

# HIGH-EFFICIENCY HEAT PUMP PROGRAM (HHPP)

## Proposed Program Design

*The information in this document is current as of July 25, 2022, but is subject to change at any time, at the sole discretion of the Office of Energy Resources.*

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## High-Efficiency Heat Pump Program: Overview

### ***Background***

In 2021 Governor McKee signed the [Act on Climate](#) which mandates the reduction of greenhouse gas emissions in Rhode Island to net zero by 2050, as compared to 1990 levels. As shown in the [Heating Sector Transformation \(HST\) Report](#), a third of Rhode Island’s emissions come from the thermal sector, and the most significant contributor to thermal sector emissions in our state is residential and commercial space heating. The HST Report explores pathways to decarbonization of this sector and suggests pursuing a mix of decarbonization options to achieve net zero emissions. As a first step, strategic electrification—i.e., converting fossil fuel heating systems to highly efficient electric heating and cooling technologies—is a cost-effective way to help spur the transition to emissions-free heating and cooling in Rhode Island. High-efficiency Heat Pump Program (HHPP) will furthermore help to prepare the labor force for the transition to clean heating technologies and provide sustainable employment opportunities for the coming decades.

As a part of funds allocated to the [State Fiscal Recovery Fund \(SFRF\)](#) from the [American Rescue Plan Act \(ARPA\)](#), the Rhode Island General Assembly has approved the use of \$25 million dollars<sup>1</sup> to operate the High-Efficiency Heat Pump Program (HHPP). ARPA requires that all funds be committed by December 31, 2024 and spent by December 31, 2026. Use of SFRF funds from HHPP is pending final approval from the state Pandemic Recovery Office (PRO).

This document provides the basic framework for the proposed design of HHPP. Any information in this document, and components of this program are subject to change. This Proposed Program Design will be available for public comment for thirty days. Comments may be submitted [here](#). At the conclusion of the public comment period, the Office of Energy Resource (OER) will review feedback and announce any changes to the program design. All components and details of HHPP are subject to change at any time. Complete details of the program will be available when the program launches.

### ***Goal***

HHPP’s goal is to stimulate the market for high-efficiency electric heat pumps in Rhode Island by providing financial incentives to make this efficient heating and cooling technology more accessible and affordable to Rhode Islanders. In addition, this program will support workforce development and educational components critical to fostering qualified equipment installers as high-efficiency heat pumps become more prevalent in the marketplace.

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<sup>1</sup> Budget Article 1 Sub-A of Governor McKee’s FY 2023 budget.

### ***Program Outline***

- A. Heat Pump Incentives:
  - 1. Residential Incentive
  - 2. Enhanced Incentive
  - 3. Community Incentive
- B. Workforce Development:
  - 1. Upskill Workers
  - 2. Attract New Workforce
- C. Education:
  - 1. Consumer side
  - 2. Installer side

### ***Administration***

HHPP will support the Rhode Island heat pump market through financial incentives, workforce development, and consumer and installer education. HHPP will be designed in detail, carried out, overseen, and reported on by a Program Administrator (TBD). The Program Administrator may employ sub-vendors to carry out the various functions of HHPP.

The Office of Energy Resources (OER) will oversee the Program Administrator and monitor proper use of funds and program deployment.

### ***Reporting***

OER is required to report on the HHPP Program to the Senate President and the Speaker of the House by April 1<sup>st</sup> of each year. This includes, but is not limited to, “the number of grants issued, amount of each grant and average grant amount, and the expected cumulative carbon emissions reductions associated with heat pumps that received a grant.”<sup>2</sup> OER will also make these reports available to the public on its website.

The Program Administrator, working at the direction of OER, will collect relevant data from this program to track program progress and success. Relevant metrics and reporting standards will be decided upon between OER and the Program Administrator before the program launches and may be updated by OER throughout program deployment. In particular, program spending that serves disadvantaged communities must be tracked to align with OER’s goal to designate 40% of funds to these communities.

### ***Commitment to Serving Disadvantaged Communities***

The Justice 40 Initiative, established by [Presidential Executive Order 14008](#) “directs 40% of the overall benefits of certain Federal investments – including investments in clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of clean water infrastructure – to flow to disadvantaged communities (DACs).”

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<sup>2</sup> [Budget Article 1 Sub-A](#), p. 45

In line with this goal, OER aims to provide 40% of HHPP’s funding to serve disadvantaged communities. The Enhanced Incentive, and portions of the Community Incentive and Workforce Development incentives will contribute to meeting this 40% goal.

*Definition of Disadvantaged Communities*

OER and the Program Administrator will use the U.S. Department of Energy’s [working definition of Disadvantaged Communities](#) to identify customers who will be eligible to receive incentives that contribute to meeting the Justice 40 target for this program. Specific criteria, pertaining to Rhode Island, will be determined by OER and the Program Administrator before HHPP’s launch.

***Funding Overview***

Funding must be obligated by December 31, 2024 and spent by end of December 31, 2026. Funding for HHPP is pending final approval from PRO.

- Amounts subject to change throughout program design process and may be flexibly allocated as a result of demand throughout deployment.
- The cost of educational initiatives is expected to remain low and will come out of each of the respective funding categories below, depending on the target audience.

<b>Funding Category</b>	<b>Amount</b>
Residential Incentive	\$ 11,207,500.00
Enhanced Incentive	\$ 7,250,000.00
Community Incentive	\$ 5,230,000.00
Workforce Development	\$ 1,312,500.00
<b>TOTAL</b>	<b>\$ 25,000,000.00</b>

## A. Heat Pump Incentives

*The information provided below is current as of July 25, 2022, but is subject to change at the sole discretion of the Office of Energy Resources.*

HHPP will provide financial incentives for high-efficiency heat pumps to both residential and commercial customers. These incentives aim to aid a wide range of consumers by lowering the cost of high-efficiency heat pumps and providing the option of 0% financing on eligible systems.

### **Goals**

- provide financial incentives to make heat pumps more affordable
- serve a wide range of Rhode Islanders
- encourage whole-building conversions to electric heating and cooling
- discourage fossil fuel heating and cooling from new construction buildings

### **Incentive Administration**

There will be three categories of heat pump incentives:

- 1) the *Residential Incentive* will be available to all Rhode Island homeowners who currently use fossil fuel,
- 2) the *Enhanced Incentive* will provide additional financial incentives to low-income and disadvantaged customers,
- 3) the *Community Incentive* will be available to Rhode Island small businesses, non-profits, community organizations, and public buildings.

All three categories of incentives will be administered by a third-party Program Administrator who will manage and oversee all aspects of funding deployment and reporting, at the direction of OER. The Program Administrator may employ various sub-contractors to carry out different aspects of operating the three categories of incentives and deploying funds. The Program Administrator will be required to leverage existing incentives in Rhode Island that can be layered with incentives from HHPP. For example, if HHPP provides a \$1,250/ton incentive, the program will be designed to utilize existing heat pump incentives through Rhode Island Energy, and layer SFRF funds to reach a total customer incentive of \$1,250/ton.

### **Budget**

Overall, approximately \$23 million of this program's overall \$25 million of funding is budgeted for heat pump incentives. Funds will be budgeted and tracked based on each incentive category, but managed in a way that enables flexible and swift reallocation should a greater need be identified in a particular incentive category. At least 40% of funds shall be used to provide incentives to disadvantaged communities, to align with the Federal Justice 40 initiative.

#### **1. Residential Incentive**

- *Incentive size:*

- \$1,250/ton<sup>3</sup> rebate for high-efficiency heat pumps providing space heating and cooling in existing homes.
- \$750/ton rebate for high-efficiency heat pumps providing space heating and cooling in new homes.
- 50% of total cost (including equipment, labor costs, and necessary panel upgrades) for landlords of buildings with up to four housing units. Incentive maximum will be \$5,000 per unit.
- \$750 instant rebate for heat pump water heaters
- 100% of the interest paid on 15-year loans for eligible equipment.
- *Initial Budget:* \$11,207,500
- *Equipment Eligibility:*
  - Cold Climate Air Source Heat Pumps (ccASHPs)
    - Equipment must have a Heating Season Performance Factor (HSPF)  $\geq 9.5$  and a Seasonal Energy Efficiency Ratio (SEER)  $\geq 16$ .
    - Northeast Energy Efficiency Partnership's (NEEP) Cold Climate Air Source Heat Pump List (subsequently referred to as, [NEEP's Heat Pump List](#)) will be referenced to determine eligible equipment.
  - Ground Source Heat Pumps (GSHPs)
    - Must be [EnergyStar Certified](#).
  - Air to Water Heat Pumps
    - Equipment must have a Heating Season Performance Factor (HSPF)  $\geq 9.5$  and a Seasonal Energy Efficiency Ratio (SEER)  $\geq 16$ .
  - Heat Pump Water Heaters
    - Uniform Energy Factor (UEF)  $\geq 3.2$
- *Customer Eligibility:*
  - All homeowners of buildings with up to four housing units.
  - Available to customers of all Rhode Island utility companies currently using oil, propane, or natural gas for heating.
  - Heat pump systems must be sized to heat and cool the whole home, but removal of the existing heating system is not required, unless health and safety concerns exist.
  - Rhode Island Energy customers with electric heating and hot water are eligible for rebates through Rhode Island Energy.
- *Administrator:* central administrator with the optional use of sub-contractors for incentive processing and customer communication.
- *Customer Process:*

High-Efficiency Heat Pump for space heating and cooling in existing homes:

  1. Schedule a Home Energy Assessment (HEA), if not performed in last three years.
  2. Consult with contractors and receive approximately three heat pump quotes.
  3. Make (or recommend?) weatherization upgrades, as recommended by HEA.
  4. Schedule heat pump installation.
  5. Submit rebate application.
  6. Participate in quality control inspection (select customers randomly chosen).
  7. Receive rebate in 8-10 weeks.

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<sup>3</sup> Tonnage refers to the cooling and heating capacity of the equipment. This amount is calculated by the installer based on the equipment manufacturer's specifications.

High-Efficiency Heat Pump for space heating and cooling in new homes:

1. Install qualifying system.
2. Submit rebate application.
3. Participate in quality control inspection (select customers randomly chosen).
4. Receive rebate in 4-6 weeks.

Heat Pump Water Heater:

- Rebate is applied when installer purchases HPWH from wholesale supplier. Savings must be captured in the end-customer's invoice.

*Focus on Efficiency* - Questions for public comment:

1. Should this incentive (for space heating/cooling) require weatherization? If not, what can be done/how can the incentive be structured to highly encourage weatherization before a heat pump installation?
2. What mechanisms can be put into place to ensure that all rebate-eligible equipment is right-sized?

## **2. Enhanced Incentive**

- *Incentive size:*
  - 50-100% of total cost, including equipment, installation, and necessary panel upgrades.
- *Initial Budget:* \$7,250,000
- *Equipment Eligibility:*
  - Air Source Heat Pumps
    - [NEEP's Heat Pump List](#) will be referenced to determine eligible equipment.
    - Equipment must have a Heating Season Performance Factor (HSPF)  $\geq 9.5$  and a Seasonal Energy Efficiency Ratio (SEER)  $\geq 16$ .
  - Heat Pump Water Heaters
    - Uniform Energy Factor (UEF)  $\geq 3.2$
- *Customer Eligibility:*
  - All owners, or residents (with owner's permission), of buildings with up to four housing units.
  - Available to customers of all Rhode Island utility companies currently using oil or propane for heating.
  - Heat pump systems must be sized to heat and cool the whole home, but removal of the existing heating system is not required, unless health and safety concerns exist.
  - Weatherization upgrades are required and can be funded through the Weatherization Assistance Program (WAP).
  - Additional safeguards must be put in place to ensure systems are right-sized.
  - A 100% incentive will be available to:
    1. Low-income residents, who receive assistance from at least one of the following programs: Supplemental Nutrition Assistance Program (SNAP), Low-Income Home Energy Assistance Program (LIHEAP), Supplemental Security Income (SSI), Medicaid, Rhode Island Works, Public Assistance, or if they are Rhode Island Energy discounted rate customers.
    2. Landlords of buildings with up to four housing units, located within, or housing residents, that meet the criteria of being a part of a Disadvantaged Community.

- A 50% incentive will be available to homeowners who do not qualify as low-income, but who are considered members of a Disadvantaged Community.
- Rhode Island Energy customers with electric heating and hot water are eligible for rebates through Rhode Island Energy and the Community Action Partnership (CAP) Agencies.
- *Administrator:* The Program Administrator must have verifiable experience providing efficiency services to disadvantaged populations, or they must partner with an organization(s) that does.
- *Process:* OER intends to provide the Enhanced Incentive to qualifying recipients through intermediaries, rather than directly to the customer, like is the case with the Residential Incentive. The program administrator would partner/contract with organizations who have demonstrable experience providing efficiency services and support to low income and disadvantaged segments of the population. The organizations to deliver the Enhanced Incentives shall be able to 1) engage the target recipients of the Enhanced Incentives, and 2) simplify the heat pump installation and receipt of the Enhanced Incentive as much as possible, especially given the higher level of complexity of the Enhanced Incentive, as compared to the Residential Incentive, and given higher barriers to access for disadvantaged communities.

### **3. Community Incentive**

- *Incentive size:* \$2,500/ton ASHP, \$3,500/ton VRF, \$4,500/ton GSHP, HPWH incentives calculated on case-by-case basis
- *Initial Budget:* \$12 million
- *Equipment Eligibility:* ASHP, GSHP, HPWH, Variable Refrigerant Flow (VRF)
- *Customer Eligibility:*
  - Small businesses, especially minority and woman-owned businesses, located in Rhode Island.
  - Non-profits, e.g., community centers, houses of worship, organizations providing health and human services.
- *Administrator:* The Program Administrator should partner with or subcontract to an organization experienced with the design, proper sizing, and energy savings calculations of commercial-scale heat pump systems.
- *Process:*
  - Given the large range of project sizes in this category, pre-application and approval will be required for this incentive, to ensure that funds are properly being accounted for and not overspent.
  - The Program Administrator and its vendors will be required to conduct a thorough review of applications in this category to ensure that proposed heat pump installations are properly sized and configured for the buildings in which they will be installed.
  - Once a project is pre-approved, the applicable incentive amount will be reserved for that customer.
  - Upon project completion, incentives will be delivered to the customer, or directly to the installer, if desired by the customer.



## **B. Workforce Development Incentives**

*The information provided below is current as of July 25, 2022, but is subject to change at the sole discretion of the Office of Energy Resources.*

### ***Goals***

- Foster a HVAC workforce highly skilled in heat pump sizing, installation, servicing, maintenance, and consumer education.
- Attract young/new professionals to the industry with training in clean heating technologies from the get-go; focus on diversity.
- Provide opportunities to support a just transition for workers in the fossil fuel industry, to the clean HVAC industry.

### ***Incentive Administration***

The Program Administrator will have oversight over workforce training activities and collect data on spending and impacts. The Program Administrator can, but does not have to be, the entity to design and deliver workforce training initiatives. The Rhode Island Department of Labor and Training (DLT) shall be included in any workforce training initiatives designed and/or funded by this program and DLT's existing industry relationships—especially those through the RealJobs RI program—should be leveraged.

### ***Budget***

\$1,312,500 million of the overall program budget will be initially allocated for workforce development programs. It is imperative that a significant amount of the program's budget is invested in workforce development and expansion. While most industries are struggling to find enough workers, the trades are especially impacted. HVAC contractors with experience in high-efficiency heat pump technology are in ever-increasing demand, and few new professionals are entering the workforce.

The aim of the workforce development incentives is to provide high-quality skills training to existing HVAC professionals, and to newcomers to the industry. The importance of having a robust workforce to transition Rhode Island to clean heating and cooling technologies cannot be stressed enough. HHPP's budget for workforce development will be used both to create and operate workforce training programs, and to compensate participants who would otherwise face trade-offs between learning new skills and earning income.

#### ***1. Upskill Workforce***

In-depth training programs to upskill existing HVAC professionals will be designed in collaboration with industry professionals. Multiple formats will need to be considered, including a comprehensive high-efficiency heat pump training program for newcomers to the clean heating workforce, as well as more advanced, specialized trainings in servicing, maintenance, and repair. The goal of these trainings is to create a workforce that is highly skilled in heat pump configurations, sizing, and servicing, which will minimize energy consumption, and maximize customer comfort and satisfaction.

- *Incentives & Funding:* funding will be used for start-up costs and operation of training programs, as well as providing reasonable compensation and wrap-around services for participants.
- *Eligibility:* all Rhode Island certified HVAC masters, journeymen, and apprentices.

## **2. Attract New Workers**

Targeted preparatory workforce trainings will be funded by HHPP to attract a new and diverse cohort of individuals to the clean heating & cooling industry. There shall be a particular emphasis on providing skills training to individuals from disadvantaged communities (i.e., people of color, veterans, formerly incarcerated individuals), as well as women, to prepare them for stable careers in decarbonized HVAC technologies.

- *Incentive:* funding will be used for start-up costs and operation of training programs, as well as providing reasonable compensation and extensive wrap-around services for participants.
- *Eligibility:* open to Rhode Island residents.

## C. Education

*The information provided below is current as of July 25, 2022, but is subject to change at the sole discretion of the Office of Energy Resources.*

### **Goal**

Generate greater awareness of high-efficiency heat pump technologies in Rhode Island and create greater acceptance of the technology among installers.

### **Administration**

The Program Administrator will ensure that all incentives provided by HHPP are coupled with educational information and outreach to enhance successful outcomes. The Program Administrator may create educational materials itself, but is encouraged to contract with an entity that is experienced in public education and raising awareness of green technologies. Educational materials shall be disseminated through numerous channels, languages, and formats, both digital and analog, to reach a wide breadth of Rhode Islanders. The Program Administrator will need to coordinate with the utilities, industry, the Energy Efficiency & Resource Management Council, the RI Infrastructure Bank, and others, to develop and disseminate effective educational resources.

### **Budget**

Relative to the various incentives funded by this program, spending on educational materials is not expected to be significant. Therefore, the educational component of HHPP does not have a budget of its own, but instead will be paid for by funds from program components A (Financial Incentives) and B (Workforce Development).

### **1. Consumer Education**

Options for educational materials:

- General outreach/awareness campaigns
  - Videos
  - High quality online materials → HHPP webpage, utility webpages
  - ASHP guide (forthcoming)
  - Webinars hosted by HHPP and external organizations → e.g., what are high-efficiency heat pumps and why would I want one?
  - Customer testimonials
  - Presence at trade shows
- Targeted outreach
  - OER Webinars – targeted engagement process through program development and launch
  - Built-in processes for distribution of educational materials (specifically on use) to incentive recipients

### **2. Workforce Education**

- Complementary to workforce development (see above).
- Compile and disseminate data that demonstrates with concrete local case studies the success of ASHP as compared to traditional fossil technologies.

For both categories, word of mouth is very powerful. Focus on having strong educational and workforce development components of this program to maximize the number of happy customers and installers.