several of these interviewees mentioned joining WegoWise as an aspirational goal.

2.4 Consistency in Program Delivery

This section presents information gathered to describe consistency and variance by region and agency as it relates to the customer experience and program implementation. This section addresses the following research questions:

- What is the wait time between intake and service, and how does that vary by CAA? What factors cause potential customers to be waitlisted (e.g., funding limitations, staffing limitations, a combination of these, or other types of limitations)?
- How do customer experiences vary by CAA, single-unit buildings, multi-unit buildings, renters, and owners? What are the reasons for—and benefits and drawbacks of—any variations among CAAs identified?
- What challenges to implementation does the Income Eligible Program face looking into the next Plan, and how might they be addressed?
- Is there a need for CAA staff training and education opportunities in the future? How might PAs and other stakeholders provide support to help address those needs?
- How do administrative or other implementation requirements vary by PA (e.g., data tracking), and how do those variations affect CAA activities?

2.4.1 Time to Service

What is the wait time between intake and service, and how does that vary by CAA? What factors cause potential customers to be waitlisted (e.g., funding limitations, staffing limitations, a combination of these, or other types of limitations)?

According to interviews with agency staff and multifamily property owners and managers, time to service, or the amount of time that passes between when a customer is approved for service and the date of the initial audit, is very different between the single-family and multifamily programs. Multifamily customers (the residents) receive services but tend not to request them. Rather, property owners and managers request these services (See The LEAN Pipeline). Agencies we spoke with that implemented multifamily

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27 In conversations with PAs in September 2018, it was noted that LEAN supports multifamily program participants by providing high level guidance on what information they need to gather and enter into WegoWise. LEAN is available to troubleshoot issues like site navigation and to connect program participants to WegoWise staff for additional support with the tool. LEAN does not provide direct support to program participants such as data entry or assisting them with building their WegoWise profiles. Since the use of WegoWise is optional for program participants and they opt in or out of using the tool, the usage of program funds to provide such direct support may not be considered as a program-appropriate activity.
programming (most agencies implement single-family only), described a process of about two months from the time an owner submits the application to when services are delivered. The timeframe includes a period of time for agencies to review the application and do the income verification for at least 50% of the tenants.

In agencies implementing the single-family program, except for one agency that was experiencing staff turnover at the time of the interview, described similar times to service. Customers typically received their first audit within 2-4 weeks of an approved customer application. The biggest factor influencing the amount of time to service was customer availability. Staffing was sometimes noted as a limitation in that an agency may not have the resources to serve customers more quickly, or they may experience staff turnover and then struggle to find a new auditor or quality control inspector with the right experience and qualifications.

2.4.2 Audit Procedures

How do customer experiences vary by CAA, single-unit buildings, multi-unit buildings, renters, and owners? What are the reasons for—and benefits and drawbacks of—any variations among CAAs identified?

2.4.2.1 Single-Family

During the first appointment, auditors take time to explain the program and make sure the customer understands the services they are receiving and what to expect, including subsequent visits from contractors and quality control inspectors. There are some variations in how agencies inform customers of the process. One agency uses a nine-question checklist to make sure each customer gets the same general background information. One auditor said that it would be helpful to have a visual handout that showed the flow of the program or the typical customer experience in a way that most customers could easily understand.

As suspected by stakeholders in the planning stages of this evaluation, the team found variations in how agencies deliver audits. Some agencies conducted multiple audits (weatherization, AMP, heating) at once through a single, longer visit, while others conducted the audits over several, shorter visits. These agencies had staff in-house with all of the needed expertise to conduct each type of audit, while other agencies found that they operate more efficiently by contracting out certain types of audits. While some PAs hypothesized in the study’s planning stages that conducting one longer, comprehensive audit would be more satisfactory to customers, the customers the team spoke with whom experienced either approach had similarly positive things to say about their experience. The research team observed no correlations between variations in scheduling and delivering the audits and variations in customer satisfaction.

Agencies that tended to conduct audits over several visits to the customers’ homes employed more staff, and each staff person tended to have different areas of expertise. For example, these agencies might have an insulation specialist, an AMP/electrical specialist, and a heating specialist certified to inspect gas- or oil-fueled heating systems. These agencies reported that this audit model improved their overall program productivity and efficiency in delivery because the staff with specific areas of expertise could spend less time in a customer’s home, and thus was able to inspect more homes on average in a day.
According to the interviewed agencies, this approach also made recruiting new staff easier because open, more focused positions require fewer certifications and narrower ranges of expertise. Where possible, these agencies attempted to schedule the different audit types for a single customer concurrently, though this was not always possible.

Agencies that tend to complete comprehensive, or mostly comprehensive, audits (i.e., heating, insulation, and amp/electric in a single visit) tend to employee fewer staff, but those staff are certified to assess multiple aspects of building home energy. These auditors could more easily conduct comprehensive audits in one visit to a customer’s home; however, the visit would take upwards of 4 hours. With travel time between job sites, it was difficult for these auditors to serve multiple customers in 1 day. Additionally, by requiring a broader range of expertise, agencies reported it is more difficult to recruit and hire staff.

Agencies used the audit model that best fit according to the quantity and qualifications of their staff, whether or not they contracted out particular types of audits, and how far auditors had to travel to serve customers (distance). The customers the team spoke with reported being satisfied with the program and the audit process, regardless of which audit model they experienced. In other words, variations in audit processes across agencies do not appear to have an impact on customer satisfaction. And, as intended, the community agencies have a sense of their community’s needs.

### 2.4.2.2 Multifamily

In interviews with agencies implementing the multifamily program, some agencies described assessment practices differently. The assessment processes for single and multi-family buildings are similar in principal, however, a multifamily building may require a larger scale and more specialized assessment. While some small multifamily building types are similar to typical single-family buildings (e.g. wood frame), each single-family building and multifamily building assessment is tailored to the requirements of the individual building, which vary widely. However, the extent to which practices actually differ requires further exploration. In interviews with agencies, some agency staff said that smaller buildings (5-25 units) follow a similar assessment process as single-family units, while others did not differentiate between building size for implementing audits. One agency said that for larger buildings they will send out multiple auditors.

### 2.4.3 Implementation Challenges

**What challenges to implementation does the Income Eligible Program face looking into the next Plan, and how might they be addressed?**

#### 2.4.3.1 Auditor Workforce Needs

Stakeholders at the PA and agency levels reported concerns that much of the current program workforce is reaching retirement age. As currently trained, qualified, and experienced staff retire from the industry, there is a growing need to market available jobs to the potential candidates, and to get the newer workforce ready to take on these jobs in the most cost-effective way possible (least amount of time spent on training). When the team asked agency staff why recruiting was difficult, most described that it takes time to fulfill requirements for training, certification, background checks, and drug screenings. Others mentioned that the pay for similar work is higher with other programs, such as HES, or with other
companies.

Program Requirements

The Income Eligible Program was designed with minimal requirements to allow for easy alignment with implementation of the WAP program. Home energy professionals like auditors that implement the program comply with WAP requirements. Auditors and inspectors must go through a background check, drug screening, obtain several certifications, and complete several hours of training. When onsite, auditors must conduct energy efficiency tests, and complete both a mid-term and final quality control inspection. Auditors reported that these requirements are more stringent than most other related programs and services like the HES program. As a result, these Income Eligible Program staff become highly qualified field technicians.

Some auditors said that these heavy restrictions and requirements can be burdensome. One auditor felt that the restrictions reduced overall program effectiveness in two ways, 1) the time and resources spent undergoing a background check could be used serving customers, and 2) when new or additional measures are added to the program, auditors need more time to complete a single assessment, which ultimately affects how many homes an auditor can service in a typical day. While some auditors expressed frustrations due to these restrictions and requirements, most concluded that it did not lower their overall job satisfaction. Despite frustrations, the restrictions and requirements ensure that the work is high quality, and that contributes to the auditors’ sense of pride in delivering the program.

Training

Is there a need for CAA staff training and education opportunities in the future? How might PAs and other stakeholders provide support to help address those needs?

PAs and agencies described the use of DHCD funds to cover the costs of staff training as DHCD-funded training courses typically cover protocols and requirements of WAP. PAs also reported that they provide financial assistance to agencies for training when needed. Study participants commonly referenced the Green Jobs Academy (GJA) as the primary source for program training. Agencies also used a mentoring approach to help newer auditors become acclimated to the work. This approach, combined with the mandated trainings offered by the GJA, seems to work well to bring the newer workforce up to speed, but is time consuming. New staff may take months to years before reaching the levels of expertise of their predecessors. Time to train is barrier to meeting workforce needs. The research team notes that these barriers are attributable to requirements set in place by the WAP program, and not necessarily by the Income Eligible Program.

Competitive Wages

Study participants also expressed concerns around wage competitiveness compared to similar jobs with other programs or private sector service providers. They said auditors who deliver the program are likely to earn lower wages than what they could earn working for another program or private service provider.

28 Guidelines on WAP requirements can be found here: https://www.energy.gov/eere/wipo/guidelines-home-energy-professionals.
29 The number of training hours varies by the level of expertise and prior certifications of each auditor and inspector.
30 In August 2018, the PAs reported plans to fund the training of 24 new implementation staff.
31 http://greenjobsacademy.org/~greenjobs/
Agencies perceive wage competitiveness as a barrier to recruiting new staff, especially those that may have prior expertise and would need less time to train. Agencies also expressed concerns with hiring less experienced staff, saying that once they invest the resources to get them trained up and certified, there is little stopping the newer staff person from taking a higher-paying job elsewhere.

Job Satisfaction

Overall, auditors and inspectors said they were satisfied with their jobs and appeared to be highly motivated by the intrinsic value of the work. They valued being a part of the professional network that delivers this high-quality service to families in need. Auditors and inspectors believed they were more knowledgeable and better assessors than they would have been without the extensive training they received. They also firmly believed that their peers across the Commonwealth upheld the same strict standards as they did for themselves and their work. These drivers of satisfaction have been enough to keep these auditors and inspectors in the field for more than 10, and sometimes 20 or 30 years.

How do administrative or other implementation requirements vary by PA (e.g., data tracking), and how do those variations affect CAA activities?

2.4.3.2 Data Management

While not explicitly described as a concern by study participants, the duplication of data entry that occurs at the agency level presents an opportunity for increasing the overall effectiveness of program implementation. Many agencies work with multiple PAs and lead agencies, and described using several data management tools, some software-based and some paper-based systems. During the agency interviews, staff described switching from one system to the next as a necessary but tedious task. Some agencies discussed wanting a more streamlined process and acknowledged the potential infeasibility of this idea given that some PA data management software is proprietary. For example, one PA paid to develop a unique database system and requires all agencies implementing the program in that PA’s territory to use that database to report program data. When we asked PAs about streamlining data management across the Commonwealth, they reported that a move to a fully centralized data management system would be extremely costly and time-intensive to establish.

PAs described no issues with gathering the performance measure data they needed from agencies for reporting purposes. Agencies were collecting and reporting all required data. Even so, the research team identified challenges with current data management practices that created barriers to quantitatively assessing the effectiveness of program implementation processes. Specifically, not all data needed to run quantitative assessments of effectiveness is required for reporting and therefore not readily available for assessment, and data stored in paper format requires more time and effort to collect and analyze than data stored digitally. Based on this information, the team suggests that PAs identify key data points needed for quantitative assessment of program implementation processes and require agencies to include these data points in reports with other program performance data.

The following table presents a list of suggested data points needed for quantitative assessment of program implementation processes. This list is intended as a starting point and should be further developed by PAs with consultation from LEAN and other program stakeholders.
Table 5. Data Points for Assessment of Implementation Effectiveness

<table>
<thead>
<tr>
<th>Data Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant name</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Street number, street name, and zip code</td>
</tr>
<tr>
<td>PA_1 name</td>
<td></td>
</tr>
<tr>
<td>PA_1 account number</td>
<td></td>
</tr>
<tr>
<td>PA_2 name</td>
<td></td>
</tr>
<tr>
<td>PA_2 account number</td>
<td></td>
</tr>
<tr>
<td>Community action agency</td>
<td>The agency providing direct service to the customer</td>
</tr>
<tr>
<td>Lead community action agency</td>
<td>The lead agency (as applicable) that works with the agency providing direct service to the customer</td>
</tr>
<tr>
<td>Heating fuel type</td>
<td></td>
</tr>
<tr>
<td>Water heating fuel type</td>
<td></td>
</tr>
<tr>
<td>Rent vs own status</td>
<td></td>
</tr>
<tr>
<td>(if rent) Landlord contact information</td>
<td>Primary contact name, phone, email, address, and, company name</td>
</tr>
<tr>
<td>Number of units in the building</td>
<td></td>
</tr>
<tr>
<td>Measure(s) installation details</td>
<td>Efficient measure wattage, BTUs, EER, R-value/sq ft of insulation</td>
</tr>
<tr>
<td>Existing conditions</td>
<td>Existing measure wattage, BTUs, EER, R-value/sq ft of insulation</td>
</tr>
<tr>
<td>Funding source per measure</td>
<td>Upon completion of a project, report the proportion of funding by funder for each measure whether it's the system benefits charge funds from the Income Eligible Program or another funder like DOE or Health &amp; Human Services.</td>
</tr>
<tr>
<td>Payment for measure or service</td>
<td>Cost of the measure</td>
</tr>
<tr>
<td>Type of audit conducted</td>
<td>AMP, weatherization, heating system</td>
</tr>
<tr>
<td>Date of initial customer program application</td>
<td></td>
</tr>
<tr>
<td>Date of the audit</td>
<td></td>
</tr>
<tr>
<td>Date measures were installed</td>
<td></td>
</tr>
</tbody>
</table>

2.4.3.3 Communication

Multiple stakeholders mentioned that communication between PAs, the lead agencies, the sub-agencies, and those on the ground implementing (e.g., auditors) is absolutely crucial to the successful implementation of the program. Current communication occurs among PAs, LEAN, and agency representatives in the Best Practices Working Group, in meetings attended by agency representatives hosted by LEAN, and through direct communication between agency staff and PAs by phone or email as needed. Communication among these stakeholders appears to be either structured, formalized meetings or one-on-one conversations. Stakeholders reported that there is value in these communications and that they are effective (i.e., staff other than those that attend these meetings or participate in these modes of
In addition, agency staff like auditors and inspectors reported that opportunities to network and share knowledge with one another are valuable. Auditors may also benefit from hearing information about the program directly from PAs, as some details or messaging may be lost by the time it reaches them (e.g., policies around the usage of repair funds). Some study participants described attending a conference hosted by National Grid for agency staff, including lead and sub-agencies, and said they enjoyed the opportunity to learn from and interact with the PAs directly. Based on this these findings, the team suggests that PAs investigate opportunities to collaboratively host an annual or biannual statewide conference for implementing staff from lead and sub-agencies as a means to directly connect and discuss program policies and insights, and to network.

2.5 Measures for Further Consideration

This section presents information gathered to explore current and future concerns for achieving savings in a cost-effective way, and includes the consideration of cost-effective measures (e.g., strategies to replace lost lighting savings) and administrative costs.

Are there other energy efficiency measures, beyond the program’s current core measures, that should be considered? If so, what are those measures?

After reviewing the list of current and previously considered measures, the evaluation team identified six technologies that warrant further consideration by the PAs and LEAN for potential inclusion in the Income Eligible Program. These measures are grouped within three primary technology categories:

1. Fenestration and window attachments
2. HVAC equipment
3. Appliances

Table 6 includes potential savings values for each technology. These values are estimates based on this literature review and should not be considered as definitive values for program planning or other purposes. They are simply indicators that these measures, after further, Massachusetts-specific research, could be cost-effective additions to the program.

In addition to the specifically identified technologies, the research team noticed several technologies are available to single-family or multifamily customers, but not both. Examples include:

- **Dehumidifiers**, which are applicable and can yield cost-effective savings in some single-family applications, are currently only offered to multifamily participants.

- **Thermostatic shut-off valves**, which could help single-family participants increase savings on their water heating usage.

These measures suggest avenues for further exploration and potential opportunities to enhance the cost-effectiveness and administrative efficiency of the Income Eligible Program.
The evaluation team suggests that the PAs and LEAN review the measure list to ensure that measures are available to all applicable customer segments, and to determine whether to conduct additional research to develop Massachusetts- and low-income-specific applicability factors, costs, and savings values.

Table 6. Summary of Identified Technologies for Consideration as Income Eligible Measures

<table>
<thead>
<tr>
<th>Technology Category</th>
<th>Technology</th>
<th>Potential Savings</th>
<th>Key Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fenestration and Window Attachments</td>
<td>Low-E storm windows and panels</td>
<td>10%-30% of HVAC use</td>
<td>PNNL Studies: Cort and Widder, 2015; Culp and Cort, 2015; PNNL 2017; RTF; CEE</td>
</tr>
<tr>
<td></td>
<td>Additional window attachments (e.g., insulating blinds)</td>
<td>TBD</td>
<td>PNNL Lab Homes Study, AERC, CEE</td>
</tr>
<tr>
<td>HVAC</td>
<td>Ductless heat pumps (expand measure applicability to all HVAC systems and fuel types)</td>
<td>Variable based on application and baseline; ~55% of HVAC load</td>
<td>Efficiency Vermont, RTF</td>
</tr>
<tr>
<td></td>
<td>Thermostatic radiator valves</td>
<td>20%</td>
<td>National Grid</td>
</tr>
<tr>
<td>Appliances</td>
<td>Efficient dryers</td>
<td>300 kWh/year or 5 therms/year</td>
<td>RTF, EPA</td>
</tr>
<tr>
<td></td>
<td>Engine block heater controls</td>
<td>1,660 kWh/year</td>
<td>RTF</td>
</tr>
</tbody>
</table>
3. RECOMMENDATIONS AND CONSIDERATIONS

The evaluation team identified opportunities for improvement in processes for both the single-family and multifamily programs. These are listed in Table 7 and Table 8.

3.1 2017 Process Evaluation Recommendations

Table 7. 2017 Income Eligible Program Process Evaluation Recommendations

<table>
<thead>
<tr>
<th>Number</th>
<th>Research Topic</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Opportunities for Engagement</td>
<td>Explore strategies for identifying and reaching smaller multifamily property owners.</td>
</tr>
<tr>
<td>2</td>
<td>Current Marketing Strategies</td>
<td>Identify crucial participant data points needed to quantitatively assess effectiveness of program implementation processes.</td>
</tr>
<tr>
<td>3</td>
<td>Consistency in Program Delivery</td>
<td>In accordance with DOE requirements and schedules, utilize an electronic audit tool approved by DOE to collect and store participant and performance measure data, including key data points needed to quantitatively assess the effectiveness of program implementation processes. Note that other data (e.g. data required to meet DOE paper requirements) may still be collected and stored using paper.</td>
</tr>
<tr>
<td>4</td>
<td>Current Marketing Strategies</td>
<td>Explore how statewide Mass Save marketing resources can be better used at the local level, especially among agencies and PAs with fewer marketing resources.</td>
</tr>
<tr>
<td>5</td>
<td>Current Marketing Strategies</td>
<td>Investigate the viability of establishing a thorough, statewide assessment of marketing effectiveness with ongoing tracking and monitoring of marketing material performance metrics.</td>
</tr>
<tr>
<td>6</td>
<td>Measures for Further Consideration</td>
<td>Review the measure list identified as part of this study and determine whether there is value in conducting additional research to develop Massachusetts- and low-income-specific applicability factors, costs, and savings.</td>
</tr>
</tbody>
</table>
Table 8. Table of Considerations

<table>
<thead>
<tr>
<th>Number</th>
<th>Research Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Current Marketing Strategies</td>
<td>Explore opportunities for PAs and agencies to expand the development of co-branded materials to all service areas across the state.</td>
</tr>
<tr>
<td>2</td>
<td>Current Marketing Strategies</td>
<td>Identify and share best practices in cross-program outreach to promote the Income Eligible Program. Key programs for cross-program outreach include other programs offered by agencies and other programs offered by outside agencies, all of which target similar populations.</td>
</tr>
<tr>
<td>3</td>
<td>Consistency in Program Delivery</td>
<td>Investigate opportunities for PAs to directly connect with frontline staff outside of structured meetings and regular technical support conversations. Consider an annual or biannual statewide event hosted by the PAs to discuss program policies, insights, and to network.</td>
</tr>
</tbody>
</table>
### 3.2 2011 Process Evaluation Recommendations Status Update

The team gleaned information from the study and gathered information directly from PAs and LEAN to inform the current status of the 2011 Process Evaluation recommendations.


<table>
<thead>
<tr>
<th>Number</th>
<th>2011 Recommendation</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF.1</td>
<td>If they are not already, all PAs should provide savings goals to their lead agencies to improve transparency between PAs and program implementers (agencies). Lead vendors should then provide all sub-agencies information about annual savings goals, especially in cases where it is a challenge to meet the PAs’ savings goals. It may prove beneficial for all agencies to track certain savings performance indicators in a manner similar to how they track budgets and spending. If indicators for savings performance currently do not exist, this should be a topic for discussion in the Best Practices working group meetings.</td>
<td>Addressed</td>
<td>PAs provide spending and savings goals to all lead agencies. Savings are deemed based on measures and upgrades installed. Assessment and associated measure goals are then given to the sub-agencies by the leads along with respective budgets. Lead agencies provide spending goals and goals for the number of units or participants served to their implementing sub-agencies. The provision of savings goals is unnecessary because savings are deemed. Progress is tracked and reported on MassSaveData.com. The Low Income Best Practices working group has not established performance indicators other than the program goals of savings, spending, and counts of participants served.</td>
</tr>
<tr>
<td>SF.2</td>
<td>The Department of Public Utilities should work with the PAs to establish a regulatory approval system that does not cause significant delays to the PAs’ ability to provide program budgets to implementers (agencies). The process should be set up in a way that PAs can provide contracts and budget information to the agencies in advance of program [start date] year, to provide services to customers in a timely and effective manner and ensure agencies can plan effectively. Multiyear contracts and budgets should be implemented, when possible, with any subsequent revisions negotiated in advance of existing contract expiration dates.</td>
<td>Addressed</td>
<td>There are no current issues with timely regulatory approvals. All are governed by the 3-year term schedule. PAs provide this information to agencies at the beginning of, or prior to the start of, the program year.</td>
</tr>
<tr>
<td>Number</td>
<td>2011 Recommendation</td>
<td>Status</td>
<td>Status Description</td>
</tr>
<tr>
<td>--------</td>
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<td>---------</td>
<td>--------------------</td>
</tr>
<tr>
<td>SF.3</td>
<td>Through the Best Practices working group, standardize a streamlined approval process for repairs that works for the agencies and PAs.</td>
<td>Addressed</td>
<td>There is a process for approval of major and minor repairs. LEAN described that training on the process is ongoing and the topic is discussed regularly during Best Practices workgroup meetings. The process works well for PAs; LEAN reports that the repair budgets for most PAs have been used in full in recent years. However, there may be an opportunity for raising awareness of how the process works among front-line agency staff, specifically on when and how to apply for these funds as evidenced by reports from auditors and other agency staff that they were unclear on these processes.</td>
</tr>
<tr>
<td>SF.4</td>
<td>Through the Best Practices working group (including the PAs), develop, document, and put into practice both (a) a standardized definition of the waitlist; and (b) standardized methods for tracking and reporting this information. One suggested definition for waitlist is the number of eligible low income customers who have completed all the necessary paperwork to participate and are awaiting an audit.</td>
<td>Addressed</td>
<td>Rather than standardize a definition for waitlist, stakeholders work to eliminate the need for a waitlist entirely. As part of the next 3-year plan, the PAs are working with LEAN to establish an expected “Time to Serve” as a guideline where possible. Agencies do their best to serve customers in as timely a manner as possible (and not use waitlists). When demand for services is high, a list of customers becomes necessary. Each agency has developed its own method that works best for them as they manage and implement the program in their areas, using their available resources (staffing/time). This is also being discussed as part of the “Time to Serve” discussion for the next 3-year plan.</td>
</tr>
<tr>
<td>Number</td>
<td>2011 Recommendation</td>
<td>Status</td>
<td>Status Description</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------</td>
<td>--------</td>
<td>--------------------</td>
</tr>
<tr>
<td>SF.5</td>
<td>Coordinated and developed through the Best Practices working group, PAs should investigate funding for a statewide energy education curriculum, including leave-behind materials and energy saving tips. This effort should aim to increase the depth of energy savings resulting from behavior change, and provide thorough and consistent energy conservation messages to participants.</td>
<td>Addressed in part</td>
<td>LEAN reported that the Best Practices working group responded immediately to this recommendation by undertaking the development of leave-behind materials that provided education to customers about the program, energy efficiency, and other energy-related income eligible programs. Agencies leave these materials with customers at the time of the home energy assessment. It is unclear if this approach produces measurable impacts on behavior change.</td>
</tr>
<tr>
<td>SF.6</td>
<td>An assessment of necessary or recommended trainings should be discussed through the Best Practices Group to ensure quality auditors and contractors while also maintaining cost-effectiveness.</td>
<td>Addressed</td>
<td>Agency and PA that were interviewed were unsure if the Best Practices working group discussed an assessment of required trainings. However, LEAN reported that this is regularly discussed and is always an item on the agenda for working group meetings. 2017 Income Eligible Process Evaluation study participants reported that the Green Jobs Academy (GJA) offers comprehensive training that meets the mandated requirements of both federal and (subsequently) PA programming. Study participants described how trainings provided through the GJA are often/usually covered by federal funds.</td>
</tr>
</tbody>
</table>
2017 Income Eligible Process Evaluation (RES 38)

<table>
<thead>
<tr>
<th>Number</th>
<th>2011 Recommendation</th>
<th>Status</th>
<th>Status Description</th>
</tr>
</thead>
</table>
| SF.7   | Through the Best Practices working group (or sub-committee) including CRI and DHCD, discuss ways to further streamline the QA/QC process so it serves the needs of the PA-funded program while minimizing participant intrusion. The objectives of the discussion should be:  
  a. Clearly articulate the objectives of multiple QA/QC visits to a participant's home.  
  b. Establish the value of agencies conducting 100% post inspections versus redirecting resources to serve more homes.  
  c. Determine where the objectives of the DHCD and CRI inspections align and identify if there are opportunities for collaboration and coordination.  
  d. Assess how changes in federal funding levels are expected to affect DHCD inspections and what affect that has on collaboration or coordination. Opportunities. | Addressed | There is an interim and a final quality control inspection. This process ensures that work is done to the program standard and helps to keep contractors accountable for delivering high quality service in a timely manner. Customers reported satisfaction with the way they received program services. There was no evidence to suggest that customers felt burdened by the program. |
<p>| MF.1   | The Low Income Multifamily (LIMF) Advisory Committee should encourage more standardization across PAs by developing standardized project screening criteria or a tool to determine savings and cost-effectiveness for both gas and electric projects. | Addressed | According to LEAN, this recommendation was made during the beginning stage of rolling out multifamily program. This recommendation is no longer applicable. |</p>
<table>
<thead>
<tr>
<th>Number</th>
<th>2011 Recommendation</th>
<th>Status</th>
<th>Status Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF.2</td>
<td>Identify one single representative program to remain involved with building managers during the entire participation process. Consider looking to the Multifamily Market Integrator used in the market rate multifamily program as a model.</td>
<td>Addressed</td>
<td>According to LEAN, this recommendation was made during the beginning stage of rolling out multifamily program. This recommendation is no longer applicable.</td>
</tr>
<tr>
<td>MF.3</td>
<td>Update program materials, including the Program Guide, and clarify the role of each PA’s branded benchmarking software tool. To ensure continued participation and energy savings in the future, plan for the need to increase participation in the LIMF Program by raising awareness among potential participants of their eligibility and the existence of the program. Facilitate this effort by developing marketing collateral, such as leave-behind materials, that help to clarify and differentiate the LIMF Program eligibility and requirements from other potential funding sources that may commonly be offered to participants.</td>
<td>Addressed</td>
<td>According to LEAN, this recommendation was made during the beginning stage of rolling out multifamily program. This recommendation is no longer applicable.</td>
</tr>
<tr>
<td>MF.4</td>
<td>Develop data formats to track program savings and administer the program more consistently. To prepare for any future audit or evaluation efforts, all implementers (agencies) should collect and store building manager contact information as part of the program tracking data, then share those details with the PAs.</td>
<td>Addressed</td>
<td>According to LEAN, this recommendation was made during the beginning stage of rolling out multifamily program. This recommendation is no longer applicable.</td>
</tr>
</tbody>
</table>
APPENDIX A. RESEARCH QUESTIONS BY OBJECTIVE

A.1 Objective 1. Program Administration

The following research questions were designed to gather information to describe progress in serving single-family and multifamily customers.

- To what extent do PAs and stakeholders, including CAAs, feel they have been able to reach and serve the single-family and multifamily markets?
- Do agencies have the resources they need to run the program?
- What portion of each organization’s activities is related to income eligible weatherization?
- What are perceptions of market saturation (available future weatherization potential) of the target segments (e.g., 1-unit single-family, 2-4-unit single-family, 5+ unit multifamily)?

A.2 Objective 2. Current Marketing and Outreach Efforts

The following research questions were designed to gather information to document current outreach and marketing efforts and uncover challenges with these efforts as well as opportunities for successful outreach strategies that could be used in the future (Barriers and opportunities with existing efforts).

- What marketing and outreach strategies are currently employed to reach customers, and how do those strategies vary by agency, territory, and/or PA and target market (e.g., single-family, multifamily, owner, and renter)?
- What sources do customers perceive are most trustworthy for learning about the program?
- What marketing and outreach strategies have been particularly successful in reaching and encouraging participation in the Income Eligible Program?
- Are PAs and CAAs effectively encouraging customers from other programs to participate in the Income Eligible Program?
- What other programs (e.g., rate programs) should be referring potential participants to the Income Eligible Program?
- Are there specific subgroups, such as the number of units, that are easier or more difficult to engage?
- How might the outreach, marketing, and messaging strategies need to shift to reach and engage target groups not yet served through the program?
- How effectively do existing marketing materials and communication strategies engage customers?

A.3 Objective 3. Opportunities for Engagement

The following research questions were designed to gather information to identify barriers and opportunities for addressing harder-to-engage target populations, including renters and smaller
multifamily buildings (Barriers and opportunities with ideas about potential new efforts).

- How do customers learn about the program?
- What are customers’ participation barriers?
- What additional resources and/or information would better enable the PAs and CAAs to more effectively engage and serve the single-family and multifamily markets with the Income Eligible Program?
- Are there opportunities for multifamily outreach efforts to use major maintenance cycles or capital improvements to engage customers?

A.4 Objective 4. Consistency in Program Delivery

The following research questions were designed to gather information to describe consistency and variance by region and agency in customer experience, agency practices, and program implementation.

- What is the wait time between intake and service, and how does that vary by CAA? What factors cause potential customers to be waitlisted (e.g., funding limitations, staffing limitations, a combination of these, or other types of limitations)?
- How do customer experiences vary by CAA, single-unit buildings, multi-unit buildings, renters, and owners? What are the reasons for, and benefits and drawbacks of, any variations among CAAs identified?
- What challenges to implementation does the Income Eligible Program face looking into the next plan, and how might they be addressed?
- Is there a need for CAA staff training and education opportunities in the future? How might PAs and other stakeholders provide support to help address those needs?
- How do administrative or other implementation requirements vary by PA (e.g., data tracking), and how do those variations affect CAA activities?

A.5 Objective 5. Measures for Further Consideration

The following research questions were designed to gather information to explore current and future concerns for achieving savings in a cost-effective way, including the consideration of cost-effective measures (e.g., strategies to replace lost lighting savings) and administrative costs.

- Are there other energy efficiency measures, beyond the program’s current core measures, that should be considered? If so, what are those measures?

A.6 Other Research Questions

The following research question was designed to gather information about prior evaluation recommendations.

- Has the program made any changes based on the recommendations of the previous process evaluation? If so, which ones? If not, why not?
APPENDIX B. METHODS

This study relies on multiple data collection efforts, namely, in-depth interviews, observational ride-alongs, and secondary research. The team used in-depth interviews to understand staff perspectives on customer engagement, outreach and marketing efforts, implementation practices, current and future concerns about program performance, and evaluation needs. Observational ride-alongs were also selected as part of the team’s research efforts to gain a more qualitative, insider perspective on the similarities and differences in customer experiences by agencies. Information obtained during this stage of the research process was complemented with secondary research. The research also used results captured through the Moderate Income Market Characterization (RES 40), which included surveys with 207 customers eligible for Income Eligible programming. The following subsections detail the sampling and research approach for each activity, including a timeline of evaluation activities (Figure 3).

Figure 3. Income Eligible Process Evaluation Activity Timeline

B.1 In-Depth Interviews with PA and LEAN Staff

The evaluation team conducted interviews with all seven Massachusetts PAs and all three members of LEAN leadership to understand staff perspectives on customer engagement, outreach and marketing efforts, implementation practices, current and future concerns about program performance, and evaluation needs. Specifically, interviews answered questions related to:

32 The Moderate Income Market Characterization (RES 40) study was completed in 2018. The RES 40 study leveraged survey results captured through the Residential Baseline Study (RES 1) and HES participant tracking data from 2014 through 2016.
2017 Income Eligible Process Evaluation (RES 38)

- Program background and evolution over time, focusing on changes in program design and implementation since the prior evaluation period (program year 2011)
- Multifamily component progress, service barriers, and remaining potential
- Progress and barriers to engaging hard-to-reach customers such as renters and smaller multifamily buildings within sub-segments of the target population (e.g., single-family owners, single-family renters, 2- to 4-unit buildings, smaller multifamily buildings, and larger multifamily buildings)
- Progress toward meeting energy savings and spending goals by single-family and multifamily initiatives
- Issues related to CAAs, their spending of system benefits charge funds, waiting lists, consistency in program delivery, and progress toward goals
- Outreach and marketing strategies
- Concerns related to program administration and delivery in the next program cycle
- Process for incorporating data from the program into reports to Department of Public Utilities, DOER, and Department of Housing and Community Development (the state agency responsible for DOE weatherization funding)
- Potential program design and delivery changes under consideration for the next program cycle
- Progress in addressing prior evaluation recommendations
- Requests for research issues for the evaluation to address

Interviews were conducted both in-person and by phone. The full interview guide is listed in Appendix E. LEAN participated in two interviews with lead agencies (see Appendix F for the Lead Agency interview guide), and one additional informal interview was conducted to review preliminary findings and capture additional feedback.

B.2 In-Depth Interviews with Agency Staff

The evaluation team conducted telephone interviews with select agency staff. The interviews solicited robust feedback about outreach and marketing efforts, and current and future concerns about program activities and performance. Specifically, interviews encompassed:

- Agency background, including other services each agency provides and proportion of work and funding (including system benefits charge funds) that weatherization services make up within the agency’s business
- Agency participation and spending goals
- Adequacy of Rate Payer funding to weatherize homes and cover administration expenses
- Customer experience with the program from application to final inspection(s)
- Number of visits customers may receive as part of their weatherization process
- Estimated waiting lists where estimations of waitlist time vary based on number of applicants, duration of time applicants remain on the waiting lists, and factors causing potential customers to be waitlisted (e.g., funding constraints)
- Processes and issues surrounding reporting participant data (e.g., measures installed, date of installation, location of the residence)
- Experience coordinating and communicating with lead agencies, PAs, and other partner organizations (e.g., LIHEAP)
- Primary source of weatherization project leads
- Description of marketing and outreach completed by agencies and other organizations to recruit participants
- Agency perception of the efficacy of marketing and outreach efforts

Appendix F shows the full interview guide for lead agencies, and Appendix G shows the interview guide for sub-agencies. Appendix H provides a table of participating agencies and their characteristics including whether they implement single-family or multifamily programming, which PA(s) they work with, the region where they provide services, and the estimated size of agency.

The evaluation team worked closely with LEAN to select agencies to interview. LEAN provided recommendations for agencies that varied in terms of population served (single-family and/or multifamily), geographic location, agency size, rural or urban population, and agency role (i.e., lead agency or sub-agency). Of the 26 agencies, LEAN identified 12 agencies to interview. Of those 12, the team scheduled seven lead agency interviews with 12 staff members and eight sub-agency interviews with 14 staff members. Of the eight sub-agencies, five were sub-agencies and did not serve as a lead agency in any capacity.

Figure 4. Agencies Interviewed by Region

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33 Of the eight sub-agencies interviewed, three also served in the capacity of lead agency. Those agencies are counted as both leads and subs.
B.3 In-Depth Interviews with Multifamily Property Owners and Managers

The team conducted interviews by phone with multifamily property owners and managers of both large and small buildings to learn about their program experiences, and how the program could better reach them, especially smaller building owners. Specifically, the interview questions addressed:

- Barriers to participation and needs of owners and/or managers to overcome the barriers
- Successful marketing and communication methods, including an inquiry of how owners and managers learn about the program and how information moves through the small and midsized multifamily market
- Maintenance and retrofit cycle processes at multifamily properties, including an inquiry of whether the cycles include energy efficiency upgrades and whether there are opportunities for the program to use these cycles to increase the efficiency of these buildings

The full interview guide is listed in Appendix I.

The evaluation team completed 15 interviews with multifamily property owners and managers. Three different sources were used to develop the sample for the multifamily property owner and manager interviews. The first source consisted of a blend of snowball sampling and convenience sampling techniques. During agency interviews, the team asked if they implemented multifamily programming. If so, the team requested a list of multifamily property owners from the agency representative. Using this approach, the evaluation team gathered a total of 13 contacts. From this sample, the team successfully recruited nine large multifamily property owners to participate in the interviews. This approach was subject to limitations due to bias in the contacts the agency provided. Agency contacts were most often larger building (>20 units) multifamily property owners and public housing authorities that they had worked with before, and with whom they had good and/or long-standing relationships.

To counter this limitation, the evaluation team used two other data sources, (1) a database of small (5- to 20-unit) multifamily program participants compiled from 2016 PA participant data and refined by NMR Group,34 and (2) a database of small multifamily nonparticipants compiled from public property tax records.35 The participant dataset included 52 contacts with existing contact information. The nonparticipant dataset included 30 contacts with contact information generated by the team through web-scraping using web searching, Google Maps, and other tools to identify phone numbers for provided property owners. Most smaller building property owners were unresponsive to the team’s request or unwilling to be interviewed. From these samples, the team successfully recruited five past-participant small building owners and one nonparticipant small building owner. A sample of one nonparticipant small building owner is insufficient to draw substantive conclusions about the program experience of this subgroup of potential participants, and as such, this report refrains from doing so. Additional research may be needed to understand the needs of the potential target sub-group.

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34 NMR Group conducted a study with the same target population at the same time as the RES 38 Income Eligible Process Evaluation. At the direction of the PAs, this team collaborated with NMR Group to pull a sub-sample from their overall study sample to reduce overburdening the population with multiple requests for participation.

35 In 2017, Navigant conducted a census of multifamily building property owners (RES 43) by compiling publicly available property tax records. At the direction of the PAs, this team collaborated with Navigant to pull a sample from the larger dataset that included small (5- to 20-unit) multifamily property owners that had not previously participated in the Income Eligible Program.
B.4 Observational Ride-Alongs with Auditors and In-Depth Interviews with Customers

The team conducted observational ride-alongs with auditors to gain a more qualitative perspective on similarities and differences in customer experiences by agency. Observations with auditors covered required trainings and certifications, a high-level overview of the audit process, observations of customer interactions, and observations of onsite procedures. While onsite, the team approached customers for an interview. We interviewed customers to learn about their experiences with the program, why they participated, interactions with their community action agency, and responses to select marketing materials. Specifically, customer interview questions included:

- Source of program awareness
- Reason for participation
- Past experience with the Income Eligible Program and their CAA
- Experience with the Income Eligible Program to date (e.g., number of visits, length of time waiting)
- Expectations for the remainder of the process
- Challenges and satisfaction with participation to date, including the enrollment process
- Response to marketing and outreach materials and perception of efficacy of those materials in encouraging participation
- Recommendations for improvements

A full interview guide is listed in Appendix J.

Using the sample of agencies drawn for the agency interviews, the evaluation team completed ride-alongs with 10 auditors/quality control specialists to 15 unique service sites, resulting in nine audit observations, two mid-term quality control inspection observations, four end-of-project observations, and 11 customer interviews. Customers at four service sites declined participation in the interview. The team recruited agencies to participate in the ride-alongs through the agency interviews.

B.5 Analysis of Income Eligible Data from the RES 40 Survey

This study coordinated with the RES 40 Moderate Income Market Characterization study to use information gathered through the web-based survey of eligible moderate income and income eligible customers. As the RES 40 survey was designed primarily to address questions related to the HES program, only single-family households were recruited for participation in the survey. The survey ran from August 25 to September 8, 2017 and solicited a total of 207 respondents identified as eligible for the Income Eligible Program. Only responses from income eligible customers were analyzed for this study. The tables below show demographic aspects of these respondents including housing type, renter vs owner status, and fuel type.
Table 10. RES 40 Survey: Housing Type and Renter/Owner Status of Survey Participants

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>All (N=207)</th>
<th>Own (N=134)</th>
<th>Rent (N=73)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-family home</td>
<td>56%</td>
<td>81%</td>
<td>10%</td>
</tr>
<tr>
<td>Triple decker (e.g., three story house, each floor a separate unit)</td>
<td>15%</td>
<td>5%</td>
<td>34%</td>
</tr>
<tr>
<td>Apartment/condo in 2-4 unit building</td>
<td>13%</td>
<td>4%</td>
<td>30%</td>
</tr>
<tr>
<td>Duplex</td>
<td>9%</td>
<td>6%</td>
<td>14%</td>
</tr>
<tr>
<td>Townhouse or row house (adjacent walls to another house)</td>
<td>6%</td>
<td>3%</td>
<td>12%</td>
</tr>
<tr>
<td>Mobile home or trailer</td>
<td>&gt;1%</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>


Table 11. RES 40 Survey: Fuel Type of Survey Participants

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>All (N=207)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric and gas</td>
<td>65%</td>
</tr>
<tr>
<td>Electric only</td>
<td>33%</td>
</tr>
<tr>
<td>Unknown</td>
<td>2%</td>
</tr>
</tbody>
</table>


B.6 Secondary Data Analysis

The team completed an industry scan and literature review of comparable programs, a marketing materials review, and analysis of secondary data to inform ongoing program strategies. Relevant survey question areas include:

- Awareness of, interest, and previous participation in Mass Save and income eligible programming
- Familiarity with the local CAA
- Source of program awareness
- Most trusted sources of awareness
- Barriers for participation
- Awareness of and prior engagement with the local CAA
- Priorities related to energy and non-energy costs

Industry Scan and Literature Review

The team completed a literature review of comparable income eligible programs nationwide to identify technologies that PAs and LEAN are not currently offering, but should consider further, as well as alternative program delivery strategies worthy of consideration in Massachusetts. Considerations identified by the team focused on technologies for heating-dominated climates like Massachusetts, and on technologies or program delivery strategies that worked for single-family, multifamily, or both types of...
buildings. In total, the team identified six different measures that merit further investigation to determine their viability for potential inclusion in the program. See Appendix C, "Industry Scan and Literature Review Memo," for a full list of sources used.

Program Materials Review

The team conducted a critical review of the marketing materials gathered through the other components of this research. The review was designed to glean insights and inform recommendations for future marketing efforts. A total of 58 pieces of marketing materials related to the Income Eligible program were gathered and analyzed from agencies and PAs both as part of the interview process and the auditor ride-alongs. Of these, 18 were co-branded materials designed in collaboration between the agency and the PA. Types of materials included brochures, flyers, flyers in languages other than English, websites, infographics, postcards, and lawn signs. A thematic analysis was done to classify characteristics of the materials across a standard set of variables. These variables include content related to value propositions, attempts to overcome barriers of program implementation, noting adjacent values of participation and the bundling of services, dissemination channels, and alignment with stakeholders.

Figure 5. Program Materials Characteristic Classification Scheme

Value proposition
- Comfort
- Community
- Cost savings / control over budget
- Health
- Home improvement
- Safety
- Social services
- Use of the terms “green,” “conserve,” and/or “efficiency”

Overcoming barriers
- Income validation process
- Hassle/risk of contractors in the home
- Mistrust of free programs
- Need alignment or support from landlords
- Setting expectations for participation and post-program

Adjacent values and bundling of services
- Community programs (safety, improvement, beautification, green)
- Financial literacy services
- Lead abatement, water testing, or other health services
- Other utility programs and services
- Telecom subsidies

Dissemination channel

Stakeholder alignment

Note: Dissemination channel and Stakeholder alignment are standalone classifications without sub-classifications.
APPENDIX C. MARKETING MATERIALS REVIEW MEMO

MA RES 38 INCOME ELIGIBLE PROCESS EVALUATION: MARKETING MATERIALS REVIEW

PREPARED FOR: MASSACHUSETTS PUBLIC ADMINISTRATORS

PREPARED BY: ILLUME

DATE: MAY 2018

C.1 Purpose

As part of the scope of work for Income Eligible Process Evaluation (RES 38) Stage 3 Research, ILLUME conducted a review of program marketing and outreach materials. As stated in the evaluation plan, “The efficacy of marketing to and effectively engaging target participants was a research topic raised by all organizations interviewed as part of the planning process for this study. As customers may have many competing demands for their attention, there is a need to review marketing and communication strategies to determine if messaging is sufficiently dynamic to address the varied needs of the target markets. ILLUME has several individuals on staff with expertise in marketing strategies for public, private, and community-based organizations. The evaluation team will use this expertise to facilitate a critical review of the marketing and outreach materials and messaging.”

CONTEXT OF LARGER PROCESS EVALUATION

The marketing materials review was part of Task 1: Literature Review and Benchmarking, Program Materials Review, and Secondary Data Analysis. By the time of the program materials review stage, the research team had reviewed the last process evaluation, gained an understanding of how the current program operates through interviews with PAs, LEAN, and agencies, conducted auditor ride-alongs, and benchmarked approved measures within the Massachusetts Income Eligible Program against similar income eligible energy assistance programs. The primary deliverable is to summarize findings based only on secondary research and a reported understanding of how the marketing materials were used, disseminated, and received.

APPROACH

The program does not track or report on marketing metrics like website views, form downloads, number of impressions of print materials, whether the materials reached the right segments, or resulting conversions. Thus, the team assessed what value propositions are most prevalent in the materials, and whether the material content meets the minimum requirements for what customers need to know to participate in the program. The evaluation team also speculated on whether the content adequately addresses barriers to participation at the appropriate phases of the customer journey.

At the time of this review, Mass Save’s Data website had performance data that indicated that the income eligible programs have met at least 90% of participation, MWh savings, summer capacity (kW) savings, and therm savings goals each year since the program began. In fact, they exceeded their goals most years (www.masssavedata.com/public/performancedetails, see Q4 2017 Electric and Gas Summary Report). If this study aimed to simply answer the question, “Did the materials enable the program to meet their recruitment, enrollment, and completion goals,” there would be no question about the marketing
materials performing their function. Rather, it is the aim of this study to advise on ways to improve the marketing materials to optimize the marketing spend.

This review is organized first by articulating what the team knows about Massachusetts customers and what they need to understand, think, or feel in order to participate successfully in the energy assistance programs. Then, the review summarizes how the existing materials meet those needs via their content and their dissemination channels. Finally, the evaluation team offers recommendations of areas for further marketing effectiveness research.

C.2 Customers

To assess the efficacy of program marketing materials, there is a need to first understand the customer by knowing who they are, their desires, needs and affinities, their problems and fears, who they listen to and trust when making decisions to engage energy efficiency services, and what they would want and value in the program offering. In summary, the target customer base is as follows:

**TARGET CUSTOMER BASE**

What the team knows:

- Income levels on a scale between $34,380/one household member to $91,239/eight household members.
- Represent at least 10 languages in the program’s territory, the main ones being English, Spanish, and Portuguese.\(^\text{36}\)
- Often come to energy efficiency and weatherization programs via fuel assistance (LIHEAP).
- Fuel assistance customers often coincide with other eligibility programs like TANF, EAEDC, SNAP, MassHealth, WIC, and other income eligible programs.
- PAs send lists of their discount rate participants to the agencies implementing the program at least once a year. This is a regular source of potential customers that agencies rely on more so than the connections with other social service agencies or programs (not including LIHEAP).

**VALUE PROPOSITIONS**

Energy efficiency program outreach and customer acquisition messages usually lead with these value propositions:

- Saving money and having control over budget
- Efficiency and conservation
- Home improvement
- Comfort
- Safety
- Health

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\(^{36}\) Modern Language Association. *MLA Language Map Data Center*. Retrieved July 2018 from: [https://apps.mla.org/map_data](https://apps.mla.org/map_data). Data shown from the MLA Language Map Data Center are from the American Community Survey (ACS).
Income eligible programs also draw on consumers’ appreciation of:

- Saving even more money (additional benefits including full appliance replacement, completely free services, and greater discounts than market rate customers)
- Social services
- Community values

**BARRIERS TO OVERCOME**

Marketing materials must circumvent or address barriers to enrollment, income verification, property owner permissions, completion of program steps, or other contextual barriers that would prevent someone from successfully enrolling in, or completing, the programs:

- Mistrust of free programs
- Privacy concerns with the income validation process
- Complexity or hassle of collecting verification documents
- Hassle, time investment or risk of having implementing agency staff or contractors come to your home
- Property owner support or compliance
- Not knowing what to expect or how to prepare for program or post-program requirements
- Other adjacent concerns like food insecurity that would de-prioritize the energy efficiency program

**ADJACENT VALUE**

Sometimes energy efficiency programs can be bundled or associated with other valuable offerings to give the home assessment programs a lift. For example:

- Other utility programs and services such as LIHEAP and WAP (i.e., what Mass Save tries to do—aggregate all the energy assistance programs to make it easy to enroll and get value)
- Financial assistance or literacy services
- Telephone service discounts (subsidies)
- Lead abatement, water testing, or other health services
- Community programs (safety, improvement, beautification, greening)

**C.3 Purpose of Marketing**

**WHAT CUSTOMERS MUST UNDERSTAND, THINK, FEEL**

Marketing materials call on prospective customers to enroll in the energy assessment program, follow the necessary steps to complete the program, and in some cases engage their landlords to provide necessary approvals and other support. These decisions all involve some level of risk, trust, and non-monetary investment on the customer’s part. To move customers to act, the marketing content must influence what customers understand, think, and feel.
Intrinsic program value for customers

Given what the team knows about these customers, program customers need to feel that the Income Eligible Program is just as essential and important to their lives as their other sources of income and support.

Complex, but worth it

Customers need to understand and expect the bureaucracy of income verification and having energy specialists/auditors and program inspectors (akin to social workers) in their homes. To know and understand these expectations, they need to have clear explanations, in their own languages, of all the steps involved in participating, and all the tasks the auditors will perform in the intimate space of the customer’s home.

In addition, for multifamily programs, customers need to be empowered to get what they need from their landlords to be able to participate. They need to know that there are many other resources available to help them through the process and succeed in the program.

Different value proposition for landlords

As a secondary customer, landlords need their own value proposition as well. Property owners and landlords also need to understand the complexity of the process and the requirements put on them, but they need to feel that the hassle is worth it for a significant improvement in their property values.

Trust when it seems too good to be true

Before giving out their sensitive information to people offering a free service, both participants and their landlords also need to be able to trust that the enrollment process is legitimate, that the auditors and inspectors are trained professionals, and that any contractors engaged for the program have been licensed and vetted.

C.4 Content Review

The following discussion explores whether the informational content, language, imagery, format, and calls to action in these materials try to meet the basic objectives for what customers should understand, think, and feel.

The materials reviewed here are listed in Section C.6 of this memo, with notes on the stage of the customer journey and the distribution channel used. The team did not review radio or TV ads, billboards, bus signs, social media, or other online or print media outreach.

Researchers also brought samples of PA-level marketing materials along with them on ride-alongs to elicit customer feedback. These observations happened past the point of sale, or the point where customers had to make a decision as to whether to participate.

CONVEYING THE VALUE PROPOSITION

Intrinsic value of the offered services

Marketing pieces that were specifically targeted at qualifying customers all explained the terms of participation in the Income Eligible Program, positioning it as a zero-investment decision with high benefits. For qualifying low income customers, services included weatherization services and heating
system repair and replacement services, all provided at no cost. At the highest level (websites, glossy utility brochures) or the most personal level (personal letters on non-profit organization stationery), marketing messages emphasized the benefits of energy savings, a more comfortable home, and that the program could supply essential updated assets like heating systems and appliances.

In the materials handed out by agencies, the value of the program was also tied to adjacent areas of concern for customers, including their ability to pay their utility bills, food insecurity, and financial services. Examples of this were the brochures that bundled fuel assistance services with the energy assessments; the brochures that offered comprehensive social service consultations for other assistance programs like childcare, food subsidies, and financial counseling; the notable collaboration on giveaways between Mass Saves and local food banks; and MOC’s specialized messaging to the elderly about home comfort and safety.

**Native Languages**

The Mass Save Income Eligible Energy Assistance Program brochure is a comprehensive overview of all the services available to income eligible consumers. This is available in nine languages besides English, covering much of Massachusetts' language demographics.

The most prevalent language besides English for marketing pieces specific to the program was Spanish, with one Portuguese version of a Home Energy Assessment brochure. Other languages in which reviewed marketing materials were written include Cape Verdean, Chinese, Haitian Creole, Hindi, Russian, Urdu, and Vietnamese.

**Other customer segments**

Marketing materials were not finely targeted to sub-segments beyond income and language. Some materials from agencies did reflect a more targeted message to their local customer base, such as MOC’s outreach to non-profit or federally subsidized multifamily property managers, or some agencies that tailored their messages to their elderly constituents.

**Conveying complex eligibility and process information**

At a high level, the ride-along observations confirm that customers tend to like marketing materials with graphics more so than they like materials with words.

From the Mass Save website to the Income Eligible program overviews, the income eligibility terms were introduced in clear and simple tables. Only the communications from the agencies included more specific instruction about what customers would need to have in hand to validate their eligibility for the program. It is probably better for trained agency outreach workers to explain the verification process, as opposed to trying to load marketing materials with this bureaucracy-heavy content. Customers of these programs may also be used to eligibility verification processes. Feedback obtained from ride-alongs showed that some customers really like the materials with lots of details about program eligibility, especially the income thresholds, however, others felt that it was just way too much information.

It is more important to explain the many steps involved in a home energy assessment. Customers interviewed on the ride-alongs confirmed that they preferred the whole-home energy assessment infographic because the visual was easy-to-understand and the descriptions helped them contextualize/realize what it was that was being looked at around the house as part of the service. Customers need to understand how long an auditor will be at their home, what to expect during the
assessment, what is appropriate for the contractor to ask and see, and why all this activity is necessary. To that end, the infographics put out by National Grid, Columbia Gas, and Cape Light attempt to cover all the questions and ease the concerns a customer would have about the in-home assessment experience. These postcards and leave-behinds use clear graphic elements and are the right size for posting or keeping in a prominent place in preparation for the home visit.

**Positioning the “income eligible” aspect**

The team’s ride-along researchers accompanied implementers to customer homes, so they elicited feedback from customers who were participating in the context of outreach from their local community action agency. These customers tend to see their participation in the program as a component of the services they receive from their social service agency. Some customers like to hear that a program is “free” or “no cost” while others felt those words triggered some loss of pride or guilt—that they feel guilty for needing the service, or would like to think that they do not need the service—and suggested removing those words.

**Different value proposition for landlords**

For residential customers living in properties that qualified for multifamily programs, several of the agencies provided targeted collateral with links to LEAN’s web resources for property owners. Providing this kind of information or tactic is an important way to equip tenants to get the involvement and required support they need from their landlords, and a way to draw more multifamily property owners into the program.

For landlords, the Mass Save website and multifamily marketing materials included directions and links to the LEAN website with resources dedicated to helping property owners fill out the correct paperwork and understand their obligations. The messaging content in these resources also emphasized that there was no monetary investment, while explaining the benefits of improved property value with some investment of time and coordination.

**Inspiring trust**

Trustworthiness can come in different forms. Co-branded materials from Mass Save served to establish the legitimacy and credibility of the program by leveraging the brand equity of logos of all the PAs and utilities, with clean layout, professional production levels, and high quality photos and imagery. On the other hand, local agencies often used their own stationery and copy machines to send personalized letters and mailers to their constituents. This approach also builds trust that the face of the program is local and familiar, with the interest of the community at its heart.

## DISSEMINATION CHANNELS AND PATHS

Marketing materials introduced at different times, through various channels, should move customers further along the desired customer journey. The materials reviewed fall into these stages:

**PA-level: Initial customer awareness, ongoing customer education**

Marketing assets that create customer awareness start with the Mass Save website, with its path through several sub-pages that explain the income-qualified programs, the difference between low income and non-income eligible offerings (home energy assessments under the “enhanced energy program”), and the multifamily program for properties with a prescribed proportion of low income residents. Larger PAs like National Grid and Eversource also produce and distribute their own branded materials, which are co-
branded with local agencies who perform customer outreach activities.

The website and the program overview brochure not only stimulate awareness but also provide reliable and always-on resources for prospects searching for energy assistance programs on their own, or for prospects who are still considering their decisions and want to explore more resources.

However, on ride-alongs, the evaluation team did hear that customers tended to recognize the agency name over “Mass Save” or the utility’s name. In large part, both auditors and customers did not know that they were participating in a program under the Mass Save umbrella. They identified “Mass Save” as the Moderate Income/rebate program only.

**Agency-level: choosing a service provider**

Co-branded materials from their utilities, with referrals to their designated agency, serve to direct customers to an appropriate local resource. The online, searchable provider database also serves this purpose. These localized referrals intend to make the enrollment experience more personal and less intimidating. In many cases, customers had the name and contact information for a dedicated person who would help them through the enrollment and eligibility process. Of the materials we reviewed, two agencies and PAs had produced co-branded materials.

**LEAN and the multifamily program level: Direct outreach to property owners**

LEAN produced dedicated resources (website, online applications) in a play to directly address the concerns and interests of multifamily property owners, who are key drivers for participation the multifamily retrofit program. This tactic is also reinforced by implanting agencies in their marketing and outreach efforts, with material that directs property owners to LEAN’s online resources.

**C.5 Recommendations**

**FURTHER LINES OF INQUIRY WITHIN THIS EVALUATION**

Additional customer attributes can allow further assessment of the efficacy of marketing and outreach; at the time of the marketing materials review, we did not have this insight, but this would be good to revisit after further research:

- **What percentage of customers are seniors, baby boomers, or younger segments?** There could be more targeted marketing campaigns based on age, and consideration of the right channels to reach each subsegment.

- **How many in the target market are homeowners? How long have homeowners been in this income bracket? Where are these segments concentrated?** Marketing to these segments might have to consider reaching them through both the home improvement path and the economic assistance path.

- **Where and why do income eligible customers look for information on assistance programs?** For customers coming to the program because they are primarily interested in relieving their economic burdens, the best marketing channels need to be identified including an exploration into how often customers get information from online sources.
- Do they look for information or inspiration on home maintenance, comfort, or safety? If so, where do they look? For customers coming to the program because they are primarily interested in their home upkeep, the best marketing channels need to be identified.

- Other influencers—are there community leaders, affinity groups, and social networks that should be considered when trying to connect implementers to customers?

### STRATEGIC IMPROVEMENTS FOR THE PROGRAM

**Start tracking marketing metrics**

Any thorough assessment of marketing effectiveness is only possible with more ongoing tracking and monitoring of performance metrics. This is especially true for digital, web-based assets. Google Analytics and inexpensive marketing intelligence tools can enable program marketing managers to review website traffic, page views, form fills, and asset downloads. These should be compared with the timing of outreach waves or recruitment campaigns. The number of print materials disseminated, and the places where they are disseminated, should be noted as well. All this insight can help inform decisions about effectiveness: whether a campaign reached the right people at the right time, and what messages or assets customers prefer or seek.

**Build the capabilities of CAAs**

The “air cover” provided by Mass Save and the PAs is solid, but the last mile to the reach customer is covered by the agencies. It might be a good investment to explore more ways to help agencies market the programs using their unique identity and familiarity with local markets. Find ways to make it easy for the agencies to order, print, and distribute co-branded program materials. Work with agencies on specialized messaging for the unique segments they serve including materials in appropriate languages.

**Leverage other valuable services that are top-of-mind for income eligible customers**

Create more campaigns, like the Food Box light-bulb giveaway, that use other issues of pressing concern to income eligible consumers. Agencies know their constituencies and probably have good ideas besides the usual neighborhood street fairs. Consider meeting the customers where they are at by doing in-language outreach at the right community hubs, from ethnic groceries to lending groups to clubs and associations.

### C.6 List of Materials Reviewed

<table>
<thead>
<tr>
<th>Asset Reviewed</th>
<th>Stage in Customer Journey</th>
<th>Distribution Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Save two-page flyer, overview of all Low Income Energy Assistance Programs with instructions about how to qualify</td>
<td>Exploring any/all energy assistance programs</td>
<td>Mass Save PAs and utilities</td>
</tr>
<tr>
<td>English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cape Verdean</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 2017 Income Eligible Process Evaluation (RES 38)

<table>
<thead>
<tr>
<th>Asset Reviewed</th>
<th>Stage in Customer Journey</th>
<th>Distribution Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>Exploring energy conservation, not necessarily income eligible programs</td>
<td>Mass Save PAs and utilities</td>
</tr>
<tr>
<td>Haitian Creole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hindi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portuguese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urdu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vietnamese</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mass Save Energy Saving Tips, four-page brochure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong><a href="https://www.masssave.com/">https://www.masssave.com/</a></strong></td>
<td>Exploring all Mass Save programs, not necessarily income eligible</td>
<td>Mass Save PAs and utilities</td>
</tr>
<tr>
<td>Mass Save website’s main landing page</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong><a href="https://www.masssave.com/en/saving/income-based-offers/">https://www.masssave.com/en/saving/income-based-offers/</a></strong></td>
<td>Customer has visited Mass Save main page and found the Income Based Offers site, trying to determine whether they qualify for “Income Eligible” or non-income eligible (“Enhanced Residential Program”)</td>
<td>Mass Save PAs and utilities, CAP agencies, and LEAN</td>
</tr>
<tr>
<td>Mass Save website’s landing page for Income Based Offers, listing eligibility and program benefits and linking to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Energy Assistance Programs page</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Enhanced Residential Program page</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• downloadable brochure in 10 languages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• energy savings tips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• MF program link for landlords</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• “find a CAP” interactive webpage</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong><a href="http://hedfuel.azurewebsites.net/">http://hedfuel.azurewebsites.net/</a></strong></td>
<td>Customer has already received a postcard or explored the Mass Save website and is looking for more information about their options and service providers</td>
<td>Mass Save PAs and utilities</td>
</tr>
<tr>
<td>“Find a CAP” Searchable site for local Community Action Providers of energy services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhanced Insulation and Appliance Incentives webpage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset Reviewed</td>
<td>Stage in Customer Journey</td>
<td>Distribution Channel</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td><a href="http://leanmultifamily.org/">http://leanmultifamily.org/</a></td>
<td>Property owners of income eligible multifamily properties looking for energy retrofit services</td>
<td>Mass Save PAs and LEAN</td>
</tr>
<tr>
<td>Home page for LEAN Multifamily Retrofit program</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://leanmultifamily.org/apply-now">http://leanmultifamily.org/apply-now</a></td>
<td>Eligible property owner has explored Mass Save Income Based Offers page or the LEAN Multifamily home page and is ready to apply to the program</td>
<td>LEAN</td>
</tr>
<tr>
<td>Form capture application for LEAN MF program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHAT DOES A HOME ENERGY ASSESSMENT OFFER?</td>
<td>Targets recipients of fuel assistance or utility discounts to make them aware of Cape Light Compact’s Enhanced Energy Efficiency Program</td>
<td>HAC Energy, Cape Light</td>
</tr>
<tr>
<td>Home Energy Assessment and Appliance Upgrade, large postcard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEACE OF MIND AND SAVINGS FOR YOU AND YOUR FAMILY.</td>
<td>Targets recipients of fuel assistance or utility discounts to make them aware of Cape Light Compact’s Enhanced Energy Efficiency Program</td>
<td>HAC Energy, Cape Light</td>
</tr>
<tr>
<td>Home Energy Assessment and Appliance Upgrade, small postcard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing Assistance Corporation (HAC) Energy brochure, four-page mailer</td>
<td>Call to action for Home Energy Assessment, not necessarily income-qualified</td>
<td>HAC Energy, Cape Light Compact</td>
</tr>
</tbody>
</table>
### 2017 Income Eligible Process Evaluation (RES 38)

<table>
<thead>
<tr>
<th>Asset Reviewed</th>
<th>Stage in Customer Journey</th>
<th>Distribution Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.capelightcompact.org/energy-efficiency/residential/">http://www.capelightcompact.org/energy-efficiency/residential/</a></td>
<td>LI customers can get here from the Enhanced Residential Programs page on the Mass Save Income Eligible Programs page. Residential Cape Light customer exploring options for energy assessments, not necessarily income-qualified; looking for education.</td>
<td>Cape Light Compact</td>
</tr>
<tr>
<td><a href="http://www.capelightcompact.org/energy-efficiency/residential/">Columbia Gas Home Energy Assessment</a> two-page flyer</td>
<td>Targeted at both Income-Qualified and Enhanced Energy, but content is more relevant to Enhanced Energy Program (non-LI) customers.</td>
<td>Columbia Gas and Mass Save</td>
</tr>
<tr>
<td><a href="http://www.capelightcompact.org/energy-efficiency/residential/">Action Energy Services</a> brochure</td>
<td>Income eligible food bank recipients who might also qualify for weatherization and appliance replacement services; directed to CAP directories phone and online.</td>
<td>Mass Save PAs and utilities, LEAN, local food banks</td>
</tr>
</tbody>
</table>

Follow up flyer and companion piece to local campaign—complimentary LED lights via Food Bank distribution.
<table>
<thead>
<tr>
<th>Asset Reviewed</th>
<th>Stage in Customer Journey</th>
<th>Distribution Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Grid brochure in English and Spanish for both LI and Enhanced programs, can be co-branded with CAPs</td>
<td>Both income eligible and non-income eligible customers eligible for home energy assessments, who need to know program terms and benefits</td>
<td>National Grid with: Action Energy, Community Teamwork (CTI), ABCD, other CAAs</td>
</tr>
<tr>
<td>National Grid one page infographic on what to expect in a home energy assessment</td>
<td>Customer considering participating, who want to understand what's involved in a home energy assessment</td>
<td>National Grid, CAPs</td>
</tr>
<tr>
<td>CTI Fuel Assistance outreach flyer</td>
<td>Initial outreach to prospective CTI Fuel Assistance customers, probably after they have viewed other Eversource Mass Save marketing materials</td>
<td>CTI, Eversource</td>
</tr>
<tr>
<td>CTI Interest Form with informational letter and tear-off form</td>
<td>National Grid and Eversource customers in CTI service area who qualify for Wx, Appliance Management (AMP) and Heating System Repair and Replace (R&amp;R) and who want to be contacted by an Energy Specialist</td>
<td>CTI, Eversource, National Grid</td>
</tr>
<tr>
<td>Asset Reviewed</td>
<td>Stage in Customer Journey</td>
<td>Distribution Channel</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>CTI Property Owner Letter</td>
<td>Personal letter to prospective property owner who has a tenant that CTI has enrolled in the retrofit program, explaining all the terms and expectations of landlord participation in the program</td>
<td>CTI</td>
</tr>
<tr>
<td>CTI Fuel Assistance and Home Energy Assessment</td>
<td>Customer eligible for Fuel Assistance and Home Energy Assessment (Wx, AMP, R&amp;R), probably has already engaged with an outreach effort by CTI</td>
<td>CTI</td>
</tr>
<tr>
<td>Montachussetts Opportunity Council (MOC) Energy Services brochure</td>
<td>Income eligible and elderly households eligible for fuel assistance and home energy assessment, who have likely already engaged with a MOC outreach worker</td>
<td>Montachussetts Opportunity Council (MOC)</td>
</tr>
<tr>
<td>MOC Energy Services Multifamily Energy Conservation brochure</td>
<td>Eligible property owners considering the MF program</td>
<td>MOC</td>
</tr>
<tr>
<td>Asset Reviewed</td>
<td>Stage in Customer Journey</td>
<td>Distribution Channel</td>
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<tr>
<td>----------------</td>
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</tr>
<tr>
<td>Eversource and CAP co-branded flyer available in English, Portuguese and Spanish for Mass Save Home Energy Assessment program</td>
<td>Customers of Eversource in a CAP’s service area who are being recruited for LI, Enhanced, or MF programs</td>
<td>Eversource, various CAPs including the 11 listed</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>CFC HAS FREE ENERGY PROGRAMS AVAILABLE</td>
<td>National Grid and Eversource Customers in CFC service area who are eligible for AMP program</td>
<td>CFC, National Grid, Eversource</td>
</tr>
<tr>
<td>APPLIANCE MANAGEMENT PROGRAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGRID Customers: 508-675-2157 ext 274</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVERSOURCE Customers: 508-675-2157 ext 275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔ LED light bulbs installed and appliances checked to determine usage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔ We will also determine if the following appliances are eligible to be replaced:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window air conditioners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehumidifiers</td>
<td></td>
<td></td>
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<tr>
<td>Fall River Citizens for Citizens AMP flyer</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter from MOC to NGRID and Unitil customers eligible for free programs</td>
<td>LI customers of NGRID and Unitil in MOC’s service area, part of MOC targeted outreach</td>
<td>MOC</td>
</tr>
</tbody>
</table>
APPENDIX D. INDUSTRY SCAN AND LITERATURE REVIEW MEMO

Income Eligible Process Evaluation: Task 1 Literature Review (RES 38)

Prepared for:

The Electric and Gas Program Administrators of Massachusetts
Part of the Residential Evaluation Program Area

Submitted by:
Navigant Consulting, Inc.
1375 Walnut Street, Suite 100
Boulder, CO 80302
303.728.2500
navigant.com

June 4, 2018
D.1 Introduction

This report presents the results of the Task 1 literature review to identify measure offerings, program design approaches, and savings opportunities for income eligible programs which may be applicable the Massachusetts Income Eligible Program. The team focused on income eligible efforts outside of Massachusetts and culled information from a host of publicly available literature, as well as informal discussions with industry experts.

As discussed with the PAs and LEAN during planning discussions, the team set out to complete a focused “scan” of the income eligible program landscape for ideas and opportunities that could benefit ongoing program planning. It is important to note that the evaluation team did not seek to complete an exhaustive review of all income eligible programs. Where possible, the team prioritized programs in heating-dominated climates like Massachusetts.

Table 12 summarizes the half dozen technologies and delivery strategies identified as part of the team’s review. Not all technologies and strategies are equal; some, pending a more detailed review, may be more viable for adoption in Massachusetts than others.

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Program Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-E Storm Windows and Panels</td>
<td>Behavior change</td>
</tr>
<tr>
<td>Additional window attachments (e.g., insulating blinds)</td>
<td>Partnerships for workforce development and customer engagement</td>
</tr>
<tr>
<td>Ductless Heat Pumps (expand measure applicability to all HVAC systems and fuel types)</td>
<td>Market segmentation and targeted program offerings</td>
</tr>
<tr>
<td>Thermostatic radiator valves</td>
<td></td>
</tr>
<tr>
<td>Efficient dryers</td>
<td></td>
</tr>
<tr>
<td>Engine block heater controls</td>
<td></td>
</tr>
</tbody>
</table>

D.2 Methodology

Below is a brief summary of the key sources the team reviewed.

- **ACEEE Strategies for Successful Low Income Energy Efficiency Programs.**
  Published this meta-study of income Eligible programs highlighting proven strategies for generating greater participation and deeper energy savings. This is one of the most recent studies reviewed (distributed in October 2017).

- **National Literature Review as part of the Multifamily Program Improvement Strategies study.**
  In September 2017, Navigant conducted a review of multifamily implementation strategies as part of RES 42. The review offered a concise summary of the opportunities specific to multifamily units, a market targeted by the Income Eligible Program.

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37 [http://aceee.org/research-report/u1713](http://aceee.org/research-report/u1713)
**Evaluation of the US Department of Energy Weatherization Innovation Pilot Program.** Oak Ridge National Labs (ORNL) conducted this evaluation of the Weatherization Innovation Pilot Programs funded under the American Reinvestment and Recovery Act (ARRA). From 2010–2014, the 16 grantees under this program tested innovated approaches to weatherization in various jurisdictions across the US. The evaluation examined successes of each pilot. ORNL released this evaluation in May 2017.\(^{38}\)

**Regional Technical Forum.** The RTF is a technical advisory committee to the Northwest Power and Conservation Council established in 1999 to develop standards to verify and evaluate energy efficiency savings.\(^ {39}\) Through review of the RTF, the team identified technologies targeted to income eligible households and relevant savings.

**Bonneville Power Administration Implementation Manual (2017-2019 Program Years).** The Bonneville Power Administration (BPA) is a non-profit federal power marketing administration that provides electric power, maintains the electric distribution system, promotes energy efficiency, and pursues related research on behalf of the region public power utilities. The BPA Implementation Manual provides information on how to plan and implement energy savings projects. This includes options to further regional energy efficiency in partnership with BPA (BPA, 2017).\(^ {40}\)

**Income eligible programs nationwide.** In addition to the abovementioned literature, the team also reviewed utility-specific program offerings and delivery approaches currently employed by:

- Xcel Energy\(^ {41}\)
- Focus on Energy’s\(^ {42}\) programs
- National Grid – New York service territory\(^ {43}\)
- Efficiency Vermont\(^ {44}\)
- Puget Sound Energy,\(^ {45}\) with a focus on multifamily\(^ {46}\)

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\(^ {39}\) Available at [https://rtf.nwcouncil.org/](https://rtf.nwcouncil.org/)


\(^ {41}\) [https://www.xcelenergy.com/programs_and_rebates](https://www.xcelenergy.com/programs_and_rebates)

\(^ {42}\) [https://www.focusonenergy.com/residential](https://www.focusonenergy.com/residential)


\(^ {44}\) [https://www.efficiencyvermont.com/rebates](https://www.efficiencyvermont.com/rebates)

\(^ {45}\) [https://pse.com/savingsandenergycenter/Pages/default.aspx](https://pse.com/savingsandenergycenter/Pages/default.aspx)

\(^ {46}\) [https://pse.com/savingsandenergycenter/ForCondosApartments/Pages/default.aspx](https://pse.com/savingsandenergycenter/ForCondosApartments/Pages/default.aspx)
D.3 Technology Review

Prior to investigating potential new measures, the team reviewed the set of existing measures offered through the single and multifamily income eligible programs (Table 13). The team also requested and review information regarding any measures that the PAs and LEAN recently considered for inclusion in the program (Table 13).

Table 13. Existing Program Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Program (SF, MF, Both)</th>
<th>Relevant Fuel Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Sealing</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Air Source Heat Pumps</td>
<td>MF Only</td>
<td>Electric</td>
</tr>
<tr>
<td>Appliance Removal</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Boiler Reset Controls</td>
<td>Both</td>
<td>Gas, Oil, Other</td>
</tr>
<tr>
<td>Clothes Washer (Retirement and EE)</td>
<td>SF Only</td>
<td>All</td>
</tr>
<tr>
<td>Custom</td>
<td>MF Only</td>
<td>Not Specified</td>
</tr>
<tr>
<td>Dehumidifier (Retirement and EE)</td>
<td>MF Only</td>
<td>Electric</td>
</tr>
<tr>
<td>Demand Circulator</td>
<td>MF Only</td>
<td>All</td>
</tr>
<tr>
<td>Duct Insulation</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Duct Sealing</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Faucet Aerator</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Freezer Replacement</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Heating System Retrofit (Boiler)</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Heating System Retrofit (Furnace)</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Heating System Retrofit (Heat Pump)</td>
<td>SF Only</td>
<td>Electric</td>
</tr>
<tr>
<td>Insulation</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Lighting (CFLs)</td>
<td>MF Only</td>
<td>Electric</td>
</tr>
<tr>
<td>Lighting (LED Bulb)</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Lighting (LED Fixture)</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Lighting (Occupancy Sensor in Common Area)</td>
<td>MF Only</td>
<td>Electric</td>
</tr>
<tr>
<td>Lighting (Torchiere)</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Low-Flow Showerhead</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Low-Flow Showerhead with TSV</td>
<td>MF Only</td>
<td>All</td>
</tr>
<tr>
<td>Pipe Wrap (Heating)</td>
<td>MF Only</td>
<td>Gas, Oil</td>
</tr>
<tr>
<td>Pipe Wrap (Water Heating)</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Refrigerator Replacement</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Smart Strip</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Thermostat (Programmable)</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Thermostat (Wi-Fi)</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Thermostatic Shut-off Valve</td>
<td>MF Only</td>
<td>Electric, Oil, Other</td>
</tr>
<tr>
<td>Variable Frequency Drive</td>
<td>MF Only</td>
<td>Electric</td>
</tr>
</tbody>
</table>
### 2017 Income Eligible Process Evaluation (RES 38)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Program (SF, MF, Both)</th>
<th>Relevant Fuel Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Heater (Heat Pump)</td>
<td>Both</td>
<td>Electric</td>
</tr>
<tr>
<td>Water Heater (Indirect)</td>
<td>MF Only</td>
<td>Gas, Other</td>
</tr>
<tr>
<td>Water Heater (Standalone)</td>
<td>MF Only</td>
<td>Gas, Oil, Other</td>
</tr>
<tr>
<td>Water Heater (Tankless)</td>
<td>MF Only</td>
<td>Gas, Oil, Other</td>
</tr>
<tr>
<td>Waterbed</td>
<td>SF Only</td>
<td>Electric</td>
</tr>
<tr>
<td>Weatherization</td>
<td>Both</td>
<td>All</td>
</tr>
<tr>
<td>Window AC Replacement</td>
<td>Both</td>
<td>Electric</td>
</tr>
</tbody>
</table>

**Table 14. Summary of LEAN and the PA’s Recent Measure Considerations**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standalone direct hot water (SF)</td>
<td>Currently Under Consideration</td>
</tr>
<tr>
<td>Window shades</td>
<td>Currently Under Consideration</td>
</tr>
<tr>
<td>Lighting occupancy sensor (SF)</td>
<td>Currently Under Consideration</td>
</tr>
<tr>
<td>Phase Change Materials (insulation), heat sensors</td>
<td>Currently Under Consideration</td>
</tr>
<tr>
<td>Active demand management including: refrigerators, storage, dehumidifiers, air source heat pump, air conditioner, heating controls</td>
<td>Currently Under Consideration</td>
</tr>
<tr>
<td>Standalone Clothes Dryers</td>
<td>Currently Under Consideration</td>
</tr>
<tr>
<td>Solar Water Heaters</td>
<td>Decision Deferred</td>
</tr>
<tr>
<td>Micro-Combined Heat and Power (MCHP)</td>
<td>Decision Deferred</td>
</tr>
<tr>
<td>Window quilts</td>
<td>Rejected</td>
</tr>
<tr>
<td>Fireplace inserts</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

### D.4 Technologies for Further Consideration

After reviewing the list of current and previously considered measures, the evaluation identified six technologies that warrant further consideration by the PAs and LEAN for potential inclusion in the Income Eligible Program. Table 15, and the following supporting subsections, include potential savings values for each technology.

**Table 15. Summary of Identified Technologies for Consideration as Income Eligible Measures**

<table>
<thead>
<tr>
<th>Technology Category</th>
<th>Technology</th>
<th>Potential Savings</th>
<th>Key Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fenestration and Window Attachments</td>
<td>Low-E Storm Windows and Panels</td>
<td>10-30% of HVAC use</td>
<td>PNNL Studies: Cort and Widder, 2015; Culp and Cort, 2015; PNNL 2017; RTF; CEE</td>
</tr>
<tr>
<td></td>
<td>Additional window attachments</td>
<td>TBD</td>
<td>PNNL Lab Homes Study, AERC, CEE</td>
</tr>
<tr>
<td></td>
<td>(e.g., insulating blinds)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The next subsections provide supporting details related to each of the identified measures.

FENESTRATION AND WINDOW ATTACHMENTS

The Income Eligible Program currently includes limited window measures. The PAs and LEAN previously considered and rejected window quilts. The evaluation team identified two other types of window treatment measures: low-e storm windows and panels and window attachments, described below that merit additional consideration.

LOW-E STORM WINDOWS

Low-e storm windows and panels improve fenestration efficiency and comfort in existing buildings. There are a variety of products available for both single-family and multifamily applications, that include interior and exterior installations.

Existing research demonstrates savings of approximately 10-30% of HVAC system energy use from low-e storm windows, depending on the type and quality of the existing window installation. Analysis of these measures by the Pacific Northwest National Laboratory (PNNL) on behalf of the US DOE showed that they are cost-effective in a majority of climate zones across the US, including Massachusetts. Based on this study and other existing research, the RTF approved the measure and developed deemed savings

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values for single-family, mobile homes, and multifamily (5+ units) applications, although these values would need to be adjusted for Massachusetts climate. The RTF website also contains a useful summary of available resources on Low-E storm windows, including research reports, case studies, and an informational video.

**WINDOW ATTACHMENT OPTIONS**

The literature review identified window attachment options to improve efficiency such as insulation blinds, reflective and/or dynamic films, and dynamic shading. However, limited data exists on the performance of these window attachment technologies. For example, PNNL evaluated the energy savings of advanced insulating blinds in their PNNL Lab Homes, but found that establishing reliable savings would require more research. However, there continues to be significant interest in the potential energy savings associated with other types of window attachments. For example, the Advanced Energy Rating Council (AERC) is a national collaborative funded by the US Department of Energy that is currently considering rating metrics for such products. The Consortium for Energy Efficiency (CEE) also collected background materials on window attachments. The research found these products may also provide energy savings, but more research is needed to validate savings estimates and demonstrate the cost-effectiveness and savings persistence of these technologies.

PAs and LEAN are currently exploring costs, behavioral aspects, and savings with respect to these measures.

**HVAC**

The evaluation team identified three types of HVAC measures through the literature review: ductless heat pumps, quality installation verification, and thermostatic radiator valves, each described below.

**DUCTLESS HEAT PUMPS**

The Income Eligible Program currently includes the installation high efficiency air source heat pump (ASHP) in multifamily applications. However, the 2016-2018 TRM indicates that the baseline for assessing the savings associated with an eligible ENERGY STAR ASHPs is a less efficient ASHP. The PAs and LEAN should revisit this baseline assumption and potentially consider heat pumps as

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53 The low-e storm window measure is included as part of the RTF’s package of Weatherization measures for single-family, manufactured homes, and multi-family buildings.


56 [https://aercnet.org/](https://aercnet.org/)

57 [https://forum.cee1.org/content/attachment-resources](https://forum.cee1.org/content/attachment-resources)
replacements for existing old oil or propane systems where high efficiency gas systems are not an option. In addition, additional savings may be available from replacing an existing electric furnace with an ASHP, beyond what the current ASHP measure accounts for.

Similarly, the PAs and LEAN may also want to consider wider applicability of ductless heat pumps. Ductless heat pumps are typically more efficient than traditional ASHPs and eliminate heat losses associated with leaky duct work. Ductless heat pumps also have higher seasonal energy efficiency ratios and heating seasonal performance factor values which indicate higher efficiencies.58

The PAs and LEAN offer ductless heat pumps to residential applications;59 however, ductless heat pumps are not included in the Income Eligible Program single-family measure list provided by the PAs and are offered in multifamily as a custom measure.60 Ductless heat pumps have the following general benefits:

- Offer considerable energy savings opportunities for the income eligible market.
- Have applicability beyond traditional single-family applications; including manufactured homes.61
- Can be used for replacing ducted heating systems (such as forced air furnaces [FAF]62) or non-ducted (such as zonal).63

Ductless heat pump installation is applicable and appropriate for all HVAC types (zonal or ducted) and all fuels. They offset the energy consumption of the existing equipment, assuming appropriate control settings. The RTF estimates that installing a ductless heat pump to replace electric baseboards can result in savings of approximately 2,200 kWh/yr. The savings from using a ductless heat pump to supplement existing centrally-controlled HVAC systems is less certain due to the aforementioned control settings issue, but the preliminary work in the Pacific Northwest demonstrates savings of 55% on average.

Ductless heat pumps typically offer both heating and cooling functionalities. If a home did not have a cooling system prior to the installation of the ductless heat pump and the resident begins using the cooling system, savings may be reduced. Ductless heat pumps also work well in cold climates. Efficiency Vermont includes this technology in its residential portfolio.64 The literature review did not identify savings values for this region.

Based on the above research, the evaluation team suggests LEAN and the PAs consider ductless heat pumps in heating system replacement scenarios for all building types.

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56 Heat pump efficiency is described in terms seasonal energy efficiency ratio (SEER) values for cooling performance and heating seasonal performance factor (HSPF) values for heating performance. In both cases, higher is better.
60 Personal communication
61 Note, the RTF measure for ductless heat pumps in multifamily is currently under development. https://rtf.nwcouncil.org/measure/ductless-heat-pumps-multi-family
63 See https://rtf.nwcouncil.org/measure/ductless-heat-pumps-zonal-heat-sf and https://rtf.nwcouncil.org/measure/ductless-heat-pumps-zonal-heat-mh; there are separate measures for SF and MH.
64 https://www.efficiencyvermont.com/rebates/list/heat-pump-heating-cooling-system
THERMOSTATIC RADIATOR VALVES

The PAs and LEAN offer fairly comprehensive incentives for hydronic heating systems, including outdoor temperature reset controls for boilers. However, in its New York service territory, National Grid offers an incentive specific to hydronic heating systems: thermostatic radiator valves.¹⁵ Thermostatic radiator valves are an easy retrofit to existing radiators which regulate the flow of water through the unit and adjusts it depending on the temperature in the room. According to National Grid, turning the valve to a lower setting can cut heating costs by up to 20% and improve indoor comfort. National Grid resource active in New York can share their experience with MA PAs and help identify the relevant opportunities (new vs. existing) to install a thermostatic radiator valve.

APPLIANCES

The literature review identified two types of appliances not currently offered or considered in the Income Eligible Program: efficient clothes dryers and engine block heater controls. These measures are described below.

EFFICIENT DRYERS

There has been significant recent advancement in efficient clothes dryer technology, including the development and optimization of auto-termination controls to minimize over-drying and heat pump technology. Efficient residential clothes dryers use less energy than other dryers to remove moisture from clothing and can result in savings of 300 kWh/year for electric dryers or 5 therms/year for gas dryers. This technology is applicable for single-family and multifamily buildings although the measure’s cost-effectiveness can vary depending on fuel costs and usage profiles/assumptions.⁶⁶,⁶⁷

ENGINE BLOCK HEATER CONTROLS

Engine block heater controls are a potentially cost-effective measure option for cold climates. Vehicles in colder climates, particularly diesel vehicles, use engine block heaters to provide quicker startups, fewer pollutants, and less engine wear and tear. Conventional engine block heaters draw a constant amount of power, typically between 0.5 and 1.5 kW, whenever the vehicle is plugged in. Engine block heater controls allow the heaters to be turned on less frequently with the use of temperature sensors and timers, leading to significant energy savings potential.

The RTF estimates typical savings of 1,660 kWh/year in residential applications and even greater savings for some commercial applications.⁶⁸ The team could not identify a Northeast-specific savings estimate.

This technology can be an impactful and attractive measure even in regions with limited penetration of engine block heaters due to the significant energy savings and the fact that the savings occur during the coldest times of the year, which is typically coincident with the winter system peaks. At this time, the research team is not aware of engine block penetration in Massachusetts (for market rate or income eligible customers). One potential gauge of penetration would be brief interviews with auto-part stores regarding the popularity of engine block heaters, and any associated controls.

⁶⁶ https://rtf.nwcouncil.org/measure/clothes-dryers-sf-mh-and-mf-unit
⁶⁷ US Environmental Protection Agency (EPA). “ENERGY STAR Program - Clothes Driers.” Washington, D.C. Available at: https://www.energystar.gov/products/appliances/clothes_dryers
⁶⁸ https://rtf.nwcouncil.org/measure/engine-block-heater-controls
D.5 Delivery Strategies

In addition to reviewing opportunities for new measures, the research team conducted a scan of existing income eligible programs to identify delivery strategies that could be applicable in Massachusetts.

The team identified the following three categories of strategies:

1. Technology-driven behavioral strategies
2. Partnerships for workforce development and customer engagement
3. Market segmentation and targeted program offerings

STRATEGIES FOR BEHAVIOR CHANGE

One strategy for behavior change identified is in-home displays (IHDs) which are installed in the home to provide feedback, often in real time, about energy use. Below are descriptions of two examples of jurisdictions that used IHDs.

- **Pennsylvania Power and Light (PPL)** partnered with the Commission on Economic Opportunity (a traditional WAP implementer in Pennsylvania) to install IHDs in combination with energy education as part of the Winter Relief Assistance Program, an income eligible program offering. The Oak Ridge National Laboratory (ORNL) evaluation of this program found a substantial increase in savings (4% of pre-weatherization consumption) over weatherization alone.69

- **Vermont Energy Investment Corporation (VEIC)** implemented an ARRA funded pilot that deployed in-home displays in combination with energy coaching (both via telephone and in-home). However, the program encountered significant barriers, and was not able to recruit its targeted number of participants. Key challenges included the requirement that the home have broadband internet (which is not common in all income eligible homes), and the burden on participants of multiple visits to their homes.70

The evaluation team also looked for strategies that use behavioral programs to engage customers through coordinated messaging to drive savings persistence post-retrofit. Oracle’s white paper, *Beyond Weatherization: How Innovative Program Strategies Can Enhance Core Low Income Programs*, discusses these strategies in greater detail.71 The effectiveness of these strategies remains relatively unproven: the team did not uncover any third-party evaluation results documenting the impact of the behavioral program strategies suggested by Oracle on income eligible program results. However, Oracle’s white paper asserts that data driven segmentation and coordinated messaging can raise awareness of income eligible programs, increase program participation, and drive deeper savings through continued engagement with participants.

PARTNERSHIPS

Utility income eligible programs, including the PAs and LEAN, often use partnerships with complementary local organizations to extend their reach. ACEEE’s report cited a few specific examples that may be of interest to the PAs and LEAN, if not already explored or in place. In addition to their traditional

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partnerships with local community action agencies, DTE Energy also pursued non-traditional partnerships to extend their program to harder-to-reach communities. ACEEE’s report cited a partnership with the Alliance for Deaf Services as one example. This partnership allows DTE Energy to promote its programs in American Sign Language and deliver programs using technology that helps installers communicate with deaf customers.

While partnerships can be effective mechanisms for extending the breadth of program reach, the ONRL evaluation of ARRA funded pilot programs offered cautionary results about other types of partnerships. Namely, several grantees attempted to form partnerships with volunteer organizations or workforce development programs. These grantees had limited success, with the evaluation findings that “volunteer labor was observed to impede and decrease the installation and quality of weatherization measures.”

MARKET SEGMENTATION AND TARGETING

Many utilities employ market segmentation and program targeting to ensure that accurate and applicable program information reaches the intended customer segments. The ACEEE report cited examples of programs that have successfully segmented their income eligible customer base to address customer needs more specifically:

- Centerpoint Minnesota’s income eligible offerings include targeted offerings for non-profit income eligible housing developers, renters, and high energy users.
- Efficiency Vermont conducts direct, targeted outreach to high energy users. To achieve this segmentation, Efficiency Vermont analyzes usage data and flags households using more than 10,000 kWh per year, which is about double the average in Vermont.

The Massachusetts program already implements similar targeting. A substantial majority of the Massachusetts Income Eligible program participants are renters and the program prioritizes high usage. The program also includes a separate program for multifamily housing, including public housing, non-profit-owned housing, and privately-owned housing. Condominiums are treated in the same way as other multifamily buildings.
APPENDIX E. PUBLIC ADMINISTRATOR INTERVIEW GUIDE

The evaluation team will use this guide to conduct in-depth interviews with Program Administrator staff (RES 38 - Task 2).

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Program Administrator</td>
<td></td>
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<tr>
<td>Interviewer Name/Firm</td>
<td></td>
</tr>
<tr>
<td>Date of Interview</td>
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</table>

BEFORE THE INTERVIEW (0 min)

In advance of the interview, the evaluation team will administer the following set of questions to the interviewee to allow time for developing a response.

**Program Goals and Funding**

1. What goals does your agency have related to energy savings goals and the Income Eligible Program (kwh, unit goals, deemed savings goals, other energy savings goals)? How, if at all, are the energy savings goals different for single-family and multifamily customers programs?
2. What goals does your agency have related to spending program funds? How does that vary for single-family and multifamily programs?
3. How has program funding changed since last year?
4. How are funds allocated across fuels and single-family and multifamily (as applicable) programs?
INTRODUCTION (2 min)

We are working with Navigant to lead the process evaluation of the Income Eligible (low income weatherization) Program. The purpose of today’s interview is to gain better insight into the statewide income eligible program and any [PA] - specific issues we should consider in the evaluation. We encourage you to be as open as possible so that we have a full picture of what works and what recommendations might be most useful. All information gathered will be reported anonymously.

We would like to record this conversation for reference later. Is that ok? Do you have any questions before we get started?

[RECORD START]

BACKGROUND (5 min)

I’d like to begin by asking a few background questions.

1. To begin, could you please describe your role with the income eligible program?
2. What organization(s) do you work with to implement the Income Eligible Program? (Note – this is documented in the prior evaluation report, but we would like to confirm.)
   a. What are their roles?
   b. How would you describe your interactions with them?

PROGRAM IMPLEMENTATION (10 min)

3. About how many customers do you serve in a year through this program? What portion of those are single-family (1-4 units) and multifamily?
4. At a high level, could you describe how the single-family component of the Income Eligible Program works?
5. How do the processes vary for multifamily (5+ unit) customers?
6. Were there any changes made to program implementation or delivery in this 2016-2018 three-year cycle compared with the prior cycle? Please describe. [PROBE on purpose and implications of those changes.]
7. Do you see any differences in program delivery across the CAAs? If yes:
   a. How do agencies differ in delivery?
   b. Why do they differ?
   c. Do you believe the variations in delivery are beneficial? Please explain.

8. How does [PA] receive program data that agencies incorporate into reports to the Department of Public Utilities and the Energy Efficiency Advisory Council?
   a. Are there any concerns related to reporting participant data? If so, please explain.

PROGRAM GOALS AND FUNDING (15 min)

9. What goals does your agency have related to energy savings goals and the Income Eligible Program (kwh, unit goals, deemed savings goals, other energy savings goals)? [Asked prior to interview]
   a. How, if at all, are the energy savings goals different for single-family and multifamily customers? [PROBE for differences in savings goals between sizes of buildings, renters vs owners, or other factors.] [Asked prior to interview]

10. What goals does [PA] have related to spending program funds? [Asked prior to interview]
    a. To what degree is [PA] making progress toward spending goals?
    b. How does that vary for single-family and multifamily programs? [Asked prior to interview]

11. Outside of energy savings and spending goals, what other key performance indicators do you have for the program? [Asked prior to interview]

12. Are goals passed down to the lead agencies and/or sub-agencies?
    a. How is [PA] involved in motivating them to reach and are they held to those goals, if at all?

13. Have you [PA] had any issues meeting your goals in this program cycle? Explain.

I’d like to ask a few questions about funding for the income eligible program.

14. How are funds allocated across fuels and single-family and multifamily programs? [Asked prior to interview]

15. We know that funds are allocated for each 3-year cycle, and we understand that there’s some flexibility in how portions of that funding are used each year within that cycle. We also understand that low income programming can be funded by multiple sources. Thinking back over the last year or two, how has program funding changed at [PA] since
last year? [PROBE for has it increased, decreased, stayed the same] [Asked prior to interview]

16. Are there any concerns around how system benefits charge funds are spent? If so, what concerns?

MANAGEMENT OF CUSTOMER SERVICE REQUESTS (5 min)

We’re interested in learning more about the management of customer service requests.

17. How long, on average, are customers waiting to be served with an assessment, weatherization, or heating services?

18. [IF NOT ADDRESSED] What factors may affect the length of time a customer is waiting to be served, or the number of customers that are waiting to be served? [PROBE for season, services type (e.g. weatherization, heating)]
   a. Do you find this varies by agency or lead agency?
   b. How much of an issue are these factors for [PA]?

19. Are there standardized methods for tracking and reporting information about customers waiting to be served?
   a. How useful would it be to [PA] to have regular reports about lengths of time and numbers of customers waiting to be served?

MARKETING AND OUTREACH (10 min)

The next few questions are about participant outreach and engagement.

20. [IF NOT ADDRESSED] Who is responsible for marketing and outreach?

21. What marketing and outreach strategies does your agency use to reach customers?
   Please describe efforts for both single-family and multifamily customers.
   a. We’re interested in reviewing marketing messaging and materials as part of this study. What current marketing materials can be shared with us?

22. How do marketing strategies vary for different market groups? [PROBE for variation by geographic location, rural/urban, agency and/or PA territory, renters/owners, building size, fuel type, other]
   a. What target market groups are most difficult to reach? Why is that?
   b. Which target market group is least likely to participate, even if you reach them? Why is that?

23. Have marketing strategies evolved in the last 5-6 years? If so, how?
   a. What outreach strategies seem most effective? Why is that?
b. What outreach strategies seem least effective? Why is that?

c. [IF NOT MENTIONED] How does this vary for single-family and multifamily programs?

24. What other opportunities are there for customers to hear about the income eligible program? [PROBE for low income rates, customers that contact other social service organizations, etc.]

25. What additional resources and/or information might help your agency to better engage and serve target markets?

FORWARD-LOOKING PLANNING (5 min)

26. What concerns do you have going into the next program cycle? [PROBE for concerns about program delivery]
   a. What uncertainties do you anticipate related to funding? This may include both state and federal funding

27. What changes are under consideration for the next program cycle?
   a. Why are you considering those changes?
   b. [IF NOT MENTIONED] Are there new energy efficiency measures being considered, or you think should be included, in the next program cycle?

CLOSING (3 min)

We’ve gotten through most of our questions, this has been very helpful. We’ll use these last questions to wrap things up.

28. What would you like to learn from this evaluation?

29. As part of this study, we will also be interviewing lead agencies and sub-agencies. Is there anything we should be sure to ask them?

30. Would you like to add your thoughts about any areas that we did not cover?

Thank you so much for your time.
APPENDIX F. LEAD AGENCY INTERVIEW GUIDE

The evaluation team will use this guide to conduct in-depth interviews with Lead Agency staff (RES 38 - Task 2)

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Title</td>
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<tr>
<td>Agency Name</td>
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<tr>
<td>Interviewer Name/Firm</td>
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<tr>
<td>Date of Interview</td>
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</table>

BEFORE THE INTERVIEW (0 min)

In advance of the interview, the evaluation team will administer the following set of questions to the interviewee to allow time for developing a response.

Program Goals and Funding

1. What goals does your agency have related to energy savings goals and the Income Eligible Program (unit goals, deemed savings goals, other energy savings goals)? How, if at all, are the energy savings goals different for single-family and multifamily customers programs?
2. What goals does your agency have related to spending program funds? How does that vary for single-family and multifamily programs?
3. How has program funding changed since last year?
4. About what percentage of your low income weatherization services budget comes from PA funding? A rough estimate is fine.
5. How are funds allocated across fuels and single-family and multifamily (as applicable) programs?

INTRODUCTION (2 min)

We are working with Navigant, an energy consulting firm hired by the Massachusetts energy efficiency Program Administrators, to evaluate the Income Eligible (low income weatherization) Program. The purpose of today’s interview is to gain better insight into the statewide income eligible program and any [Lead Agency] - specific issues we should consider in the evaluation. We encourage you to be as open as possible so that we have a full picture of what works and what recommendations might be most useful. All information gathered will be reported anonymously.

We would like to record this conversation for reference later. Is that ok? Do you have any questions before we get started?

[RECORD START]

BACKGROUND (10 min)
I'd like to begin by asking a few background questions.

1. To begin, could you please describe your role with [Lead Agency]?
   a. [IF NOT MENTIONED] What is your job title?
   b. What specifically do you do for the PA’s income eligible weatherization program?

Tell me a bit more about [Lead Agency].

2. What organization(s) does [Lead Agency] work with to implement the Income Eligible Program [PROMPT: Lead agency, PA, LIHEAP, community partners, others]? (Note – this is documented in the prior evaluation report, but we would like to confirm)
   a. What are their roles?
   b. How would you describe your interactions with them? [PROBE for how well different programs from different partners fit, communicate, and/or work together.]

PROGRAM GOALS AND FUNDING (15 min)

3. About how many customers do you serve in a year through this program? What portion of those are single-family (1-4 units) and [IF APPLICABLE] multifamily (5+ units)?

4. What goals related to energy savings and the Income Eligible (low income weatherization) Program (kwh, unit goals, deemed savings goals, other energy savings goals) does [LEAD AGENCY] have? [ASKED PRIOR TO INTERVIEW]
   a. [IF APPLICABLE] How, if at all, are the energy savings goals different for single-family and multifamily programs? [PROBE for differences in savings goals between sizes of buildings, renters vs owners, or other factors.] [ASKED PRIOR TO INTERVIEW]

5. What goals does [Lead Agency] have related to spending program funds? [ASKED PRIOR TO INTERVIEW]
   c. To what degree is [Lead Agency] making progress toward spending goals?
   d. [IF APPLICABLE] How does that vary for single-family and multifamily programs? [ASKED PRIOR TO INTERVIEW]
   e. What kind of data do you receive from the lead agency? [PROBE on customer lists, utility discount rate participants, etc.]

6. Are goals passed down to sub-agencies? If so, how are sub-agencies held to those goals?
   a. How is [Lead Agency] involved in motivating them to reach those goals, if at all?
   b. How is the PA data passed down to sub-agencies?
7. Other than the savings and spending goals set by PAs, what other key performance indicators do you have for the program? [ASKED PRIOR TO INTERVIEW]

8. Have you had any issues meeting your goals in this program cycle? Explain. I’d like to get an understanding of how funding for the income eligible program fits within all of your organization’s other responsibilities.

9. What portion of staff responsibilities, regardless of funding source, are dedicated to providing low income weatherization services? A rough estimate of the portion of overall FTE or funding is fine.

10. We understand that low income weatherization programming can be funded by multiple sources. Thinking back over the last year or two, how has low income weatherization program funding changed since last year? [PROBE for has it increased, decreased, stayed the same] [ASKED PRIOR TO INTERVIEW]

a. [IF NOT MENTIONED] Do you provide services through the Department of Energy (DOE) income eligible weatherization assistance program? Why?

11. About what percentage of your low income weatherization services budget comes from PA funding? [ASKED PRIOR TO INTERVIEW]

b. How are funds allocated across fuels and single-family and multifamily (as applicable) programs? [ASKED PRIOR TO INTERVIEW]

c. Are there any concerns around how system benefits charge funds are spent? If so, what concerns?

PROGRAM IMPLEMENTATION (10 min)

12. At a high level, could you describe how the single-family component of the Income Eligible Program works?

a. Are the auditors and/or inspectors trained on weatherization issues for both electric and gas fuel types?

b. What resources does the agency provide to auditors and/or inspectors related to their training? [PROBE for staff time, training costs, materials, other.]

13. [IF APPLICABLE] How do the processes vary for multifamily (5+ unit) customers?

14. Were there any changes made to program implementation or delivery in this 2016-2018 three-year cycle compared with the prior cycle? Please describe. [PROBE on purpose and implications of those changes.]
15. How do you collect, store, maintain, and report participant data (e.g. measures installed, date of installation, location of the residence)? [PROBE for how data is reported to PAs]  
[IF NOT MENTIONED] Which of these data are stored electronically?
   a. Are there any concerns related to collecting, storing, maintaining, or reporting participant data? If so, please explain.

MANAGEMENT OF CUSTOMER SERVICE REQUESTS (5 min)
We’re interested in learning more about the management of customer service requests.
16. What factors may affect the length of time a customer is waiting to be served, or the number of customers that are waiting to be served? [PROBE for season, services type (e.g. weatherization, heating)]
   a. Do you find this varies by sub-agency or PA? Why is that?
   b. How much of an issue are these factors for [LEAD AGENCY]?
17. [IF NOT MENTIONED] How long, on average, is the length of time between a service request and the delivery of an assessment, weatherization, or heating services? [PROBE If they called today, when would their earliest appointment be scheduled if they wanted service ASAP?]
18. Are there standardized methods for tracking customer service requests?
   a. How often, if at all, does [Lead Agency] share regular reports about lengths of time and numbers of customers waiting to be served with the PAs?

MARKETING AND OUTREACH (10 min)
The next few questions are about participant outreach and engagement.
19. [IF NOT ADDRESSED] Who is responsible for marketing and outreach?
20. What marketing and outreach strategies does your agency use to reach customers? Please describe efforts for both single-family and multifamily customers (as applicable).
   a. We’re interested in reviewing marketing messaging and materials as part of this study. What current marketing materials can be shared with us?
21. Have marketing strategies evolved in the last 5-6 years? If so, how?
   a. What outreach strategies seem most effective? Why is that?
   b. What outreach strategies seem least effective? Why is that?
   c. [IF NOT MENTIONED] How does this vary for single-family and multifamily programs (as applicable)?
22. How do marketing strategies vary for different market groups? [PROBE for variation by geographic location, rural/urban, agency and/or PA territory, renters/owners, building size, fuel type, other]
   a. What target market groups are most difficult to reach? Why is that?
   b. Which target market group is least likely to participate, even if you reach them? Why is that?

23. What other opportunities are there for customers to hear about the income eligible program? [PROBE for low income rates, customers that contact other social service organizations, etc.]

24. What additional resources and/or information might help your agency to better engage and serve target markets?

MODERATE INCOME QUESTIONS (5 MIN)

25. Of your customers that are interested in participating in the program, what proportion are ineligible because their income is too high (above 60% of state median income)?
   a. What do your agency representatives do when they encounter these customers?

The current program eligibility guideline for the Moderate Income Program requires participant income between 60% + $1.00 up to 80% of the state median income (SMI). Program Administrators are thinking about service provision to customers with an income level up to 120% SMI.

26. How might your approach for reaching out to and engaging customers with income levels between 80% and 120% SMI differ from your approach for reach customers at or below 80% SMI?

27. What best practices in outreach and enrollment from the Income Eligible Program might be most successful with moderate income customers?

FORWARD-LOOKING PLANNING (5 min)

28. What concerns do you have going into the next program cycle? [PROBE for concerns about program delivery]
   a. What uncertainties do you anticipate related to funding? This may include both state and federal funding

29. What changes are under consideration for the next program cycle?
   a. Why are you considering those changes?
b. [IF NOT MENTIONED] Are there new energy efficiency measures being considered, or you think should be included, in the next program cycle?

CLOSING (3 min)
We’ve gotten through most of our questions, this has been very helpful. We’ll use these last questions to wrap things up.

30. What would you like to learn from this evaluation?
31. As part of this study, we plan to conduct observational ride-alongs with auditors and inspectors. Who at [Agency] is the best contact to coordinate with to get those scheduled?
32. We will also be interviewing sub-agencies. Is there anything we should be sure to ask them?
33. Would you like to add your thoughts about any areas that we did not cover?

Thank you so much for your time.
APPENDIX G. SUB-AGENCY INTERVIEW GUIDE

The evaluation team will use this guide to conduct in-depth interviews with Community Action Agency staff (RES 38 - Task 3)

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>Agency Name</td>
<td></td>
</tr>
<tr>
<td>Interviewer Name/Firm</td>
<td></td>
</tr>
<tr>
<td>Date of Interview</td>
<td></td>
</tr>
</tbody>
</table>

BEFORE THE INTERVIEW (0 min)

In advance of the interview, the evaluation team will administer the following set of questions to the interviewee to allow time for developing a response.

Program Goals and Funding

1. What goals does your agency have related to the Mass Save Income Eligible Program? How does that vary for single-family and (as applicable) multifamily programming?
2. What other key performance indicators do you have for the program?
3. How has program funding changed since last year?
4. About what percentage of your low income weatherization services budget comes from PA funding? A rough estimate is fine.
5. How are funds allocated across fuels and single-family and multifamily (as applicable) programs?

INTRODUCTION (2 MIN)

We are working with Navigant, an energy consulting firm hired by the Massachusetts energy efficiency Program Administrators, to evaluate their Income Eligible (low income weatherization) Program. The purpose of today’s interview is to gain better insight into the statewide income eligible program and understand any agency-specific issues we should consider in the evaluation. With your close engagement with the program and this population, this discussion will be invaluable for our research and setting the context of this evaluation. We encourage you to be as open as possible so that we have a full picture of the program. All information gathered will be reported anonymously.

We would like to record this conversation for reference later. Is that ok? Do you have any questions before we get started?

[RECORD START]

BACKGROUND (10 MIN)
I’d like to begin by asking a few background questions.

1. To begin, could you please describe your role with the [CAA].
   a. [IF NOT MENTIONED] What is your job title?
   b. What specifically do you do for the PA’s income eligible weatherization program?

Tell me a bit more about [CAA].

2. What organizations does [CAA] work with to implement the program? [PROMPT: Lead agency, PA, LIHEAP, community partners, others]?
   a. What are their roles?
   b. How would you describe your interactions with them? [PROBE for how well different programs from different partners fit, communicate, and/or work together.]

PROGRAM GOALS AND FUNDING (15 min)

3. About how many customers do you serve in a year through this program? What portion of those are single-family (1-4 units) and [IF APPLICABLE] multifamily (5+units)?

4. What goals does [CAA] have related to the Income Eligible Program? [ASKED PRIOR TO INTERVIEW]
   a. To what degree is [CAA] making progress toward goals?
   b. How does that vary for single-family and multifamily programs (as applicable)? [ASKED PRIOR TO INTERVIEW]

5. Other than the savings and spending goals set by PAs or Lead Agencies, what other key performance indicators do you have for the low income weatherization program? [ASKED PRIOR TO INTERVIEW]

6. Have you had any issues meeting your goals in this program cycle? Explain.

I’d like to get an understanding of how funding for the income eligible program fits within all of your organization’s other responsibilities.

7. What portion of staff responsibilities, regardless of funding source, are dedicated to providing low income weatherization services? A rough estimate of the portion of overall FTE or funding is fine.

8. We understand that low income weatherization programming can be funded by multiple sources. Thinking back over the last year or two, how has low income weatherization program funding changed since last year? [PROBE for has it increased, decreased, stayed the same] [ASKED PRIOR TO INTERVIEW]
a. **[IF NOT MENTIONED]** Do you provide services through the Department of Energy (DOE) income eligible weatherization assistance program? Why?

9. About what percentage of your overall low income weatherization services budget comes from PA funding? **[ASKED PRIOR TO INTERVIEW]**
   a. How are system benefits charge funds allocated across fuels (*if applicable* - and single-family and multifamily programs)? **[ASKED PRIOR TO INTERVIEW]**
   b. Are there any concerns around how system benefits charge funds are spent? If so, what concerns?

**PROGRAM IMPLEMENTATION (10 MIN)**

10. At a high level, could you describe how the single-family component of the Income Eligible Program works?
   a. Are the auditors and/or inspectors trained on weatherization issues for both electric and gas fuel types?
   b. What resources does the agency provide to auditors and/or inspectors related to their training? **[PROBE for staff time, training costs, materials, other.]**

11. **[IF APPLICABLE]** How do the processes vary for multifamily (5+ unit) customers?

12. Were there any changes made to program implementation or delivery in this 2016-2018 three-year cycle compared with the prior cycle? Please describe. **[PROBE on purpose and implications of those changes.]**

13. How do you collect, store, maintain, and report participant data (e.g. measures installed, date of installation, location of the residence)? **[PROBE for how data is reported to PAs]**
   a. **[IF NOT MENTIONED]** Which of these data are stored electronically?]
   b. Are there any concerns related to collecting, storing, maintaining, or reporting participant data? If so, please explain.
   c. What kind of data do you receive from the lead agency? **[PROBE on customer lists, utility discount rate participants, etc.]**

**MANAGEMENT OF CUSTOMER SERVICE REQUESTS (5 min)**

*We’re interested in learning more about the management of customer service requests.*

14. What factors may affect the length of time a customer is waiting to be served, or the number of customers that are waiting to be served? **[PROBE for season, services type (e.g. weatherization, heating)]**
   c. Do you find this varies by agency or PA? Why is that?
2017 Income Eligible Process Evaluation (RES 38)

d. How much of an issue are these factors for [CAA]?

15. [IF NOT MENTIONED] How long, on average, is the length of time between a service request and the delivery of an assessment, weatherization, or heating services? [PROBE If they called today, when would their earliest appointment be scheduled if they wanted service ASAP?]

16. Are there standardized methods for tracking and reporting information about customers waiting to be served?
   a. How often, if at all, does [Agency] share regular reports about lengths of time and numbers of customers waiting to be served with the Lead Agencies and/or PAs?

MARKETING AND OUTREACH (10 MIN)

The next few questions are about participant outreach and engagement.

17. [IF NOT ADDRESSED] Who is responsible for marketing and outreach?

18. What marketing and outreach strategies does your agency use to reach customers? Please describe efforts for both single-family and multifamily customers (as applicable).
   a. We’re interested in reviewing marketing messaging and materials as part of this study. What current marketing materials can be shared with us?

19. Have marketing strategies evolved in the last 5-6 years? If so, how?
   a. What outreach strategies seem most effective? Why is that?
   b. What outreach strategies seem least effective? Why is that?
   c. [IF NOT MENTIONED] How does this vary for single-family and multifamily programs (as applicable)?

20. How do marketing strategies vary for different market groups? [PROBE for variation by geographic location, rural/urban, agency and/or PA territory, renters/owners, building size, fuel type, other]
   a. What target market groups are most difficult to reach? Why is that?
   b. Which target market group is least likely to participate, even if you reach them? Why is that?

21. What other opportunities are there for customers to hear about the income eligible program? [PROBE for low income rates, customers that contact other social service organizations, etc.]
   a. To your knowledge, are all LIHEAP customers informed and encourage to participate within the Energy Efficiency services and programs?
22. Of your customers that are interested in participating in the program, what proportion are ineligible because their income is too high (above 60% of state median income)?
   a. What do your agency representatives do when they encounter these customers?
23. What additional resources and/or information might help your agency to better engage and serve target markets?

FORWARD-LOOKING PLANNING (5 MIN)
24. What concerns do you have going into the next program cycle? [PROBE for concerns about program delivery]
   a. What uncertainties do you anticipate related to funding? This may include both state and federal funding
25. What changes are under consideration for the next program cycle?
   b. Why are you considering those changes?
   c. [IF NOT MENTIONED] Are there new energy efficiency measures being considered, or you think should be included, in the next program cycle?

CLOSING (3 MIN)
We’ve gotten through most of our questions, this has been very helpful. We’ll use these last questions to wrap things up.

26. What would you like to learn from this evaluation?
27. As part of this study, we plan to conduct observational ride-alongs with auditors and inspectors. Who at [Agency] is the best contact to coordinate with to get those scheduled?
28. Would you like to add your thoughts about any areas that we did not cover?

Thank you so much for your time.
APPENDIX H. CHARACTERISTICS OF AGENCY STUDY PARTICIPANTS

Table 16 shows the characteristics of each agency recruited to participate in interviews and ride-alongs.

Table 16. Agency Interview Participants

<table>
<thead>
<tr>
<th>Agency Name</th>
<th>Agency Type(s)</th>
<th>Program Type(s)*</th>
<th>Region(s)</th>
<th>PA(s)</th>
<th>Est. Program Size**</th>
<th>Est. Staffing</th>
<th>Est. Percent PA-funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action, Inc.</td>
<td>Lead, Sub</td>
<td>SF, MF</td>
<td>Northeast Greater Boston</td>
<td>National Grid</td>
<td>Large</td>
<td>33 staff</td>
<td>85%</td>
</tr>
<tr>
<td>ABCD</td>
<td>Lead, Sub</td>
<td>SF, MF</td>
<td>Greater Boston</td>
<td>Eversource</td>
<td>Large</td>
<td>30 staff</td>
<td>85%-90%</td>
</tr>
<tr>
<td>Community Action Pioneer Valley (Greenfield)</td>
<td>Lead (no subs)</td>
<td>SF, MF</td>
<td>Western</td>
<td>Berkshire Gas</td>
<td>Large</td>
<td>30 staff</td>
<td>80%</td>
</tr>
<tr>
<td>Citizens for Citizens, Fall River</td>
<td>Lead, Sub</td>
<td>SF, MF</td>
<td>Southeast</td>
<td>Eversource Columbia Gas</td>
<td>Mid-sized</td>
<td>11 staff</td>
<td>80%</td>
</tr>
<tr>
<td>Worcester Community Action Agency</td>
<td>Sub</td>
<td>SF</td>
<td>Central</td>
<td>National Grid Eversource</td>
<td>Mid-sized</td>
<td>10 staff</td>
<td>70%</td>
</tr>
<tr>
<td>Lowell Community Teamwork, Inc.</td>
<td>Sub</td>
<td>SF</td>
<td>Northeast</td>
<td>Eversource National Grid</td>
<td>Small</td>
<td>10 staff</td>
<td>35%</td>
</tr>
<tr>
<td>Greater Lawrence Community Action</td>
<td>Lead (no subs)</td>
<td>SF</td>
<td>Northeast</td>
<td>Columbia Gas National Grid</td>
<td>Small</td>
<td>9 staff</td>
<td>--</td>
</tr>
<tr>
<td>South Middlesex Opportunity Council – Framingham</td>
<td>Sub</td>
<td>SF</td>
<td>Central</td>
<td>Eversource Columbia Gas National Grid</td>
<td>Small</td>
<td>7 staff</td>
<td>55%</td>
</tr>
<tr>
<td>Montachussetts Opportunity Council</td>
<td>Lead (no subs)</td>
<td>SF</td>
<td>Central</td>
<td>National Grid Unitil</td>
<td>Small</td>
<td>6 staff</td>
<td>95%</td>
</tr>
<tr>
<td>South Shore Community Action Agency</td>
<td>Sub</td>
<td>SF</td>
<td>Southeast</td>
<td>Columbia Gas Cape Light Compact</td>
<td>Small</td>
<td>6 staff</td>
<td>--</td>
</tr>
<tr>
<td>Housing Assistance Corporation</td>
<td>Lead (no subs)</td>
<td>SF</td>
<td>Cape Cod and the Islands</td>
<td>National Grid Eversource Cape Light Compact</td>
<td>Small</td>
<td>5 staff</td>
<td>--</td>
</tr>
<tr>
<td>Berkshire/Pittsfield Community Action Council</td>
<td>Sub</td>
<td>SF</td>
<td>Western</td>
<td>Berkshire Gas Eversource National Grid</td>
<td>Small</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

*Program types include single-family (SF) and multifamily (MF). Single-family buildings are defined as buildings with 1-4 units. Multifamily buildings are defined as buildings with >5 units.

**The estimated program size is based on the number energy efficiency program staff and the proportion of system benefits charge funds to total energy efficiency program budgets at each agency. This information was gathered during interviews with agency staff funded by system benefits charge funds.

Note: The symbol "--" indicates unknown staff counts or percentages of PA funding. "Est." is short for "Estimated."
APPENDIX I. MULTIFAMILY PROPERTY OWNER INTERVIEW GUIDE

The evaluation team will use this guide to conduct in-depth interviews with the owners and/or managers of low income multifamily properties that participated in the PA’s LIMF program (RES 38 - Task 4)

<table>
<thead>
<tr>
<th>Interviewee Name</th>
<th>Interviewer Name/Firm</th>
<th>Date of Interview</th>
</tr>
</thead>
</table>

INTRODUCTION (2 MIN)

We are working with Navigant, an energy consulting firm hired by the Sponsors of MassSave, to help improve the energy efficiency services they provide to income eligible (i.e. low income) multifamily properties. [IF NECESSARY: The Sponsors of MassSave are the local electric and natural gas utilities.] We received your name and contact information from [REFERING PERSON] at [REFERING AGENCY]. [REFERING PERSON] indicated you would be a good person to speak with about your experience participating in the program. We are interested in talking with you about your experience as a multifamily property owner and/or manager with income eligible tenants participating in the program.

We encourage you to be as open as possible so that we can gain a full picture of the program. All information gathered will be reported anonymously.

We would like to record this conversation for reference later. It will allow me to focus on our discussion and not on my notes. Is that ok?

Do you have any questions before we get started?

[RECORD START]

BACKGROUND (5-10 MIN)

I’d like to begin by asking a few background questions so I understand your situation.

1. Are you a multifamily building owner or property manager?
   a. [IF OWNER] Do you manage your property or properties yourself, or do you work with a property manager?
   b. [IF OWNER WORKS WITH A PROPERTY MANAGER] Do you mind if we also reach out to your property manager? I’d also be interested in their perspective. [IF RELEVANT, COLLECT CONTACT INFORMATION]

2. Do you own/manage multiple properties?
   a. [IF YES] How many buildings?
   b. [IF YES] What is the average building size (number of units)?
c. [IF YES] Do you also own/manage market-rate properties occupied primarily by non-income eligible tenants? [IF NECESSARY: The program is designed to serve customers under 60% of the state’s median income (SMI). When I say market rate, I’m referring to customers above 60% of the SMI.] What percent of your total buildings are these? An estimate is fine.

PROGRAM PARTICIPATION (15-20 MIN)
3. I understand that you participated in the income eligible multifamily program. Is that correct?
4. How did you first hear about the program?
5. What was the primary reason you participated [IF RELEVANT - for the first time]?
6. Did you have any concerns going into your first experience? Were there any specific barriers you had to overcome in order to participate?
   a. What were they?
   b. How did the program address your initial concerns or help you overcome these barriers?
   c. Were any of your initial concerns not addressed?
7. [IF MULTIPLE PROPERTIES] How many of your properties participated in the program? When was the first time you participated? When was the most recent time?
8. At a high level, can you briefly please tell me about your participation in the program - from the enrollment process through to the final inspection?
   a. Did [REFERRING AGENCY] reach out to you to participate, or did you contact them/the program? In other words, were you recruited, or did you self-select into the program?
   b. Describe the application process for me.
   c. What is the typical timeline from service request to service delivery? How long did it take from first contact with [REFERRING AGENCY] to the end of the project?
   d. Who did you interact with as part of your participation in the program? How satisfied are you with those interactions?
9. What benefits have you experienced as a result of your participation?
10. Every participant in the program receives a free one-year subscription to a website (WegoWise) where they can track their progress through the program and then monitor energy savings over time. Did you visit/use the website?
    a. [IF YES] What do you use it for? What information was most useful?
    b. [IF YES] Do you currently pay for a subscription to the site? [INTERVIEWER NOTE: Some MF property owners get a free one-year subscription to the website; it’s designed to allow them to track data and see energy reduction and savings over time.]
    c. [IF ON A FREE TRIAL] Do you plan to pay for a subscription after your free one-year subscription expires? Why is that?

PROGRAM REQUIREMENTS (10 MIN)
I understand that the program has several requirements for participation. I want to ask you about these, get your reaction, and understand how – if at all – they factored into your decision-making.
11. Requirement #1: Participants must sign an agreement that they will not raise rents for at least one year following participation.
   a. Were you aware of this requirement?
   b. Was this requirement a barrier for you?
   c. Did it factor into your decision-making? If yes, how so?
   d. Can you speculate whether this requirement might be a barrier for the owners/managers of similar properties that have yet to participate?

12. Requirement #2: Participants must sign an agreement that they maintain affordable rent rates for tenants for ten years following participation.
   a. Were you aware of this requirement?
   b. Was this requirement a barrier for you personally?
   c. Did it factor into your decision-making? If yes, how so?
   d. What does “maintaining affordable rates for tenants” mean to you? Did you feel like the program was clear on the definition?
   e. Can you speculate whether this requirement might be a barrier for the owners/managers of similar properties that have yet to participate?

13. What other factors might a multifamily property owner/manager consider when deciding to participate in this program? [PROBE: Confidential information on tenant income, ability to complete capital improvements, government requirements, etc.]

COMMUNICATION (5 MIN)
14. Are you part of any property management associations or groups?
   a. [IF YES] Which associations or groups? Are they specific to income eligible properties, or do they include the owners/managers of market rate units too?
   b. Do you believe that the members of the group(s) are aware of the PAs’ income eligible program? Why do you believe that?
   c. If so, can you suggest ways to get more visibility for and participation in the program from these groups?

15. How do you, and other property owners/managers, receive information relevant to their properties?
   a. Are any of these methods more successful at disseminating information? Why do you say that?

16. To date, the program has found it easier to serve public housing agencies and larger multifamily housing entities than smaller properties with 5 to 25 units. Do you have any suggestions for how the program can reach smaller properties?

CLOSING (2 MIN)
17. We’ve gotten through most of our questions, this has been very helpful. Is there anything else you’d like to share about your experience working with [REFERRING AGENCY] or participating in the program?

[THANK YOU AND END]
APPENDIX J. AUDITOR RIDE-ALONG AND ONSITE CUSTOMER INTERVIEW GUIDE

STUDY OVERVIEW

The ILLUME team will conduct ride-alongs with Energy Auditors and Inspectors who work with the agencies that implement the Public Administrator-funded Income Eligible (low income energy efficiency) Program. The information obtained will be used in conjunction with other information gathered as part of the MA RES 38 Income Eligible Process Evaluation including interviews agencies, lead agencies, and Public Administrators. Other data for this study will come from the low income battery of the RES 40 Moderate Income survey, a high level review of program marketing materials, and secondary literature on proposed and eligible measures under consideration for the program.

The goal of the ride-alongs and customer interviews is to gain better insight into the statewide income eligible program and any auditor, inspector, or customer-specific issues we should consider as part of the evaluation. We will talk with auditors/inspectors about their process for implementing program-related services to help further inform what we learned during agency interviews. We will seek to understand more about the timing of service delivery, factors affecting customer wait time between intake and the initial assessment, limitations they may experience due to funder requirements (PA-funded), challenges they face, suggestions they have for improvement including resources that may be helpful if provided by the PAs, an assessment of training needs, and any insights they may have about effective marketing tools and practices, and how customers learn about the program. We will talk with customers about their experience with the program including how they found out about it, why they chose to participate, and barriers to participation they encountered.

RESEARCH DESIGN

A research team of two will meet with one auditor or inspector per day, riding along with them to customer appointments. There will be two teams and a total of eight ride-alongs. Research teams will meet with auditor or inspectors one hour before leaving for the customer appointment to conduct an interview. During the ride-along, the team will observe how auditors/inspectors approach customers, conduct audits or inspections, and present findings. During the audit or inspection, the team will approach customers and request a brief interview to assess their interactions with the program and experience.

RESEARCH QUESTIONS

Table 17. Key Research Questions

<table>
<thead>
<tr>
<th>STAGE OF ENGAGEMENT</th>
<th>RESEARCH QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARKETING, OUTREACH, AND CUSTOMER ENGAGEMENT</td>
<td>1. How do the customers learn about the program?</td>
</tr>
<tr>
<td></td>
<td>2. How effectively do existing marketing materials and communication strategies engage customers?</td>
</tr>
<tr>
<td></td>
<td>3. What additional resources and/or information would better enable the PAs and agencies to more effectively engage and serve the single-family market with the Income Eligible Program?</td>
</tr>
</tbody>
</table>
2017 Income Eligible Process Evaluation (RES 38)

<table>
<thead>
<tr>
<th>STAGE OF ENGAGEMENT</th>
<th>RESEARCH QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMER EXPERIENCE</td>
<td>1. What are customers’ participation barriers?</td>
</tr>
<tr>
<td></td>
<td>2. How does the “two audit process” affect the customer’s experience?</td>
</tr>
<tr>
<td></td>
<td>3. What is the customer experience from the point when they learn about the program to the point when services have been fully delivered?</td>
</tr>
<tr>
<td></td>
<td>4. What factors affect customer wait time between intake and the initial assessment?</td>
</tr>
<tr>
<td>IMPLEMENTATION</td>
<td>1. What is the process (and typical timeline) of service delivery for auditors and/or inspectors?</td>
</tr>
<tr>
<td></td>
<td>2. What challenges do auditors and inspectors face (in general, due to funder requirements)?</td>
</tr>
<tr>
<td></td>
<td>3. What suggestions do auditors and/or inspectors have for improving service delivery?</td>
</tr>
<tr>
<td>FUTURE NEEDS</td>
<td>4. Is there a need for agency staff training and education opportunities in the future?</td>
</tr>
<tr>
<td></td>
<td>5. What other resources may be helpful to support service delivery?</td>
</tr>
</tbody>
</table>

**RIDE-ALONG DETAILS**

| Agency Name: | |
| Associated PA/Utility: | |
| Participant Name: | |
| Participant Phone: | |
| Ride-along Date: | |

| □ Initial Audit | □ Second Audit | □ Mid-job QC Inspection | □ End-job QC Inspection |

**INTRODUCTION**

Hi, thank you so much for meeting with us today. As a reminder, the purpose of today’s ride-along is to gather insights about the utility-funded low income energy efficiency program. To be clear, we are not here to make any assessment or judgement of how well you do your job. We are researchers working with the Massachusetts Program Administrators (PAs/utilities) to conduct a process evaluation of the program on a statewide level. We’re interested in how things work. In our time together, we will ask you questions about what you do and how the program works from your perspective. We’re interested in learning about how the program operates on the ground. We’re interested to see how people react to the audit and the kinds of questions or clarifications they ask. We encourage you to be as open as possible so that we have a full picture
of the program. We will also approach customers with a few questions as well. However, we will not push them to respond or participate. All information gathered will be reported anonymously. Do you have any questions before we begin?

PRE-RIDE-ALONG QUESTIONS (30 MIN)

1. Tell me a bit about yourself.
   a. [If not mentioned probe for the following]:
      a. How long have you been in this business?
      b. How did you get started in this field?
      c. How did you get involved as an [auditor/inspector] for [AGENCY NAME]?

2. What types of certifications and education are required for this position?
   a. Is there a need for additional education resources for [auditors/inspectors]?

3. How do you describe the low income program? If someone you didn’t know asked you to explain it, what would you say?

4. During our ride-along, we hope to be able to experience first-hand how you conduct an [audit/inspection]. Generally, how does an audit look at a high level? (If possible, have them draw it out.)
   a. [If not mentioned, probe for the following]:
      i. How do customers find out about the program? [PROBE for: direct mail, billboard, media outlet, social media, from participating in fuel assistance/LIHEAP, from participating in utility discount rate program, etc.)
      ii. What types of marketing materials do you think work the best to get customers engaged in the program?
      iii. What information do you give them before you the appointment?
      iv. What’s the first thing that you do when you arrive?
      v. What are the main things that you look for?
      vi. What equipment or materials do you use for the visit?
      vii. How do you record your findings? What other paperwork gets filled out [PROBE for: before, during, and after the visit]?
      viii. How do you share information about what you see to the customer? (printout, write-up, invoice, email, etc.)
      ix. Do you share information with the customer onsite that same day?
      x. How do you talk to the customer about the information you’ve found and your recommendations?
      xi. After you give the customer information, what happens next?
      xii. About how long is the timeline from the point when the customer requests services to the end of the initial audit? To completion of service delivery and final inspection?
      xiii. What factors might affect the amount of time that passes between customer intake and initial assessment? [Probe for enough staff available to provide timely services.]

5. What elements of this process seem to always stay the same?
   a. What elements change depending on the customer?
i. [IF NOT MENTIONED] We understand that some customers learn from the initial audit that a heat-installation audit may benefit them. If so, a second auditor may go out to the house and conduct a second audit. How do customers respond to the idea of a second audit?

6. What feedback do you have about the program?
   a. [IF NOT ADDRESSED PROBE FOR THE FOLLOWING]:
      i. What is going well/working well with the program?
      ii. What isn’t working so well?
      iii. What limitations or restrictions from requirements put in place by the utility companies funding the program seem to affect your daily work? [Probe for background checks and drug screenings.]
   b. Do you have any suggestions for ways the program could be improved? If so, what?
   c. What feedback about the program have you gotten from customers?
      i. What have customers said they liked?
      ii. What do they dislike? Why?
      iii. [IF NOT ADDRESSED PROBE FOR THE FOLLOWING]:
         1. What kinds of questions do customers ask you about the program?
         2. Are there any parts of the program process that are challenging for customers? If so, which parts?
      iv. In your opinion, what are customers’ expectations from the program?
      v. In the last several years, have you noticed trends or changes in customer expectations? How about in the last 12 months?

7. Before we head out, would you like to add your thoughts or comments about any areas that we have not covered?

**RIDE-ALONGS (TIME VARIES/ALONG FOR THE RIDE)**

During these half- to full-day ride-alongs, the ILLUME researchers will accompany agency auditors and inspectors on customer visits. Researchers will observe, make notes, and take photographs about the following:

**INTERACTIONS WITH CUSTOMERS**

- Auditor/Inspector’s customer service orientation
  - Effort to get to know the customer
  - Friendliness
  - Overall professionalism/understanding of the population
- Presentation of information to the customer
  - Effort to use easy-to-understand terminology
  - Effort to answer questions/concerns from the customer
- Areas of interest and/or confusion for the customer
- Information provided to the customer about next steps
- Communications with the customer about energy efficiency
- Communications with the customer about the Income Eligible Program (low income, PA-funded energy efficiency program)

**HOME VISIT PRACTICES**
2017 Income Eligible Process Evaluation (RES 38)

- Materials/equipment used: when are they brought into the home (does the auditor go back and forth to the truck several times?); what kind of a mess is there, if any? Does the auditor clean it up? How is the customer reacting in that moment?
- Where in the home do they go first? How do they begin the audit/assessment?
  - What tools are they using to conduct the audit? (pen and paper? Tablet?)
  - How, if at all, do they talk to the customer about what they're doing as they're moving through the home? Does the customer accompany them? How engaged do customers seem?
- Steps or stages of the visit:
  - How does the customer react at each stage? What does his/her journey appear to be at these different stages?
- Timing/rhythm of the visit (how long does each step or stage takes, how is this different across audits/inspections, etc.)
  - What kind of factors seem to influence changes in the timing/rhythm? (e.g. building type (SFH; MFH etc); size of apartment/house; customer interest and experience, etc)

CUSTOMER PERCEPTIONS
- Perceptions of EE programs
  - social service
  - home improvement resource
  - utility service
  - community benefit
  - government program
- Comfort and trust in the auditor
- Willingness to answer questions
- Overall satisfaction with program

CUSTOMER INTERVIEWS (20 MIN)

INTRODUCTION

Hi, we are riding along with [AUDITOR/INSPECTOR NAME] to learn about this energy efficiency program and how it works across the state of Massachusetts. We are especially interested in the customer experience. Would it be ok if I asked you a couple of questions about your experience with the program? It’s all anonymous, so we won’t report your name anywhere. I’d like to record our conversation so for our own reporting and to make sure we don’t miss any of the valuable feedback and input you’re providing. We won’t share this recording with anyone.

- [IF YES] Great! My names is [YOUR NAME]. [PROCEED TO QUESTION 1.]
- [IF NO] Ok, no problem. Let me know if you change your mind. [END CUSTOMER INTERVIEW]

1. Why don’t you start off by telling me more about yourself?
   a. Tell me about your home [IF THEY SEEM STUCK, PROBE FOR ANY OF THE FOLLOWING]:
      i. How long have you lived here?
      ii. What do you like about your home?
      iii. What improvements would you like to make?
2. Where do you get information on how to make upgrades to your home? [PROBE FOR SOURCES LIKE PINTEREST, YOUTUBE, FRIENDS AND FAMILY]
3. How did you find out about this energy efficiency program? [PROBE FOR: MARKETING MATERIALS, WORD OF MOUTH, DIRECT MAIL, BILL INSERT, ETC.]

[INTERVIEWER NOTE: When speaking with the customer try to assess how customers think about this program. Do they see it as a utility service, a community action agency program, a social service like fuel assistance?]

a. If you were going to tell someone about this program, how would you describe it? Would you compare it to any other programs or services?
b. Are there other programs you know of or have participated in that are similar to this one?

4. Why did you decide to participate in this program?

a. How long have you known about the program?
b. What did you find appealing about the program? What benefits do you think it will have?
c. What kinds of challenges or barriers might someone face who wants to participate?

5. How have your interactions with [AGENCY NAME] been so far? [WE'RE TRYING TO LEARN ABOUT THEIR PROGRAM EXPERIENCE. IF THEY SEEM STUCK, PROBE FOR ANY OF THE FOLLOWING]:

a. What kind of information have they provided?
b. What was the scheduling process like?
c. How much time passed between requesting an appointment and when the appointment was scheduled?
d. Did you have any doubts/concerns about participating in the program when you first found out about it?
e. Did [AGENCY NAME] help you clarify those doubts? How?
f. How has your overall experience been so far?

i. Do you have any unanswered questions? [MATERIALS, CONVERSATIONS, ETC.]

ii. Is there anything you would change?

Thank you for participating in this interview! We greatly appreciate the time you've taken to speak with us.
APPENDIX K. INCOME ELIGIBLE PROGRAM IMPLEMENTATION
AGENCIES AND PROCESS MAPS

Table 18. Full Names of Agencies and Acronyms\textsuperscript{72}

<table>
<thead>
<tr>
<th>Agency Name</th>
<th>Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action for Boston Community Development</td>
<td>ABCD</td>
</tr>
<tr>
<td>Action, Inc.</td>
<td>Action</td>
</tr>
<tr>
<td>Berkshire Community Action Council</td>
<td>BCAC</td>
</tr>
<tr>
<td>Community Action Incorporated</td>
<td>CA</td>
</tr>
<tr>
<td>Community Action Program Intercity, Inc.</td>
<td>CAPIC</td>
</tr>
<tr>
<td>Community Action Pioneer Valley (formerly FCAC)</td>
<td>CAPV</td>
</tr>
<tr>
<td>Citizens for Citizens</td>
<td>CFC</td>
</tr>
<tr>
<td>Community Teamwork Inc</td>
<td>CTI</td>
</tr>
<tr>
<td>Greater Lawrence Community Action Council</td>
<td>GLCAC</td>
</tr>
<tr>
<td>Housing Assistance Corporation</td>
<td>HAC</td>
</tr>
<tr>
<td>Lynn Economic Opportunity</td>
<td>LEO</td>
</tr>
<tr>
<td>Menotomy</td>
<td>Menotomy</td>
</tr>
<tr>
<td>Montachussets Opportunity Council</td>
<td>MOC</td>
</tr>
<tr>
<td>North Shore Community Action Programs</td>
<td>NSCAP</td>
</tr>
<tr>
<td>Quincy Community Action Programs</td>
<td>QCAP</td>
</tr>
<tr>
<td>Self Help Incorporated</td>
<td>SHI</td>
</tr>
<tr>
<td>South Middlesex Opportunity Council</td>
<td>SMOC</td>
</tr>
<tr>
<td>Springfield Partners for Community Action</td>
<td>SPCA</td>
</tr>
<tr>
<td>Springfield/Greenfield CA</td>
<td>SGCA</td>
</tr>
<tr>
<td>South Shore Community Action Council</td>
<td>SSCAC</td>
</tr>
<tr>
<td>Valley Opportunity Council</td>
<td>VOC</td>
</tr>
<tr>
<td>Worcester Community Action Agency</td>
<td>WCAA</td>
</tr>
</tbody>
</table>

\textsuperscript{72} This list is representative of active agencies as of August 2018.
The single-family and multifamily process maps in this report represent the general flow of the program as indicated by PAs, LEAN, lead agencies, sub-agencies, and auditors during interviews and ride-alongs.