



- Energize Southeast PA: A Blueprint for Scaling Residential Decarbonization

APA PA 2025 | Harrisburg

October 14, 2025

Building Green Futures: Workforce Opportunities in Philadelphia's Clean Energy Economy

October 14, 2025

Presented by: Kira Halma, Clean Energy Workforce Strategist



Why a Clean Energy Workforce Strategy (CEWS)?

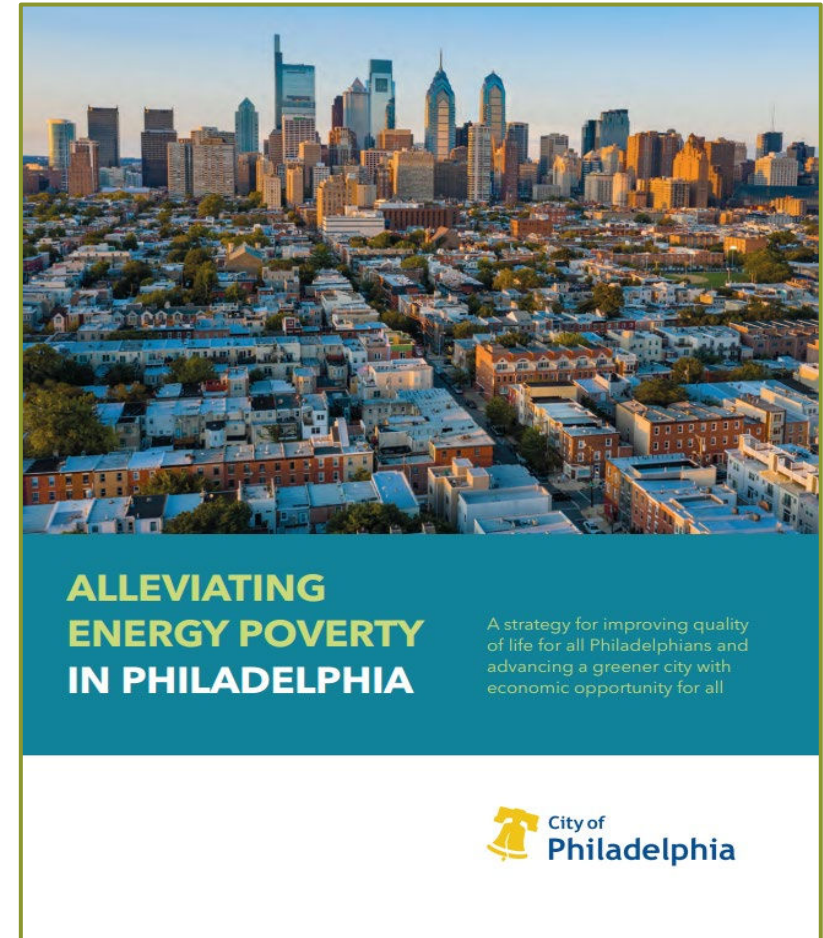


Philadelphia is one of the
most energy burdened
cities in the United States.

Energy burden is the percentage of household income that goes toward energy bills.

2024 Energy Poverty Alleviation Strategy (EPAS)

- **70% of Philadelphia's GHG emissions** come from its **building stock**.
- Almost **70% of single-family homes are not well sealed**, causing these households to have higher energy costs due to wasted energy.
- 25% of low-income households are spending **more than 19% of their income on energy**.
- The **median energy burden for Black households is 53% higher** than non-Hispanic white households.



“The lack of a sufficient clean energy workforce is a key limitation in scaling energy programs. While clean energy workforce development programs are offered in the city, support is needed to scale up these programs.” -EPAS



Clean Energy Workforce Strategy (CEWS)

THE CITY OF PHILADELPHIA
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SUSTAINABILITY



AECOM

Current Clean Energy Workforce (CEW) Landscape



Philadelphia's Current CEW:

- ~6,700 jobs
- 0.8% annual growth

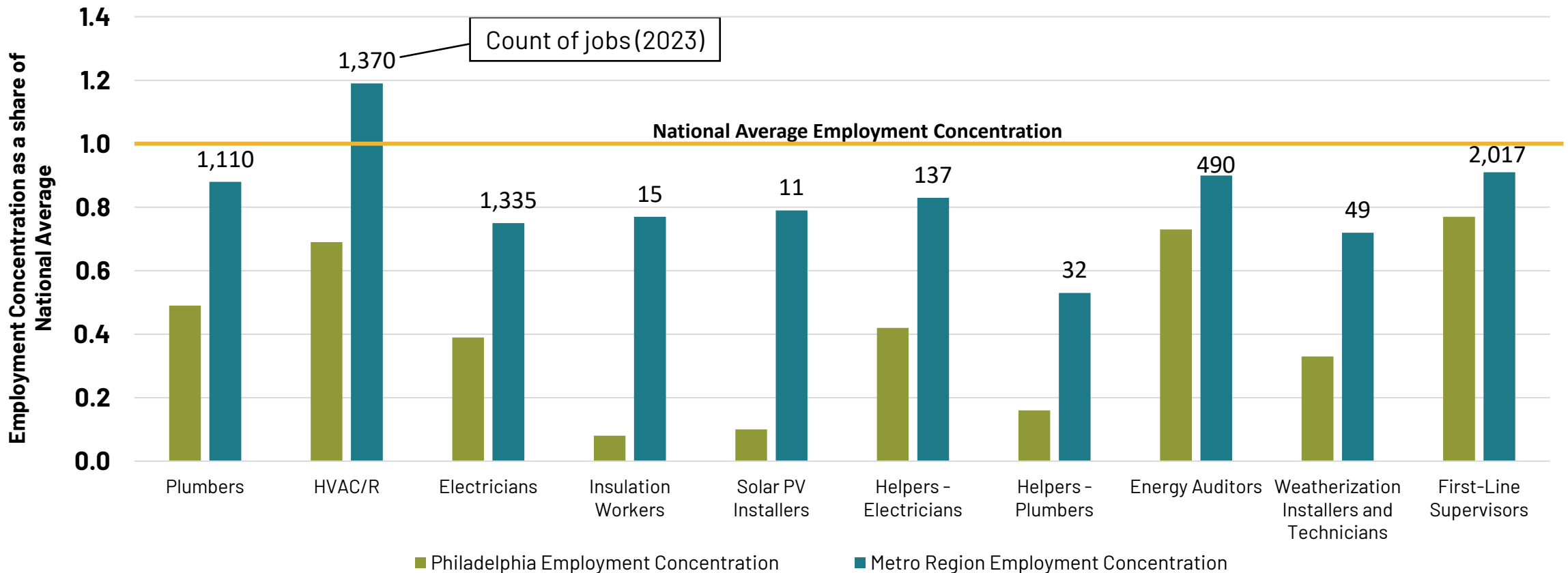
Occupations

Plumbers	HVAC/R	Electricians
Insulation Workers	Solar Photovoltaic Installers	Helpers-Electricians
Helpers- Plumbers	Energy Auditors	Weatherization Installers
First-Line Supervisors of Mechanics, Installers, Repairers	Construction Laborers	First-Line Supervisors of Construction Workers



Philadelphia has few clean energy jobs and relies on the metro-region for contractors and workers

Employment Concentration by Occupation, 2023

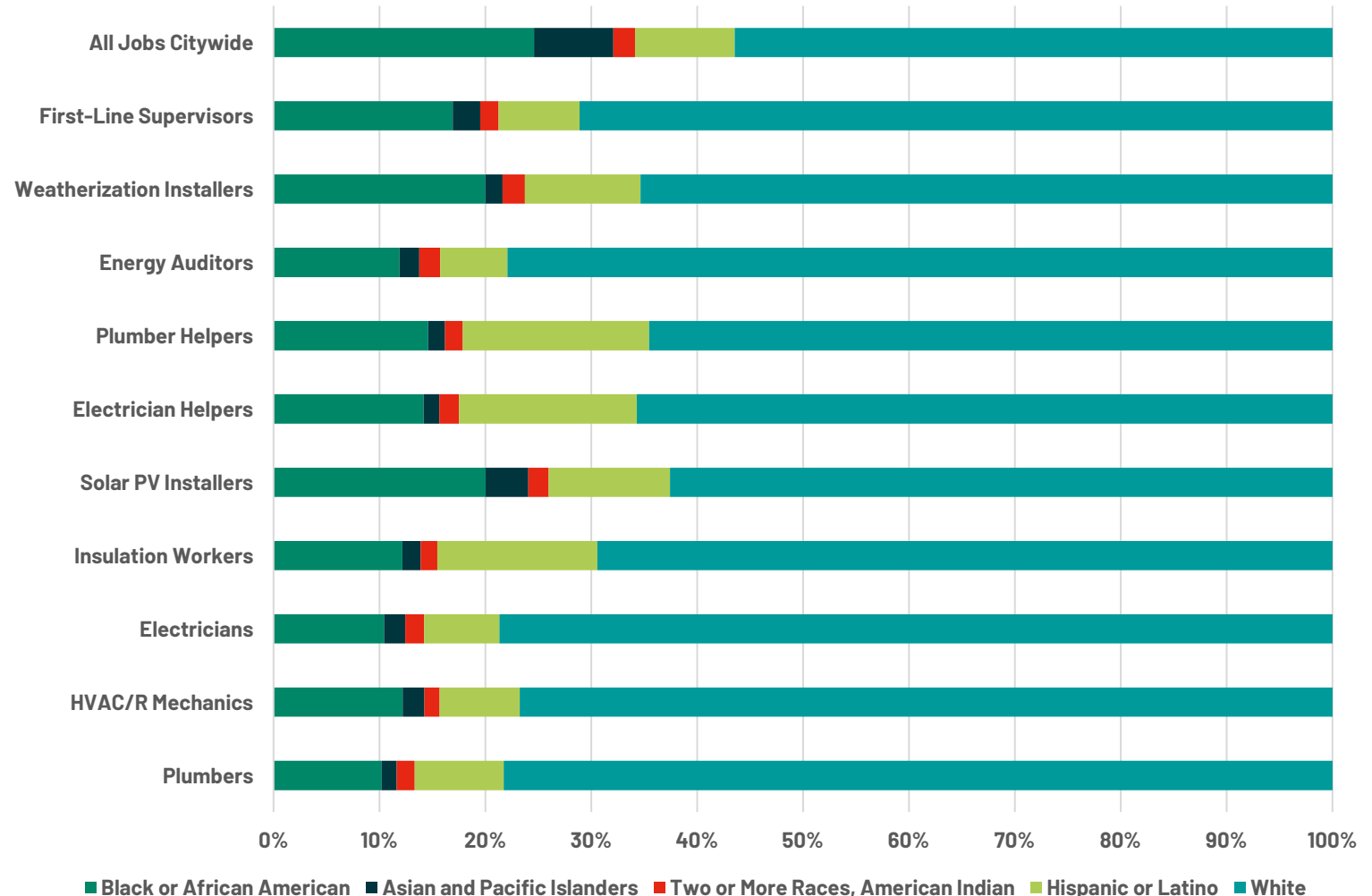


Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics and U.S. Census Bureau, sourced from Lightcast 2024.1 data run retrieved June 2024.

Disparities in CEW demographics reflect barriers to employment

In the CEW...

- **25%** are workers of color vs. 44% citywide.
- **4%** are women vs. **54%** citywide.
- Growing cohort of **retirement-age** workers (aged 55+) suggests an imminent workforce gap



Job Growth Potential

Table 9 Building Retrofit Annual Job Estimates for Electrification, 2025 - 2050

	Full Electrification	Hybrid Electrification
General Construction Labor	1,070	1,030
Envelope/Insulation	600	600
Electrical Work	350	325
Plumbing	115	110
HVAC	935	860
Engineers/Analysts	190	185
Management/Admin/Professionals	575	550
Annual New Direct Jobs	3,850	3,650

Source: Philadelphia Building Decarbonization Workforce Impacts and Opportunities, *Building Electrification Institute (2023)*

Clean Energy Workforce Strategy (CEWS) Development



Vision & Objectives

We envision a clean energy workforce that is accessible to all Philadelphians, provides upward mobility and diverse career opportunities, and grows to meet the City's clean energy transition and energy affordability goals.

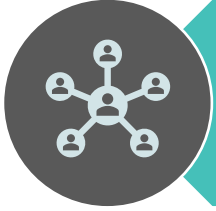


Stakeholder Engagement



Technical Advisory Group Support

- Members including program staff, industry, training partners, unions, etc. assist throughout the strategy development and act as champions.



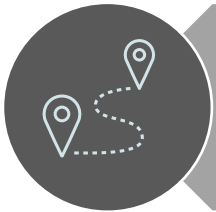
Community Focus Groups

- Deep dive with employers, nonprofits, supportive service providers, and trainees.



Strategy Briefings to City Leadership

- Inform City and agency leadership on the Strategy; determine opportunities for partnership and upskilling municipal workforce.



Targeted Stakeholder Interviews

- Meet with stakeholders 1:1 in a format they are most comfortable with to foster mutual trust and understanding.

Opportunities & Challenges

Opportunities

- Engage **youth** early and offer **community exposure** to the trades
- Strengthen training to employment **pipeline**
- Create training opportunities through **residential retrofit** programs
- Provide **entrepreneurial resources**
- Leverage trusted organizations for **equitable recruitment**
- Support technical and soft **skills** (tools, reading comprehension, resume, etc.)

Challenges

- Limited **resources** and funding
- Varying **regulations** create inefficiencies
- Old **housing stock** is unattractive to contractors
- **Stigma** towards entering the trades
- **Misalignment** between training and industry job demand
- Gaps in **supportive services** (transportation, childcare, etc.)

Key Takeaways

- **Reimagine the clean energy transition for urban areas:**
 - Address climate change and energy poverty through building stock (especially residential).
 - CEW occupations are primarily trades. Equitably expanding these jobs helps both the built environment and residents.
- **Goals align, but we need increased collaboration:**
 - Dedicate a convener to improve communication and planning.
 - First time many of these stakeholders connected!



Thank you!

Kira Halma, kira.halma@phila.gov



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*Image Credit:
Getty Images*

Southeast PA Regional Energy Center

PA APA Conference | October 14, 2025

Lauren Pawlowski, Senior Program Coordinator, Office of Sustainable Energy

Delaware Valley Regional Planning Commission (DVRPC)

Federally designated MPO for the Greater Philadelphia region

- 2 States
- 9 Counties
- 350 Municipalities

Office of Sustainable Energy

Programs and projects to achieve a reliable, efficient, and resilient energy supply

In the 5-County SE PA Region:

~1.3M housing units were built pre-1980 (**71%**)

~1.1M housing units are owner-occupied (**65%**)

~501,000 people have an income below the Federal Poverty Level (**11.9%**)

~500,000 households experience high energy burden (**31%**)

~295,000 households experience severe energy burden (**18%**)

Sources: U.S. Census and ACS, 2023
Greenlink Analytics, 2021

Current Energy Challenges:

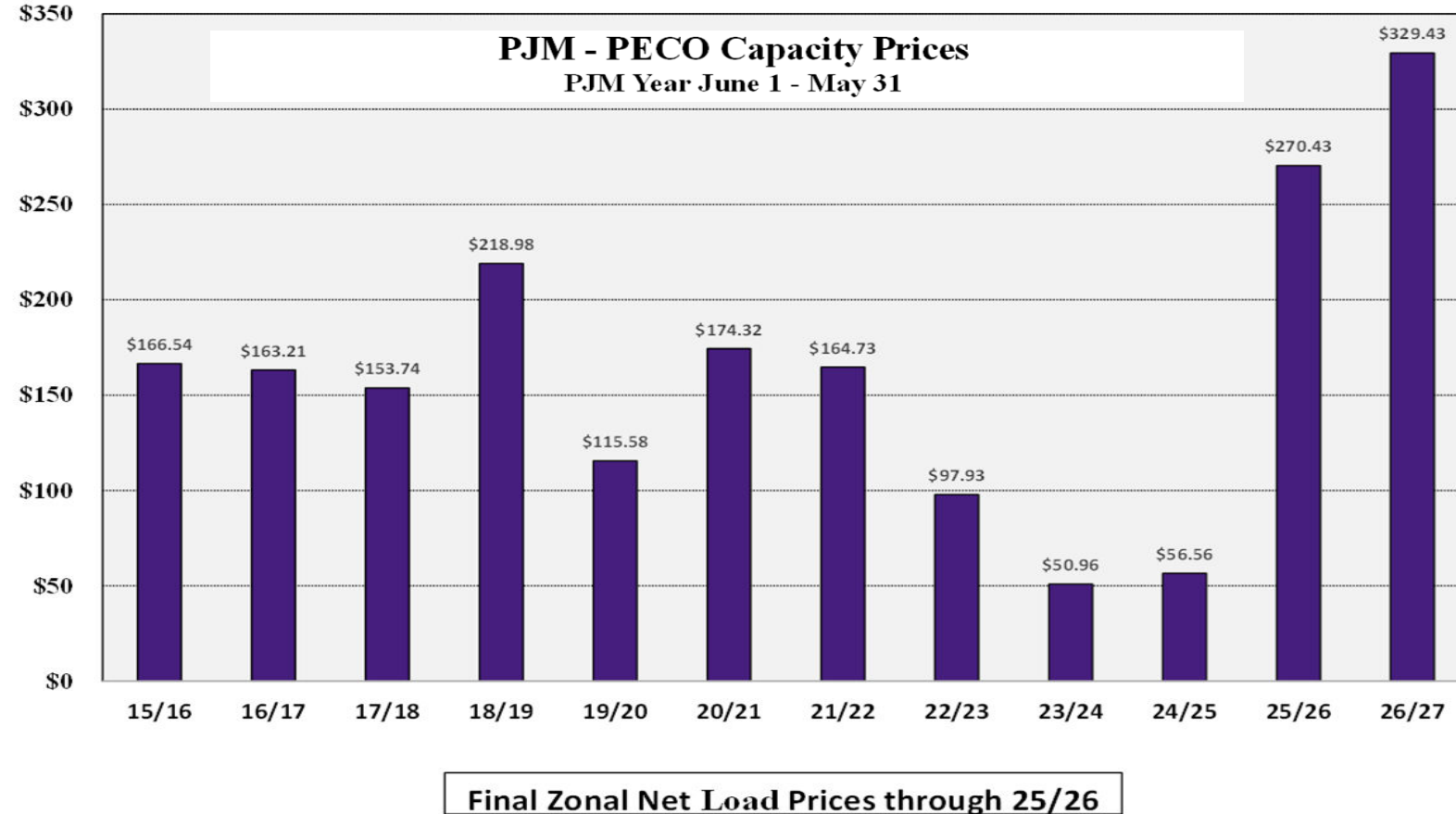
Individuals

- Old, energy inefficient housing stock
- Extreme heat and weather
- Low energy affordability among low-income individuals
- Confusing to navigate available assistance programs
- Growing the clean energy workforce

Current Energy Challenges:

Local Governments and Institutions

- Risk-averse and capacity constrained
- Energy is intimidating
- Rising energy costs, regulatory complexities, and limited funds for management projects

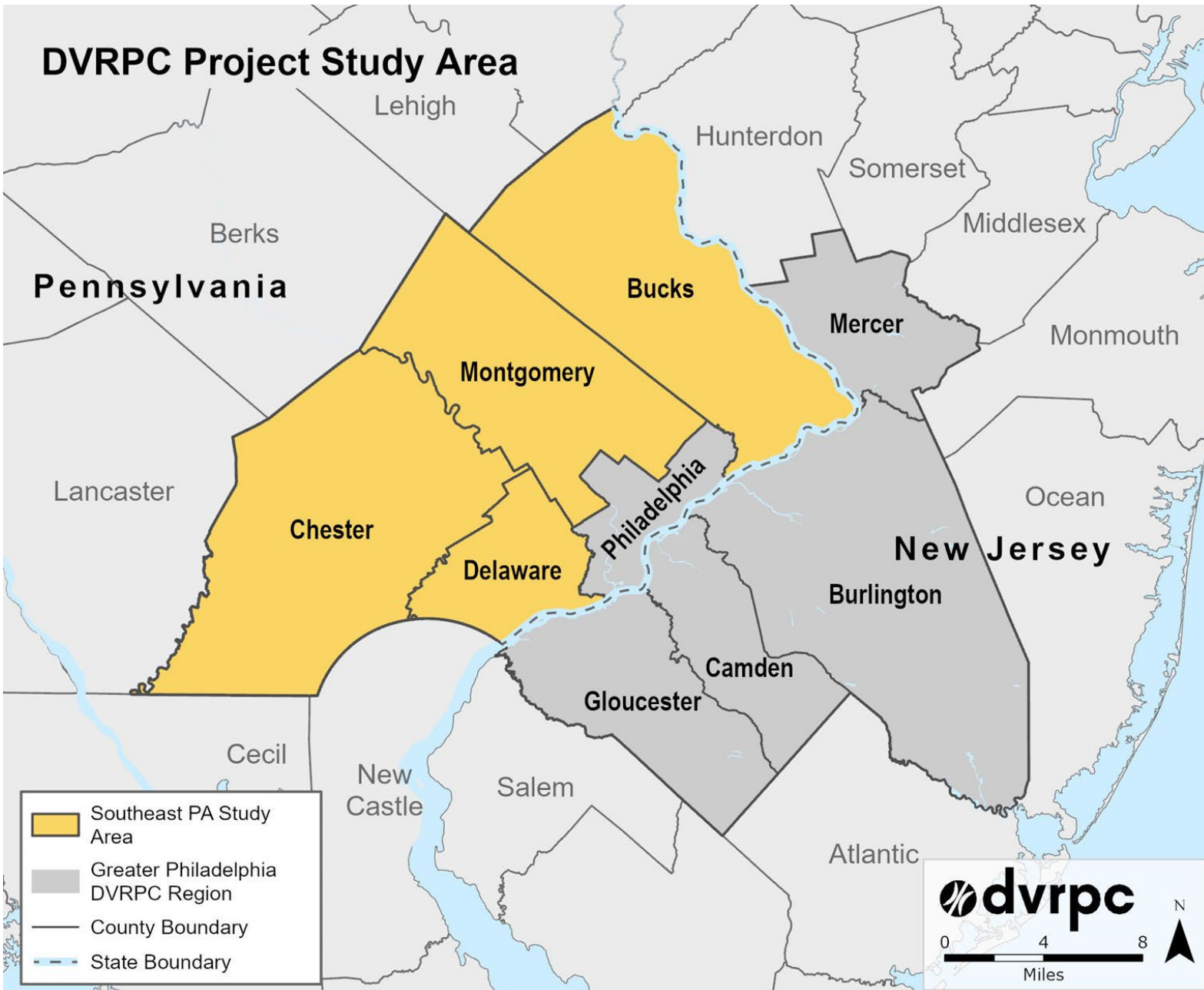


Source: Enel X, 2025

Current Energy Challenges:

Southeast PA Region

- Energy accounts for 87% of GHG emissions in the 5-county SE PA region
- 238 small or mid-sized municipalities
- No broad coalition aligned on energy strategy or coordinating implementation



Clean Energy Solutions for Residential Buildings

Goals: Preserve wealth, lower housing cost burdens and improve housing quality, create a safe and healthy indoor environment, and reduce GHGs.

Health, Wealth, and Safety

Basic systems repair (roof, structural, electric, plumbing); trip and fall hazards; lead and mold remediation; legal services.

Weatherization

Moisture control, air sealing, ventilation, and upgrades to insulation, doors and windows.



Managing Grid Electricity Consumption

Demand controls, on-site renewables and storage, access to market products containing renewables and energy resources.

Electrification

High-efficiency all-electric equipment for space heating and cooling, water heating, and all appliances.

Home Retrofit Programs

- Whole Home Repair (WHR)
- Weatherization Assistance Program (WAP)
- Low Income Home Energy Assistance Program (LIHEAP)
- Low-Income Usage Reduction Program (LIURP)
- Home Electrification and Appliance Rebate Program (HEAR)



Overview of Home Retrofit Programs

Program	Program Type	Average Benefit per Household	Income Eligibility		Scope of Work
			≤ 200% FPL	≤ 80% AMI	
Whole Home Repair (WHR)	Grant	\$25,000-\$50,000		✓	<ul style="list-style-type: none"> Address habitability & safety issues Improve energy or water efficiency Make units accessible for individuals with disabilities
Weatherization Assistance (WAP)	Grant	\$16,017	✓		<ul style="list-style-type: none"> Identify & seal air leakages Install insulation & ventilation Modify or replace heating systems Conduct health & safety repairs
Low Income Home Energy Assistance program (LIHEAP)	Grant	Up to \$2,000	✓		<ul style="list-style-type: none"> Cash Grants to be used for home heating costs Crisis Grants to avoid a utility shut off or restore service
Low Income Usage Reduction Program (LIURP)	Direct Install	\$8,000 for gas \$10,200 for electric	✓		<ul style="list-style-type: none"> Support high usage, low income utility customers in reducing their energy usage Free virtual or in-home energy assessments Health & safety repairs
Home Electrification and Appliance Rebate Program (HEAR)	Rebate	Up to \$14,000		✓	<ul style="list-style-type: none"> Home electrification rebate for appliances and building materials

Common Program Challenges



- **Tight timelines** imposed by program requirements, particularly WAP, can limit project scope and service provision



- **Need for flexible, alternative funding** to enhance project scopes
- **Insufficient funding to meet demand**, leading to long wait lists



- **Coordination between programs** (e.g. for deferrals) due to data sharing, timelines, staffing limitations, etc.



- **Maintaining a low average cost per home** to meet requirements and maximize impact
- **Supporting homeowners** with paperwork and income verification

The Value of Regional Cooperation



**Addressing Energy Challenges
Together**

Southeast PA Regional Energy Center

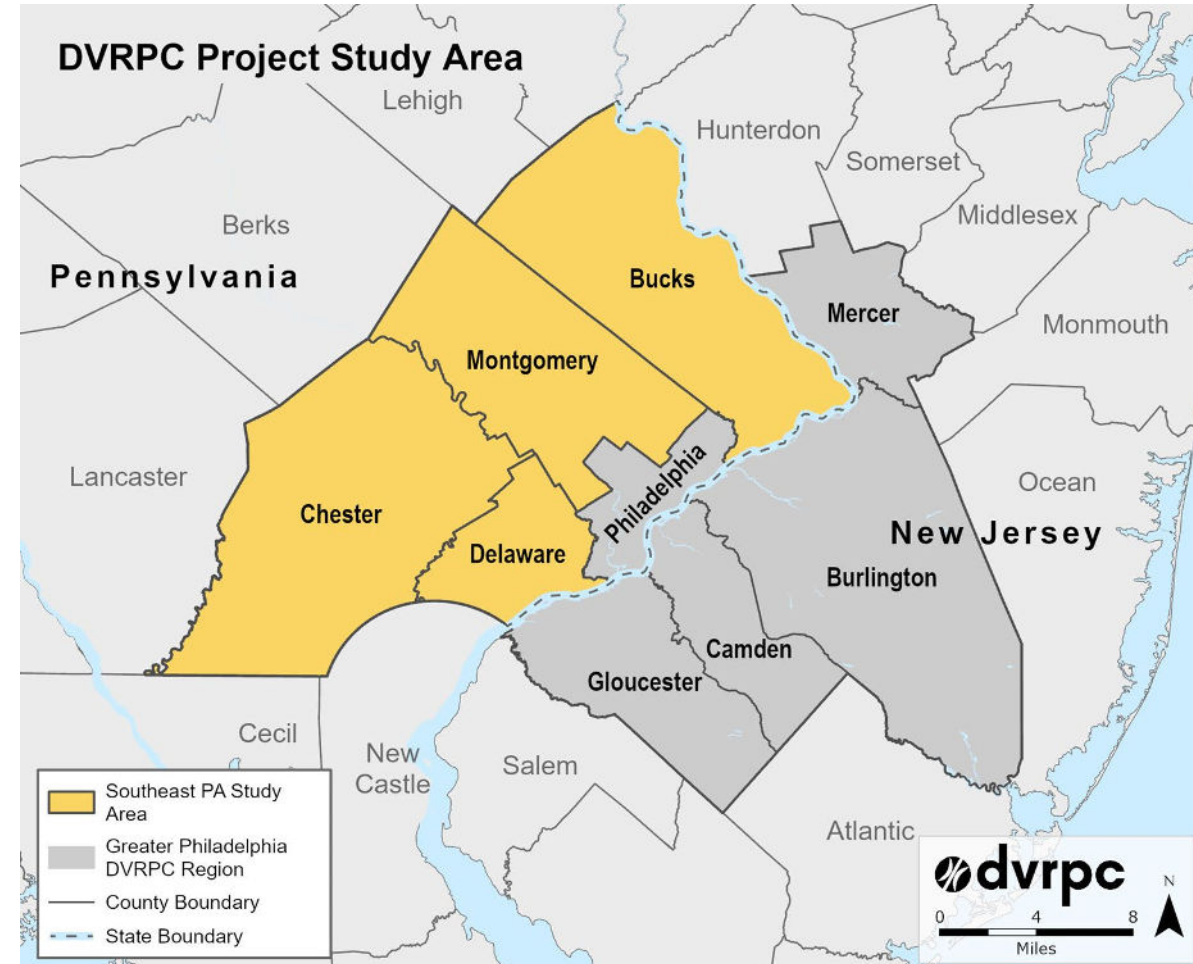
Establishing the Regional Energy Center to support local governments, home retrofit organizations, and homeowners by:

- Streamlining access to and program administration for weatherization and whole home retrofits
- Expanding DVRPC's energy programs to support local government capacity
- Coordinating regional collaboration and solutions

Timeline

Phase 1: Planning | Oct 2024 - Feb 2026

Phase 2: Implementation | Feb 2026 - Aug 2027



Using Philadelphia as a Model

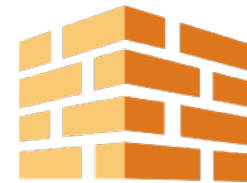


PHILADELPHIA
ENERGY AUTHORITY



PHILADELPHIA
GREEN CAPITAL CORP

Provides these Programs:



BUILT
to **LAST**



SOLARIZE
GREATER PHILADELPHIA

Philadelphia **C-PACE**



PSIP

**Philly
Streetlight
Improvement
Project**

Lighting the way to our City's future.

Using Philadelphia as a Model



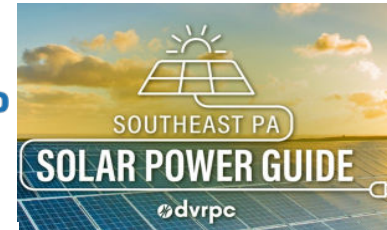
Manages these Centers:

- **16 Neighborhood Energy Centers**, a one-stop-shop for utility bill assistance programs, home repair and weatherization, and budget counseling
- **The Knight Green Careers Training Center**, a hub for workforce development programs related to careers in home retrofits

DVRPC's Energy Programs



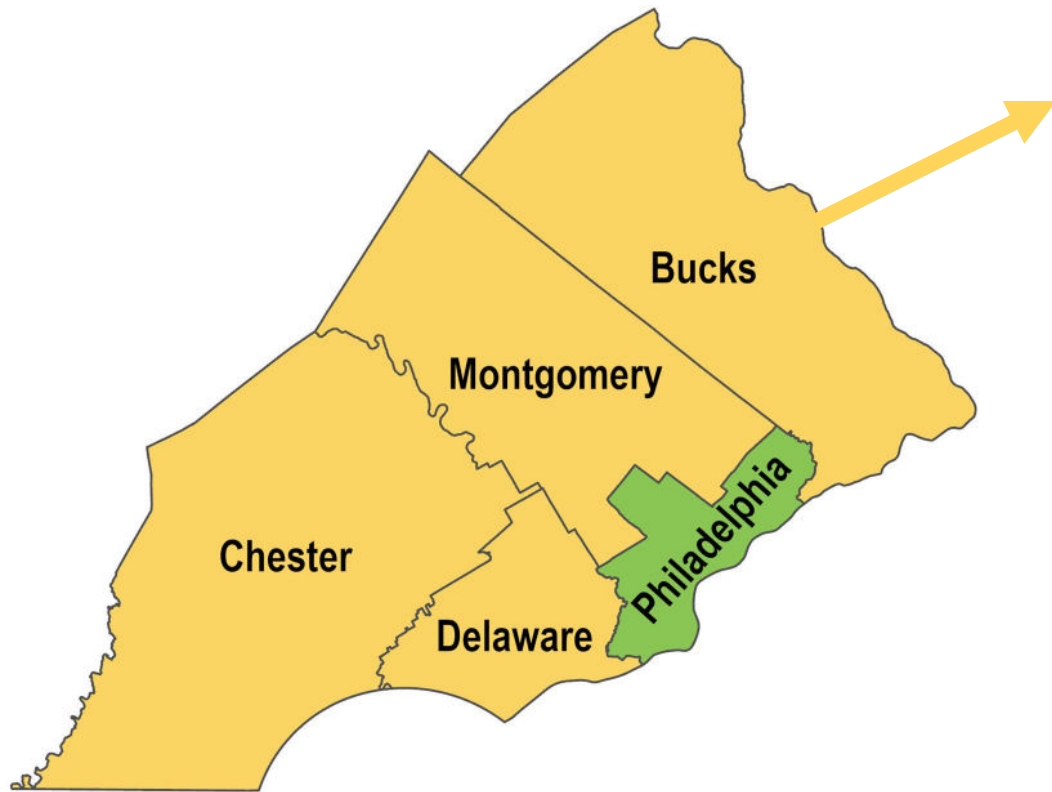
Provides these Programs:



Greenhouse Gas Inventory



Establishing the Regional Energy Center



Regional Energy Center (REC)

Sustain DVRPC's
existing energy
programs



Develop more
focus areas +
partnerships



Institutionalize
the REC

- Home Retrofit Programs
- Local Government Operations
- Regulatory Engagement
- Strengthen Regional Partnerships

- Governance
- Funding
- Staffing

Project Team



Project Manager

DVRPC



Home Repair Program Admins

Community Action Agencies

CBOs

Utility (PECO)



Local Governments

Four Collar Counties of Southeast PA:

Bucks, Chester, Delaware, and Montgomery



Technical Experts

Workforce development

Modeling and analysis

Stakeholder engagement

Legal/regulatory

Project Timeline

Phase 1: Planning

(October 2024 - February 2026)

1. Stakeholder & Engagement Plan
2. Baseline Data Analysis
3. Energy Affordability Analysis
4. Housing Stock Analysis (ResStock)
5. Electric Grid & Regulations Analysis
6. Program Admin & Supply Chain Research
7. Workforce Analysis
8. Financial Impact Analysis
9. Local Government Operations
10. Governance Analysis

Phase 2: Implementation

(February 2026 - August 2027)

1. Home Retrofit Programs
2. Local Governments
3. Regulatory Engagement
4. Strengthen Regional Partnerships

IMPLEMENTATION

1. Support Home Retrofit Programs

Key Goals

1. Support providers in identifying resources to complete the work
2. Maximize use of available funding for low-income home improvements
3. Provide a simple pathway for residents to access these programs



Image Credit: PHDC, 2025

Streamlining Program Access and Delivery

- Tools to align repair project scopes + funding
- Bulk procurement for materials or equipment (e.g. heat pumps)
- Single application
- Single audit



Image Credit: DVRPC, 2024

Workforce Development and Training

- Support expansion of workforce development programs
- Develop compendium of training opportunities
- Support expansion of training centers

2. Support Local Governments

Key Goals

1. Simplify implementation through standard, cooperative approaches
2. Build confidence, support decision-making, leverage inherent peer pressure
3. Achieve economies of scale to lower prices and have greater leverage



Image Credit: DVRPC, 2013

Shared Energy Manager Pilot

- Conduct energy audits for government buildings
- Coordinate solar procurement
- Develop county- and muni-specific energy strategies



Source: Getty Images

Aggregate Energy Procurement

- Identify on-site projects to support energy affordability and innovation
- Pooled procurement, standardized contracts
- SEP Portfolio Energy Strategy for energy procurement, on-site generation, and peak load management

IMPLEMENTATION

Key Goals

1. Support education on impact of relevant regulations
2. Convene partners to support consensus building
3. Identify how to engage in public processes and provide support for engagement

3. Regulatory Engagement

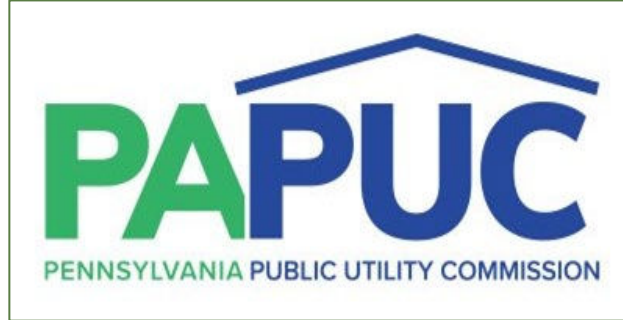


Image Credit: PA PUC

- Support education on impact of regulations on home repair programs and energy prices, including:
 - Act 129
 - PA PUC's model tariff for large load users (like data centers)
 - PJM capacity market issues
 - Investment Tax Credits (ITCs) and Direct Pay
- Identify how to engage in public processes
 - Submitting public comment on proceedings
 - Intervening on rate cases

IMPLEMENTATION

4. Strengthen Regional Partnerships

Key Goals

1. Support region in identifying and achieving common goals
2. Highlight long-term value of an affordable, reliable, resilient energy system
3. Identify reliable funding streams to sustain and grow the work



Image Credit: DVRPC, 2025

Building Relationships

- Continue meetings with home repair organizations and county agencies
- Continue surveys, focus groups, and other engagement activities

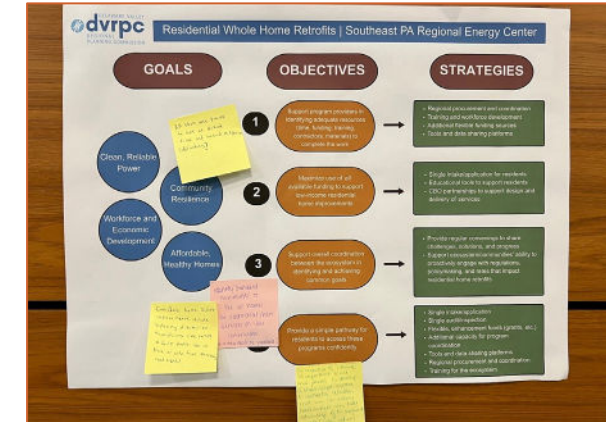


Image Credit: DVRPC, 2025

Building Consensus

- Continue research and education
- Develop narratives and storytelling strategies on common challenges and potential solutions
- Collaborate on implementation



Thank You!

Lauren Pawlowski, *Senior Program Coordinator, Office of Sustainable Energy*

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related nondiscrimination mandates in all activities.

For more information about DVRPC's Title VI Program or to obtain a Title VI Complaint Form, visit www.dvrpc.org/GetInvolved/TitleVI, or contact DVRPC's ADA and Title VI Compliance Officer Shoshana Akins by calling 215-592-1800 or via email at public_affairs@dvrpc.org.



Thank you!

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