

Advancing/Enhancing Existing Low-Income Initiatives, Approaches, & Measures

**Briefing Document for December 5th EEAC
Residential Planning Workshop**

Prepared by the EEAC Consultant Team

December 4, 2017

OVERVIEW

The Energy Efficiency Advisory Council (EEAC) workshop on December 5 provides an opportunity for Councilors to reflect on and provide direct input on opportunities for the Low-Income Sector for the 2019-2021 Energy Efficiency Plan. As part of the Mass Save® suite of programs, the Low-Income Program has established a strong performance track record and has received national recognition from entities such as the American Council for an Energy Efficient Economy, US Department of Energy (DOE), US Department of Health and Human Services, and National Association for State Community Services Providers. More so, program participants have realized many direct benefits.

As described in detail in previous 2019-2021 planning briefings and workshops, residential energy efficiency programs are beginning to experience major changes. Lighting, which has historically been a core driver of residential energy efficiency program activity and savings, will offer significantly lower claimable electric savings in the future. This includes income-eligible programs. Similar to the market rate residential programs, a reduction in the Low-Income Program lifetime electric savings and associated spending may have implications for future participation levels, savings goals, and cost-effectiveness.

For the Low-Income Program, the loss of lighting will require the Massachusetts Program Administrators (PAs) to identify new cost-effective energy saving electric measures and enhance the program framework. Although cost-efficiency will be important when planning for 2019-2021, we should be mindful that the Low-Income Program provides energy efficiency services to a demographic of Massachusetts ratepayers with distinct needs. Examples of this demographic include households with elderly, disabled customers, and households in which English is not the primary language spoken. For participating low-income households, it is often necessary to provide higher levels of direct hands-on engagement and customer service, including energy efficiency contractor management, than for market rate customers. The Low-Income Program's greatest challenge for the 2019-2021 Energy Efficiency Plan will be to strike a balance between enhancing a Low-Income Program framework that ensures the greatest participation levels, cost-efficiency and energy savings possible while maintaining the level of customer service necessary to best serve the needs of all low-income ratepayers.

This briefing document addresses opportunities for the PAs and the Low-Income Energy Affordability Network (LEAN), which coordinates the Low-Income Program services for the PAs, to identify and provide all available energy efficiency and demand reduction resources that are cost-effective for the Mass Save® Low-Income Program (Program) single family and multi-family initiatives.^{1,2,3} The information and details provided in this briefing document are not intended to be an exhaustive list of opportunities.

The content of this briefing document includes:

- A background description of the current program,

¹ Low-income eligibility (aka R-2 Rate): 1) Your household income does not exceed 60% of the state median income level; and/or 2) You are currently qualified to receive fuel assistance benefits or are participating in one of the following programs: EAEDC, Food Stamps, WIC, Head Start, Mass Health, National School Lunch Program, Public Housing, School Breakfast Program, Supplemental Security Program, TAFDC, Veterans Programs - 115 benefits, DIC surviving parent, Non-Service Pension; and/or 3) you qualify for Fuel Assistance.

² Stat. 2008 c. 169, §11;GL c.25, §21(b)(1). Source: "All available energy efficiency and demand reduction resources that are cost effective."

³ Single family is defined as 1-4 households in one built structure. Multifamily is defined as 5+ households in one built structure or multiple buildings and scattered sites under common ownership that total more than 5 households.

- The status of the program in Massachusetts, including program performance and considerations that may be important in 2019-2021,
- Relevant evaluation findings, and
- Consultant findings outlining barriers and opportunities and the Consultants' recommendations.

PROGRAM BACKGROUND

The Low-Income Sector's Whole House Program consists of two core initiatives (single family and multi-family) that provide energy efficiency products and services to residential customers meeting the program eligibility criteria. The Single Family Initiative serves customers living in one to four unit buildings while the Multi-Family Initiative serves customers living in 5 or more unit project.

The Program is a statewide fuel blind program, which means that it provides energy efficiency services to eligible households regardless of primary heating source (i.e. natural gas, electricity, fuel oil, wood, or propane). The Program implements a whole-building approach strategy and offers whole-building energy efficiency services including comprehensive DOE/Building Performance Institute standard energy audits, ratepayer education, a diverse set of energy efficiency measures, and quality assurance/quality control.⁴ The Low-Income Program provides up to 100 percent of the funding for participants.

As required in the 2008 Green Communities Act, at least 10% of the PAs electric budget and 20% of its gas budget must be committed to low-income programs or a share proportionate to the low-income load if higher.⁵ In 2016, LEAN's total program spending was \$96.4 million (electric: \$57.9 million; gas: \$38.5 million).

Key Program Design Elements

THE LOW-INCOME ENERGY AFFORDABILITY NETWORK

The Low-Income Energy Affordability Network (LEAN) is central to the administration of the Low-Income Program. LEAN is an association of nonprofit agencies (commonly referred to as Community Action Agencies (CAAs) or Community Action Programs (CAPs)) that, by statute, coordinates the delivery of both utility and government energy efficiency services to low-income ratepayers throughout Massachusetts.⁶ LEAN coordinates a two-tiered implementation system. This system has three "lead vendors", which are CAPs contracting directly with the PAs they serve.⁷ These three CAPs deliver energy efficiency services as well as subcontract Low-Income Program services with the remaining CAPs and other nonprofit agencies around the state. The primary role of the lead vendor is to administer and oversee the work of the CAPs they subcontract as well as deliver services themselves. The four remaining PAs do not have a lead vendor structure and contract directly with the CAPs or

⁴ Building Performance Institute (BPI) is an industry leading home performance credentialing and standards organization. More information may be found at www.bpi.org.

⁵ M.G.L. ch. 169 §11; §19(c). Electric and gas energy efficiency program funds shall be allocated to customer classes, including the low-income residential subclass, in proportion to their contributions to those funds; provided, however, that at least 10 per cent of the amount expended for electric energy efficiency programs and at least 20 per cent of the amount expended for gas energy efficiency programs shall be spent on comprehensive low-income residential demand side management and education programs.

⁶ Harak, Charlie. *Lean and Green: The Massachusetts Low-Income Energy Affordability Network (LEAN)*, National Consumer Law Center, November 2014.

⁷ Action, Inc. is the lead vendor for National Grid; Action for Boston Community Development (ABCD) is the lead vendor for Eversource, and Greater Lawrence Community Action Council is the lead vendor for Columbia Gas of Massachusetts single family.

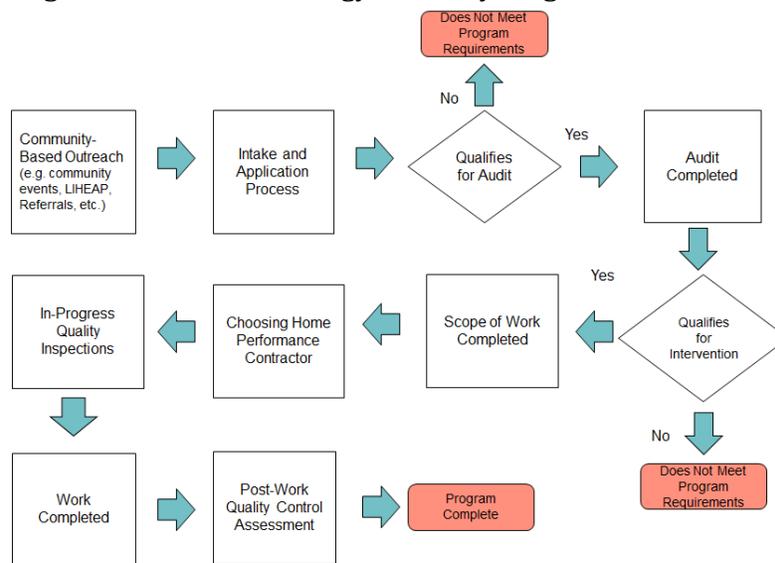
other non-profits in their region. The PAs, LEAN, CAPs and non-profit organizations meet on a quarterly basis for a Best Practices Working Group meeting.

LEAN also leverages additional resources from the U.S. Department of Energy and the U.S. Department of Health and Human Services for its Low-Income program offering. Managed by the Massachusetts Department of Housing and Community Development (DHCD), LEAN is contracted to deliver the Weatherization Assistance Program (WAP) and the Heating System Repair and Replacement Program (HEARTWAP). Together, these programs represent approximately \$16.5 million in additional Program budget. In addition, LEAN contracts with the Massachusetts Clean Energy Center for specific projects, amounting to \$2 million in 2017. Massachusetts was one of the first states in the country to leverage multiple low-income energy efficiency programs into a single streamlined delivery process.

AN IN-PERSON APPROACH

LEAN delivers a program that works directly with each Program participant, and provides a hands-on customer experience. This process starts from participant intake/application completion all the way through to an energy audit, choosing a home performance contractor for the participant, in-progress work inspections, work completion and post-work quality control inspections. Much of the process is influenced by protocols of the federal Weatherization Assistance Program. A major reason that the Low-Income Program aims to provide direct hands-on customer experience is because it serves a high needs demographic of Massachusetts ratepayers with distinct challenges. Participating low-income households such as seniors, the disabled and households in which English is not the primary language often need higher levels of personal direct engagement and customer service. This includes selecting, providing in-progress oversight, and post-work quality control of energy efficiency contractors. The general Low-Income Program process flow can be viewed on Figure 1.

Figure1. Low-Income Energy Efficiency Program Process Flow



OUTREACH/MARKETING

In order to meet its energy savings goals, LEAN estimates serving approximately 20,000-30,000 low-income households per year. As described earlier, Low-Income Program participants must meet low-income eligibility requirements (see footnote 1). According to LEAN, there are approximately 300,000 households registered for the

low-income rate.⁸ To identify and register Low-Income Program participants LEAN relies primarily on strategic referral partnerships, direct mailings, media advertising, community events and word of mouth. One of the main strategic referral partnerships for the Single Family initiative is with the Low Income Home Energy Assistance Program, also known as LIHEAP. LIHEAP is administered by the individual CAPs. Approximately 165,000 Massachusetts households receive heating assistance through LIHEAP on an annual basis.⁹ Every fall the CAPs produce a LIHEAP bulk mailing to register eligible LIHEAP participants. The Low-Income Program is marketed as part of the LIHEAP registration process, and interested households are signed-up for the Program. Because LIHEAP shares the same eligibility requirements as the Low-Income Program, no additional income verification is necessary. The PAs also have a strategic referral partnership with the Massachusetts Department of Health and Human Services (DHHS). Households that are registered for social services such as Food Stamps, WIC, and Head Start are automatically eligible for the low-income rate. DHHS oversees a data matching process to identify eligible customers while protecting privacy; eligible customers are notified of their eligibility on an opt-out basis. In addition to the strategic referral partnerships, the CAPs also participate in community-based events and promote Program marketing materials.

For the Multi-Family Initiative, LEAN has working partnerships with all of the Massachusetts public housing authorities as well as most non-profit affordable housing community-development corporations, most large for-profit low-income housing owners, and many smaller owners. These partnerships allow LEAN to identify eligible multi-family buildings and schedule projects out into the future. For example, most public housing authorities and affordable housing developments upgrade and refinance their buildings on a fifteen-year cycle. Energy efficiency measures can be counted as part of the refinancing package. Housing authorities and affordable housing developers have set refinancing schedules which makes allows LEAN to plan out projects into the future. The Affordable House Energy Efficiency Working Group created as a result of an EEAC priority from the 2016-2018 planning process recommended that the PAs and partners develop a roadmap to help owners navigate the opportunity posed by pursuing energy efficiency retrofits at the important refinance opportunity. The Roadmap for Maximizing Energy and Cost Savings at Refinance¹⁰ is now available on the Mass Save website. Currently, according to LEAN, approximately 10-15% of multi-family projects are part of a refinancing package.

Private landlords learn of the Program through direct marketing by the PAs and LEAN, as well as from marketing by manufacturers, contractors, and the Low-Income Multi-Family Advisory Committee.

Overall, LEAN has been able to secure enough eligible households to participate in the Low-Income Program to meet its goals.

BUILDING ELIGIBILITY

Currently, if at least 50% of the entire building is qualified and approved to receive Low Income Program services, then all of the units in the building are eligible for Low-Income Program services at no cost to any of the

⁸ It should be noted that there are more eligible low-income discount rate households than there are households that are actually registered for the low-income discount rate. However, there is no definitive number of eligible households established because of various scenarios that would make a low-income household ineligible for the discount rate such as students in dorms, people in nursing homes, prisoners, etc. Additional research is needed in order to understand the gap between households eligible for the discount rate and households registered for the low-income discount rate.

⁹ Please note that the number of households that have received LIHEAP services has reached upwards of 200,000 in years past. Source: The National Energy and Utility Affordability Coalition (NEUAC), <http://neuac.org/wp-content/uploads/2017/03/FINAL-FY18-LAD-State-Sheets-22.pdf>

¹⁰ <http://leanmultifamily.org/sites/default/files/Detailed%20Roadmap%20for%20Maximizing%20Energy%20and%20Cost%20Savings%20at%20Refinance.pdf>

households. Both single family and multi-family buildings follow this protocol.

For multi-family buildings, Program applicants must submit eligibility documentation including a deed restriction that explicitly states that 50 percent of the building's units are affordable to households making 60 percent or less of area median income (AMI). For buildings that do not have such a deed restriction, an equivalent ten-year agreement is required. On a case by case basis, the PAs will also approve multi-family buildings in which almost a majority of units meet the 60% Area Median Income (AMI) but a majority of the remaining units are between 60%-80% AMI.

ENERGY AUDIT

All Low-Income Program participants receive a whole building energy audit. The audit meets DOE/ BPI industry standards and includes a comprehensive walk-through, blower door testing (single-family only), health and safety assessment, and basic resident education. According to LEAN, all households or building owners must agree to their scope of work. Single family and smaller multi-family audits are completed by trained and certified staff at the CAP or subcontracted to a private energy auditing firm, under CAP supervision. At the time of these audits, several direct installation measures are installed by the auditor. These direct installation measures include:

- Lightbulbs,
- Smart power strips,
- Low flow showerheads,
- Faucet aerators, and a
- TLC Energy Efficiency Kit (e.g. LED nightlights, refrigerator cleaning brush, outlet and wall plate insulation, refrigerator thermometers, and educational materials)

Multi-family building audits are subcontracted out to industry certified engineering firms. All participating multi-family buildings are required to participate in building energy benchmarking. Energy benchmarking is the process of reviewing a building's utility usage for a year or more to determine how well the building is performing compared to itself over time or to other similar buildings. WegoWise is used to manage the energy benchmarking. WegoWise is an online tool that allows building owners to input their utility information and look at the results graphically and numerically to see how buildings within a portfolio are doing and how they compare to each other. "Wego" stands for water, electricity, gas, and oil, and can track usage and performance on all of these topics.¹¹

At the time of the energy audit, specific structural, health and/or safety related issues may be observed. These issues may include a faulty roof, knob & tube wiring, and environmental hazards such as mold or asbestos. The Low-Income Program has designated health and safety and repair funds to address these issues and still deliver energy efficiency measures. Funds for health and safety and repair measures are provided by the utility funds and the DOE Weatherization Assistance Program. Households that have structural, health, and/or safety related issues beyond the allowed Program scope are deferred from the program and will not be able to participate until the issues are resolved. Deferral does not mean that assistance will never be available, but that work must be postponed indefinitely until the issues can be resolved. The CAPs have a network of low-income referral partners that administer home repair programs that can address issues outside of the scope of the Low-Income Program.

QUALITY CONTROL

Once a scope of work is generated from energy audit findings, the CAP will secure a Program qualified energy

¹¹ www.wegowise.com

efficiency contractor to complete the work. In-progress work inspections are conducted by the CAPs on all work. In addition, a full post-work quality control inspection is completed on every participating household. Spot quality control inspections are also completed by the Massachusetts Department of Housing and Community Development (about 20% of completed units), and for the PAs by third-party inspectors (about 10% of completed units).

MEASURE MIX

The Low-Income Program currently offers a mix of energy efficiency measures to deliver a whole building energy efficiency retrofit. Current measures offered include:

- Early retirement window air conditioners
- Air sealing
- Domestic hot water measures (e.g. low-flow showerheads, faucet aerators)
- Early retirement dehumidifiers
- Early retirement freezers
- Health and safety
- Heating system repair and replacement, including air source heat pumps,
- Insulation (attic, wall, pipe, duct)
- LED lightbulbs
- Pre-weatherization measures (e.g. electrical repairs, roofs, structural, etc.)
- Thermostats, including programmable
- Early retirement refrigerators
- Smart power strips
- Early retirement clothes washers
- Custom Measures for multi-family

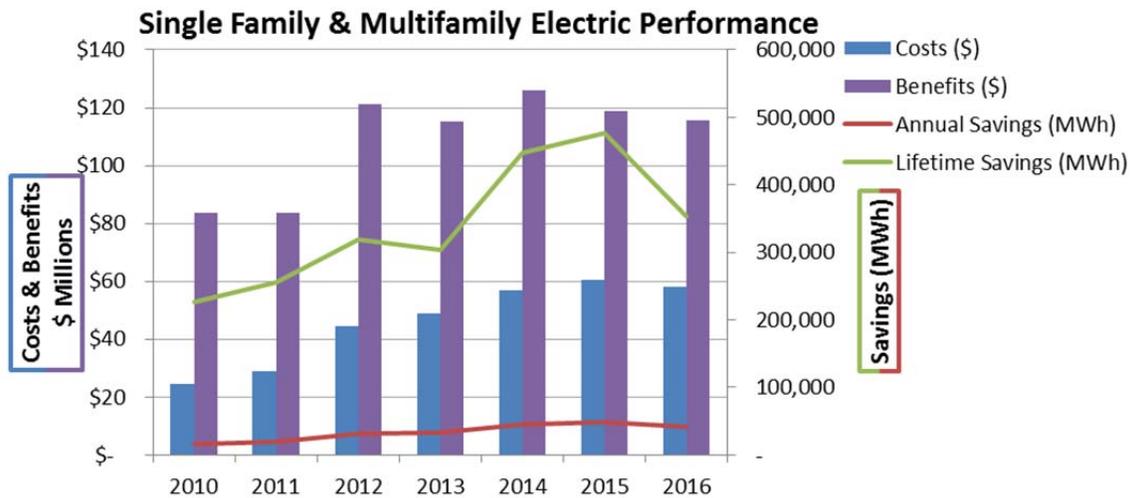
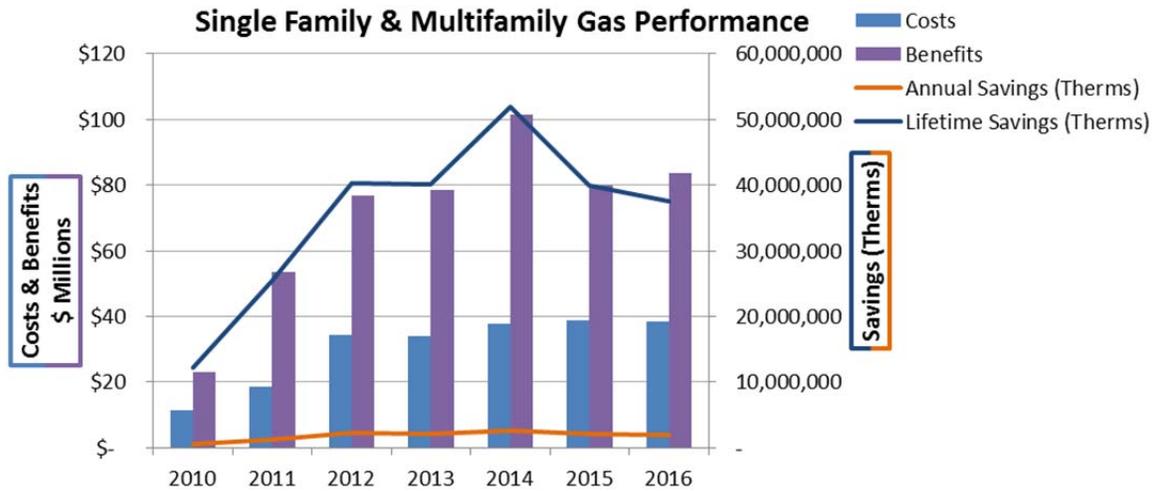
STATUS IN MASSACHUSETTS

Program Performance

Massachusetts CAPs have been providing low-income energy efficiency service since 1976 when the federal government established the Weatherization Assistance Program. In the 41 years of operation, LEAN and the CAPs have developed program processes and protocols to deliver a service that meets its energy savings goals, delivers a high level of hands-on direct customer service, and ensures full compliance with standards of its leveraged federal resources, as well as those of the PAs and the Commonwealth.

LEAN is a recognized leader in delivering low-income energy efficiency services. LEAN has consistently met its savings goals. Since 2010, LEAN has achieved an average of 116% of annual electric savings goals and 132% of annual gas savings goals. Table 1 displays the Low-Income Program's single family and multi-family performance (2010-2016).

Table 1. Low-Income Single and Multi-Family Energy Efficiency Program Performance (2010-2016)



Cost-Effectiveness Screening

The Massachusetts PAs are statutorily mandated to identify all available energy efficiency and demand reduction resources. This ensures that the Low-Income Program cost-effectively delivers a program that meets their three-year goals. Through cost-effectiveness analysis, the PAs develop portfolio, program, and initiative benefit-cost ratios (BCRs). In these calculations, costs represent the net present value of measures costs plus all program overheads. Benefits are the net present value of an array of benefit categories including avoided energy costs projected over the measure life of the efficiency improvements as well as non-energy impacts (NEIs).

NEI benefits play an important role in Low-Income Program cost-effectiveness screening. Table 2 shows the

comparison of total benefits to NEIs, as well as the percentage of NEI benefits. NEIs contribute a significant portion of Program benefits. The NEIs represented in this chart include the upgraded benefits cited in the 2016 Low-Income Single Family NEI study. NEI benefits are incorporated as part of the BCR. Prominent NEI category examples include health, thermal comfort, and equipment maintenance. As a result of incorporating NEIs, measures may screen as cost-effective that would not screen based on energy savings alone. Findings from a 2016 study resulted in a major increase in health-related NEI benefits.¹² However, a new 2017 Low-Income Multi-Family NEI study is due to be completed before the 2019-2020 Energy Efficiency Plan is completed, which could impact Low-Income Program screening. If the new study finds higher NEIs than the previous study, it is possible that additional measures may screen than would otherwise. If the reverse is true and NEIs are lower, fewer measures may screen.

Table 2. Summary of 2017 Planned Non-Energy Impact Benefits

Electric						
Initiative	NEIs	Total Benefits	Total Resource Costs	NEIs as % of Total	BCR w/ NEIs	BCR w/o NEIs
B1a - Low-Income Single Family Retrofit	\$17,152,852	\$ 72,486,345	\$ 36,102,282	24%	2.01	1.53
B1b - Low-Income Multi-Family Retrofit	\$13,247,628	\$ 42,397,098	\$ 32,749,445	31%	1.29	0.89
Total	\$30,400,480	\$114,883,443	\$ 68,851,727	26%	1.67	1.23
Gas						
Initiative	NEIs	Total Benefits	Total Resource Costs	NEIs as % of Total	BCR w/ NEIs	BCR w/o NEIs
B1a - Low-Income Single Family Retrofit	\$10,374,795	\$ 29,546,659	\$ 22,700,920	35%	1.30	0.84
B1b - Low-Income Multi-Family Retrofit	\$24,415,702	\$ 48,446,695	\$ 22,303,684	50%	2.17	1.08
Total	\$34,790,497	\$ 77,993,354	\$ 45,004,604	45%	1.73	0.96

A Potential Co-Funding Strategy

A new co-funding strategy is being explored by the EEAC Consultant Team, LEAN and the PAs for the Low-Income Program. The strategy seeks partnerships with other industries that have an interest in leveraging the Low-Income Program framework and offering additional non-energy measures that accrue benefits for the other industry. For example, health care providers have an interest in reducing expensive emergency department visit and hospitalization demand associated with asthma attacks. Currently, several energy efficiency measures already contribute to reducing asthma attacks as described by the 2016 NEI study. However, additional non-energy measures could be installed at the same time that energy measures are installed, and result in the creation of direct benefits to health care. These changes present an opportunity for the two industries to work together to their mutual benefit.

Energy efficiency programs integrated with health-focused housing intervention measures offer energy efficiency program administrators a potential option to co-fund energy efficiency costs (measures, audits plus overheads) and enrich their low-income residential program offering. A co-funded model may also provide direct benefits to program administrators by reducing energy efficiency program implementation costs and thus cost to achieve. Concurrently, a co-funded health-focused model has the potential to benefit health care by providing an existing and proven delivery model to improve health and thus reduce demand for expensive Medicaid and Medicare medical care and meeting health care's cost savings goals.

¹² Hawkins, B.; Tonn, B.; Rose, E.; Clendenning, G.; Abraham, L, *Low-Income Health and Safety-Related Non-Energy Impacts (NEIs) Study*; Massachusetts Program Administrators, August, 2016.

Data Collection and Management

Currently, each CAP independently collects and manages its Program data including participant demographics, energy audit findings, and scopes of work during the intake/application and the energy audit process. Each CAP collects, organizes and manages its data in its own way. Some use paper-based data management systems and some use varying degrees of electronic-based systems. The only data reporting required by the program administrators includes basic demographic information (name, address, contact info, utility account number, etc.) and a list of all installed utility-funded measures. This post-work data reporting can allow PAs to show and report on cost-savings performance. According to LEAN, the data is also used for Program planning purposes. In particular, data managed by the CAPs is used to identify Program participation and to show if there are specific areas of the Commonwealth where low-income communities are not be served equitably. Tools such as geographic information systems (GIS) hot spotting are used to show participation levels. In addition, LEAN has confirmed that the CAPs track measure life completion dates for larger measures such as hot water heaters, furnaces, and appliances, The tracking of measures, especially large measures found in the Multi-Family Initiative, is a strategy to identify and track future energy efficiency opportunities as measure lives are about to expire.

RELEVANT EVALUATION FINDINGS AND ACTIVITIES

A commitment to evaluation, measurement and verification of programs is a commitment to providing accurate, transparent and consistent metrics to assess the performance and implementation of programs. To this end, Program Administrators conduct independent, third-party evaluations. Energy efficiency evaluations serve three critical objectives: accountability of the impacts, risk management, and continuous improvement. For example, results from several studies outlined below will affect the amount of claimable baseline savings for the Low Income Program. Since 2010, the following low-income energy efficiency program evaluations have been completed:

- 2011: Massachusetts 2010 Residential Retrofit and Low Income Evaluation (Process Evaluation)
- 2012: Low-income Single Family Impact Evaluation
- 2014: Status of Ongoing Low Income Lighting and Heating Metering Study Memo
- 2015: Low Income Multifamily Impact Evaluation
- 2016: Low-Income Single Family Health and Safety Related Non-Energy Impacts Study

There are three current studies underway that have direct implications for low-income energy efficiency programs in Massachusetts. Two are focused on non-energy impacts and one is a comprehensive process evaluation. The process evaluation will deliver key findings that may contribute additional cost-efficient program improvement recommendations to be considered for the Three-Year Plan. A summary of the current studies is presented in Table 3.

Table 3. Summary of 2017 Low-Income Energy Efficiency Program Evaluations

Study	Summary Description	Completion
Non-Energy Impact Framework Study	This report summarizes the Massachusetts non-energy impact strategy and framework. It also includes an inventory of NEIs captured by research in Massachusetts and gaps in Massachusetts NEI research, a literature review of NEI research in other jurisdictions, and recommendations for	Scheduled to be complete in time for the first draft of the 3-year plan

	future NEI research.	
Low-Income Multi-family Non-Energy Impact Study	The purpose of this study is to evaluate the health and safety NEIs attributable to improving the energy efficiency of low-income, affordable multifamily (MF) buildings.	Scheduled to produce results in time for the first draft of the 3-year plan
Low-income Single Family Process Evaluation	<p>This study will have the following objectives:</p> <ul style="list-style-type: none"> • Describe progress in serving target segments (e.g., 1-unit single-family, 2-4-unit single-family, 5+ unit multifamily) • Identify market saturation (available future weatherization potential) of the target segments <p>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</p> <ul style="list-style-type: none"> • Identify barriers and opportunities for addressing harder-to-engage target populations, including renters and smaller multifamily buildings • Describe consistency and variance by region and agency in customer experience, agency practices, and program implementation • 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 	Schedule to be completed in May, 2018

CONSULTANT FINDINGS

The Massachusetts PAs and LEAN have developed a program model that delivers whole building energy efficiency measures to low-income single family and multi-family ratepayers. To date, this program model has allowed the Low-Income Program to meet its savings goals established in each three year plan. However, with the approaching loss of claimable savings from lighting, the Program faces increasing pressure to identify ways that it can maintain significant levels of savings while maximizing cost efficiency.

As a starting point, new measures/technologies will need to be explored and added to the measure mix in order to maintain significant levels of savings with the loss of claimable electric savings from lighting. In addition, opportunities to reduce Program implementation costs and innovations such as a co-funding model should be explored. This must be done while also balancing other factors such as delivering whole-building retrofits, providing the right level of a direct hands-on customer experience for a high-needs population, and leveraging other funding sources and **standards**.

When assessing further opportunities to enhance the current program model, a few factors should be considered. First, the program braids utility funds with low-income federal resources adding approximately \$16.5 million of

additional resources each year. From one perspective, these funds enhance the program by providing a significant portion of additional energy efficiency resources to low-income ratepayers. Arguments can be made that the federal standards and protocol supports a higher quality more hands-on customer experience and deeper energy efficiency retrofits. From another perspective, one may say that the standards and protocols required by the federal programs may prohibit Program innovations that deliver the most savings possible at the most reasonable cost to achieve those savings. Any revisions to the Low-Income Program model will need to take the braided funding into consideration and appropriately address it.

Another factor is that the program serves a high needs population. In many instances this requires that the program should be a very hands-on customer experience in which the program leads the process almost every step of the way for the program participant. Yet as we have been discussing with the market rate Residential Sector programs and customers, Low Income customers are a diverse group with varying needs and interests. This variety may require different approaches in measure and service delivery rather than a “one size fits all” approach.

Last, the consultant team feels confident in its understanding of most of the current program process. However, we do not have enough information to gauge the level of effectiveness, quality, and efficiency of services provided to low-income rate payers using the program model and make recommendations to improve them as appropriate. The information required for this assessment includes data related to work quality and cost efficiency (e.g., quality inspection reports and analysis), program efficiency (e.g., time spent on jobs, number of visits by contractor), client satisfaction (e.g., client survey data), demographic data (e.g., seniors, disabled, ESL), and geographic rates of service. With regard to the latter, for example, the zip code level data provided on Mass Save Data combine data for the Residential and Low Income Sectors, preventing a meaningful assessment of the data for either.

In addition, further PA articulation of current program processes and protocols in the 2019-2021 Plan is needed to support assessment by the EEAC and its consultants of program performance and improvement opportunities. Examples include describing the low-income rate registration process; how single family buildings (2-4 units) that have a mix of market rate, moderate income and low-income units are served to ensure whole-building retrofits; ongoing efforts between the PAs and key partners to coordinate and increase multi-family program services such as through the road map; quality control inspections; and delineating what components of the program model processes and protocols are dictated by federal program standard requirements. Developing an understanding of these is a foundational step in establishing relevant benchmarks and assessing progress.

Exploring and reporting on the full eligible participation potential for Low-Income Programs as well as verifying past program participation among low-income households throughout the Commonwealth is key to assuring that all low-income households are receiving equivalent access and services. This should include describing and exhibiting to the Council how the PAs’ data management system is used to assess program equity, geographic participation gaps, and missed energy efficiency opportunities.

The consultants have no reason to believe that the current program model isn’t the most effective, efficient and highest quality for low-income participants, but at the same time we currently do not have all information available to verify whether it is. The consultants also feel that the nature of the population being served and 100% incentives and associated higher cost to deliver support this level of scrutiny. While the low-income program process evaluation currently underway and outlined in Table 3 above should make inroads in meeting these information needs and providing recommendations for improvement of program processes, the occasional nature of EM&V efforts for the Low-Income Program may not fully satisfy them.

Last, it should be noted that based on feedback and recommendations provided during the first two three-year planning workshops that program model changes for the market-rate residential program can be expected. Any opportunities to enhance and coordinate efforts between the Market Rate and Low-Income Programs should be

identified and applied.

Table 4 identifies the Low Income Program barriers and opportunities for consideration in 2019-2021:

Table 4. Massachusetts Low-Income Program Barriers/Missed Opportunities and Opportunities

Barriers/ Missed Opportunities	Opportunities
<p>Rapid transformation of lighting market will affect claimable savings and put pressure on meeting the benefit-cost ratio threshold</p>	<ul style="list-style-type: none"> • Identify claimable savings potential of new electric saving measures to add to the measure mix. Examples include: multi-zone air-source heat pumps, lighting occupancy sensors, and stand-alone conventional hot-water heaters. • Identify opportunity to expand the number of current measure units. Examples include: clothes washers and air-source heat pumps • Identify opportunities to integrate active demand management measures • Identify opportunities to reduce Program costs via co-funding projects
<p>Without details regarding key program protocols it is difficult to assess service to customers and opportunities to increase savings and cost efficiency.</p>	<ul style="list-style-type: none"> • Provide more specific details on the low-income program process in the 2019-2021 Plan including: <ul style="list-style-type: none"> ○ Low-income rate registration process ○ Single-family (2-4 units) protocol when all units do not meet a 50% threshold ○ Multi-family road map ○ Quality control inspections ○ Describing federal requirements/standards throughout the entire process description
<p>Without publicly available information regarding full historic and future potential income eligible participation it is difficult to assess whether the Low Income Program is equivalently serving low-income households in all geographic regions of Massachusetts</p>	<ul style="list-style-type: none"> • The PAs should show and verify that they have the data management system and tools (e.g., GIS hot-spotting) available to effectively report and present to the Council all participation potential and verification of equitable program participation across the entire Commonwealth. A low-income participation study should be considered.
<p>Failure to capitalize on long term (e.g. 15 years refinancing packages) multi-family refinancing cycles results in missed opportunities to leverage energy efficiency and capital improvement funds</p>	<ul style="list-style-type: none"> • Bolster work with multi-family stakeholders to implement the road map to ensure full advantage is taken of refinancing cycle opportunities
<p>Failure to capitalize on changes to the market rate program may result in lost opportunities and future challenges for the Low-Income Program</p>	<ul style="list-style-type: none"> • Ensure that throughout the market rate program innovation process, that there is regular communications and updates with the Low-Income Program. Opportunities to leverage resources, as well as identifying any potential points of confusion that are identified throughout the process.

SUMMARY OF CONSULTANT RECOMMENDATIONS

In collaboration with LEAN, the PAs have created a high performing Low-Income Program. Like all residential programs, the loss of claimable lighting savings needs to be addressed by the Low-Income Program. This change will create many challenges as well as opportunities in the next Plan.

Moving into the 2019-2021 Energy Efficiency Plan period, the Council would like to see the PAs focus their Low Income Sector efforts to:

- Identify and support new and enhanced electric and gas measures and innovative strategies to make up for lost lighting savings
- Identify opportunities for achieving additional cost efficiencies as the ability to claim savings for a key low-cost measure—lighting—decreases
- Include information in 2019-2021 Plan regarding key program processes and protocols to support assessment of performance and identification of continuous improvement opportunities
- Assess gaps in participation and demonstrate plans achieving equivalent and proportional services regardless of geography as necessary
- Develop and demonstrate alternative measure packages and service delivery models to serve a wider and diverse range of customer needs and interests
- Ensure communication between the market rate and Low-Income Programs to identify and coordinate program innovations when applicable