



# Climate Change Advisory Committee Meeting

**October 26, 2021**

Tom Wolf, Governor

Patrick McDonnell, Secretary

# Agenda

- **Introduction**
  - Approval of August Minutes
- Secretary McDonnell – Open Discussion
- CAP Outreach & Implementation Activities – Planning for Future Meetings
- Public Comment
- Break
- Pennsylvania Energy Jobs Reports Presentation
  - Pennsylvania Energy Jobs Reports Discussion
- DEP Updates
- New Business
- Next Steps/Next Meeting

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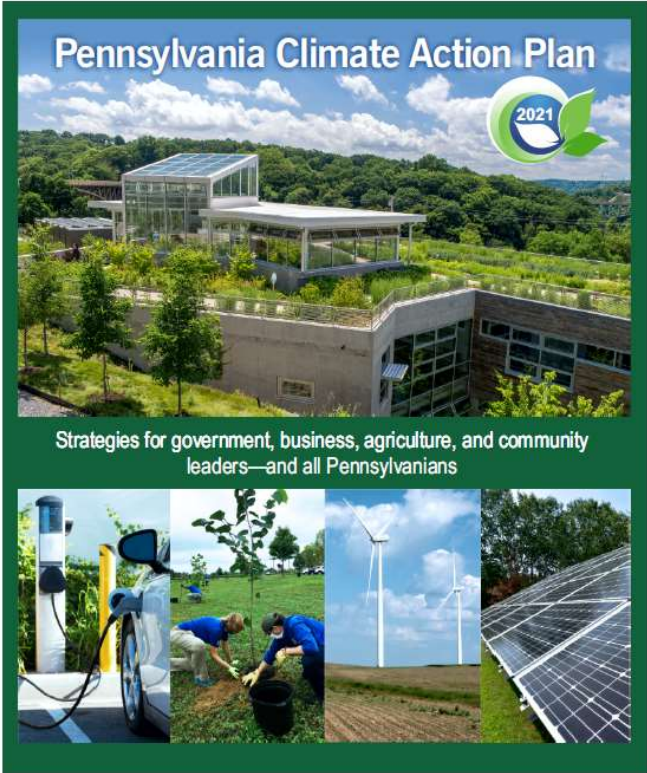
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# DEP Outreach Efforts

- CAP Booklet
- StoryMap
- Presentations to external stakeholders
- Social Media posts



## CAP Implementation – Industry, Fuel Supply, Waste

GHG Reduction Strategy	Expected Implementation Timeframe
Increase industrial energy efficiency and fuel switching	Near term
Increase production and use of biogas/renewable gas	Midterm
Incentivize and increase use of distributed Combined Heat and Power	Near term
Reduce methane emissions across oil and natural gas systems	Midterm
Reduce food waste	Near term
Reduce waste generated by citizens and businesses and expand beneficial use of waste	Near term

## CAP Implementation - Transportation

<b>GHG Reduction Strategy</b>	<b>Expected Implementation Timeframe</b>
Increase fuel efficiency of all light duty vehicles and reduce vehicle miles traveled for single occupancy vehicles	Midterm
Implement the multi-state medium-and heavy-duty zero-emission vehicle memorandum of understanding	Long term
Increase adoption of light-duty electric vehicles	Midterm
Implement a Low Carbon Fuel Standard	Midterm



## CAP Implementation – Ag. & LULUCF

<b>GHG Reduction Strategy</b>	<b>Expected Implementation Timeframe</b>
Use programs, tools, and incentives to increase energy efficiency for agriculture	Near term
Provide trainings and tools to implement agricultural best practices	Midterm
Increase land and forest management for natural sequestration	Midterm

# CAP Implementation - Buildings

GHG Reduction Strategy	Expected Implementation Timeframe
Support energy efficiency through building codes	Near-term
Improve residential and commercial energy efficiency (electricity)	Near term
Improve residential and commercial energy efficiency (gas)	Near term
Incentivize building electrification	Midterm
Introduce state appliance efficiency standards	Midterm
Increase distributed on-site solar	Near term
Take actions to promote and advance C-PACE financing and other tools for Net Zero Buildings and high-performance buildings	Near term

# CAP Implementation – Electricity Generation

<b>GHG Reduction Strategy</b>	<b>Expected Implementation Timeframe</b>
Maintain nuclear generation at current levels	Near term
Create a carbon emissions free grid	Long term



# Public Comment (15 min)



Break

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# **PENNSYLVANIA CLEAN ENERGY INDUSTRY Energy Jobs Reports**

Climate Change Advisory Council  
October 26, 2021

Tom Wolf, Governor

Patrick McDonnell, Secretary

# DEP Energy Programs Office (EPO)



- EPO is the primary agency responsible for implementing clean energy programs in Pennsylvania.
- EPO supports renewable energy, energy efficiency and conservation, climate change mitigation and adaptation, alternative transportation, energy assurance, and associated education, outreach and technical support efforts.
- EPO works with its partners to implement, coordinate, and facilitate clean energy programs



## Why Workforce Development?

- EPO convened a stakeholder group beginning in 2018 to provide input on how to improve energy efficiency programming for the agricultural and industrial/manufacturing sector.
- Facilitated by the American Council for an Energy-Efficient Economy (ACEEE).
- One key outcome from the group and analysis was that EPO should support more training of workers in Energy Efficiency, Pollution Prevention, and water conservation

## Why Workforce Development?

- EPO has been supporting workforce training for the existing workforce for several years
  - Building Operator Certification Training
  - Building Retuning Training
  - Building Energy Codes Training
- Growth in Clean Energy Sector indicates need for new entrants into the workforce

# 2020 PA Energy Employment Report



- Report completed by BW Research
- BW has completed the US Energy Employment Report for USDOE and NASEO for several years
- Completed a 2020 PA Energy Employment Report and 2020 PA Clean Energy Employment Report
- 2021 versions were released in September
- PAEER: ~269,000 jobs in energy at end of 2019 in Pennsylvania

[bw] RESEARCH PARTNERSHIP

# 2020 PA Clean Energy Employment Report



PRODUCED FOR THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION ENERGY PROGRAMS OFFICE

- Both PAEER and PACEER showed large and growing need for skilled workers in energy
- Between 2017 and 2019, nearly 8,000 jobs were created in the clean energy industry in Pennsylvania, a nearly 9% growth rate.
- 97,000 clean energy jobs
- 71,000 in energy efficiency

[bw] RESEARCH  
PARTNERSHIP

# 2020 USEER Supplemental Report



## Wages, Benefits, and Change

A Supplemental Report to the Annual  
U.S. Energy and Employment Report

[USEENERGYJOBS.ORG](http://USEENERGYJOBS.ORG)

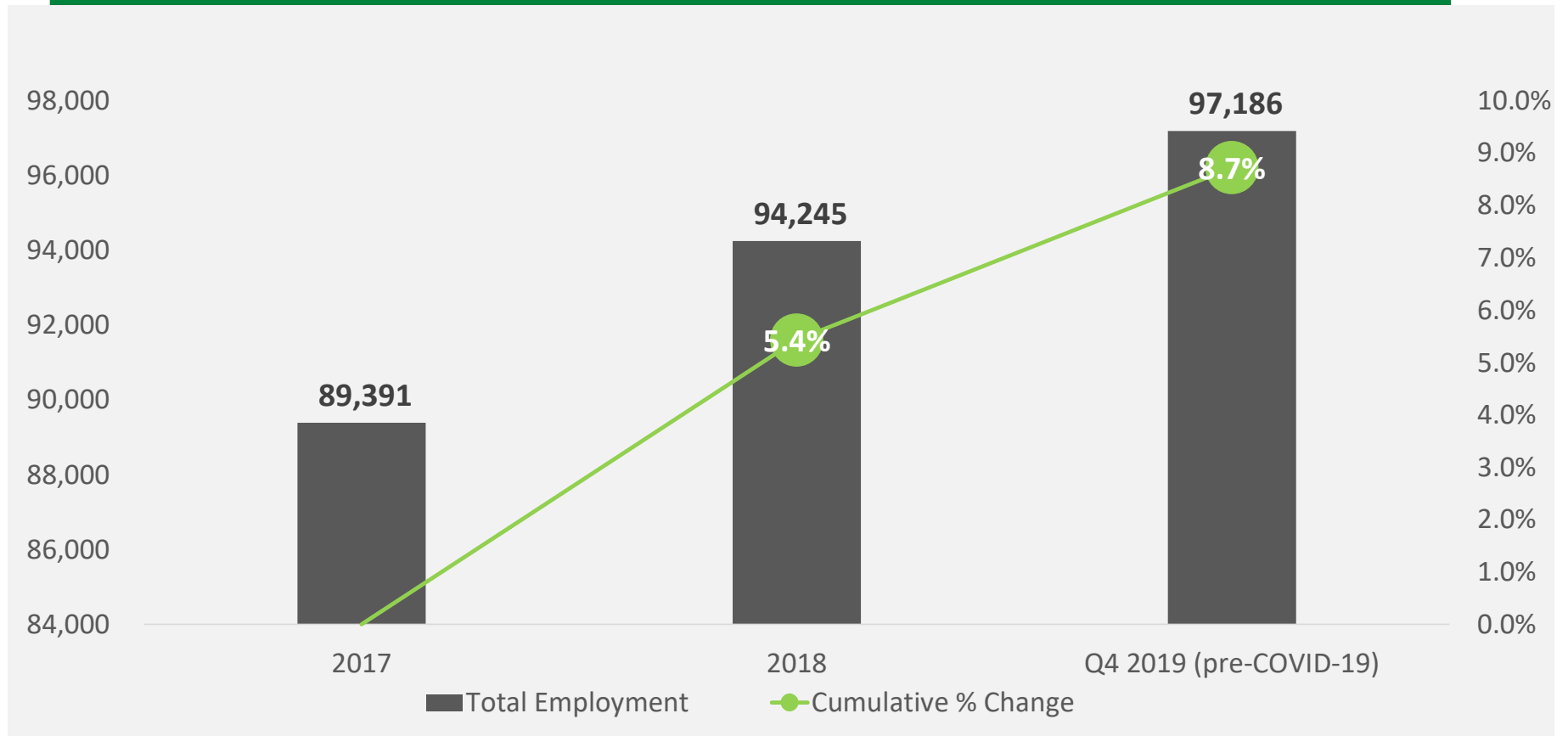
**NASEO**  
National Association of  
State Energy Officials

**ENERGY FUTURES**  
INITIATIVE

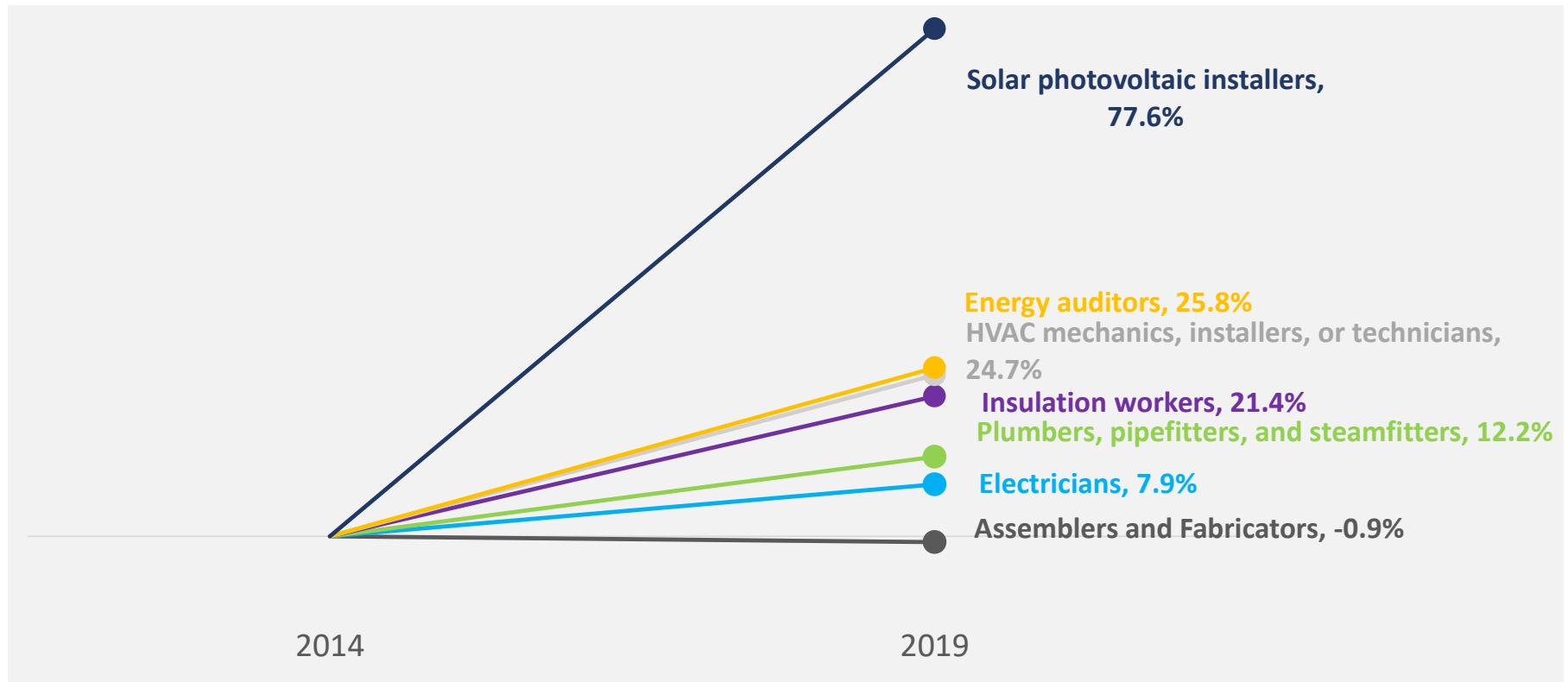
**[bw]**  
RESEARCH  
PARTNERSHIP

- National report shows trends in energy production and job numbers and quality
- **PA SPOTLIGHT:** Creating Jobs & Improving Local Economies through Reclamation Programs
  - Abandoned mines and gas wells often are associated with lost energy jobs and the resulting impact on nearby communities.
  - Reclamation programs are one example that can offer opportunities for new jobs associated with state programs as well as other benefits such as increased property values and, potentially, tourism.

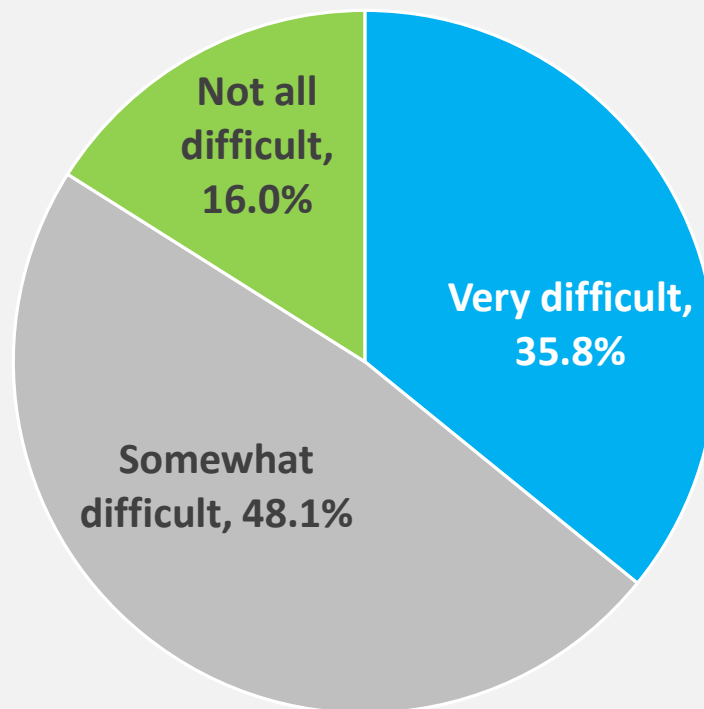
# Clean Energy Employment, 2017 – October 2019



# PA Clean Energy Employment, 2014 – 2019

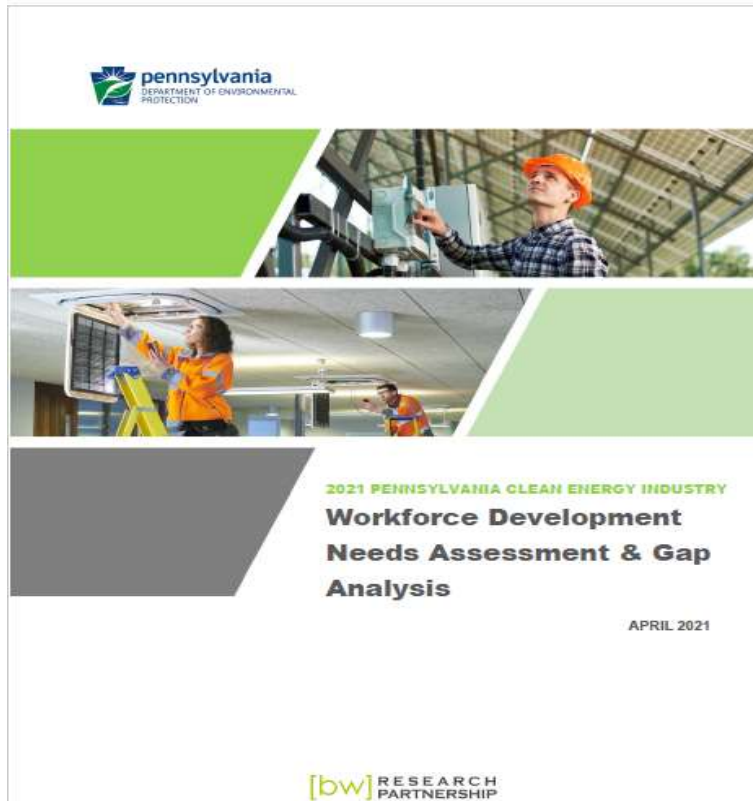


## OVERALL HIRING DIFFICULTY (PRE-COVID-19)



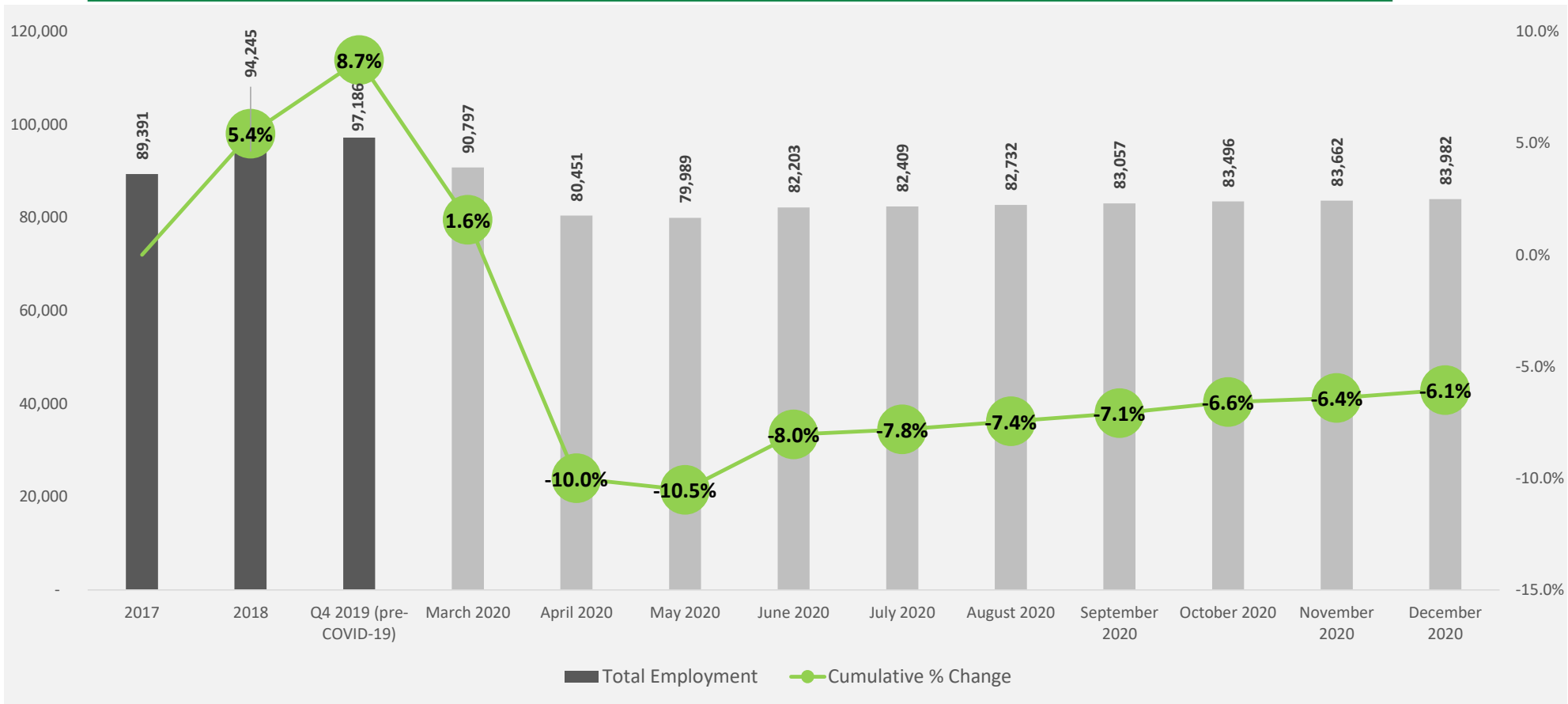


# Clean Energy Employment Gap Analysis

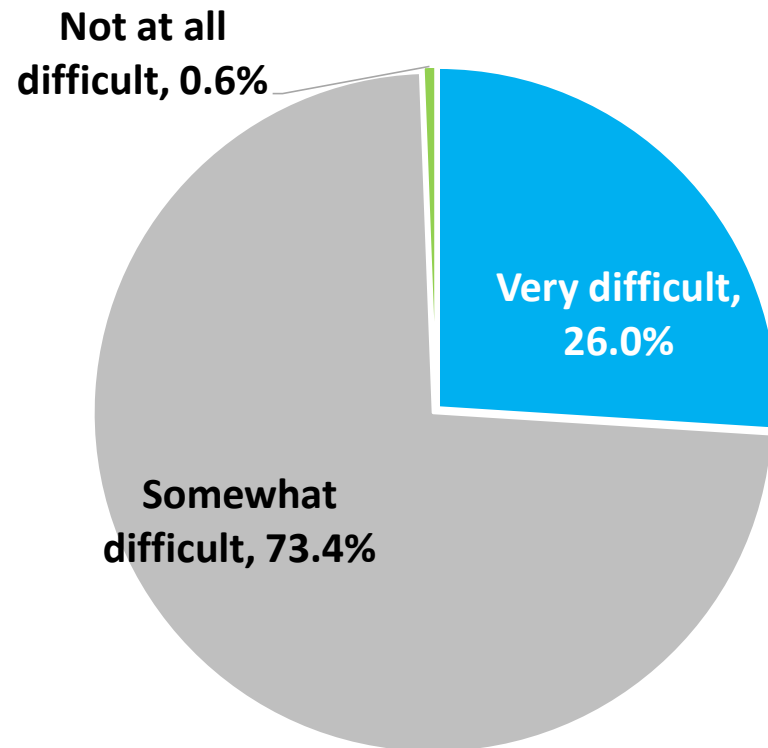


- Released May 12, 2021
- Purpose: To identify the educational and training needs of Pennsylvanians to fully benefit from the expansion of a clean energy economy.
- High-growth occupations prior to the pandemic will likely remain in demand in the coming years
- The clean energy industry has the potential to contribute to Pennsylvania's economic recovery.

# Clean Energy Employment, 2017 – December 2020



## OVERALL HIRING DIFFICULTY (POST-COVID-19)



# Gap Analysis Methods

- What partnerships and programs can most effectively train and prepare the Pennsylvania workforce to meet the needs of clean energy businesses in the state?
- Data is from the 2020 United States Energy and Employment Report, the 2020 Pennsylvania Clean Energy Employment Report, two surveys administered in fall 2020 to both clean energy employers and workers in Pennsylvania, and executive interviews with clean energy businesses in the state.
- Data was gathered on:
  - Employer hiring needs and difficulties.
  - Current clean energy training and education offered in Pennsylvania.
  - Detailed data on seven clean energy occupations found in the state's key technology sectors.

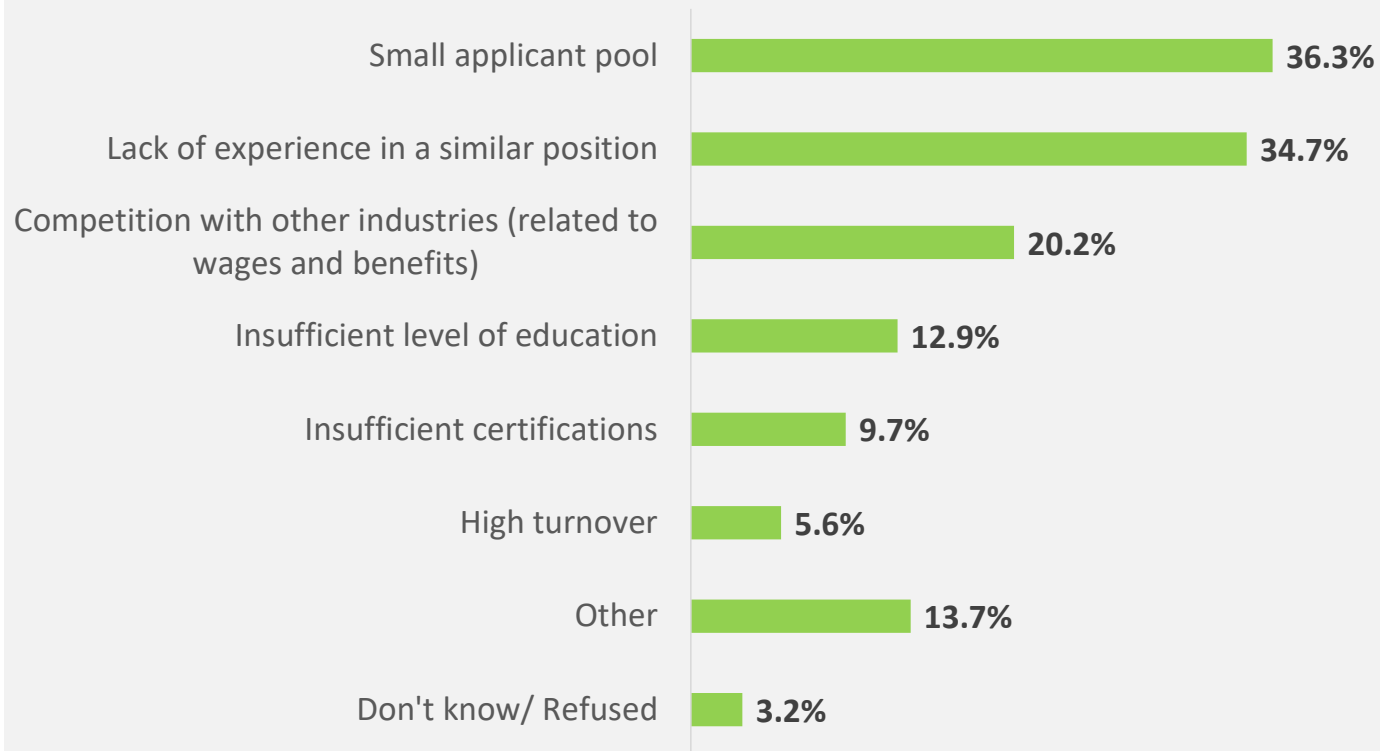
## PA CLEAN ENERGY TRAINING PROGRAMS BY SECTOR

Sector	Number of In-Person Programs	Number of Web Trainings
Alternative Transportation	1	2
Clean Fuels	0	2
Energy Efficiency	355	512
Grid Modernization & Energy Storage	4	3
Renewable Energy Generation	30	108
<b>Total Programs</b>	<b>390</b>	<b>627</b>

## Gap Analysis Key Findings

- Despite furloughs and layoffs due to COVID-19, the majority of surveyed employers indicated that they expected to have either the same or more workers by the end of the year.
- In general, prior to COVID-19, employers reported hiring difficulties related to a small applicant pool, lack of experience, and competition with other industries.
- Employers especially noted that they faced industry competition for skilled electricians.
- Lack of experienced or qualified applicants with industry-specific knowledge is especially difficult in the aftermath of COVID-19.

## REASONS FOR HIRING DIFFICULTY (PRE-COVID-19)

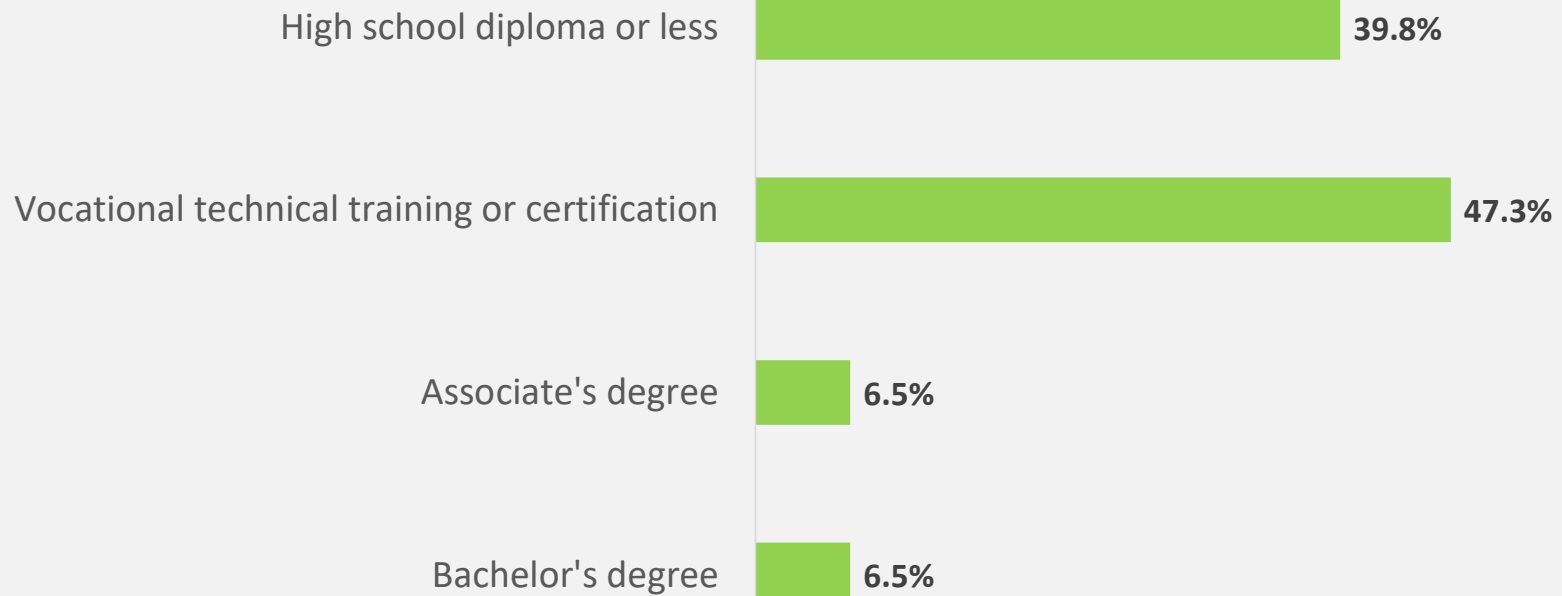


## Gap Analysis Key Findings

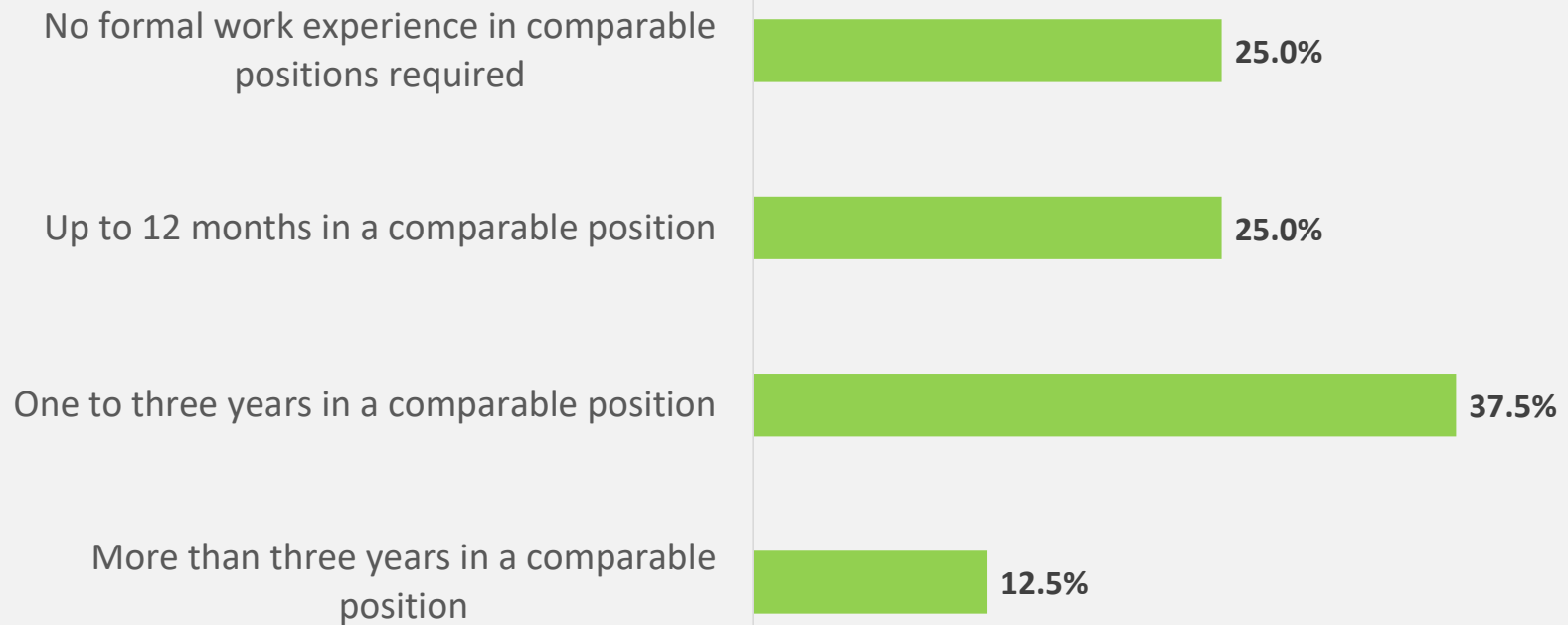
- Relevant work experience is required by significantly more employers over an academic degree.
- Surveyed clean energy workers also cited the importance of relevant work experience in landing their job.
- According to clean energy workers, programs that provide on-the-job training were pivotal to landing a clean energy job.
- Half of employers require or prefer specific certifications.



## OVERALL REQUIRED LEVEL OF EDUCATIONAL ATTAINMENT



## OVERALL REQUIRED LEVEL OF WORK EXPERIENCE



# OJT PROGRAM PARTICIPATION RESULTS

Participating in an apprenticeship program improved my ability to land my most recent or current job



Participating in an internship program improved my ability to land my most recent or current job

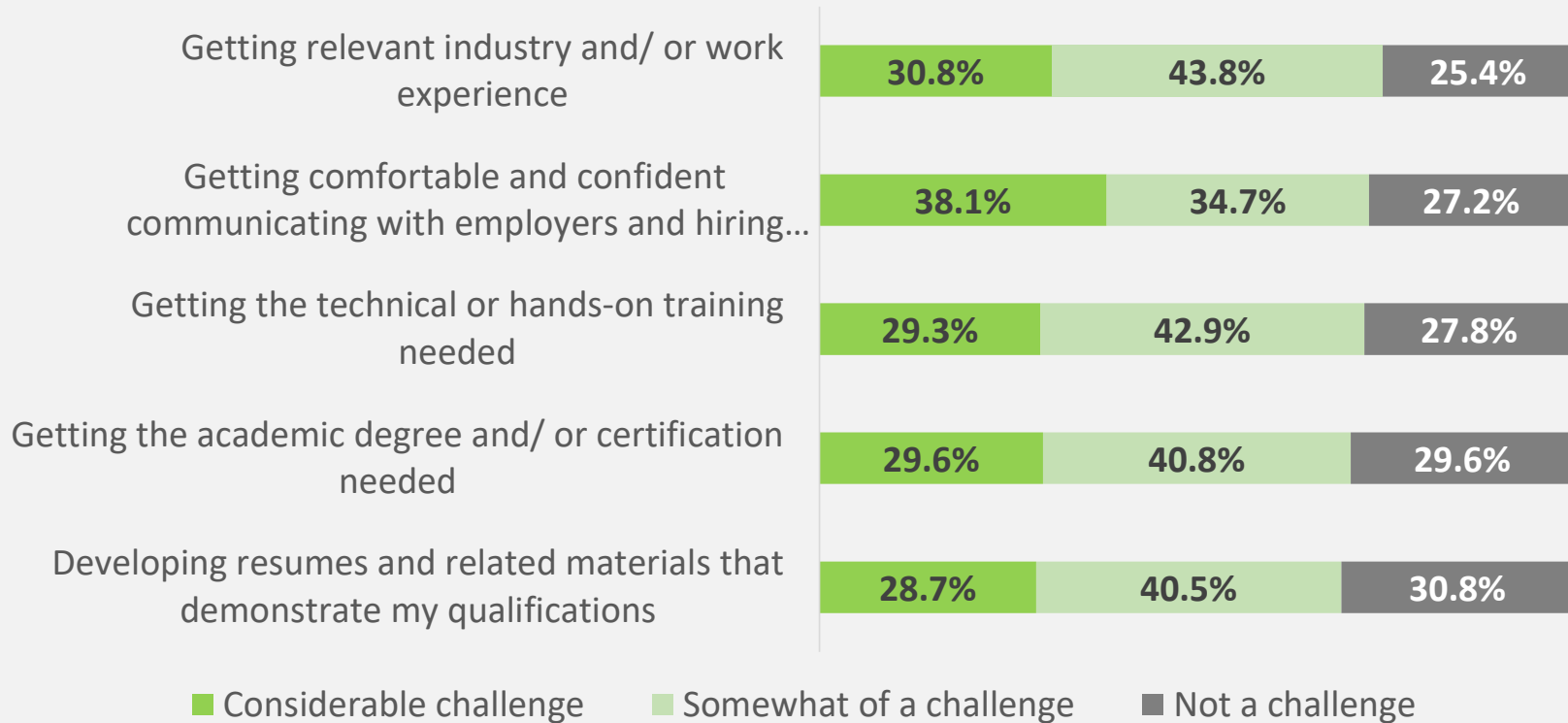


Participating in a mentorship program improved my ability to land my most recent or current job



■ Strongly agree ■ Somewhat agree ■ Neither agree nor disagree ■ Somewhat disagree ■ Strongly disagree

## OBSTACLES TO FINDING EMPLOYMENT



# OCCUPATIONAL CAREER PROFILES

## HVAC Mechanics, Installers, or Technicians

ENTRY-LEVEL WAGE	MID-LEVEL WAGE	HIGH-LEVEL WAGE
\$18.90	\$28.20	\$39.42

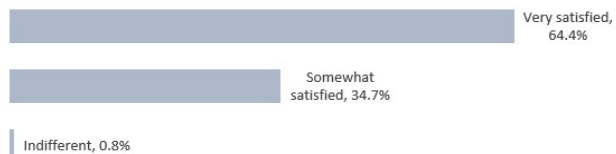
 <b>Entry-Level Education</b>	Postsecondary nondegree award
 <b>On-the-Job Training</b>	Long-term on-the-job training

### COMMON CERTIFICATIONS

EPA 608 Certification  
Local Licensing  
NATE Certification  
HVAC Excellence Certification

Healthcare Benefits	Retirement Benefits
<b>29% Full Benefits</b> 56% Partial Benefits 16% No Benefits	<b>71% With Benefits</b> 29% No Benefits

### Career Satisfaction



## Solar Photovoltaic Installers

ENTRY-LEVEL WAGE	MID-LEVEL WAGE	HIGH-LEVEL WAGE
\$13.86	\$18.51	\$23.35

 <b>Entry-Level Education</b>	High school diploma or equivalent
 <b>On-the-Job Training</b>	Moderate-term on-the-job training

### COMMON CERTIFICATIONS

NABCEP  
OSHA 10

Healthcare Benefits	Retirement Benefits
<b>24% Full Benefits</b> 60% Partial Benefits 16% No Benefits	<b>69% With Benefits</b> 31% No Benefits

### Career Satisfaction



## Gap Analysis Recommendations

- The report identifies a need for educators, training programs, unions, companies, and government programs to work together to fulfill growing employment demands, and recommends the following:
  - Facilitate on-the-job training opportunities and hands-on industry experience for workers.
  - Support curriculum sharing and procurement.
  - Create a pipeline for displaced workers to transition into the clean energy workforce.
  - Promote manufacturer-specific certifications for clean energy technologies.

# 2021 PA Energy Employment Report



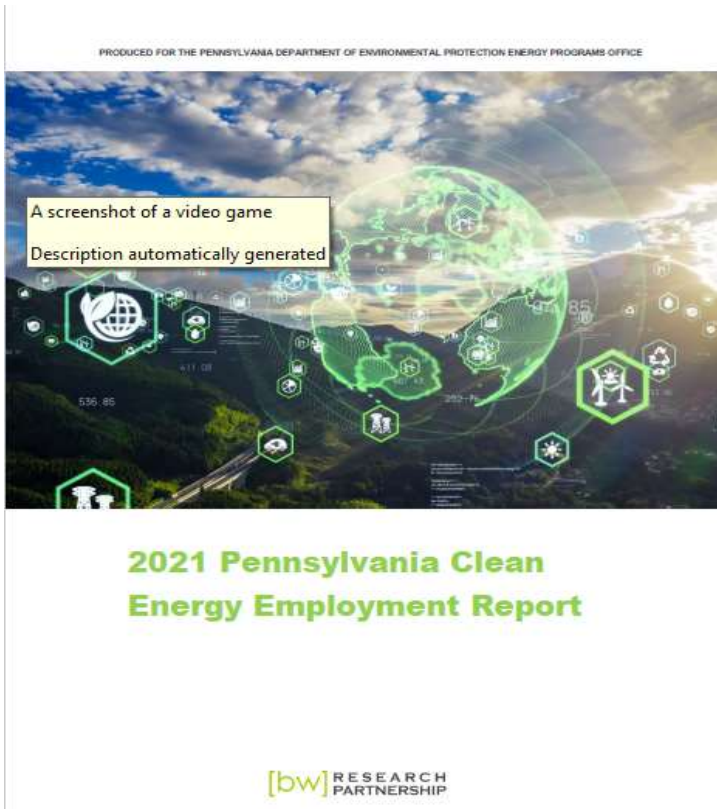
## 2021 Pennsylvania Energy Employment Report

PRODUCED FOR THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL  
PROTECTION ENERGY PROGRAMS OFFICE

[bw] RESEARCH  
PARTNERSHIP

- 2021 report released in September
- Reflects impacts of COVID-19
- PAEER: ~250,000 energy workers across PA at end of 2020 – declined 7% since end of 2019
- Modest jobs gains in Q1 2021
- 4.5% of all PA jobs are energy jobs

# 2021 PA Clean Energy Employment Report



- 2021 report released in September
- PACEER: ~90,000 jobs in clean energy at end of 2020 in Pennsylvania – declined 7% since end of 2019
- 1% increase in Q1 2021



## Next Steps

- EPO is in discussions with L&I, DCED and other partners regarding how to work together to implement some of these recommendations, including apprenticeships.
- EPO is getting the word out about these reports and the findings – please share.
- EPO Workforce Web page: [Workforce Development \(pa.gov\)](#)  
(on DEP webpage, choose [Businesses](#) > [Energy](#) > [Energy Programs Office](#) > [E4 Initiative](#) > [Workforce Development](#))



Thank you!

Kerry Campbell  
[kcampbell@pa.gov](mailto:kcampbell@pa.gov)

EPO Workforce Web page: [Workforce Development \(pa.gov\)](http://www.dep.pa.gov/workforce)

DEP Website: [www.dep.pa.gov](http://www.dep.pa.gov)

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# DEP Updates

## Local Climate Action Program (LCAP)

### Residential Energy


Energy consumed in residential buildings accounts for 46% of Haverford Township's total GHG emissions, the largest contributor of emissions across all sectors. The following objectives and actions seek to aggressively engage the community and provide resources to enlist large-scale residential participation in this emissions reduction effort as it is imperative to achieving the reduction targets. The following actions acknowledges the limitations of local government and the need for further legislative support from state and federal government to make achieving 100% clean renewable electricity community-wide easier. It also recognizes that achieving these goals will take a united community-wide effort. Simultaneously, the Township has immense opportunity to move rigorously towards those targets by improving the efficiency of residential building stock, creating greater internal capacity for regular community engagement focused on increasing residential participation in renewable energy and encouraging sustainable behaviors to ensure low-carbon future development.

#### Objective 1: Improve Energy Efficiency in Residential Building stock


<b>Action 1</b>	<b>Implement "Green Point" system</b>
<b>Action Item(s)</b>	<ol style="list-style-type: none"> <li>1. Applicants for building permits for new construction, additions, or remodeling may apply for "Green Points" to reduce the cost of permit fees in accordance with the established "Green Building Incentive Program"             <ol style="list-style-type: none"> <li>a. <a href="#">Green Point System model example</a></li> </ol> </li> </ol>
<b>Reduction Potential</b>	
<b>Co-Benefit:</b>	<p>Ensure energy efficiency and water efficiency for utility savings            Improved indoor environmental quality and waste reduction            Operations and maintenance optimization</p>
<b>Schedule</b>	Short-term; continuous
<b>Estimated Cost</b>	\$62,500 per year <i>if 10% discount on permits</i>
<b>Action 2</b>	<b>Increase community residential energy consumption and emissions awareness; outreach and education</b>
<b>Action Item(s)</b>	<ol style="list-style-type: none"> <li>1. Create schedule for rotating PSA's, infographics and signage for Township cable channel, podcasts, and signage in high traffic areas on:             <ol style="list-style-type: none"> <li>a. Basic behavioral changes using "Energy Vampire" as a design theme (i.e., turn water off while brushing teeth, unplugging countertop appliances when not in use, washing laundry in cold water, etc.)</li> <li>b. Opting for renewable electricity versus fossil fuels</li> <li>c. "Warm Weather Wednesdays" by encouraging no-cooking on Wednesdays during the</li> </ol> </li> </ol>

TOWNSHIP OF  
 —MIDDLETOWN—  
 BUCKS COUNTY

## CLIMATE ACTION PLAN




Local Actions and Policies to Reduce  
 Middletown Township's Greenhouse Gas Emissions



**SUSTAINABLE PENNSYLVANIA**  
2019-2021  
**GOLD COMMUNITY**

**ADOPTED SEPTEMBER 20, 2021**

Produced by the Middletown Township  
 Environmental Advisory Council &  
 the Office of the Township Manager



# DEP Updates

## Support for CAP Implementation:

- Shared Energy Manager program created to assist 5 LCAP participants in implementing their CAP actions
  - Projects include: energy audits, fleet analysis, renewable energy feasibility studies, P.E. verification for Energy Star, energy management plans, energy benchmarking
- Assignment of Capstone students
- Discounted ICLEI membership

# DEP Updates

## Pennsylvania Climate Leadership Academy

Live Online CC-P® Prep Series (Fall/Winter 2021) version updated 10/7/2021



### Program Details

The Pennsylvania Climate Leadership Academy, in partnership with the Association of Climate Change Officers (ACCO), is offering a series of live online training programs to help participants build competencies to effectively integrate climate change into their decision-making and professional activities. This series provides participants with training in a peer cohort environment that will prepare them for the [Certified Climate Change Professional™ \(CC-P®\) credential](#) and [CC-P® Candidate](#) exams by leveraging a combination of video homework, live training and interactive exercises/discussions.

Participants will learn from experts and practitioners about the implications of climate change, and related opportunities. In addition to climate change and sustainability practitioners, the curriculum has been designed to benefit professionals worldwide across a broad range of occupations in the public and private sectors, higher education and the NGO community.



Key Skills and Competencies Addressed	Live Online Program Features
<ul style="list-style-type: none"> <li>Recognizing climate impacts on an organization's operations, mission and bottom line</li> <li>Applying risk management to climate change</li> <li>Managing short-term and long-term uncertainty</li> <li>Tailoring communication to different audiences</li> <li>Leading and supporting organizational change</li> <li>Understanding resource consumption and systems implications</li> <li>Assessing the policy landscape and developing an action plan</li> <li>Collaborating with peers to tackle real-world challenges</li> </ul>	<ul style="list-style-type: none"> <li>A blend of self-study resources and live online instruction</li> <li>Case studies from practitioners and insights from fellow CC-P® professionals</li> <li>A program structure designed to guide you through the certification process</li> <li>The opportunity to expand your network by connecting with fellow attendees</li> <li>Assignments that help reinforce program sessions</li> <li>Sample test questions</li> <li>Real-time Q&amp;As with instructors and facilitated discussions among participants</li> </ul>

### Fall 2021 Program Schedule (all classes begin at 1:00pm unless specified below) dates updated October 7, 2021

Prep Content for CC-P® Exam #1: Climate Science & Vulnerability Assessment	Prep Content for CC-P® Exam #2: GHG, Energy & Water Management	Prep Content for CC-P® Exam #3: Governance, Law & Policy	Prep Content for CC-P® Exam #4: Risk Management & Economic Impact Assessment
<b>October 18, 2021</b> <i>4 hours (CC-P® &amp; Candidate)</i> <ul style="list-style-type: none"> <li>Climate-101: Understanding Climate Science &amp; the Latest Projections</li> </ul>	<b>November 1, 2021</b> <i>3 hours (CC-P® &amp; Candidate)</i> <ul style="list-style-type: none"> <li>GHG-101: Basics of GHG Accounting, Reporting &amp; Disclosing GHG Emissions</li> <li>GHG-102: Fundamentals of the Energy-Water-Food Nexus</li> </ul>	<b>November 15, 2021</b> <i>3.5 hours (CC-P® Only)</i> <ul style="list-style-type: none"> <li>Governance-101: Engaging Stakeholders &amp; Establishing Early Strategies for Leading Organizational Change</li> <li>Case Studies, Exercises &amp; Group Discussions</li> </ul>	<b>November 29, 2021</b> <i>4 hours (CC-P® Only)</i> <ul style="list-style-type: none"> <li>Economics-101: The Economics of Climate Change</li> </ul>
<b>October 20, 2021</b> <i>4 hours (CC-P® &amp; Candidate)</i> <ul style="list-style-type: none"> <li>Climate-103: The Basics of Sea Level Rise and Impacts on Coastal Assets &amp; Infrastructure</li> <li>Climate-201: Identifying Climate Hazards &amp; Conducting Vulnerability Assessments</li> </ul>	<b>November 3, 2021</b> <i>3 hours (CC-P® &amp; Candidate)</i> <ul style="list-style-type: none"> <li>GHG-201: Establishing GHG Reduction Goals &amp; GHG Management Structures</li> <li>Case Studies, Exercises &amp; Group Discussions</li> </ul>	<b>November 17, 2021</b> <i>3.5 hours (CC-P® &amp; Candidate)</i> <ul style="list-style-type: none"> <li>Governance-102: The Legal/Policy Landscape of Climate Change &amp; Related Implications</li> </ul>	<b>December 1, 2021</b> <i>4 hours (CC-P® Only)</i> <ul style="list-style-type: none"> <li>Enterprise-201: Analyzing &amp; Managing Climate Risk</li> </ul>
<b>October 28, 2021*</b> <i>(1pm - 90 mins)</i> <ul style="list-style-type: none"> <li>PA State Agency Tools &amp; Resources</li> </ul>	<b>November 12, 2021*</b> <i>(10am - 90 mins)</i> <ul style="list-style-type: none"> <li>PA GHG &amp; Clean Energy Programs</li> </ul>	<b>November 23, 2021*</b> <i>(10am - 90 mins)</i> <ul style="list-style-type: none"> <li>PA Climate Policy</li> </ul>	<b>December 13, 2021</b> <i>1st hour (CC-P® &amp; Candidate)</i> <i>2nd hour (CC-P® Only)</i> <ul style="list-style-type: none"> <li>Developing your action plan</li> <li>Documentation requirements &amp; submission process</li> </ul>

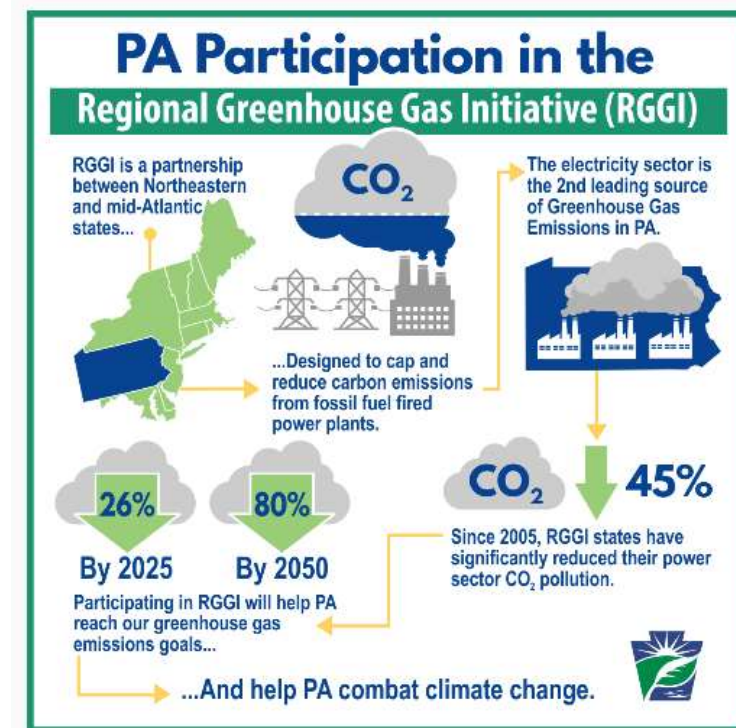


## [Pennsylvania Climate Leadership Academy](#)



# DEP Updates

## Status of RGGI Rulemaking



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## Next Meeting

### 2021 Regular Meeting Dates:

- ~~Tuesday February 23~~
- ~~Tuesday April 27~~
- ~~Tuesday June 22~~
- ~~Tuesday August 24~~
- ~~Tuesday October 26~~
- **Tuesday December 14**