

5.7 Low-Income Initiatives

5.7.1 Overview

Efficiency Maine Trust delivers energy-saving opportunities to low-income customers through a portfolio of initiatives.

Customer Segment

The target market for the Trust's low-income initiatives is all residential dwellings in Maine occupied by low-income households.¹

Channels

The Trust's low-income initiatives target energy conservation funding to eligible households through three channels:

- *Market-based initiatives*, where low-income customers participate in the same programs the Trust offers to other residential customers. In some cases, the Trust may offer enhanced incentives to eligible low-income customers;
- *Direct installation* of conservation measures, where the Trust covers up to 100% of the cost of equipment and installation and oversees contractor support; and
- *Direct-mail campaigns*, where customers receive an offer for free, small energy-saving devices, along with a postage-paid order form.

The resulting blend of approaches is designed to overcome obstacles to cost-effective energy conservation for low-income Mainers.

5.7.2 Objectives

- Target at least 10% of funds for electricity conservation collected under §10110(4-A) or \$2,600,000, whichever is greater, to programs for low-income residential consumers;²
- Direct a reasonable percentage³ of funds from the Natural Gas Conservation Fund to programs for low-income residential consumers;

¹ Under the Trust's proposed rules, eligibility for low-income initiatives funded by the electric and gas conservation funds is limited to a customer of a transmission and distribution utility receiving benefits under the utility's Low-Income Assistance Program, or a household that has qualified at any time in the prior 12-month period to receive assistance through any state or federal program in which low income and/or limited assets are criteria for eligibility. See Chapter 3: Electric Energy Conservation Programs, Section 2.D, and Chapter 4: Natural Gas Conservation Programs, Section 2.C. Low-income initiatives funded by RGGI funds expand upon these criteria, extending eligibility to owners of mobile homes and properties having low assessed property values.

² 35-A MRS §10110(2)(B).

³ The Efficiency Maine Trust Act states: "The trust shall establish the percentage based on an assessment of the opportunity for cost-effective conservation measures for such consumers, including an assessment of the number of low-income residential consumers that may be eligible for such programs" (35-A MRS §10111(1)(B)).

- Direct \$300,000 in Maine Power Reliability Program settlement funds (MPRP funds) to the weatherization of low-income homes each year, through fiscal year 2022;
- Weatherize substantially all low-income homes whose owners or occupants are willing to participate in and share the costs of cost-effective home weatherization;⁴
- Increase consumer awareness of cost-effective options;
- Reduce total energy costs; and
- Help reduce arrearages and “bad debt” associated with customers who fail to pay their utility bills.

5.7.3 Market Barriers

- *First cost*: Low-income customers typically have limited access to disposable funds, making it hard to invest in energy improvements that require an incremental, upfront payment.
- *Limited access to capital*: Poor credit or lack of collateral can restrict access to financing options.
- *Split incentives*: Sometimes the entity making decisions on energy efficiency investments does not pay the energy bills, and therefore has little incentive to reduce them. This is typical of rental properties; for example, the tenant may pay the utility bills, but the landlord is in the position to purchase and install equipment or improvements to the building envelope. Similarly, in cases where energy costs are subsidized or included in rent, the end user may not experience the benefit from energy conservation.
- *Lack of information*: Energy conservation is not an intuitive or easily understandable concept for most people; it cannot be seen, it is difficult to measure, and future prices are uncertain. Some customers are also unfamiliar with energy conservation options, are not confident in their knowledge of equipment performance, or feel overwhelmed by installation considerations.

5.7.4 Opportunity Analysis

Methodology

The Trust’s opportunity analysis for low-income initiatives in the Triennial Plan IV period centered around two general questions: (1) to what extent can the Trust continue to offer the same measures as it has in the past, and (2) is there new information about the low-income baseline conditions that might inform a change in measure offerings or delivery approach?

The first question is one that the Trust asked of all its programs. If certain program designs and measure offerings currently generate cost-effective energy savings,⁵ the Trust sought to determine whether they

⁴ This is consistent with one of the Trust’s long-term statutory goals (35-A MRS §10104(4)(F).)

⁵ This assessment was made as of the writing of Triennial Plan IV (Summer 2018).

would continue to do so into the Triennial Plan IV period. Furthermore, it attempted to quantify the remaining opportunity based on historical activity and experience.

With respect to the second question, the Trust focused on one specific line of inquiry: what portion of the average low-income home's water and space heating load is attributable to electricity usage? This question arose out of the Trust's internal analysis of utility interval data for a small subset of low-income customers⁶ and a series of low-income home site visits. The data, though not statistically significant, suggested that low-income Mainers might rely more heavily on electric resistance water heating and supplemental electric space heating than other residential customers.

The Trust subsequently commissioned a formal, statistically significant analysis to test this theory, hiring Convergence Data Analytics (CDA). The Trust also drew upon the Office of the Public Advocate's (OPA's) 2018 Maine Low-Income Household Energy Efficiency Baseline Study (see Appendix I).

The OPA study performed in-depth surveys of energy end uses for a representative sample of low-income homes. CDA's 2018 Low Income Electric Heating and Cooling Analysis (see Appendix J) analyzed utility interval data and primary heating system information from 775 participants in the utilities' Arrearage Management Program (AMP) and 67 homes sampled in the OPA study. CDA examined the correlation between outside temperature and electrical usage. CDA used the results of this analysis to make estimates about the percentage of an average low-income home's heating and cooling load that is attributable to electricity.

Findings

The Trust's analysis determined that several measures offered during FY2018 continue to be cost-effective (see the measure list in Appendix B). These include both lost opportunity and retrofit heat pump water heaters (HPWHs), air-sealing and insulation measures, certain heating systems, and the suite of small energy-saving measures relying on do-it-yourself (DIY) or volunteer installation (such as LEDs, low-flow showerheads, and low-flow aerators). The Trust will continue to offer these measures through the market-based, direct-install, or direct-mail channels, as it did in FY2018. It will reassess the cost-effectiveness of measures as new information becomes available over the course of Triennial Plan IV, and will add or remove measures as appropriate.

The OPA study indicated that the state's low-income households rely more heavily on electric water heating than the average residential customer; 48% of low-income households use electric resistance water heaters, compared to 14% of non-low-income households. In fact, the majority of the state's approximately 137,700⁷ electric resistance water heaters exist in low-income homes. With

⁶ The Trust performed a basic analysis of interval data for a subset of AMP participants. For more detail on this program, refer to Section 5.7.5 – Marketing and Outreach.

⁷ NMR's 2015 Residential Baseline Study noted that 25% of the state's 551,109 homes have electric resistance tank water heaters.

approximately 175,000⁸ eligible low-income households, the Trust calculates 84,000 inefficient electric resistance water heaters exist within this customer sector alone. Given a measure life of 10 years, the Trust assumes that 8,400 of these inefficient water heaters burn out every year and need to be replaced. Like all residential customers, low-income customers are highly likely to make their emergency replacement purchasing decisions at a retailer or distributor. The Trust will therefore allocate an appropriate portion of low-income funding to account for this customer sector's share of program participation in Retail Initiatives and Distributor Initiatives.

CDA's analysis found that 3,527 kWh annually can be attributed to heating across the sample of low-income customers in its study. For low-income homes that specifically indicated that they use electric heat, the analysis found 7,609 kWh per year that can be attributed to heating. These findings suggest that there could be cost-effective conservation project opportunities at low-income homes having high electrical heating demand.

As in the Triennial Plan III period, natural gas measures are opportunity-constrained. In typical single-family homes heated with natural gas, certain building envelope measures and heating system measures have the potential to be cost-effective. However, the universe of single-family homes heated by natural gas, inhabited by eligible low-income households that have authority to make decisions about building insulation or heating system upgrades, remains extremely small. The universe of low-income apartments heated by natural gas is considerably larger, but the opportunities for cost-effective building envelope measures and heating system measures in those buildings are very limited.

Unregulated-fuel measures, on the other hand, are funding-constrained, as they were during the Triennial Plan III period. The Trust's RGGI budget dedicated to low-income initiatives remains small relative to the unregulated-fuel measure opportunity in this sector.

For the low-income initiatives budget under Triennial Plan IV, see Appendix A.

5.7.5 Program Design

Addressing Market Barriers

In the Trust's experience, employing a variety of channels helps overcome obstacles to low-income program participation and implementation.

Market-based initiatives help ensure competitive project costs and broad accessibility. The Trust's HPWH incentives through the retail and distributor channels are set at or near 100% of the incremental measure cost. In addition to minimizing free-ridership and maximizing cost-effective savings, this program design approach makes upgrading to the efficient alternative an affordable option for all customers. It overcomes first-cost barriers, putting the inefficient replacement model and the efficient alternative on equal footing. By targeting emergency replacements where a low-income customer is

⁸ This is the number of low-income households that have qualified at any time in the prior 12-month period to receive assistance through any state or federal program in which low income and/or limited assets are criteria for eligibility. Figure from the Maine Department of Health and Human Services (DHHS).

required to make a purchasing decision, the Trust minimizes costs and administrative burdens associated with customer acquisition.

In some cases, market-based initiatives also leverage a customer co-pay, motivating customers to take an interest in quality work and pay ongoing attention to proper maintenance and operation. Nevertheless, not all customers are able to overcome first-cost barriers, even with enhanced incentives and attractive financing opportunities. Accordingly, in cases where the Trust seeks a cost-share for eligible low-income customers, it will, where practical, keep the co-pay levels low to promote access to the programs. The Trust also plans to continue offering small, unsecured loans through this channel to overcome barriers associated with lack of access to capital. In light of the characteristics of the market-based approach, it is best suited to homes that are owner-occupied.

Direct-install initiatives, which fund up to 100% of the equipment and installation cost, overcome the customer's first-cost and financing barriers. Additionally, the direct-install approach, in which the Trust initiates contact with eligible households, selects product models, and coordinates qualified vendors, removes barriers associated with lack of information and subject-matter expertise. At the same time, however, the direct-install approach incurs higher costs per project than other channels and is thus budget intensive. Another consideration is that the higher costs of a direct-install approach sometimes face a greater challenge in meeting cost-effectiveness requirements. Therefore, direct-install projects must yield significant energy savings in order to be cost-effective. The Trust will continue to provide direct-install offerings through the AMP initiative and to reach eligible households heated with natural gas.

As with direct-install initiatives, direct-mail initiatives target eligible customers and rely on Efficiency Maine or a third party (someone other than the customer) to initiate contact. Delivery costs for direct-mail initiatives, unlike those for direct-install initiatives, are extremely low. In relying on the end user to perform the installation, many of the applicable measures easily surpass the cost-effectiveness requirement.

Measures Promoted

As with all of the Trust's programs, the measure offerings through the low-income initiatives may be subject to different limitations based on the funding sources. As evidenced by the HPWH example, measures incentivized for residential customers through market-based programs are generally good candidates for inclusion in low-income initiatives. (An exception to this general rule sometimes applies when the low-income dwelling is in an apartment building, where the characteristics of the building and heating system may differ significantly from those of a single-family home). Across the various low-income initiatives, the Trust's budget assumes promotion of the following measures during the Triennial Plan IV period: HPWHs, ductless heat pumps (DHPs), air-sealing and insulation measures, some heating systems, and the suite of small DIY energy-saving measures. As discussed, the Trust will continue to reassess measures' cost-effectiveness as new information becomes available over the course of Triennial Plan IV, and will add or remove measures as appropriate.

Incentives and Financial Considerations

Low-income initiatives may offer different financial incentive types and sizes depending on the delivery channel. Market-based initiatives may pay close to 100% of the incremental cost of a measure or require a co-pay from participating households. Where a co-pay is required, it will be lower than the cost-share requirements for non-low-income residential customers. Additionally, the Trust will couple its incentives with access to financing in the form of small, unsecured loans for qualifying customers. Through the direct-install approach, the Trust covers up to 100% of all costs of the upgrade, including opportunity assessment, project management, project materials, and installation costs. Direct-mail initiatives involve no financial contribution from the participant.

Marketing and Outreach

Driving demand for energy conservation services and participation in the Trust's low-income initiatives generally requires targeted messaging to eligible homeowners. Because of the sensitive nature of personal income information, identifying potential participants remains challenging for the Trust. Direct mailing and outreach through traditional low-income program delivery agencies remain the most affordable and targeted strategies. The Trust will continue to market low-income initiatives to eligible households through partner organizations including the Department of Health and Human Services (DHHS), the Maine State Housing Authority, Community Action Agencies, General Assistance Program Officers, nonprofit organizations, and the utilities.

The Trust's licensed contractor network will also continue to serve as an active sales force for this sector. In addition to providing continued technical information and program guidance to the vendor community to support this effort, program staff will explore opportunities to enhance contractor interest in, and commitment to, project opportunities through this channel.

The Trust will also drive participation in low-income initiatives through the statewide marketing of other Trust programs. This is particularly relevant to HPWH incentive offerings through Retail Initiatives and Distributor Initiatives, where marketing and outreach materials in stores will effectively target all customer sectors. Furthermore, the Trust will leverage the various educational resources on its website to help low-income Mainers reduce their energy costs, including no- and low-cost energy tips, home energy calculators, case studies, and vendor locators. In addition, the Trust will continue to make Kill-a-Watt meters available at most public libraries in Maine.

The Trust will increase its efforts to market directly to customers enrolled in AMP. The Maine PUC Rule Chapter 317, Statewide Arrearage Management Program describes generally the objective of AMP:

This Chapter establishes a process and regulations by which each electric transmission and distribution utility shall implement an Arrearage Management Program (AMP) to assist eligible low-income residential customers who are in arrears with their electricity bills. An AMP implemented pursuant to this section is a plan under which a transmission and distribution utility works with eligible low-income residential customers to establish an affordable payment

plan and provide credit towards a customer's accumulated arrears as long as that customer remains in compliance with the terms of the program.⁹

AMP is intended in part to help reduce the number of low-income customers in arrears on their electric bills or, alternatively, to reduce the amount of these customers' arrearage, and, therefore, lower the "bad debt" burden to ratepayers that is associated with customers who fail to pay their utility bills. In the spring of 2018, the 128th Maine Legislature voted to extend AMP through 2021; the Trust will therefore continue to leverage this program channel through at least the second year of Triennial Plan IV, or until such time as AMP is discontinued.

Moving forward, the Trust will work with AMP stakeholders and the Low Income Advisory Group to consider ways to expand offerings for AMP participants. An initial focus will be placed on the new information emerging from the baseline study by the Office of Public Advocate and the CDA analysis of utility interval data showing high-levels of electric heating. Given the uncertainty surrounding realization rates for these types of measure offerings, the Trust will work directly with AMP customers in good standing to pilot the applicability and effectiveness of high-efficiency heating systems and building envelope measures. If the pilot project reveals that these measures demonstrate predictable and persistent cost-effective savings, the Trust will scale up the initiative to reach out to more low-income homes outside of AMP.

Quality Assurance/Quality Control

The Trust will conduct quality assurance inspections of approximately 15% of all direct-install projects and market-based projects. The Trust requires that all installations be completed by contractors on the Trust's Residential Registered Vendor list, ensuring that all participating installers abide by a specific code of conduct and adhere to certain licensing requirements. The Trust also provides installers with material and installation specifications for energy-efficient technologies installed through its direct-install initiatives.

⁹ 65-407 Maine PUC Chapter 317.