

5.6 Home Energy Savings Program

5.6.1 Overview

The Home Energy Savings Program (HESP) is the program through which the Trust pursues savings from upgrades to a home's building envelope or certain heating systems. In a departure from prior plans, Triennial Plan IV will promote some home heating measures in other programs. Specifically, most central heating system upgrades (fossil-fired furnaces and boilers) will be handled through the Distributor Initiatives Program (Section 5.4), and wood and pellet stoves will be addressed through the Retail Initiatives (Section 5.5).

Customer Segments

HESP serves residential customers of all income levels who live in single family homes and two- to four-unit multi-family buildings, including condominiums.

Channel

HESP is a market-based initiative that enlists the help of a network of independent trade allies to drive program participation.

5.6.2 Objectives

- Invest in measures that lower residential heating energy demand and reduce GHG emissions;
- Significantly advance the statutory goal of substantially weatherizing by 2030 all homes whose owners or occupants are willing to participate in and share the costs of cost-effective home weatherization;
- Increase consumer awareness of cost-effective options for conserving heating fuels; and
- Promote sustainable economic development and reduce environmental damage through the more efficient use of all fuel types.

5.6.3 Market Barriers

- *Lack of technical expertise/familiarity with energy efficiency technologies:* Many customers are unfamiliar with energy efficiency options, are not confident in their knowledge of equipment performance, or feel overwhelmed by installation considerations.
- *Lack of upfront capital:* Weatherization and heating system replacements routinely cost several thousand dollars, with comprehensive projects costing more than \$10,000. These high upfront costs can pose a significant impediment to implementing home energy upgrades. Some residents also have difficulty accessing traditional financing.
- *Uncertainty:* Because every home and building is different and because energy prices fluctuate, customers are uncertain about the amount and timing of energy savings from any improvements. Energy efficiency is not a concrete concept for most people; it cannot be seen, it can be difficult to measure, and future energy prices are uncertain.
- *No contractor relationship:* Homeowners tend to find it intimidating to identify, schedule, and work with contractors.

- *Split incentive in rental situations:* In many rental situations where tenants pay for their own utilities, they have an incentive to save energy, but may not be able to invest in efficient equipment or weatherization. Landlords, who are able to invest in energy efficiency, will not directly benefit from energy saved where the tenants pay the heating bill.

5.6.4 Opportunity Analysis

Methodology

Over the course of Triennial Plan III, the Trust found that program participation in HESP relied more on the capacity of the contractor network than on the size of the opportunity for cost-effective conservation measures. Because of this, the Trust's methodology in Triennial Plan IV used a bottom-up approach. This approach looked at contractor capacity and prior program participation rates. It also took into account the different funding sources available to fund measures offered through HESP. Some funding, such as the Electric Efficiency Procurement and the Natural Gas Efficiency Procurement, are modeled and administratively set at a level to capture the Maximum Achievable Cost-Effective (MACE) energy efficiency. By contrast, revenues from the Regional Greenhouse Gas Initiative (RGGI) fluctuate based on the supply and demand for carbon allowances. Because most of the envelope and biomass measures in HESP are funded through RGGI revenues, the budget for the opportunity must be adjusted to reflect the available funds forecasted from RGGI. Thus, contractor capacity and past program participation rates are considered in the context of forecasts of RGGI revenues to calculate the size of cost-effective opportunity for HESP in Triennial Plan IV.

The Trust's assessment of the residential opportunity for ductless heat pumps relies on [Appendix G, Efficiency Maine's Assessment of the Market for High-Efficiency Supplemental Heating](#). This report:

- Synthesizes the collective experience of program managers and delivery sub-contractors, recent and ongoing evaluations, and experiences from other program managers around New England;
- Captures the complex and evolving market for cold-climate heat pumps in Maine and describes how the Trust's programs can ensure that the most efficient and effective equipment is installed and used to the maximum benefit; and
- Estimates future program activity by analyzing contractor availability, customer interest, payback requirements, and past program activity.

Findings

For building envelope improvements measures, the Trust forecasted program activity based on the size of the contractor network and historical project totals. To develop budgets for weatherization measures, the Trust looked at the fuel mix of past program participants to assign percentages of the opportunity that would be funded with sources for unregulated fuels, natural gas procurement, and electric procurement respectively. In addition, the Trust recognizes that weatherization building envelope improvements measures can save electricity by reducing a building's heating load and the associated operating hours of heating systems and ancillary equipment.

For ductless heat pumps, the opportunity analysis found that the Trust's programs will continue to significantly influence the the efficiency level of heat pumps installed in the State.

5.6.5 Program Design

The Trust will continue operating HESP using a market-based approach to promote home energy upgrades. Elements of this approach include rebates, financing, information, and a network of Registered Vendors. A market-based approach, leveraging HESP program incentives to achieve significant private investment in home energy improvements, is essential for advancing participation and savings goals.

Addressing Marketing Barriers

- *Lack of technical expertise/familiarity with energy efficiency technologies:* The program will continue to offer a variety of educational resources through printed materials and online. This information will cover the benefits of, considerations for, and proper use of energy efficiency projects, and will provide tools such as guides and calculators that help customers make informed decisions.
- *Lack of upfront capital:* The program will offer mail-in rebates and loans to overcome the initial cost barrier. In addition, loans will allow customers to spread the cost of energy improvements over time.
- *Uncertainty:* The program will offer a variety of materials and online calculators to help customers estimate the impact of efficiency projects on their homes.
- *No contractor relationship:* To help homeowners identify qualified contracts, the program will continue to offer a network of licensed and insured professional contractors who are qualified to complete projects eligible for Efficiency Maine rebates. To help protect customers, contractors in the network must sign a code of conduct.
- *Split incentive in rental situations:* The program conducts outreach to landlords who have properties eligible for the program (buildings with four or fewer units).

Measures Promoted

The measures promoted through HESP fall into two general categories:

- *Building envelope improvements* refers to the improvement of a home's thermal envelope, which may include activities such as insulating or air sealing, along with energy assessments to verify improvement in the home's thermal envelope. In addition, weatherization may cover the insulation and sealing of a home's heating distribution system (ducts or pipes).
- *Heating systems*, where the customer is the decision maker and works with the contractor to select an appropriate model. These systems include ductless heat pumps, geothermal systems, and biomass boiler and furnaces. In addition, the program will consider controls that balance multiple heating systems to maximize the use of the most efficient units.

Incentives and Financial Considerations

Incentives offered through HESP will include both (1) rebates to entice and lower costs associated with the uptake of envelope upgrades and equipment; and (2) financing options to help homeowners reduce upfront costs and spread out the cost of energy improvements over time.

During Triennial Plans II and III, the program offered incentives for a wide range of heating and envelope measures. The Trust moderated its promotion of the program to maintain contractor activity levels and participation without overextending the budget or experiencing gaps in availability of rebates. The Trust will continue this strategy through the Triennial Plan IV period to support participation while seeking to avoid disruption to the contractor community, which occurs when significant changes are made to measure eligibility or program incentives. In situations where additional funding is made available to HESP, the Trust will make incremental changes to marketing and incentives to advance long-term objectives and energy savings goals.

Marketing and Outreach

To complement marketing performed by the contractor community, HESP will continue to use digital marketing as the primary approach for cost-effective outreach for the program. Digital marketing typically includes web ads, search engine optimization, video ad spots, and use of social media platforms for high-volume viewing or to engage potential participants directly. Marketing efforts are also likely to include print advertising, presentations at local events, and brochures in property tax bill mailings with participating municipalities. A less frequently used option, due to its cost and less targeted audience, is to pay for conventional radio or television ad campaigns.

The program will supplement its media outreach initiatives by engaging the Trust's network of residential Registered Vendors. This community of trade allies has grown to more than 700 residential contractors, vendors, and energy professionals who provide services to homeowners that qualify for Efficiency Maine rebates. When warranted, the Trust will sometimes offer training opportunities for vendors on topics related to program offerings. For example, the Trust has offered panels and workshops at its Annual Symposium that cover program initiatives, emerging technologies, and best practices for effective installations or sales. The Trust communicates with this network to keep contractors up to date with the latest incentive levels and rebate eligibility criteria. Efficiency Maine has built, has maintained, and will continue to offer an online locator tool to enable homeowners to easily locate energy service professionals.

Finally, the Trust will continue to curate a variety of informational materials on energy efficiency technology, options, and incentives. These will take the form of printed brochures, web pages, videos, and online calculators. These resources will give consumers the information they need to move forward with their energy efficiency projects.

Quality Assurance/Quality Control

The program has an established QA/QC process that includes in-home inspections conducted by highly experienced and certified building analysts. Program staff inspect a percentage off all program participants. Historically, that percentage has been between 10 and 15%. The focus of site inspections is

to ensure that projects are completed as reported and to verify compliance with program rules including equipment specifications and configuration, satisfactory workmanship, and customer experience. Any discrepancies are recorded and brought to the attention of the participating contractor to remedy and to improve future work. The Trust will continue to employ the following mechanisms, where appropriate, to help promote and ensure quality work:

- Registered Vendor Code of Conduct;
- Building Performance Institute (BPI) certification;
- Requirement for proper licensing by the Maine Fuel Board;
- Requirement of comprehensive general liability insurance;
- Completion of forms submitted to the Trust establishing eligibility of the home and the measures;
- Signatures by the customer and the contractor attesting to the information represented in the eligibility forms;
- Reminders in communications with registered vendors; and
- Possible removal of vendors from the Registered Vendor list for failure to comply with the Code of Conduct or program guidelines.