REQUEST FOR INFORMATION (RFI) ON MAINE'S HEAT PUMP ACCELERATOR INNOVATION PRIORITIES

The Efficiency Maine Trust (the Trust), the Maine Department of Energy Resources (DOER), and the Governor's Office of Policy, Innovation and the Future (GOPIF) seek stakeholder input on what priorities and designs should be considered for a suite of pilot programs to be funded in Maine through the New England Heat Pump Accelerator (Accelerator) over the next several years.

This Request for Information seeks information and suggestions about innovative applications of heat pump equipment for heating, ventilation, and air conditioning (HVAC) system designs and community-level solutions that could help accelerate market transformation for, and widespread adoption of, heat pumps and heat pump water heaters in Maine.

In particular, Maine is interested in piloting or demonstrating new applications of heat pump technology that will facilitate full conversions to heat pump technology being used as the primary source of space heating and water heating in residential dwellings. Maine is soliciting stakeholder comments on technologies or applications to be considered, what specific barriers to adoption of heat pumps are faced by rural or specific communities, and what types of information or assistance, and strategies for delivering such assistance, should be considered for piloting at the community level to overcome these barriers. Finally, Maine seeks comments on the degree to which any of these technologies and community-based assistance will deliver significant quantifiable energy savings and reduction in greenhouse gas emissions.

Interested parties should present suggestions through written comments and may also participate in an upcoming public meeting scheduled for Thursday October 23, 2025.

SECTION 1 - INFORMATION AND INSTRUCTIONS

1.1 Designated Contact Person

Becca Ferguson
Regulatory Affairs Manager
Efficiency Maine Trust
Email: becca.ferguson@efficiencymaine.com

1.2 Key Dates

RFI Release Date – 10/14/2025
Innovation Priorities Stakeholder Meeting – 10/23/2025, 2:00-4:00 p.m.
Efficiency Maine
701 Forest Avenue
Portland, remote participation possible
Register here for in person participation: https://www.efficiencymaine.com/cprg-rfi-stakeholder-meeting/
Register here for remote participation: https://efficiencymaine.zoom.us/webinar/register/WN_ztuQtAjFQ76TQN-29tOj3A
RFI Comments Due – 11/14/2025

The first element of pilot project work to be funded through this initiative is expected to launch in May or April 2026. Funds from this initiative may be expended through October 2029.

1.3 How to Submit a Response

Responses may be submitted electronically via the online Submission Form on the RFI webpage (https://www.efficiencymaine.com/request-for-information-rfi-on-maines-heat-pump-accelerator-innovation-priorities/). Please find suggested guidelines below:

1. Cover Letter (1 page maximum)
   Briefly describe your organization or personal background (for individuals), including relevant qualifications.
2. Response
   All comments regarding how heat pump technology could most usefully be piloted in Maine to accelerate transformation of the heating/cooling market are welcome. In particular, we would benefit from stakeholders addressing one or more of the questions listed in section 3.1.
3. Appendices
   Please feel free to attach relevant reports published within the past few years, related to topics or technologies covered in the response. Please provide URLs where the documents may be accessed online. Where online access is not possible, please provide electronic copies in the response upload. Do not provide proprietary information or any content that you wish to be treated as confidential (please see section 1.5).

1.4 Disclaimer

This RFI is not a Request for Proposals (RFP). Information submitted in response to this RFI will be considered in the development of subsequent solicitations for innovation projects funded through the Accelerator initiative. Sharing information in response to this RFI will not, by itself, impact whether a particular bidder or a particular project will be awarded funding through any subsequent solicitation for proposals.

1.5 Confidential Information

Respondents should be aware that information received in response to this RFI may be considered in the drafting or implementation of Maine's innovation priorities for the New England Heat Pump Accelerator and will be posted online and available to the public. Interested parties who claim that certain information is confidential must label relevant sections or pages as "Confidential Information" and request that the Board of Trustees consider such a designation. See https://www.mainelegislature.org/legis/statutes/35-a/title35-Asec10106.html for more information on confidential information.

SECTION 2 - BACKGROUND INFORMATION

2.1 New England Heat Pump Accelerator Overview

The New England Heat Pump Accelerator (Accelerator) is a multi-state initiative to accelerate the adoption of cold-climate air-source heat pumps, ground-source heat pumps, and heat pump water heaters across New England. Maine is one of five states participating in the initiative funded by a grant from the U.S. Environmental Protection Agency (EPA). The Accelerator seeks to complement existing

ongoing efforts across the region to facilitate rapid market adoption of high-efficiency heat pumps and heat pump water heaters in single-family and multifamily residential buildings across the region.

One element of the Accelerator is the Innovation Hub, which will be used to fund one to two state-wide pilot projects in each of the five participating states. The primary objective of the pilot projects that will be conducted in Maine is to test and/or demonstrate solutions to specific barriers that are standing in the way of rapid and widespread market penetration of heat pumps (and heat pump water heaters) in Maine. This RFI seeks input on Maine's priorities for pilot projects serving this objective.

2.2 New England Heat Pump Accelerator Innovation Structure

Innovation Hub grants are intended to overcome barriers to adoption of heat pumps through innovations in technology, program design, and program delivery. The Accelerator's innovation work and investments will be organized into two different categories: "State-Level Grants" and "Community-Level Grants."

1. **State-Level Grants.** The Efficiency Maine Trust will be the administrator for the larger, State-Level Grant(s) that will be implemented in Maine. The Trust plans to manage one or more innovation projects through its existing Innovation Program and competitive solicitation process. Through this initiative, the Trust will use the Accelerator funding to fund one or more large pilot projects to test and demonstrate the performance of one or more technologies or applications that hold the potential to accelerate high-efficiency electrification of heating (and/or cooling) residential dwellings in Maine. The total available budget for the State-Level Grant(s) in Maine over the Accelerator's 5-year term will be between $9.6 million - $12.8 million. Suggestions about projects, technology, and approaches received through this RFI will be considered as the Trust plans investments and writes competitive solicitation(s) for this initiative.
2. **Community-Level Grants.** The Accelerator coalition plans to administer one or more Community-Level Grants through a third-party, regional administrator, and fund projects through a competitive application process. These projects are expected to be smaller in scale and budget, between $50,000 -$300,000. Projects funded through these grants might focus on outreach and education, or pilot a particular marketing strategy, or target a particular community to help overcome specific barriers experienced in that community. Maine prefers not to use these grants to simply enlarge incentive amounts for a particular class of customers. These projects may last one or multiple years, up until the conclusion of the grant period in 2029.

Project and approach ideas suggested by commenters through this RFI process will be shared with the Accelerator coalition. They may also be used by the Trust, DOER, and GOPIF to support potential Community-Level Grant applicants from Maine. Funding from the Innovation Hub will be limited to pilot projects that are installed in residential properties that house low- to moderate- income households or are located in low-income communities.

2.3 Efficiency Maine Trust Innovation Program

The Trust's Innovation Program, separate from the Accelerator Innovation Hub, is a program that has been in operation for 15 years. It provides funding to conduct pilot projects that demonstrate new types of energy efficiency, demand management, beneficial electrification, alternative energy measures, or new strategies for promoting such measures. The program has limited resources and generally focuses on measures or strategies that show potential to be cost-effective and to provide, in the aggregate,

significant energy savings or greenhouse gas savings across the Maine economy, but are not yet well understood or established in Maine's marketplace.

The Innovation Program facilitates the early stages of market transformation. By its nature, this program is a tool or an avenue for testing the potential for new technologies and strategies to advance the Trust's purpose and goals. In doing so, the Innovation Program attempts to advance unfamiliar, untested products and strategies to the point that their costs and performance are well enough understood that the Trust can determine whether and how they should be incorporated into (or excluded from) the Trust's regular programs.

The Trust's Innovation Program may, on occasion, promote limited demonstration projects for near-commercial technologies that show substantial energy-saving opportunities for the state. The program may also promote demonstration and analysis of varying program designs to help shape the ultimate design for future incorporation in the Trust's portfolio of programs.

SECTION 3 - REQUEST FOR INFORMATION

3.1 Questions

At this time, the Trust, DOER, and GOPIF welcome written comments and reference materials on any technology, program design approach, or community solution that might be piloted or demonstrated in Maine as part of this initiative to accelerate the transition to heat pumps for space heating and water heating in residential dwellings. In particular, we seek suggestions that address the following areas:

A. State-Level Initiative

Maine's primary interest for the State-Level innovation funds is to pursue pilot projects that will test and demonstrate ways to improve the performance and economics of heat pumps in Maine homes. In particular, we are interested in equipment, designs and/or practices that will help overcome technical challenges that limit installers and customers from using heat pumps most effectively to displace fossil-fueled central furnaces and boilers, traditional water heaters, and air conditioners. We are interested in solutions that will make it easier for contractors to design and install systems that will cost-effectively deliver all the heat that a Maine home needs, whether in a single-family home or multifamily building. To do that, we hope to pilot emerging technologies, new models, controls, auxiliary features, system designs, installation practices and/or operational practices, that show promise for improving heat pump performance and economics. Maine is also interested in heat pump-related solutions to improve grid flexibility and/or manage or mitigate the grid impacts of heat pumps during periods of peak demand. We welcome stakeholder input on the following questions to help us shape the design of future State-Level pilot projects related to heat pumps.

1. **Specific technical barriers or challenges to "whole-home" heat pump systems.** Please comment on specific technical barriers or challenges that you think should be prioritized in future pilot projects under this initiative. What specific technical barriers or challenges (i.e., involving equipment, design, or operations) to "whole-home" heat pump systems should we prioritize, and why? Please also include relevant barriers experienced in multifamily buildings in addition to single family homes.

2. **Reusing a home's existing heating/cooling distribution system (i.e., radiators, ductwork, etc.) to reduce costs of switching to heat pumps.**

A challenge to making heat pumps attractive to Maine consumers (and contractors) is ensuring that the whole home can be made comfortable, affordably and reliably, when switching entirely to heat pumps. Maine is seeking to find more solutions for homeowners who are switching to heat pumps and want to turn off their old central heating system (relegating it for emergency use only), or homeowners whose old boiler/furnace has burned out (or is about to) and do not want to pay for both a new heat pump system and a new fossil-fired boiler/furnace.

This challenge centers on how to ensure that the heat from the heat pumps is **distributed** to all the spaces in the home that need to be heated. Thousands of Maine homes have addressed this need by strategically placing one or more mini-split heat pumps where they can push heat into all the spaces needed to keep the home warm. This is especially suitable, and economical, for smaller homes and homes with "open concept" designs, and where the heat pumps can be complemented with low-cost space heaters where needed to reach remote spots or rooms that cannot be reached by the heat pumps. But using a system of mini-split heat pumps becomes less attractive economically for larger homes or homes with many small rooms and many closed doors. Maine is interested in piloting solutions that could re-use the existing distribution system – i.e., the forced hot water radiators or the ductwork – to reduce total project costs and ensure full distribution of heat throughout these homes.

Please provide any technical information or suggestions you have about how Maine could design pilot projects that would test the performance and/or economics of re-using existing heating distribution systems with new heat pump installations where the old central boiler/furnace has burned out or is turned off and only used for emergencies. To the extent you are able, please share any data, reference material, insights and considerations we should be aware of relating to any of the following questions:

i. What is the viability of using an existing forced hot water distribution system with a standard, air-to-water heat pump that generates temperatures of 120-140 degrees Fahrenheit? Are there configurations, either using a heat pump by itself, or in combination with other heating sources, that have the potential to economically meet all the home's heating needs?
ii. Are there simple methods to determine if a home's heating distribution is capable of heating a home using lower temperature distribution?
iii. What is the viability of using an existing forced hot water distribution system with an air-to-water heat pump that generates temperatures **above** 140 degrees Fahrenheit? Are there configurations, either using a heat pump by itself, or in combination with other heating sources, that have the potential to economically meet all the home's heating needs?
iv. What is the viability of using an existing ducted distribution system with heat pumps? Are there configurations, either using a heat pump by itself, or in combination with other heating sources, that have the potential to economically meet all the home's heating needs?
v. What information, tools and assurances do contractors need to confidently install heat pumps as a whole-home solution where the old central boiler/furnace is burned out and not replaced, or where it is operational but turned off and only used for emergencies?
vi. If the distribution is in fact undersized for lower temperatures, are there low-cost methods of expanding the distribution capacity?
vii. What is the most affordable way to take advantage of heat pumps' efficient cooling capabilities when reusing existing distribution systems?

3. **Configuring heat pump systems with <u>controls and/or storage</u> to maximize value to the homeowner and ratepayers by taking advantage of low-cost, off-peak electricity.**

   Both Central Maine Power and Versant Power offer time-of-use electricity distribution prices in Maine, with steep discounts on off-peak prices. The off-peak price advantage could be even greater if a competitive energy provider offered a differentiated price on electricity supply. In the future, if the utilities have even more sophisticated grid management systems, these systems could help balance intermittent renewable generation. The advantage of heat pumps with thermal storage would be low-cost, whole-home heating, taking advantage of low-cost, clean electricity without stressing the grid.

   i. What strategies should Maine pilot to reduce the cost of adding thermal storage to air-to-water systems?
   ii. What is the optimum distribution temperature for a forced hot water system that both stores thermal energy and completely offsets legacy fossil fuel systems?
   iii. What is the optimum control strategy for the most efficient operation of the heat pump and utilization of low-cost off-peak energy?
   iv. What creative strategies might the Efficiency Maine utilize with its Green Bank to provide leases, loans or service agreements to mitigate the higher up-front cost of thermal storage needed to unlock much lower operating costs?
   v. What data should the Trust collect through the pilot(s) that would help demonstrate the value of combining energy storage systems and/or controls with air-to-water heat pump systems? What data or analysis would help inform future grid planning, utility investments, and regulatory approvals (e.g., for upgrades to the metering, billing and settlement systems) in order to maximize the value of combined heat pump and storage systems for Maine consumers and ratepayers?

4. **Heat pump <u>water heater</u> technology.**

   Heat pump water heaters are typically installed in unconditioned spaces, often unheated basements. This is often an appropriate application for single family detached homes, but not manufactured homes, many multifamily apartments, and some small single-family homes. Maine is considering exploring the applicability, performance and affordability of split systems to meet this need.

   i. What heat pump technology is available and affordable in the Maine market that would work where traditional heat pump water heaters cannot?
   ii. What are the barriers to contractor adoption of these new technologies?
   iii. What program delivery strategies, incentives, and information are needed to overcome these barriers?

5. **Other Technologies or Solutions.** To the extent this is not already addressed in prior questions/responses, what other technologies (or models), controls, auxiliary features, or system designs should we be aware of that might help address the barriers or challenges of using heat pumps to displace legacy/traditional heating & cooling systems in homes and apartments? Among these, which should we prioritize with these State-Level innovation funds and why?

6. **Supply Chain.** Maine is also interested in using the State-Level funds to pilot solutions to barriers or challenges related to the supply chain, customer acquisition, and business model for marketing and selling heat pumps for residential use.

Please share your thoughts on the need for improvements in any of these areas and/or opportunities that we should consider in designing future pilot project solicitations.

i. What outreach and engagement strategies could improve adoption among customer groups that face higher barriers?
ii. What are the most critical workforce gaps (e.g., installation, maintenance, design), and how might pilots test scalable models for training?
iii. What metrics should be used to evaluate pilot success (e.g., benefit-cost ratio, scalability/replicability, energy savings, relative potential to reduce GHG emissions in Maine, potential for reliably reducing electricity rates, bill savings, customer comfort, resilience benefits, etc.)?
iv. Are there regulatory or permitting barriers that pilots could help test solutions for (e.g., streamlined electrical service upgrades, refrigerant management, building code alignment)?

7. **Miscellaneous.** Please provide any other information or perspectives that you would like Maine to consider as it prepares to issue solicitations for pilot projects that will advance the objectives and meet the requirements of the Accelerator's Innovation Hub initiative. A few relevant topics might include:
    a. Options for supplementing mini-spilt heat pumps in underserved rooms
    b. Options for heat pumps in small apartments
    c. Innovative project financing or equipment lease options, including those that might address split incentives for renters
    d. Innovative equipment purchasing strategies for communities or multi-unit properties (e.g., bulk purchase)
    e. Equipment handling with changes in the refrigerant industry
    f. Equipment handling of legacy heating systems and fuel storage equipment
    g. Options for avoiding or addressing costs of electrical upgrades or updates

B. Community-Level Initiative

Maine is interested in focusing the Community-Level pilots on providing consumer information, education/outreach campaigns, and/or workforce training to address barriers to heat pumps that are experienced by specific classes or communities of customers (e.g., rural, low-income, renters, etc.). The focus of funds awarded through these pilots will <u>not</u> be on addressing the upfront cost barrier of purchasing and installing heat pump equipment.

1. **Barriers.** What specific information barriers or service barriers should we be considering with regard to specific customer classes or communities?

2. **Energy Navigators.** Recent legislation directed our organizations to explore the concept of energy coaches or navigators in communities to accelerate the adoption of energy efficiency. How might an energy navigator work to overcome specific, identified barriers to adoption of heat pumps or heat pump water heaters?

3. **Remote Communities.** How might Community-Level pilots be used to overcome barriers to heat pump adoption in remote communities?

4. **Solutions to be piloted.** What suggestions do you have for a pilot project that could address specific barriers in your response to question 1 in this section? To the extent you are able, please share any thoughts or reference material regarding how much it would cost to deliver a pilot project

consistent with your suggestion. Please share any views or analysis that speak to how suitable a pilot consistent with your suggestion would be for replicating and scaling up across Maine and how such an initiative could be sustained over time.

5. **Suggestions on seeking additional stakeholder input.** How should the program seek input and feedback from stakeholders on the program design and participation? What existing state- or community-level groups should the program coordinate with? Please provide any contact information.