

**EPA, Climate Pollution Reduction Grants – Implementation Grants
New England Heat Pump Accelerator
Workplan**

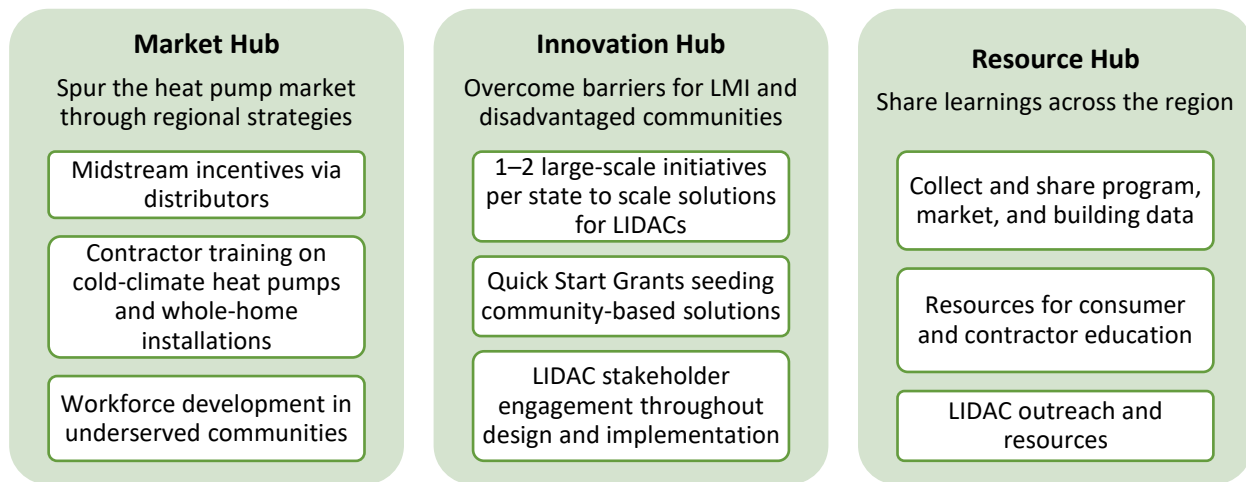
1. Overall Project Summary and Approach

Connecticut Department of Energy and Environmental Protection (CT DEEP), Maine Governor’s Office of Policy Innovation and the Future (ME GOPIF), Massachusetts Department of Energy Resources (MA DOER), New Hampshire Department of Environmental Services (NH DES), and Rhode Island Office of Energy Resources (RI OER) (hereinafter referred to collectively as “the coalition”) propose to create the New England Heat Pump Accelerator (Accelerator) to achieve substantial greenhouse gas (GHG) reductions.¹ The coalition will undertake the efforts described in this workplan if awarded funding under the Climate Pollution Reduction Grants (CPRG) Program: Implementation Grants General Competition.

The New England Heat Pump Accelerator will leverage the power of a multistate market to rapidly accelerate adoption of cold-climate air-source heat pumps (ASHPs), heat pump water heaters (HPWHs), and ground source heat pumps (GSHPs) in single-family and multifamily residential buildings across the region. **The Accelerator is designed to achieve GHG emissions reductions even after its funding ends by overcoming systemic barriers to residential building electrification at this critical moment in the region and making heat pumps standard practice in the HVAC and water heating industries. If the Accelerator achieves its goals, nearly every space and water heater sold in New England will be a heat pump by 2040.** Specifically, the Accelerator aims for heat pumps to make up at least 65% of residential-scale heating, air conditioning, and water heating sales by 2030 and 90% by 2040, in line with recent efforts on the national stage to increase adoption, notably the U.S. Climate Alliance Commitments to Decarbonize Buildings and the Northeast States for Coordinated Air Use Management (NESCAUM) Memorandum of Understanding to Accelerate the Transition to Zero-Emission Residential Buildings.² Both of these efforts were joined by states in the coalition and rely on the rapid adoption of heat pump technology to permanently shift the market from fossil fuel equipment to heat pumps.

The Accelerator will achieve these goals through three program pillars designed to activate the supply chain, scale solutions to address the specific barriers that low- and moderate-income (LMI) households

Figure 1 New England Heat Pump Accelerator Pillars



¹ Letters of Intent from each coalition member are included as part of the application.

² U.S. Climate Alliance, [US Climate Alliance Commitments to Decarbonize Buildings](https://www.usclimate.org/commitments-to-decarbonize-buildings); NESCAUM (Northeast States for Coordinated Air Use Management), <https://www.nescaum.org/our-work/stationary-sources/building-electrification>.

and disadvantaged communities (collectively, LIDACs) face in adopting heat pumps, and share data and educational resources to drive rapid, aligned progress across the region, as shown in Figure 1.

This coalition of five states has joined forces to rapidly scale adoption of heat pump technologies suited to New England’s cold climate and older housing stock by **filling gaps in funding and program coverage that prevent the full activation of the supply chain of manufacturers, distributors, and contractors and addressing barriers to access for LIDAC households**. New England is comprised of small states that share a labor and supplier market. Therefore, states must work together to accelerate the regional heat pump market; the Accelerator’s pillars tackle the activities that are most essential for growth. The Accelerator is thoughtfully designed to coordinate with utility and state heat pump programs in the coalition states and will build on and learn from Maine’s national leadership in driving heat pump adoption.³

In alignment with EPA’s Justice40 goals, at least 40% of Accelerator funding will be directed to LIDACs. 100% of the Innovation Hub funding will serve LIDACs and LIDAC-targeted programs are included in each pillar. The Resource Hub will employ a multilayered approach to outreach and engagement with LIDACs and other stakeholders. It will collect resources for equitable building electrification policies, programs, and processes that center the needs of communities and provide stipends for LIDAC representatives and community members to participate in the Advisory Council and other stakeholder processes.

All five states have identified residential heat pump installations as a priority GHG reduction measure in their Priority Climate Action Plans (PCAPs) and recognize that they can achieve greater impact by working

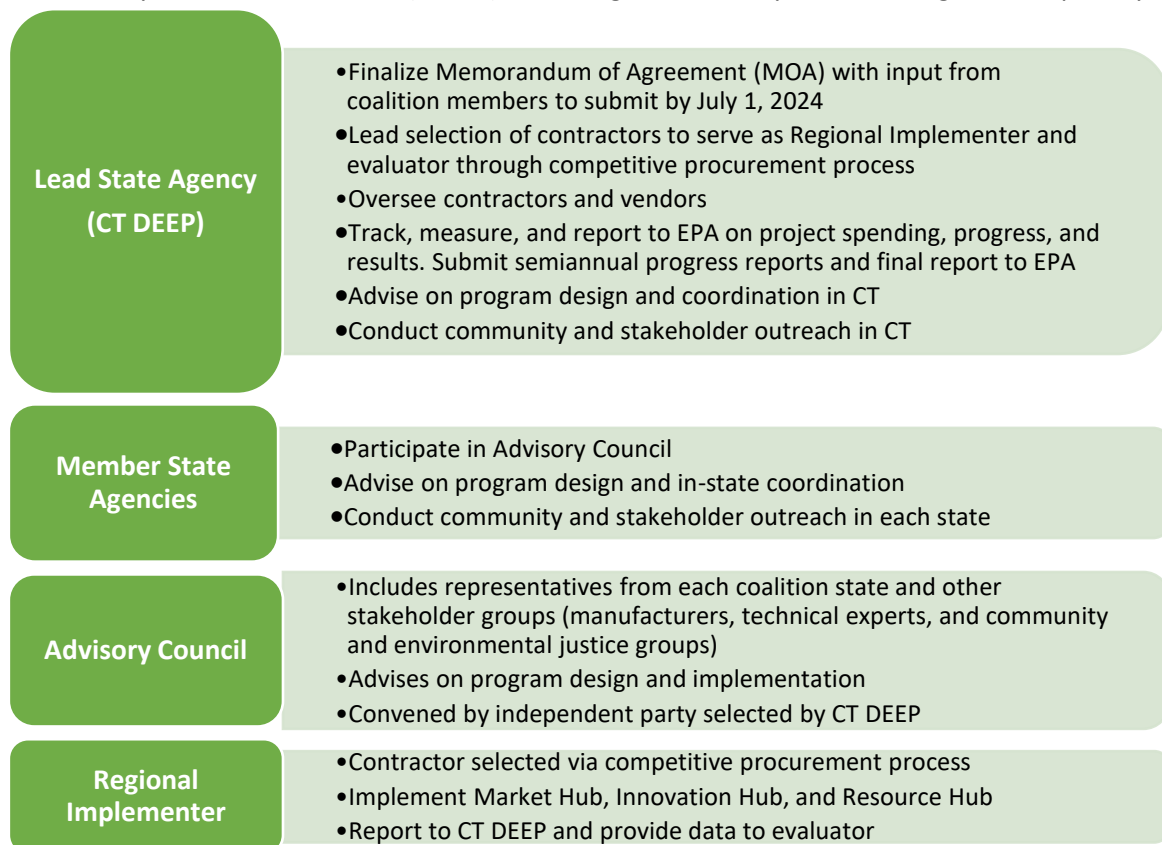


Figure 2 Coalition Roles and Responsibilities

³ Woody, T. (2003, October 6). *How Maine Became the Heat Pump Capital of the US*. Bloomberg. <https://www.bloomberg.com/news/articles/2023-10-06/how-maine-became-the-heat-pump-capital-of-the-us>.

together in a regional coalition to implement the Accelerator. Roles and responsibilities of each coalition member, as well as key supporting functions, are described in Figure 2.

a. Description of GHG Reduction Measures

Collectively, the activities of the Accelerator address one significant GHG reduction measure: transformation of the residential space and water heating market to heat pumps. Heat pumps are a highly efficient, all-electric replacement for fossil fuel heating equipment and a highly efficient replacement for homes with electric resistance heating. A recent analysis by the National Renewable Energy Laboratory (NREL) found that “nationally, heat pumps would cut residential sector greenhouse gas emissions by 36%-64%, including the emissions from new electricity generation.”⁴

This transition is especially important in New England, where many homes rely on expensive and highly polluting delivered fuels (propane, kerosene, and heating oil), which contribute disproportionately to GHG and air pollutant emissions and household energy burden. According to Atlas Public Policy, New England has the highest reliance on fuel oil and kerosene for home heating of any region in the U.S., as shown in Figure 3. Maine and New Hampshire also have a high percentage of households using propane. Propane and home heating oil are 19% and 40% more carbon-intense than natural gas, respectively.⁵ For example, heating oil and propane account for 61% of residential GHG emissions in Connecticut but serve only 43% of homes.⁶

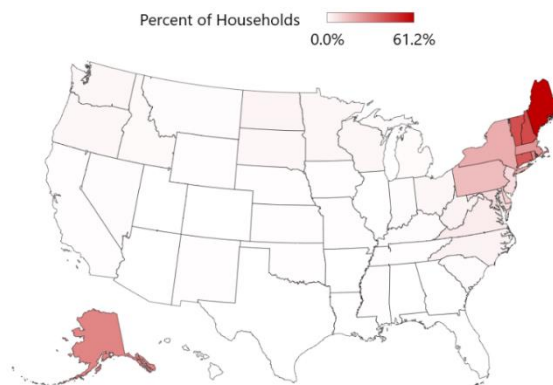


Figure 3 Percent of Households Using Fuel Oil or Kerosene for Primary Space Heating by State in 2020 (Source: Atlas Public

Delivered fuels, along with electric baseboard heating, are also the most expensive options for heating on a dollar-per-BTU basis. Due to the region’s cold climate, older building stock, and reliance on expensive delivered fuels, low-income households in New England—many of whom are located in rural communities—have the highest median energy burden of any region in the country, with 10.5% of income spent on energy bills.⁷ Delivered fuels are also unregulated, leading to volatile and unpredictable pricing that places a particular strain on household budgets as well as a risk of dangerous fuel cut-off situations. NREL found that nearly all households that use fuel oil and propane for heating would see energy bill savings from switching to heat pumps, with more significant savings in colder climates.⁸

Each state’s PCAP identifies residential buildings as a significant contributor to total GHG emissions:⁹

- CT: Residential buildings are the second largest source of GHG emissions at 19%.¹⁰

⁴ National Renewable Energy Laboratory (NREL). (2024, February 12). *News Release: Benefits of Heat Pumps Detailed in New NREL Report*. <https://www.nrel.gov/news/press/2024/benefits-of-heat-pumps-detailed-in-new-nrel-report.html> (hereinafter NREL, *Benefits of Heat Pumps*).

⁵ Gabriel, N. (2023, April 3). *Fuel Oil and Propane Space Heating Across the United States*. Atlas Buildings Hub. <https://atlasbuildingshub.com/2023/04/03/fuel-oil-and-propane-space-heating-across-the-united-states/>.

⁶ CT DEEP. (2023, April). 1990-2021 Connecticut Greenhouse Gas Emissions Inventory. https://portal.ct.gov/-/media/DEEP/climatechange/1990-2021-GHG-Inventory/DEEP_GHG_Report_90-21_Final.pdf.

⁷ ACEEE. (2020, September). *National and Regional Energy Burdens*. ACEEE | American Council for an Energy-Efficient Economy. <https://www.aceee.org/sites/default/files/pdfs/ACEEE-01%20Energy%20Burden%20-%20National.pdf>.

⁸ NREL, *Benefits of Heat Pumps*.

⁹ PCAP links for the five coalition states are provided here and are not subsequently cited for each PCAP reference.

¹⁰ CT DEEP. (2024, March). *A Priority Climate Action Plan*. U.S. EPA. (hereinafter *CT PCAP*).

- MA: Residential and commercial buildings are the second largest GHG source at 35%.¹¹
- ME: Residential buildings are the second largest source of GHG emissions at 21%.¹²
- NH: Residential and commercial buildings are the second largest GHG source at 16.9%.¹³
- RI: Residential heating alone is 19.3% of the state’s emissions.¹⁴

Table 1 outlines the GHG reduction measure in coalition member PCAPs and provides PCAP links.

Table 1 PCAP Measures Related to Heat Pump Adoption

| GHG Reduction Measure | PCAP Title(s) and Page Numbers |
|--|--|
| “Support increased adoption of heat pumps statewide” and “Support deployment of networked geothermal system” | Connecticut: EPA Climate Pollution Reduction Grant Planning Grant First Deliverable: A Priority Climate Action Plan ; Appendix I-7 page(s) 83–91; Appendix I-10 page(s) 106–115. |
| “Transition to cleaner heating and cooling systems and efficient appliances” | State of Maine: Priority Climate Action Plan ; page(s) 27 |
| “Decarbonizing Building Heating Systems” | Massachusetts Priority Climate Action Plan ; page(s) 64–66; Appendix G – B2 page(s) 117–119 |
| “Heat Pumps to Improve Energy Efficiency of Space and Water Heating of Buildings” | State of New Hampshire: Priority Climate Action Plan ; page(s) 62–66, 96; Appendix A page(s) A3–A7 |
| “Increase Residential and Commercial Heat Pump Adoption” | State of Rhode Island Priority Climate Action Plan ; page(s) 32–34; Appendix 2-J |

The Accelerator is purpose-built to address the region’s unique challenges and opportunities to fundamentally transform the market for residential heat pumps through three program pillars: Market Hub, Innovation Hub, and Resource Hub. The features of these program pillars are described below.

Market Hub Features

The Market Hub will supercharge participation in the coalition states’ existing heat pump programs by **engaging manufacturers, distributors, and contractors to drive the sales, stocking, and quality installation of heat pumps suited to New England’s climate and housing stock.** While utility and state programs currently offer incentives for heat pump technologies across the five states, these mainly take the form of “downstream” rebates to end-use customers. **In contrast, “midstream” incentives typically include a smaller stipend to the wholesale distributor and a larger “pass-through” incentive to the contractor and/or customer, applied as an instant discount at point of sale.** Currently, as described in Section 1.b, few midstream incentives are available in the region and engagement with the supply chain is inconsistent. Moreover, manufacturers and distributors highly value program consistency, since they operate in all five coalition states and frequently sell equipment across the borders of New England’s small states.¹⁵ The five largest distributors (F.W. Webb, Homans, Plumbers’ Supply Company, The Granite Group, and S.G. Torrice) sell more than 50% of the heat pumps sold in the region.¹⁶ The Accelerator will address this missed opportunity and drive equipment stocking and sales across the region. **The Market Hub will also incorporate strategies that support LIDAC access to heat pumps, such as incentive adders for distributors and contractors serving LIDACs and incentivizing equipment types needed in LIDAC buildings.**

¹¹ MA Office of Climate Innovation & Resilience (OCIR) and Department of Transportation (DOT). (2024, March). U.S. EPA [Massachusetts PCAP](#) (hereinafter *MA PCAP*).

¹² ME GOPIF. (2024, March 1). [State of Maine PCAP](#). U.S. EPA. (hereinafter *ME PCAP*).

¹³ NH DES. (2024, March). [State of New Hampshire PCAP](#). U.S. EPA. (hereinafter *NH PCAP*).

¹⁴ RI DEM. (2024, March 7). [PCAP](#). U.S. EPA. (hereinafter *RI PCAP*).

¹⁵ Personal Communication, New England Program Implementer, March 2024.

¹⁶ Ibid.

The Market Hub will also meet the need for training New England contractors on cold-climate heat pumps and the value of whole-home electrification with efficiency. This approach will address gaps in the market; according to one major heat pump manufacturer, “only 30% of contractors are aware that a modern heat pump can supply 100% of a home’s heating load at outdoor temperatures of around 0°F.”¹⁷ The Market Hub will raise the quality of training and installation across the region, while also incorporating a focus on workforce development and job creation in LIDACs. Details on these workforce strategies are provided in Section 5. The Market Hub will look to train contractors on the value of efficiency alongside electrification and look to cross-promote existing efficiency programs alongside installation of heat pumps. Table 2 provides a summary of Market Hub features.

Table 2 Market Hub Program Features

| Program Features | |
|---|--|
| Midstream Incentives | <ul style="list-style-type: none"> • \$500-\$1,000 (on average) per unit incentive to wholesale distributors for qualifying ASHPs, GSHPs, and HPWHs, with distributors retaining 20%-30% of the incentive and 70%-80% passed through to participating contractors and/or customers. • Standardized tool for distributor reporting and invoicing, with streamlined data collection and rapid reimbursement. • Equipment eligibility based on qualifying product lists to drive adoption of products suited to New England’s climate and housing stock and the needs of LIDAC buildings, such as cold-climate ASHPs, variable-speed heat pumps, and 120-volt HPWHs. • Collaboration with distributors to increase stocking and sales of qualified products, ensuring product availability to meet growing demand for heat pumps across the region. • Collaboration with utility and multifamily program implementers to ensure program can be used when applicable to these projects. |
| Contractor Training | <ul style="list-style-type: none"> • Training resources for contractors to drive consistent quality installation practices in New England on topics such as: cold-climate ASHPs, equipment sizing, control strategies, whole-home installations, fuel switching, and emerging technologies. • Leveraging distributors’ contractor networks/relationships to reach contractors quickly. • Integration of electrification and New England program-specific content into existing manufacturer and distributor training infrastructure. |
| Workforce Development in Underserved Communities | <ul style="list-style-type: none"> • Workforce development programs to grow the contractor base, with a focus on promoting job creation and entrepreneurship in LIDACs. • Outreach and engagement workforce organizations in LIDACs. • Tools and training to overcome barriers to entry in current workforce programs. |

Innovation Hub Features

Low-income households in New England have the highest median energy burden of any region in the country.¹⁸ It is essential that these households and communities are not left behind in the clean energy transition. At the same time, households in LIDACs face unique barriers to heat pump adoption, which are described further in Section 4. The Innovation Hub is designed to address these barriers by funding state-based projects and community-based Quick Start Grant projects that support heat pump adoption for LMI households and disadvantaged communities. 100% of Innovation Hub funding will serve LIDACs. Table 3 summarizes key features of the Innovation Hub.

¹⁷ Jachman, M. (2024, March 9). *Are HVAC Contractors Getting the Message on Heat Pumps?* Air Conditioning, Heating & Refrigeration News (ACHR News). <https://www.achrnews.com/blogs/17-opinions/post/154290-are-hvac-contractors-getting-the-message-on-heat-pumps>.

¹⁸ U.S. DOE (Department of Energy). (2020). *LEAD (Low-Income Energy Affordability Data) Tool*. Energy.gov. <https://www.energy.gov/scep/slsc/lead-tool>. (hereinafter *DOE LEAD Tool*).

Table 3 Innovation Hub Program Features

| Program Features | |
|---|--|
| State Initiatives | <ul style="list-style-type: none"> • 1-2 large-scale, multiyear projects in each coalition state to address specific state priorities and develop scalable solutions to overcome LIDAC barriers. • Examples might include: heat pump strategies for multifamily buildings and mobile homes, networked geothermal systems, heat pump technologies to address specific housing barriers (e.g., 120V HPWHs for housing with limited electric panel capacity), inclusive financing, hydronic system replacement options, and interventions to make heat pumps standard practice within state low-income programs. • Modeled on TECH Clean California’s regional pilots. |
| Quick Start Grants | <ul style="list-style-type: none"> • “Bottom-up” annual grants for smaller-scale, community-based pilots. • Simple, accessible application process to invite creative ideas that expand access to heat pumps for LMI households and LIDACs. • Modeled on TECH Clean California’s Quick Start Grants. |
| EJ Engagement in Design and Implementation | <ul style="list-style-type: none"> • Representatives from environmental justice (EJ) and community groups involved in the design of the state pilots and selection criteria for Quick Start Grants, with stipends to support their time. • Community-based groups can apply for Quick Start Grant funding. • Shared outcomes and learnings from pilots and grant-funded projects. |

Resource Hub Features

The Resource Hub will serve as the Accelerator’s central repository for data and resources. **Currently, each of the five coalition states offers various programs promoting heat pump adoption, but there is no mechanism to share data, best practices, lessons learned, and other information across state lines or scale the successes being achieved in states like Maine.** Since the states already have well-established consumer brands, such as Mass Save and Efficiency Maine, the Resource Hub will not seek to establish a new brand or portal for consumers. **Instead, it will serve as a central portal for distributors, contractors, program implementers, and other stakeholders in the heat pump supply chain to access relevant data and educational resources.** The Regional Implementer will collaborate closely with existing heat pump programs (Efficiency Maine and utility energy efficiency programs in Connecticut, Massachusetts, Rhode Island, and New Hampshire) to collect resources and insights from these programs to share across the region, and to provide resources for these programs to disseminate information within their customer and contractor networks. Table 4 summarizes key features of the Resource Hub.

Table 4 Resource Hub Program Features

| Program Features | |
|------------------------------|--|
| Data Hub | <ul style="list-style-type: none"> • Website hosting publicly accessible aggregate or anonymized data, including: market data (ASHP, GSHP, and HPWH sales and full-category HVAC and water heater sales), wholesale and installation cost data (as available), and program participation data. • Maps and tools for regional trend analysis, synthesizing publicly available information from each coalition state on building decarbonization policy and programs, housing stock and fuel sources, available incentives, and electricity and fuel costs. • Modeled after the TECH Clean California Public Data Portal and the Midwest ASHP Collaborative.¹⁹ |
| Educational Resources | <ul style="list-style-type: none"> • Web-based, easily searchable repository of educational resources for distributors, contractors, program implementers, and other stakeholders. |

¹⁹ TECH Clean California. (2024). <https://techcleanca.com/public-data/> and Midwest ASHP Collaborative. (2024). <https://www.mwalliance.org/midwest-ashp-collaborative>.

| Program Features | |
|--|---|
| | <ul style="list-style-type: none"> • Contractor training resources covering topics such as: trainings on cold-climate heat pumps, quality installation practices, sizing tools and guidance, emerging heat pump technologies, whole-home installation, multifamily options, and customer sales and support techniques for heat pumps. • Consumer resources covering topics such as: selecting a heat pump, assessing operating cost impacts, cold-climate tools, operating and maintaining a heat pump, and developing a plan to fully electrify your home. • Policy and program resources including: market studies and program evaluations from across the region; resources on topics such as rate design and grid impacts; and insights and best practices from successful heat pump programs. |
| LIDAC Outreach & Engagement | <ul style="list-style-type: none"> • Multilayered outreach and engagement with groups representing LMI households and disadvantaged communities. Stipends to support community participation. • Collected resources for equitable building electrification policies and programs. |