

How Philadelphia Is Preparing Its Workforce to Deliver Home Energy Upgrades

JUNE 2024

Energy Efficiency for Homeowners Initiative

Cities across the country are reporting shortages in the workforce required to complete residential clean energy upgrades. The Green Retrofit Immersive Training (GRIT) program in Philadelphia is an effective model for addressing workforce challenges, meeting the demand for energy efficiency jobs, and prioritizing equity in the target community.

Owner-occupied housing (in buildings with four units or fewer) makes up a significant portion of housing in cities. To reach their goals for climate action and energy affordability, local governments need to equitably include the owner-occupied sector. ACEEE launched the *Energy Equity for Homeowners* initiative in 2022 to help cities reach these goals.

A lack of qualified professionals can be a significant obstacle to reducing the energy use and carbon footprint of residential buildings. In a survey by the U.S. Department of Energy (DOE)'s Office of Energy Jobs, 49.9% of energy efficiency employers reported high difficulty finding qualified workers ([DOE 2023](#)).¹ Similarly, ACEEE's Energy Equity for Homeowners Initiative has heard from representatives of local governments that they lack a sufficient workforce to implement the necessary upgrades for residential energy efficiency.²

The following case study profiles a home energy retrofit workforce training program in Philadelphia: the Green Retrofit Immersive Training ([GRIT](#)) program under the Philadelphia Energy Campaign. This program shows how a city can prepare professionals—through training and hands-on experience—to enter the energy conservation and construction fields as retrofit installer technicians, solar electricians, energy inspectors, welders, industry-related salespeople, and heating, ventilation, and air-conditioning (HVAC) technicians. Cities can replicate aspects of this program's approach to scale up the equitable development of a workforce able to perform energy upgrades in owner-occupied housing.

¹ The surveyed employers reported difficulty hiring qualified workers for energy efficiency jobs in construction, manufacturing, wholesale trade, professional services, and other sectors that increase energy efficiency.

² To learn more about policy and program strategies to advance energy efficiency in owner-occupied housing discussed during the initiative's first year, visit our [toolkit here](#).

Green Retrofit Immersive Training (GRIT) Program

Tying workforce initiatives to energy investment spurs job creation

In 2016, the Philadelphia Energy Authority (PEA) launched the [Philadelphia Energy Campaign](#) as directed by the city council.³ PEA was directed to facilitate the investment of \$1 billion to scale up clean energy and energy efficiency projects by braiding various funding streams from city and private sources.⁴ This innovative campaign included a goal to create up to 10,000 jobs over 10 years. The campaign aims to make job creation a central part of clean energy investments that will simultaneously address other challenges around public health, social equity, and climate change.

Since the launch of the campaign in 2016, PEA has invested \$380 million and created 3,275 jobs as of 2022. Of the \$90 million invested in 2022, \$20 million came directly from the city and the remainder was leveraged from funds generated from PEA's programs including an energy efficiency financing program, a Commercial Property-Assessed Clean Energy (C-PACE) program for renewable energy, the Solarize Philly solar installation program, and the Built to Last one-stop-shop energy and home maintenance program. PEA's work has served as a pilot approach to lay the foundation for other workforce initiatives in the city.

PEA developed several workforce initiatives to create jobs directly and indirectly, responding to campaign goals and the resulting demand for solar installers, energy auditors, energy efficiency technicians, and other professionals involved in energy projects.⁵ PEA has specifically focused on integrating workforce development across its programs. The goal has been to create career pathways for workforce program graduates into the jobs spurred by the campaign's investments.

The GRIT program is one innovative initiative that has been launched under the Philadelphia Energy Campaign.

The GRIT program connects Philadelphians to the growing demand for energy jobs

In 2021, PEA launched the GRIT program to respond to the growing demand, created in part by other PEA programs, for skilled energy efficiency and clean energy professionals. The GRIT program is a paid, 18-week training program with three core components: individual technical skills training with

³ PEA is an independent municipal authority and political subdivision of the city of Philadelphia. PEA aims to build a vibrant and equitable clean energy economy through energy projects, education, and market-building initiatives. PEA was formed by the city council and helps the city meet its goal of reducing greenhouse gas emissions produced by the city's built environment by 50%. While PEA is not an official city department it works in conjunction with the city's office of sustainability and other city government partners to accelerate energy projects.

⁴ These investments are braided from a combination of sources including (1) the city of Philadelphia's investments in solar, energy efficiency, or streetlight improvements; (2) property owners investing in solar through the Solarize Philly program; (3) commercial property owners' investments in energy efficiency and clean energy through the Commercial Property-Assessed Clean Energy (C-PACE) program; (4) PEA investments made in conjunction with city-affiliated organizations such as the Philadelphia Water Department and the Philadelphia Airport; and (5) Built to Last program investments in low-income homes.

⁵ PEA aims to create indirect jobs through the industry's supply chain and investments (e.g., manufacturing materials or financial services) that are created through the increased demand for energy efficiency investments and other services required to complete energy efficiency projects. To learn more about the theory behind indirect jobs visit ACEEE's Energy Efficiency Job Creation [fact sheet here](#).

wraparound services to help individuals overcome employment barriers, an internship to gain hands-on experience, and job placement support with home energy contractors.⁶

PEA has developed a robust process to recruit participants twice a year and support them in their program participation. Applicants are recruited through flyers that city council members share with their constituents. PEA develops the flyers that contain information about the GRIT program, how to contact the city for more information, and a QR code to access a Google form application. These flyers are usually distributed six to eight weeks before interviews are scheduled. Participants are selected via a panel interview process that includes multiple program partners, like local nonprofit organization the Energy Coordinating Agency (ECA), selected employers, and organizations providing wraparound services as part of the program.

To financially support the GRIT program, PEA invests upward of \$600,000 to \$700,000 per cohort of roughly 20–25 participants. This budget covers the cost of services provided by the training facility, wraparound services, internship placements, and a \$500 per week stipend provided to each participant.⁷ The program costs amount to about 31% for training and instruction costs, 30% for wraparound services, and 39% for administering the program. PEA taps into multiple streams of funding to generate the budget for each cohort, including federal, city, and private funding. PEA reported that sustaining the program requires dedicated time from program staff to identify additional funding sources (like federal programs and private investment) to financially support the program. Other local governments interested in pursuing a similar approach can explore ways to integrate workforce considerations into climate or energy policies to help reach their goals. Such an integrated approach can also help cultivate support from decision makers to fund workforce investments.

⁶ Wraparound services are resources or offerings provided to job seekers or workers to promote professional development, improve an individual's socioeconomic challenges, and help overcome employment barriers. Examples of wraparound service may include, but are not limited to, transportation assistance, financial literacy, childcare, legal counseling, or job readiness training.

⁷ GRIT participants receive a \$500 per week stipend, because the organization has found that participants cannot feasibly participate in the program without a regular income.

A combination of technical training and wraparound services sets participants up for success

Since PEA is not a training service provider, they contracted with ECA to provide intensive classroom training to participants at its Green Jobs Training Center facility.⁸ For the first 12 weeks of the program, GRIT participants attend training at ECA's facility Monday through Thursday to gain technical skills and to prepare for exams for several nationwide industry-recognized certifications.⁹ Throughout the 12 weeks, participants are immersed in intensive in-lab training, with a curriculum informed by continuous feedback from local employers in renewable energy, clean energy, and various trades. The curriculum is adjusted as needed to meet the skills needed for available jobs.



The GRIT program proactively considers participants' needs for financial, family, and transportation support to help ensure successful completion. Every other Friday for the first 12 weeks of the program, participants receive wraparound services (such as job preparedness coaching and personal counseling) focused on overcoming employment barriers like a lack of transportation, career coaching, or networking opportunities. To provide these essential services, PEA works in partnership with two local organizations: Ride to Work and Episcopal Community Services. Ride to Work provides job readiness services,

such as helping participants write resumes, create LinkedIn profiles, and prepare for interviews.¹⁰ Episcopal Community Services supports participants for five years beyond the training through its MindSet program, which provides counseling services and support for career planning.

Developing Relationships with partner organizations Builds Capacity for a Successful Program

PEA recommends that other local governments consider dedicating time for their staff to successfully identify organizations to deliver technical training and wraparound services, and to build relationships with employers and industry advisory boards. Through these relationships government officials can better align their program with the local context by identifying the types of skills, jobs, and workforce challenges that shape the local clean energy workforce landscape. A strong networking approach can

⁸ The PEA workforce team includes two full-time staff whose primary task is to oversee funding and workforce partnerships.

⁹ These certifications include Occupational Safety and Health Administration (OSHA) 10 and 40; Hazardous Waste Operation and Emergency Response (HAZWOPER); Environmental Protection Agency (EPA)'s Lead Renovation, Repair, and Painting (RRP); Building Performance Institute (BPI)'s Whole House Air Sealing and Insulation (WHASI); and National Center for Construction Education and Research (NCCER) Level 1 (Carpentry, Electrical, and Plumbing).

¹⁰ To view Ride to Work's job readiness curriculum used for GRIT participants visit the [link here](#).

also help connect with potential training providers and increase flexibility in program approaches as the energy efficiency and clean energy markets change. PEA emphasized that working in partnership with a training center, local employers, and social service organizations early in program development helped inform and streamline the design and implementation of the program and set it up for success.

Hands-on internship experience develops career readiness

In the final six weeks of the program, participants are placed in an internship with a local technical trade center. Each participant works on a residential or commercial property, applying the skills learned at ECA's training center facility to retrofitting an actual building. This work includes completing various types of energy efficiency or clean energy projects with varying levels of skills, such as HVAC installations, laying wires, inspecting a home's plumbing and electricity, laying floors, or installing drywall.

In 2023, 21 of the 25 GRIT program participants successfully completed training and their internship. The program is currently in its fourth cohort since the 2021 launch and has graduated 57 total participants so far with more currently enrolled. PEA notes that some individuals have pursued occupations with the local energy utilities or contractor crews working on PEA's Built to Last program, become entrepreneurs, obtained entry-level clean energy jobs (with wages starting at \$17/hr.), or found work in adjacent industries, like manufacturing, sales, or installation.¹¹



¹¹ In 2021, PEA launched Built to Last, a home restoration program that aims to improve the efficiency of low-income owner-occupied homes through home repairs and energy upgrades.

Connecting with employers builds career pathways

PEA reported that a workforce training effort that cannot successfully place participants in jobs can lose credibility. To prevent this problem, PEA has proactively engaged local employers (e.g., contractor businesses) to ensure that participants have access to job opportunities after completing the program. PEA has used several strategies to identify potential employers and encourage their participation. PEA hosts networking sessions with five to six local employers. PEA staff develop relationships with these employers by attending business events, and engaging with the local industry advisory board and various associations like the local electrical association. At the networking sessions, employers learn about the GRIT program's goals and training curriculum. PEA encourages employers to offer feedback on the curriculum (e.g., which necessary skills are missing from curriculum) and incorporates that feedback,

One participant's experience provides a glimpse of the positive impact of the program. A trainee became a parent while participating in the program, which led to some financial and personal challenges. He temporarily left the program to pursue a full-time job, and during this time realized the value of industry-recognized credentials and benefits of the GRIT program. After a week, he left his full-time job and reached out to the GRIT program administrators requesting to be re-enrolled into the program. The GRIT program administrators re-enrolled him, and he successfully completed the program and obtained employment at Habitat for Humanity. He regularly speaks to GRIT participants about the skills and information he gained from the program.

thus ensuring GRIT participants have the skills required by these businesses. Through these events, PEA has built relationships with businesses and is able to leverage their insights to strengthen outcomes. PEA has found that tying its initiative to available jobs helps to build a successful program by ensuring that it is training people for real job opportunities.

While a permanent job placement is not guaranteed for program graduates, PEA works to create high-quality career pathways for participants after they complete the program. For example, PEA connects graduates with contractor crews working on PEA's Built to Last program. The Built to Last program has built a market demand for skilled professionals among its contractor crews delivering residential energy services and home repairs. PEA maintains communication with these contractor crews and monitors their demand for labor.

Conclusion

This example from Philadelphia can help other cities equitably cultivate a strong workforce to meet their clean energy goals. The GRIT program has successfully recruited candidates, provided technical and wraparound services, and placed program graduates into jobs. GRIT serves as a model for growing a robust, equitable workforce by preparing individuals for careers, attracting employers, and improving the lives of Philadelphians. The GRIT program can serve as an example for communities interested in standing up a similar workforce initiative.

This case study is part of ACEEE's Energy Equity for Homeowners Initiative, which supports local governments in equitably deploying energy efficiency to residential buildings including owner-occupied homes. For more information and resources, visit the initiative's webpage (aceee.org/energy-equity-homeowners-initiative).