



# HEAT RESPONSE COUNCIL REPORT

## YEAR 1, 2022

Prepared for Portland Clean Energy  
Community Benefits Fund by Earth Advantage



## INTRODUCTION

The Heat Response Program is funded by the Portland Clean Energy Community Benefits Fund (PCEF). Earth Advantage was selected through a Request for Proposal and approved to serve as the Equipment Purchasing Partner by the Portland City Council. Earth Advantage is tasked with identifying high-efficiency heat pump and air conditioning units, purchasing and warehousing those units, and coordinating the receipt of units by the Community Distribution Partners (CDPs) responsible for installation. Earth Advantage works directly with PCEF staff and these community partners to assist vulnerable Portland community members and help meet the City's annual equipment installation goals.

This report shares the first-year outcomes of this five-year program and outlines future program activities.

### **The following program goals were defined by PCEF staff at the beginning of the PCEF Heat Response Grant program:**

- Reduce heat-related risk to vulnerable populations by distributing and installing portable heat pump/cooling units, prioritizing households with seniors among PCEF priority populations (low-income people and people of color).
- Use PCEF Guiding Principles in design and deployment.
- Distribute up to 15,000 portable heat pump/cooling units over a period of five years, beginning May/June 2022.
- Purchase efficient equipment, promote energy-efficient use, and connect recipients to programs that lower energy bills.
- Provide support that maintains product life, efficient operation, and usability.



## COMMUNITY VOICE

**Ricardo Moreno**  
VERDE BUILDS PROGRAM MANAGER

Big shout out to this program! Every single home we go to is a super powerful experience. I remember one lady in particular whose home was so hot. She was so grateful to us. This woman's husband had recently passed away and she was showing me photos of him. After the installation of her new AC unit was completed, she was blessing us and telling us how much we helped her. When we started packing up the truck to leave, we heard her screaming at us and we were afraid we did something wrong. She had come out with a bag of cookies and asked me to share it with my team. It was a truly amazing experience.



## COLLABORATIVE PROCUREMENT APPROACH

The task to identify and procure high-efficiency heat pumps and air conditioning units began in January 2022. Earth Advantage and PCEF staff developed minimum specifications based on several considerations: 1) Feedback from prospective CDPs during initial needs assessment interviews and surveys 2) Energy efficiency goals of PCEF and prioritizing refrigerants that have lowest climate impact 3) Unit availability limitations based on the global supply constraints.

Based on program criteria, the units purchased in Year 1:

- Met a minimum efficiency standard.
- Were mainly heat pumps to provide heating, cooling, and prevent energy inefficiencies versus standard heating units.
- Were low amperage units.
- Were portable to ensure easy installation and flexibility of use.

The minimum specifications table below was used as guidance for the equipment selection.

| AC/HP MODEL TYPES        | SIZE (BTU/HR) | ROOM SIZE (SQFT) | SECONDARY QUALIFICATION                 |                    |
|--------------------------|---------------|------------------|---|--------------------|
|                          |               |                  | EFFICIENCY RATING                       | AMPS               |
| Window Small (AC Only)   | 6000 - 9000   | 150 to 350       | 12 CEER or higher                       | 10 amps or smaller |
| Window Small (HP)        | 6000 - 9000   | 150 to 350       | 12 CEER or higher                       | 10 amps or smaller |
| Window Large (HP)        | 12000 - 18000 | 450 to 800       | 11 CEER or higher                       | 12 amps or smaller |
| Portable Small (AC Only) | 8000 - 12000  | 300 to 550       | 9.5 EER or 12 SEER or 12 CEER or higher | 10 amps or smaller |
| Portable Small (HP)      | 8000 - 12000  | 300 to 550       | 9.5 EER or 12 SEER or 12 CEER or higher | 10 amps or smaller |
| Portable Large (HP)      | 12000 - 15000 | 550 and higher   | 9.5 EER or 11 SEER or 11 CEER or higher | 12 amps or smaller |

Feedback from the initial CDP needs assessment interviews and surveys included concerns about installing high-amperage equipment in older buildings with limited electrical capacity. Most CDPs expressed a preference for portable units. A few requested window units for specific scenarios.

Despite global supply chain challenges, Earth Advantage was successful in quickly securing 3,007 units meeting the Year 1 procurement goals. The first shipment of these units arrived in April and May with the balance of the purchase orders arriving in early July.

When the 2022 heat wave intensified in the month of July, PCEF staff directed Earth Advantage to order 550 additional portable heat pump units. No additional window units were ordered as their installation rates were lower than expected.

The following table details the final breakdown of unit type and specification.






| PORTABLE UNITS | WINDOWS | AC ONLY | HP-AC | OVER 10 AMP | LESS 10 AMP |
|----------------|---------|---------|-------|-------------|-------------|
| 3,207          | 350     | 1,010   | 2,547 | 2,150       | 1,407       |

## DISTRIBUTION AND WAREHOUSING

Earth Advantage contracted with three distributors to diversify the supply chain and achieve competitive pricing. All three selected vendors had the capability to store the units for future pick up and distribution. However, one vendor's closest storage availability was located in Kent, Washington. Instead of using that location for storage, Earth Advantage contracted with a warehouse in Northeast Portland that is a Minority Business Enterprise (MBE) and a Woman Business Enterprise (WBE). The other two distributor warehouses are located in Northeast Portland and Fairview.

## INVENTORY MANAGEMENT FROM PICK UP TO SUCCESSFUL INSTALLATION

Earth Advantage institutes a comprehensive inventory and record keeping system that tracks each piece of equipment from procurement to installation.

|   |   |   |  |   |
|---|---|---|--|---|
| <p><b>WAREHOUSE</b><br/>Warehouse creates a list of serial numbers delivered to CDP</p>  | <p><b>WAREHOUSE</b><br/>Serial number list is shared with Earth Advantage</p>  | <p><b>EARTH ADVANTAGE</b><br/>Serial number list received from warehouse is uploaded to EA database</p>  | <p><b>CDP INSTALLER</b><br/>Installer submits e-record of installation with unit serial number</p>  | <p><b>EARTH ADVANTAGE</b><br/>Inventory match completed</p> <p>Installed serial number finds a match with a serial number in the database from the units picked</p>  |
|---|---|---|--|---|

## COMMUNITY DISTRIBUTION PARTNERS AS THE INSTALLERS

The Heat Response Program was designed by PCEF staff to empower local housing providers and community-based organizations to serve priority community members directly. Each of these Community Distribution Partners (CDPs) was responsible for identifying recipients, scheduling deliveries, installing heating/cooling units, and providing educational materials. Equipment provided by the Heat Response Program is installed by a professional who also assists residents in understanding how to operate and maintain the unit. This process ensures that recipients are provided immediate relief. This programmatic approach differs from a delivery-only model in which the homeowner receives the unit at their doorstep, must independently unpack and install the equipment, and then learn how to operate and maintain it. The Heat Response Program also installs units throughout the year rather than solely prior to or during heat emergency events. This year-round community distribution and professional installation approach gives residents access to life-saving heat pump units for the long term.

Eleven CDPs were onboarded in the first year:

- African American Alliance for Homeownership (AAAH)
- APANO
- Cascadia Behavioral Healthcare
- Central City Concern
- Home Forward
- Innovative Housing
- Northwest Housing Alternatives
- PCRI – Portland Community Reinvestment Inc.
- REACH CDC
- Rose CDC
- Verde

Advantage an opportunity to learn about the CDP processes firsthand, address questions about record submission or installation processes, and to strengthen the relationship with each group.



## TRAINING THE INSTALLERS

Earth Advantage offered a variety of administrative and technical installation trainings for CDP staff and contractors so they could effectively serve their communities:

- **Remote online live webinars:** Earth Advantage facilitated a one-hour training that focused on information about the documentation process and installation instructions for each type of portable unit. The training schedule was flexible and could be taken as often as a CDP requested.
- **In-person demo training:** This training was on-demand. This required scheduling ahead of time and was better suited for more than one team of installers. The attendees had an opportunity to install the units on a mock-up window frame. Earth Advantage partnered with The Portland Youth Builders Center in the Southeast Lents neighborhood to provide this demo training.
- **Onsite training:** The Earth Advantage team traveled to the installation site to support installers on their first installations. This gave the team at Earth

## WORKFORCE DEVELOPMENT

The Heat Response program presented a unique opportunity for community-based organizations to create working relationships with small business contractors. It was also reported by AAAH that a Human Service student from Clackamas Community College involved in signing up her mother to receive a cooling unit went on to become an intern with the Power to the People PDX™ program and will officially be hired as a staff member.

| CDP WORKFORCE                         | JUNE TO SEPTEMBER 2022 |
|---------------------------------------|------------------------|
| Installers                            | 3,890 Hours            |
| Administration                        | 2,585 Hours            |
| Full-time staff hired for the program | 2 Employees            |
| Local tradespeople hired              | 16 Local Contractors   |

## INCOME-QUALIFIED BILL DISCOUNT (IQBD)

The Heat Response Program connected qualifying households with the Portland General Electric (PGE) Income-Qualified Bill Discount (IQBD) program to provide ongoing, monthly help with energy bills. The IQBD is in addition to any other assistance the household

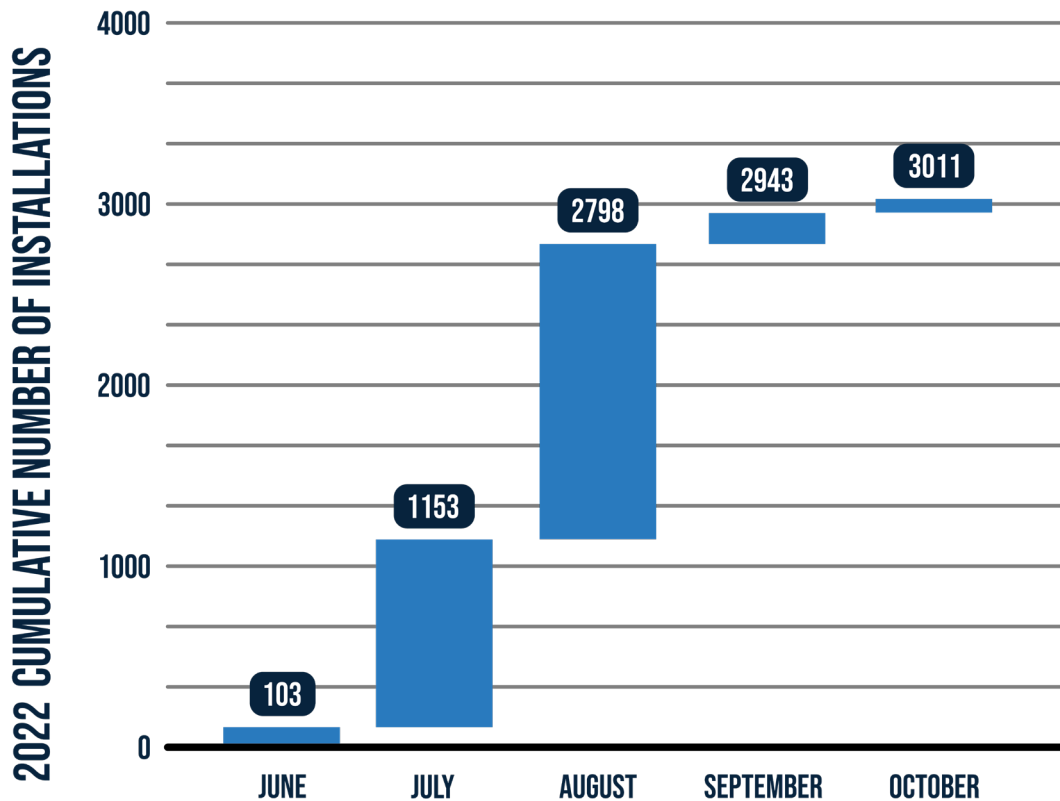


may be getting from PGE or other agencies. Depending on the annual household income and household size, the monthly discount could range from 15-25%.

### CUMULATIVE PROGRAM PROGRESS TO 3,000 INSTALLATIONS

The selection of participating CDPs was officially announced on May 9. A kickoff meeting between PCEF staff, the initial cohort of 7 CDPs, and Earth Advantage was conducted on May 11. Contractual agreements between Earth Advantage and the CDPs were finalized between May 11 and May 20. Once each CDP contract was complete, installers were quickly trained in order to meet the goal of starting installations by the

week of June 9. The start date was achieved, and the pace of installations increased rapidly as CDPs and installers became familiarized with the process. As noted in the graph below, most of the program's units were installed within three months of the CDPs completing the installer training. CDPs like Innovative Housing Inc., PCRI, Home Forward, and Verde have been installing units during the fall and winter months.





## COMMUNITY VOICE

**Heather Hollingsworth**

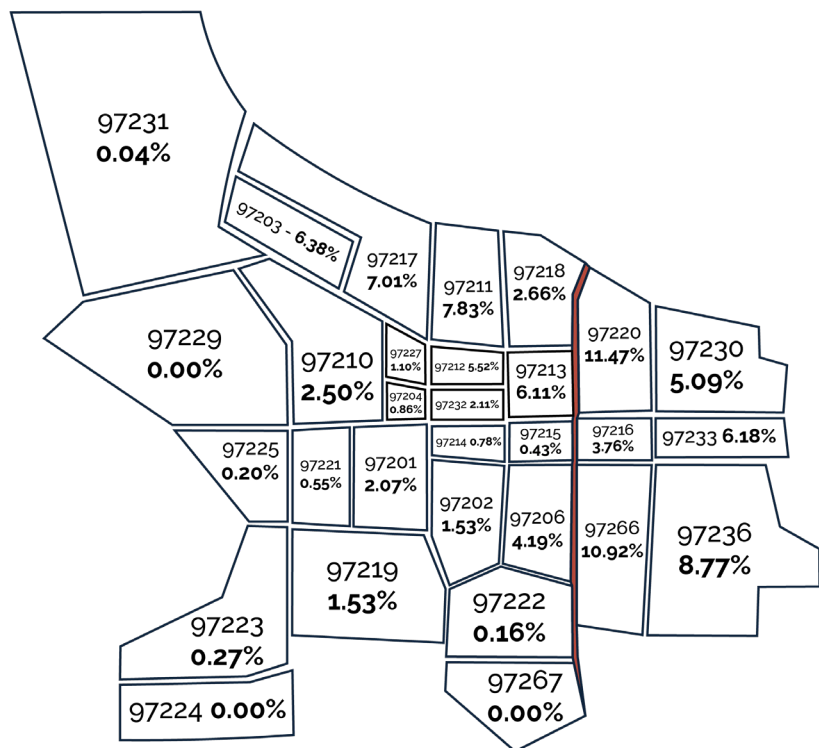
DEVELOPMENT PROJECT MANAGER AT CENTRAL CITY CONCERN

I used to do a lot of onsite work so I recognized a lot of names going out; just a shout out to our installers who did a lot of work outside of their regular work. Those teams did a lot of superhero work and very good installs.



### INSTALL PERCENTAGE BY ZIP CODE

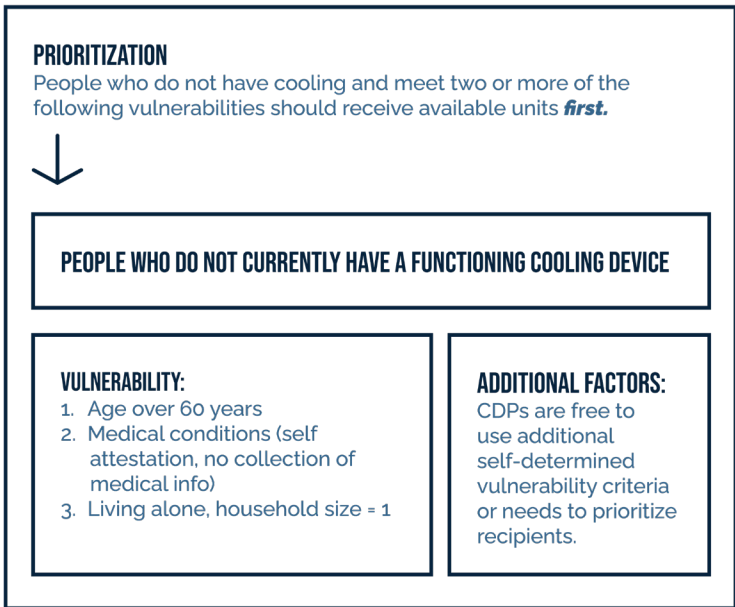
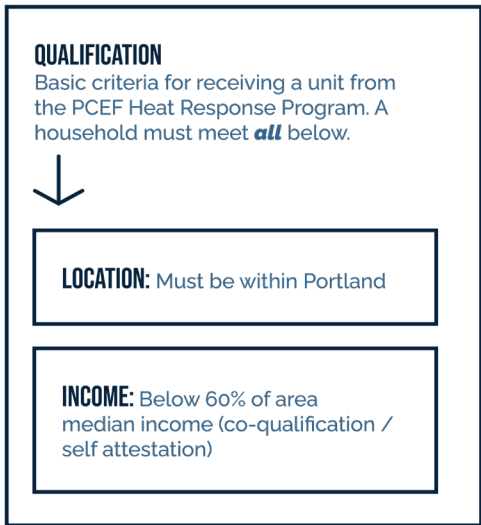
|                |               |
|----------------|---------------|
| 97220 - 11.47% | 97201 - 2.07% |
| 97266 - 10.92% | 97219 - 1.53% |
| 97236 - 8.77%  | 97202 - 1.53% |
| 97211 - 7.83%  | 97227 - 1.10% |
| 97217 - 7.01%  | 97204 - 0.86% |
| 97203 - 6.38%  | 97214 - 0.78% |
| 97233 - 6.18%  | 97221 - 0.55% |
| 97213 - 6.11%  | 97215 - 0.43% |
| 97212 - 5.52%  | 97223 - 0.27% |
| 97230 - 5.09%  | 97225 - 0.20% |
| 97206 - 4.19%  | 97222 - 0.16% |
| 97216 - 3.76%  | 97231 - 0.04% |
| 97218 - 2.66%  | 97229 - 0.00% |
| 97210 - 2.50%  | 97267 - 0.00% |
| 97232 - 2.11%  | 97224 - 0.00% |
| 97232 - 2.11%  |               |



46.18% of installations were east of 82nd Avenue (right of the red line above) where approximately 28% of Portland's population resides. Much of Portland's minority population have moved east of 82nd Avenue, as of 2011, in a trend that is expected to continue.

### RECIPIENTS' BASIC QUALIFICATION CRITERIA AND VULNERABILITIES RESULTS

PCEF's Heat Response program seeks to provide life-saving and efficient portable heat pump/cooling equipment to Portland's low-income residents, prioritizing those most vulnerable to the impacts of extreme heat fueled by climate change. See qualification process below:



Findings show that vulnerabilities align with program's prioritization intent.

| <b>% OF INSTALLATIONS FOR RECIPIENTS OVER 60 YEARS OLD</b> | <b>% OF INSTALLATIONS WITH HOUSEHOLD SIZE = 1</b> | <b>% OF INSTALLATIONS FOR PEOPLE WITH MEDICAL CONDITIONS OR MEDICAL HARDSHIP CAUSED BY HEAT WAVE</b> |
|--|---|--|
| 53   | 47  | 73   |



**COMMUNITY VOICE**

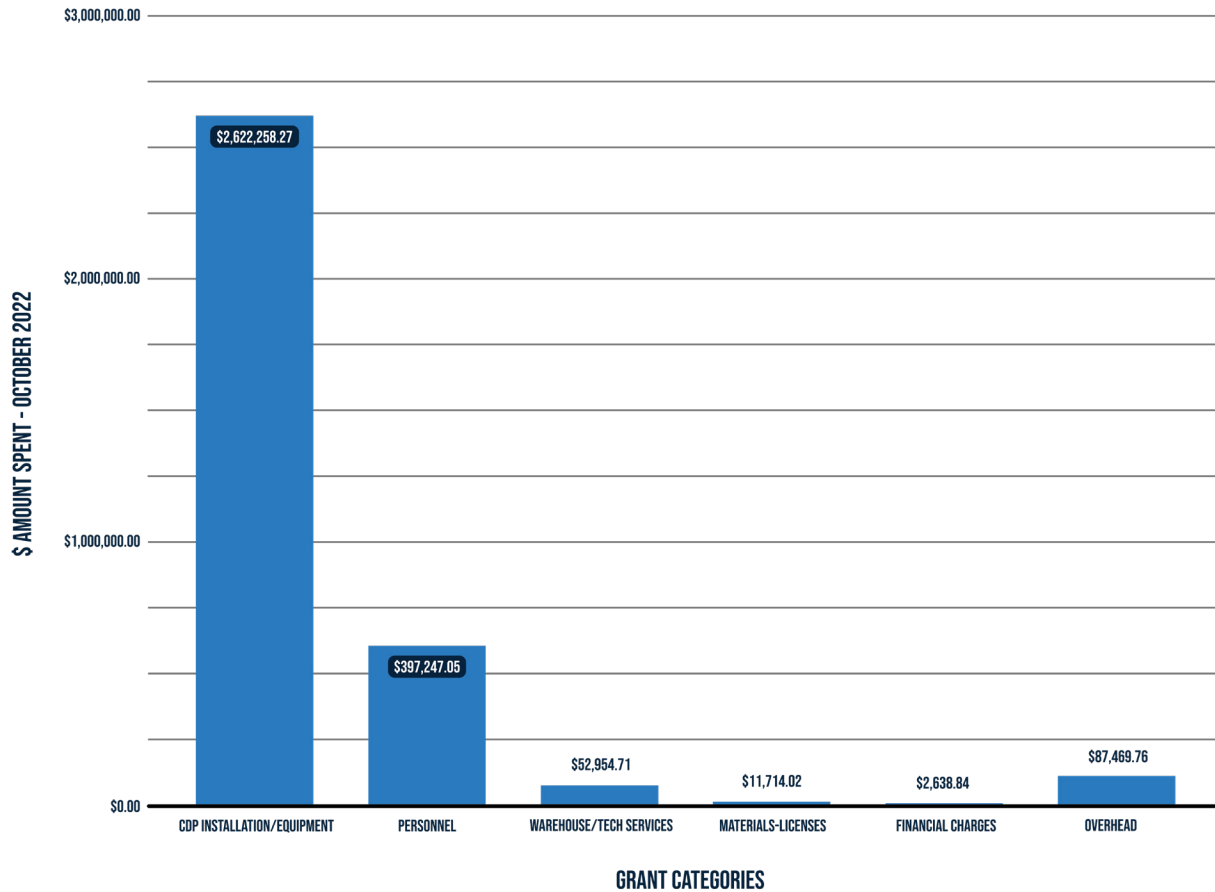
**RECIPIENT OF PCEF UNIT FROM AAAH**

Me and my mom live in northeast Portland. We live in an older home that doesn't have central air and we didn't have an air conditioner. I reached out to the African American Alliance for Homeownership. The team at African American Alliance for Homeownership was quick to respond to my request to be a part of the program and to receive an AC unit for my mom. My mom has benefited greatly from this program. She was able to stay cool during the unexpected hot summer months. Before she received the AC unit, she would go over to relatives' homes who have AC when it was too hot in our home. We are grateful for the AC unit provided from African American Alliance for Homeownership through the Heat Response Program.





## PROGRAM BREAKDOWN TO OCTOBER 2022: TOTAL SPENT \$3,174,282



## LOOKING AHEAD

Earth Advantage has coordinated with PCEF staff to solicit feedback from CDPs in preparation for 2023. Based on this feedback and Earth Advantage's internal analysis, the program will work towards the following goals in the second year:

- Increase the number of CDPs enrolled.
- Increase total number of annual installations, based on capacity of CDPs.
- Start installations in Q2.
- Centralize recipient intake registration for Community Based Organization CDP's to avoid installation overlap with Housing Providers and identify out of jurisdiction registrations.
- Integrate Year 2 CDP installation estimates and preferred equipment specifications into procurement.
- Maintain a public, up-to-date dashboard of installation numbers.