



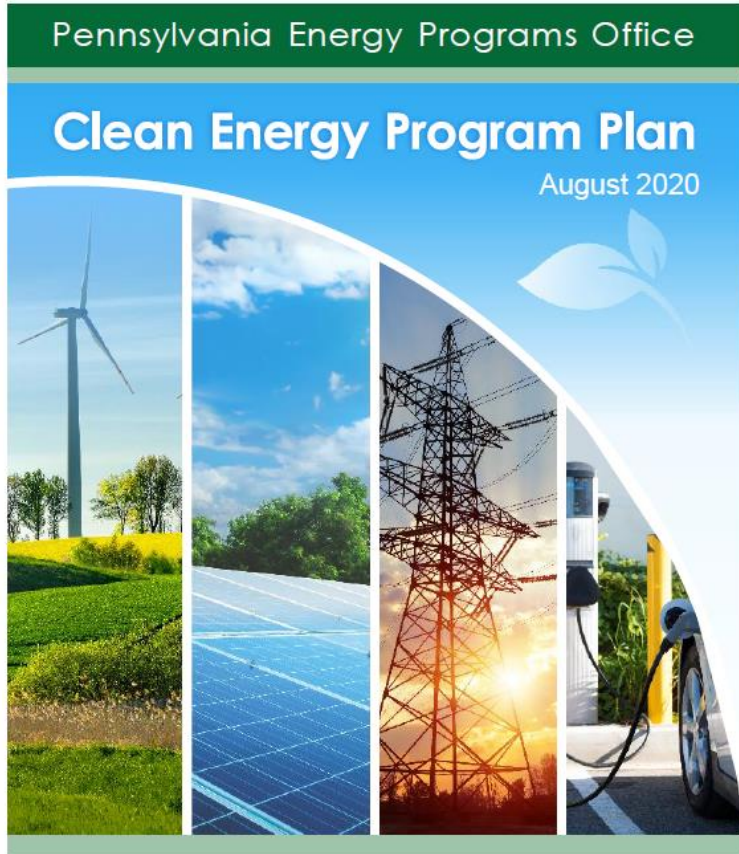
2021 PENNSYLVANIA CLEAN ENERGY INDUSTRY Workforce Development Needs Assessment & Gap Analysis

Citizens Advisory Council
June 15, 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 E2, P2, 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 will be released this summer
- 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

[bw] RESEARCH PARTNERSHIP

- 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

2020 USEER Supplemental Report



Wages, Benefits, and Change

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

USEENERGYJOBS.ORG

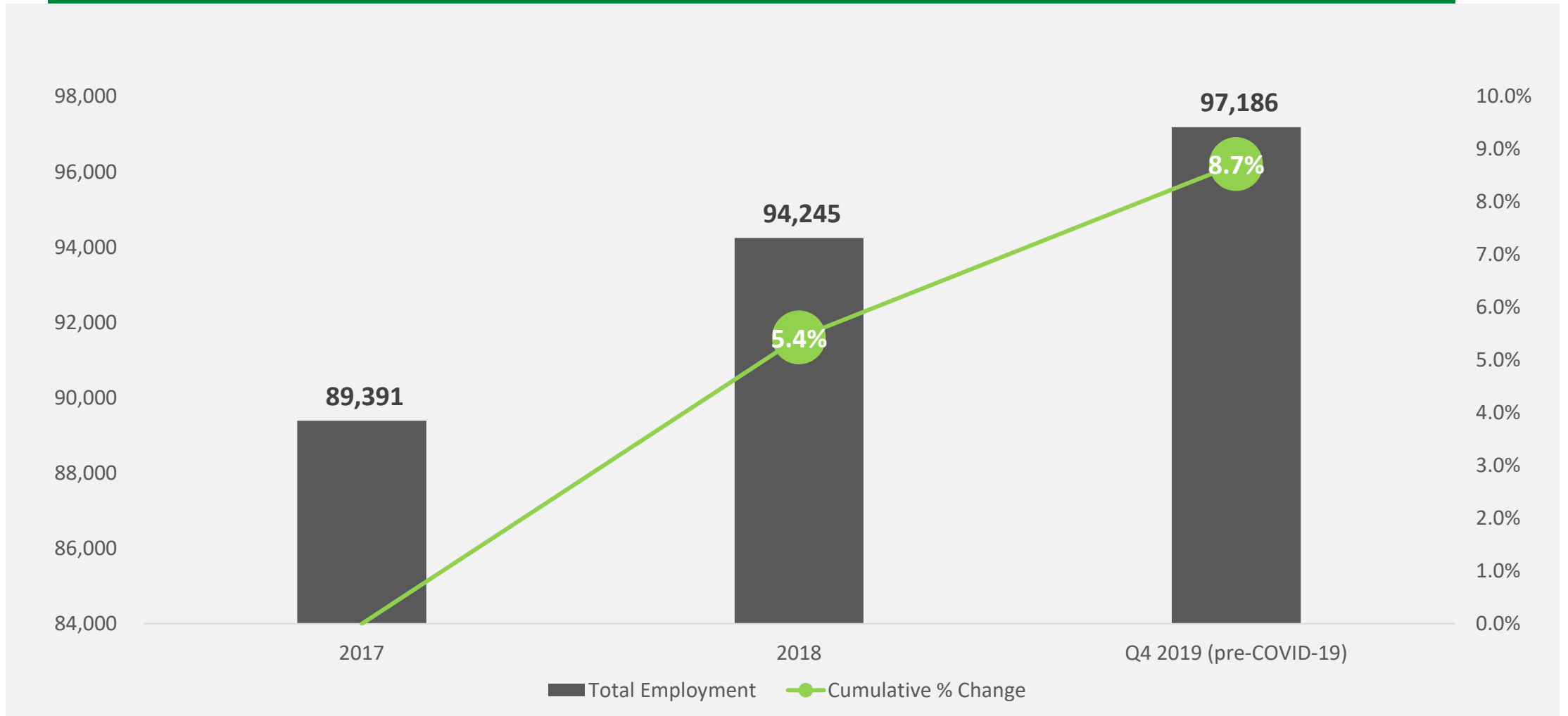
NASEO
National Association of
State Energy Officials


ENERGY FUTURES
INITIATIVE

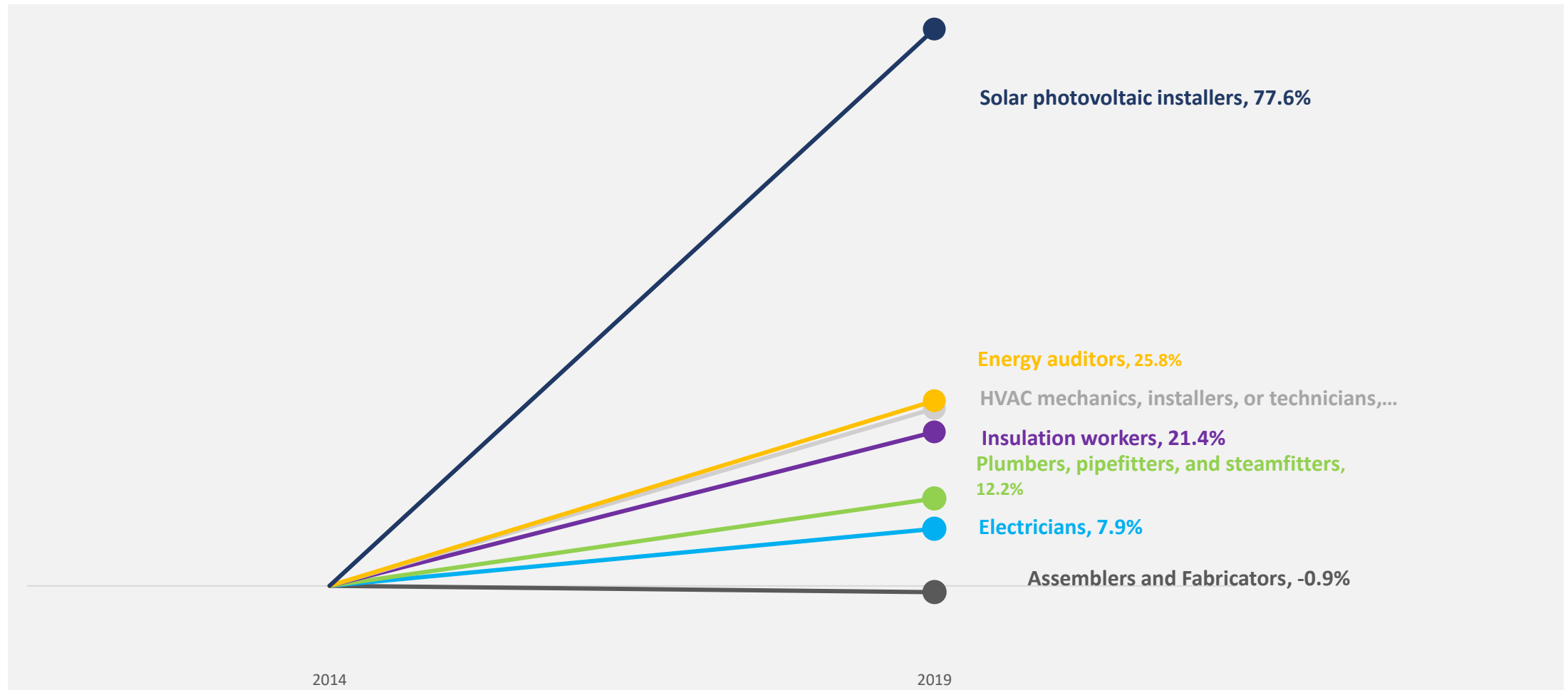
[bw]
RESEARCH
PARTNERSHIP

- National report shows trends in energy production and job numbers and quality
- Energy jobs generally pay well compared to US median
- 8.27 million workers in energy represent ~5.4% of all US jobs
- Over 915,000 new energy jobs from 2015-19
- Since 2000, US energy production and associated employment has trended away from coal and towards natural gas, petroleum, and renewables.

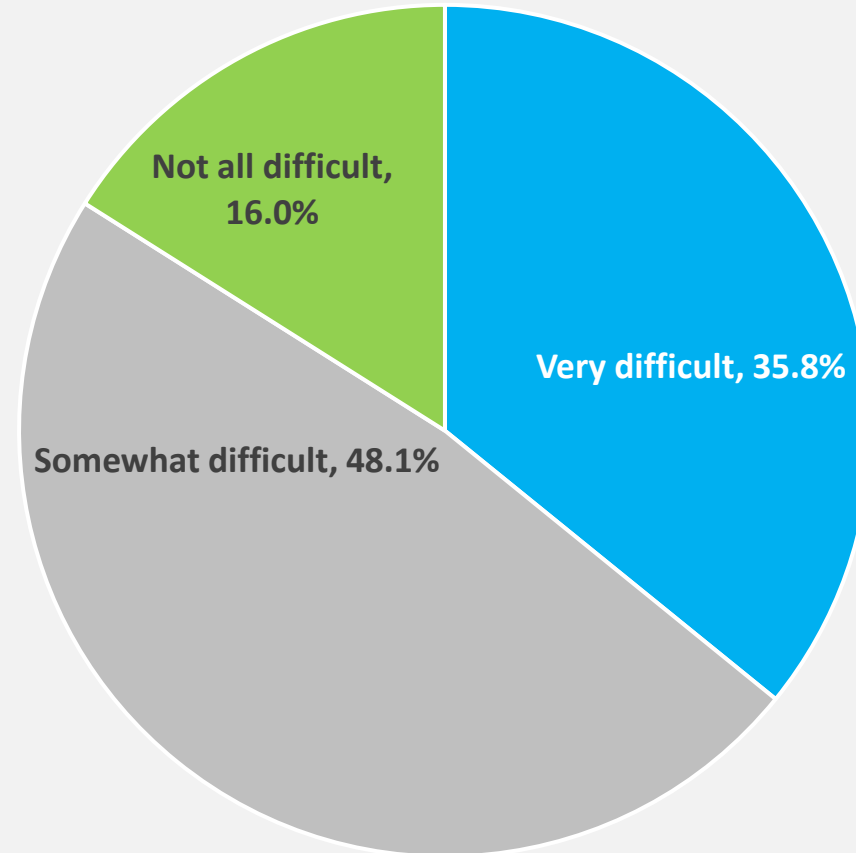
Clean Energy Employment, 2017 – October 2019



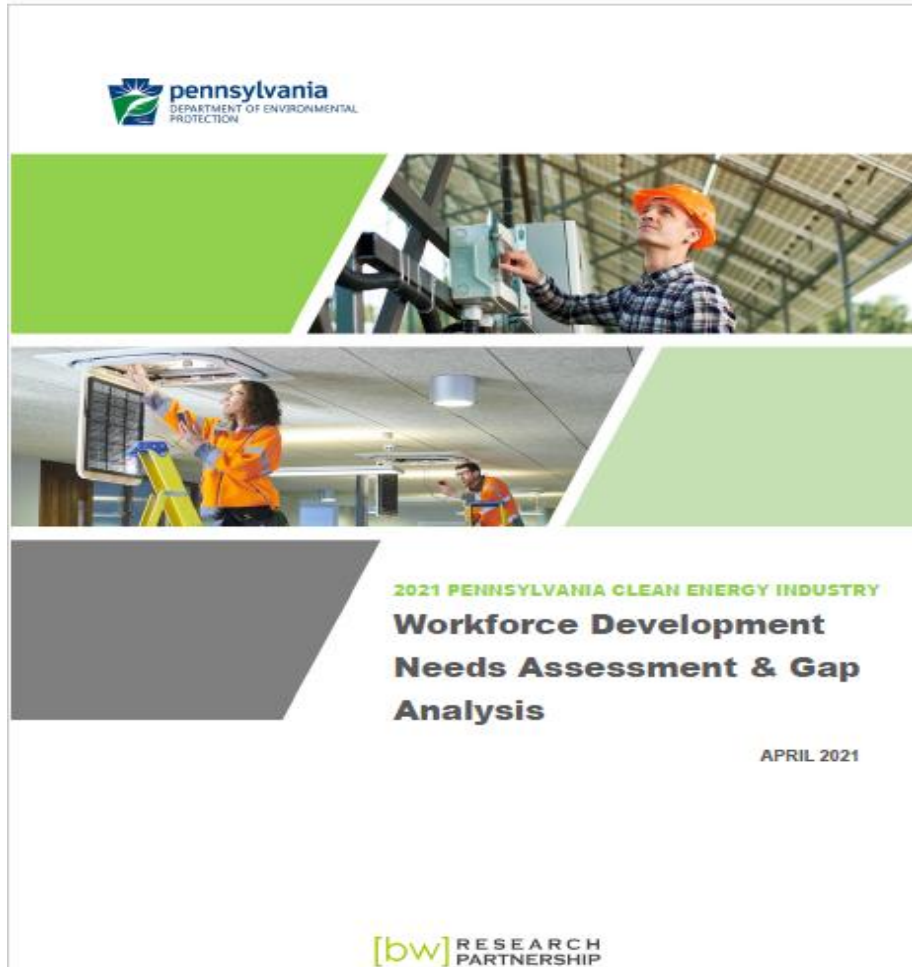
PA Clean Energy Employment, 2014 – 2019



OVERALL HIRING DIFFICULTY (PRE-COVID-19)

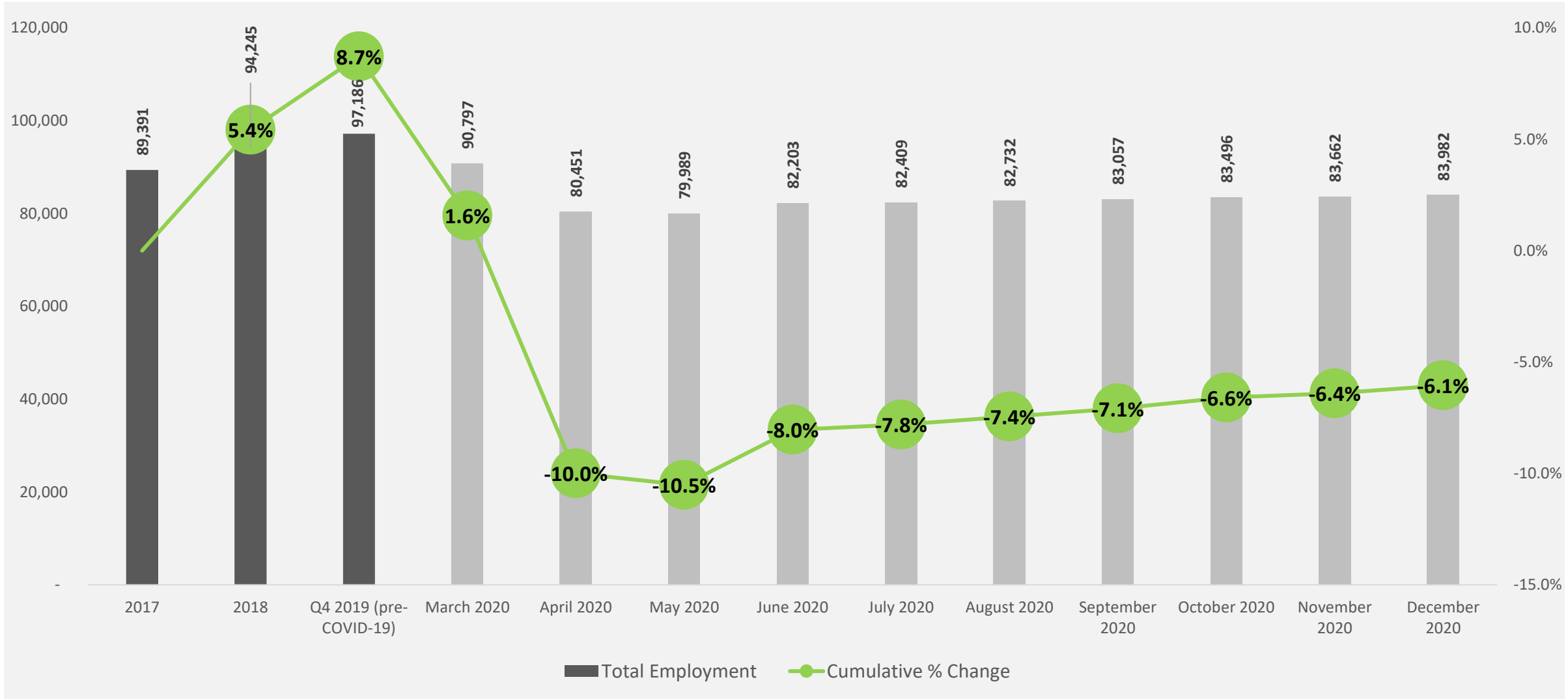


Clean Energy Employment Gap Analysis



- 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



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.

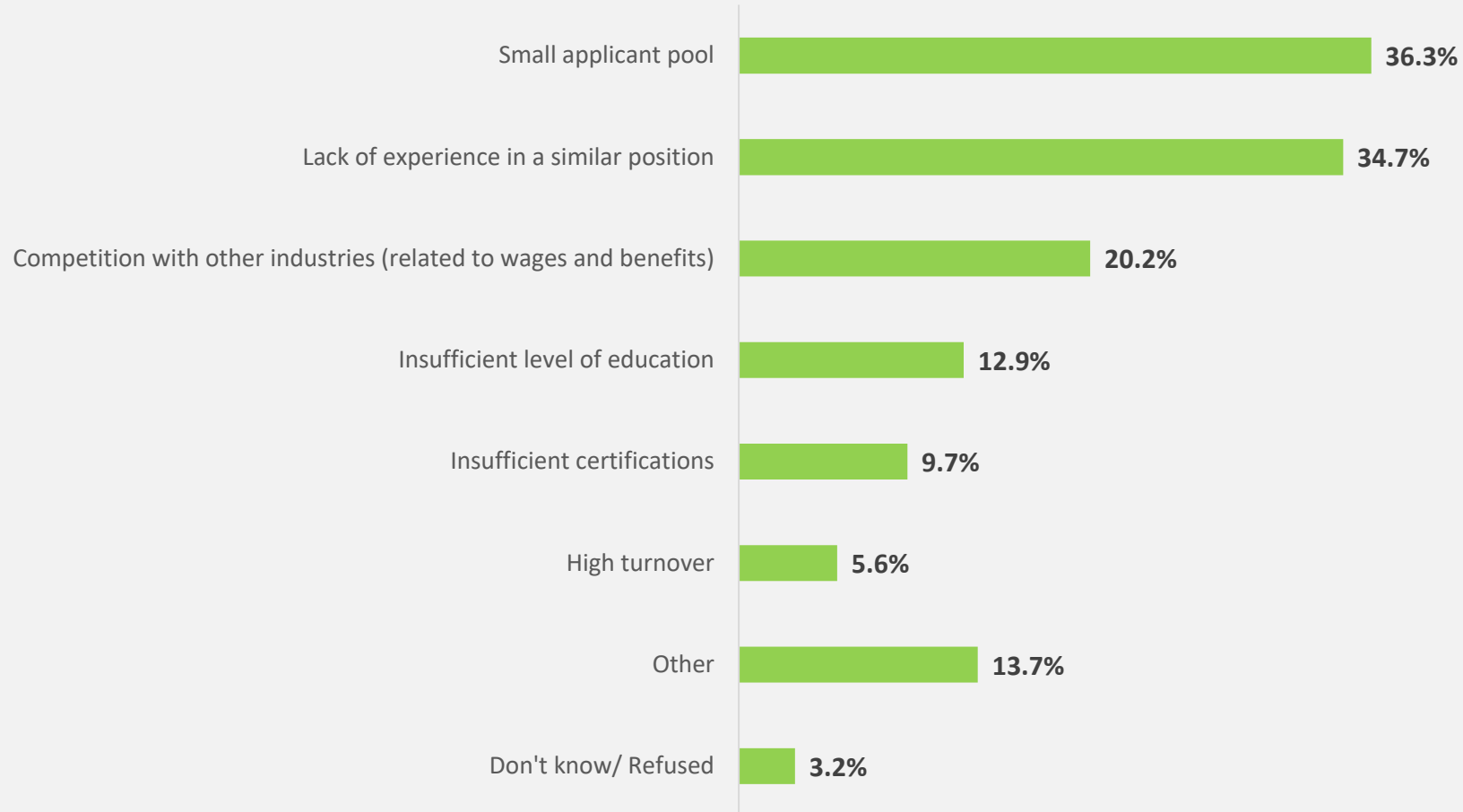
PA CLEAN ENERGY TRAINING PROGRAMS BY SECTOR

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
Total Programs	390	627

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.

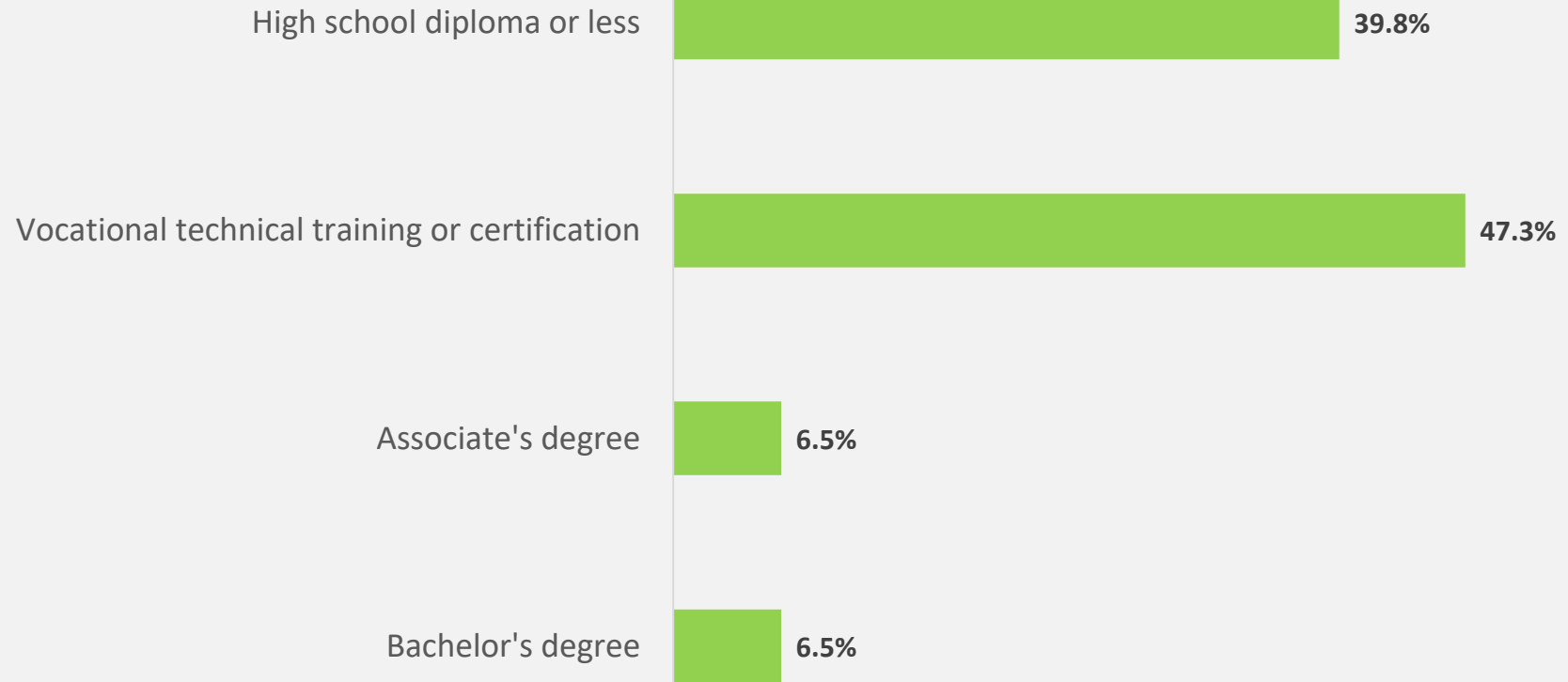
REASONS FOR HIRING DIFFICULTY (PRE-COVID-19)



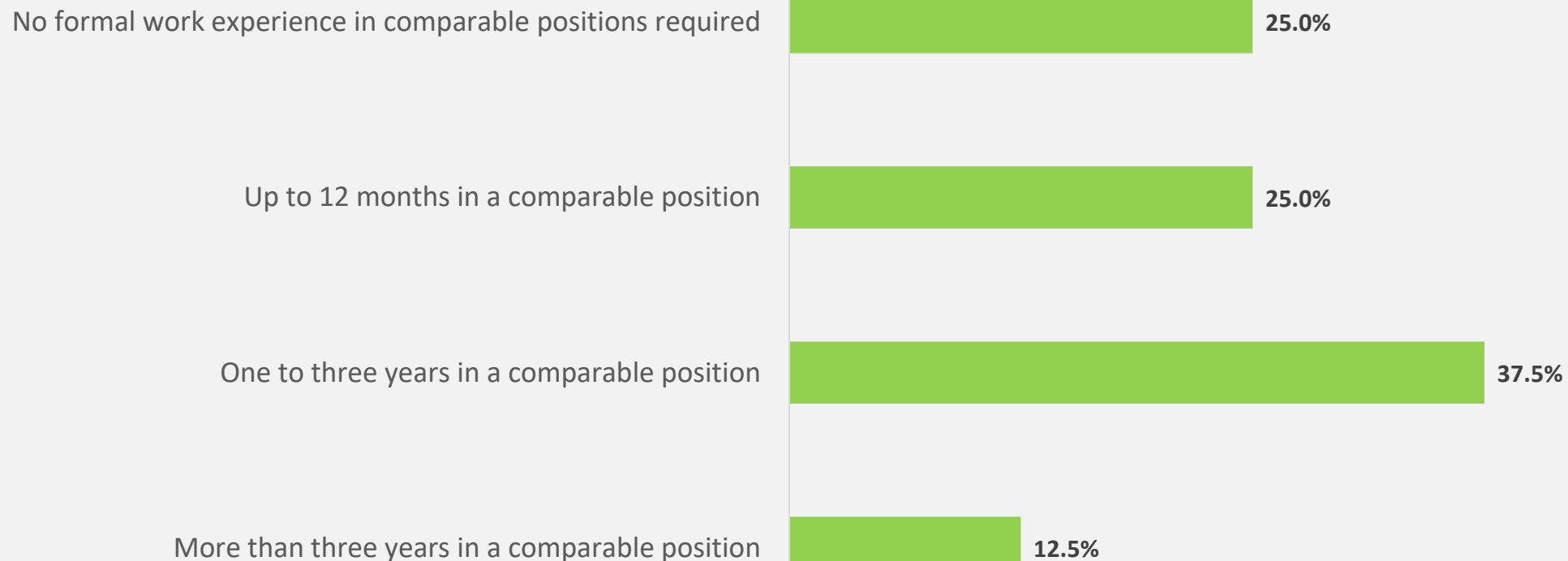
Gap Analysis Key Findings

- 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

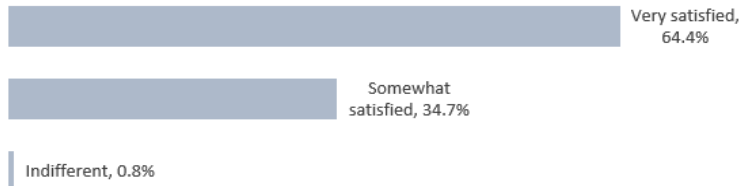
 Entry-Level Education	Postsecondary nondegree award
 On-the-Job Training	Long-term on-the-job training

COMMON CERTIFICATIONS

EPA 608 Certification
Local Licensing
NATE Certification
HVAC Excellence Certification



Healthcare Benefits	Retirement Benefits
29% Full Benefits 56% Partial Benefits 16% No Benefits	71% With Benefits 29% No Benefits

Career Satisfaction



Solar Photovoltaic Installers

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

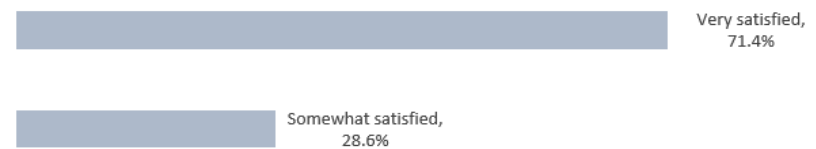
 Entry-Level Education	High school diploma or equivalent
 On-the-Job Training	Moderate-term on-the-job training

COMMON CERTIFICATIONS

NABCEP
OSHA 10

Healthcare Benefits	Retirement Benefits
24% Full Benefits 60% Partial Benefits 16% No Benefits	69% With Benefits 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.

Next Steps

- EPO is in discussions with L&I and DCED regarding how to work together to implement some of these recommendations.
- EPO is getting the word out about these reports and the findings – thanks for giving us the opportunity to talk to you!



Thank you!

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

DEP Website: www.dep.pa.gov