

GENERATING GROWTH ACROSS THE COMMONWEALTH

2021 proved yet again that clean energy is a key driver for Pennsylvania's overall economic success and long-term growth. After showing resilience in the face of the COVID-19 pandemic, Pennsylvania's clean energy sector was one of the fastest growing in the nation, propelling the Commonwealth into the top 10 of states with the most clean energy jobs.

KEY FINDINGS

TOP 10 // FOR THE FIRST TIME, PENNSYLVANIA MOVED INTO THE TOP TEN STATES WITH THE MOST CLEAN ENERGY JOBS IN THE COUNTRY

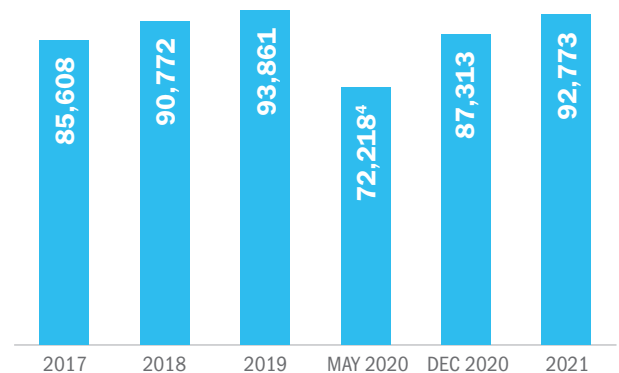
THE CLEAN ENERGY ECONOMY IS THE ECONOMY // MORE THAN HALF OF PENNSYLVANIA CLEAN ENERGY JOBS ARE IN TRADITIONAL INDUSTRIES LIKE CONSTRUCTION, MANUFACTURING, AND REPAIR SERVICES

WORKERS IN DEMAND // OVER 87% OF EMPLOYERS REPORTED IT BEING VERY OR SOMEWHAT DIFFICULT TO HIRE

JOBS CAN BE AS DIVERSE AS PENNSYLVANIA // PEOPLE OF COLOR ARE 20% OF THE POPULATION BUT MAKE UP OVER 26% OF THE CLEAN ENERGY WORKFORCE, WHILE WOMEN MAKE UP OVER 50% OF THE POPULATION BUT ONLY 27% OF THE CLEAN ENERGY WORKFORCE SHOWING THE STATE STILL HAS ROOM TO GROW MORE OPPORTUNITIES³

NEARLY 50 PERCENT // ALMOST HALF OF PENNSYLVANIA'S CLEAN ENERGY JOBS (44,000) ARE OUTSIDE THE PITTSBURGH AND PHILADELPHIA METROS

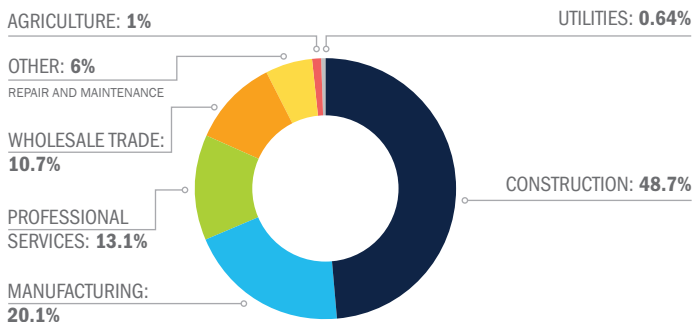
Fig. 1 // PENNSYLVANIA CLEAN ENERGY EMPLOYMENT by year 2017–2021



92,773

Pennsylvania's clean energy jobs have grown by over 30 percent since the height of the COVID-19 economic crisis in 2020

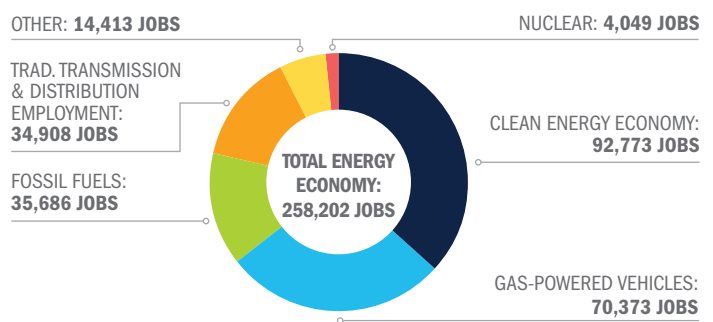
Fig. 2 // PENNSYLVANIA CLEAN ENERGY EMPLOYMENT by value chain 2021



1 IN 6

Construction jobs in Pennsylvania are in clean energy sectors⁵

Fig. 3 // PENNSYLVANIA OVERALL ENERGY ECONOMY EMPLOYMENT by sector, 2021

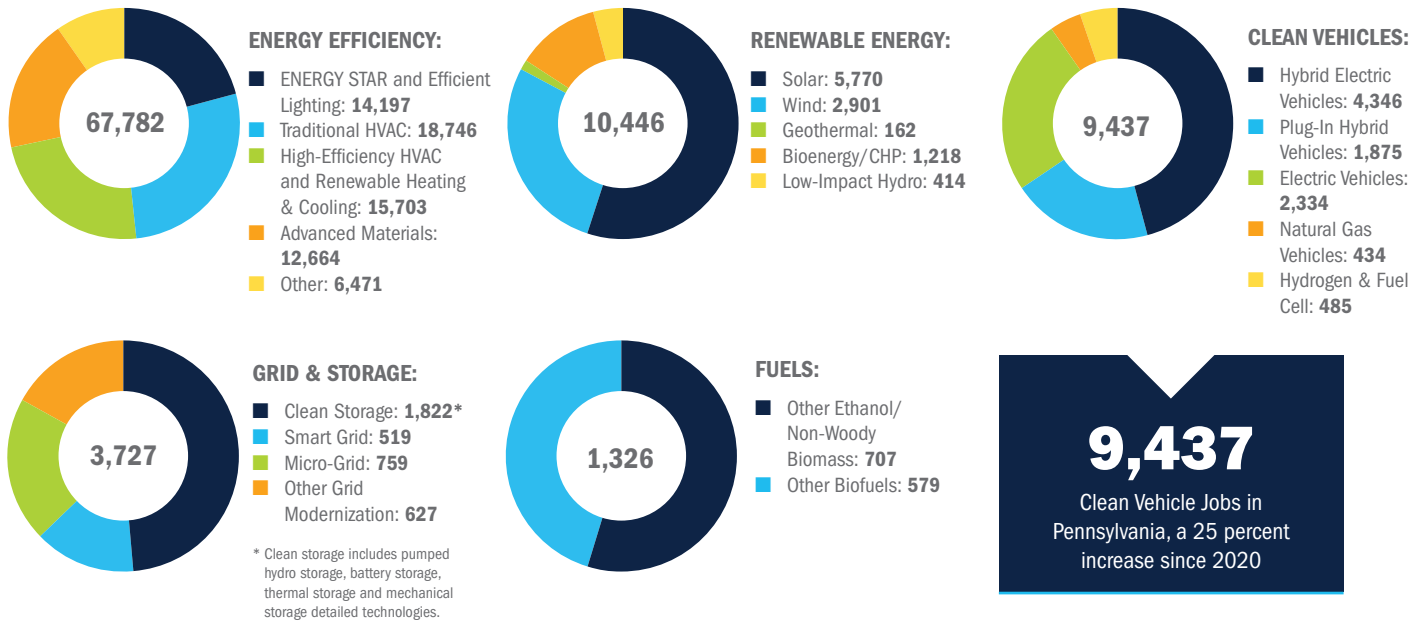


1 IN 3

Energy jobs in Pennsylvania are in clean energy



Fig. 4 // PENNSYLVANIA CLEAN ENERGY EMPLOYMENT by subsector 2021



RENEWING OUR WORKERS FOR RENEWABLE ENERGY

JACKIE ROBINSON: CONTRACTOR, PHILADELPHIA, PA

So much of the conversation around the clean energy economy focuses on the statistics like the ones in this report that we can track and monitor. But these statistics can't tell the whole story and often lose sight of the most important part of increasing clean energy jobs—the workers.

At first glance, Jackie Robinson (no relation to the barrier breaking American baseball player) is a typical Philadelphia contractor. He has an edgy kindness that Philadelphians are famous for, and a warm smile partially obscured by a long, well kept, beard. His warmth and excitement to meet new people serves him well in his role as a trainer of the up-and-coming weatherization professionals. And his story is also one that is typical for too many people of color in America.

Jackie grew up in a low-income household, working to make ends meet in the West Oak Lane section of Philadelphia. From a young age he learned how to work hard, study harder, and give back to his family and his community. But as happened all too often, Jackie fell in with the

wrong crowd and was arrested for selling drugs in 1989 and sentenced to 26 years in prison for a non-violent offense.

At the time, the federal prison system offered dozens of educational and vocational programs—and Jackie took full advantage of them. He attended community college, business school, and trade school on site and by mail.

When Jackie was released in 2015, his education proved a vital lifeline. After a series of construction and maintenance jobs, he found his way to the Energy Coordinating Agency (ECA), serving as an interim trainer for members of the community looking to get certified in water efficiency systems.

As a cornerstone of Philadelphia's non-profit energy space, ECA provides free weatherization training and certification to returning citizens and other members of marginalized communities. Their model creates a triple bottom line of community benefits—training a local workforce for high-paying jobs, taking pressure off the electricity grid, and realizing cost savings for low-income families. Since its inception, the ECA Training Center has provided over 5,000 students with energy efficiency and environmental protection credentials and many have worked directly with ECA to repair homes in disadvantaged communities.



Jackie is the first to tell you that his story is not unique, and that many of the over 700 people he helps train every year have stories like his. When I asked him what it felt like to undertake this work he said “it feels like moving a mountain with a pickaxe” a daunting prospect for any of us. But Jackie’s story and the work being done at ECA shows us that by making basic investments in the workers already in our communities we can make huge strides in the clean energy economy while also using this opportunity to uplift those most harmed by the inequitable choices of our past.

PENNSYLVANIA CLEAN ENERGY EMPLOYMENT: 2022 LOCAL FINDINGS

Fig. 5 // PENNSYLVANIA EMPLOYMENT by share of total county employment 2021⁶

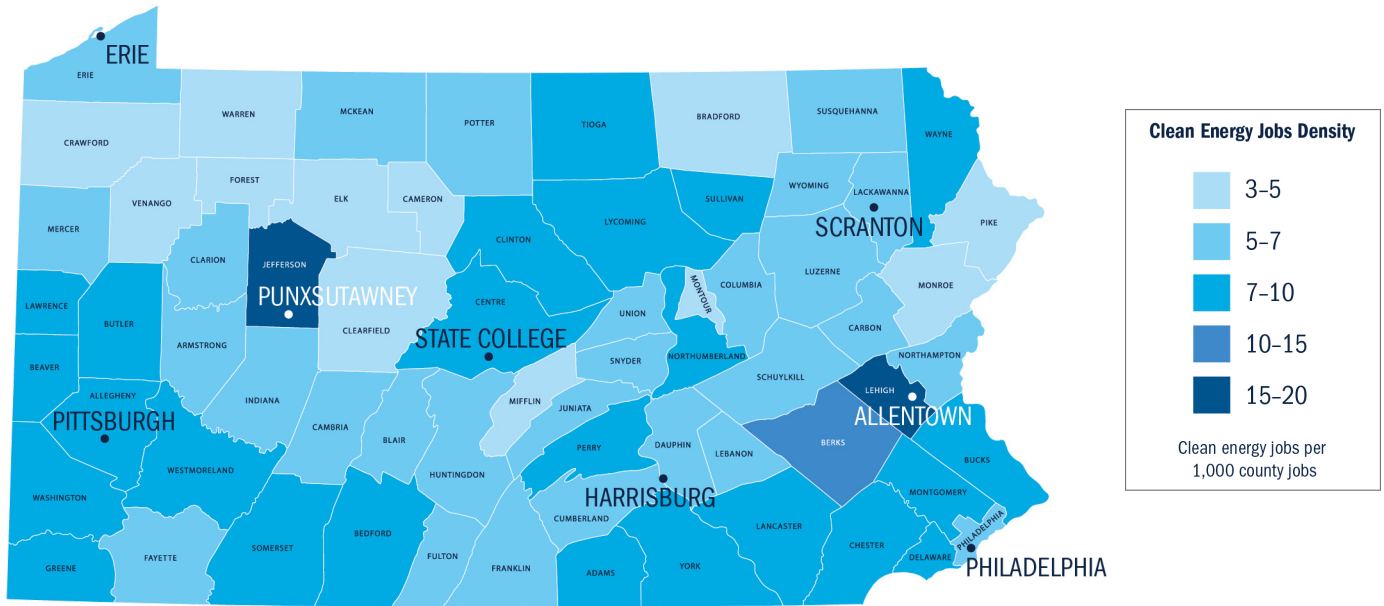


Table 1// PENNSYLVANIA CLEAN ENERGY EMPLOYMENT by county 2021

County	Renewable Generation Jobs	Energy Efficiency Jobs	Clean Vehicle Jobs	Total Clean Energy Jobs	Clean Energy Job Density ^{*.7}
Adams	120	253	46	468	7.04
Allegheny	1,693	9,374	637	12,263	9.21
Armstrong	16	110	30	166	5.27
Beaver	342	382	78	865	8.41
Bedford	<10	178	43	252	7.95
Berks	1,131	1,641	455	3,389	10.08
Blair	37	517	125	736	6.44
Bradford	<10	130	34	188	4.33
Bucks	640	3,507	693	5,067	9.74
Butler	98	1,072	209	1,455	8.72
Cambria	42	414	111	597	6.23
Cameron	<10	<10	<10	10	3.29
Carbon	26	95	66	194	6.41
Centre	148	721	47	984	7.59
Chester	378	3,471	370	4,589	9.34
Clarion	25	91	35	155	6.37
Clearfield	18	174	46	279	4.78
Clinton	19	106	75	212	8.75

County	Renewable Generation Jobs	Energy Efficiency Jobs	Clean Vehicle Jobs	Total Clean Energy Jobs	Clean Energy Job Density ^{*.7}
Columbia	29	187	83	307	6.46
Crawford	47	157	45	274	4.80
Cumberland	142	1,357	199	1,782	6.48
Dauphin	250	1,453	206	2,043	5.64
Delaware	317	2,360	287	3,145	7.16
Elk	<10	92	14	119	4.43
Erie	167	1,038	164	1,504	6.45
Fayette	54	289	101	486	6.53
Forest	<10	<10	<10	10	3.90
Franklin	21	469	140	659	5.62
Fulton	<10	30	<10	59	6.24
Greene	14	168	14	223	9.77
Huntingdon	14	90	10	133	5.50
Indiana	27	247	40	355	6.50
Jefferson	330	133	26	505	17.17
Juniata	<10	43	12	64	5.13
Lackawanna	79	788	149	1,185	6.19
Lancaster	647	3,093	673	4,552	9.26
Lawrence	21	342	40	419	7.82
Lebanon	55	381	146	609	5.99
Lehigh	147	6,530	607	7,415	19.02
Luzerne	286	1,099	163	1,607	5.58
Lycoming	44	492	86	687	7.12
McKean	<10	112	20	145	5.16
Mercer	13	334	121	485	5.61
Mifflin	<10	89	30	134	4.27
Monroe	19	316	77	430	3.95
Montgomery	942	6,748	762	8,925	8.88
Montour	<10	43	59	111	3.38
Northampton	47	965	161	1,230	5.41
Northumberland	30	214	98	405	5.10
Perry	<10	85	23	120	7.75
Philadelphia	775	7,135	496	8,700	7.66
Pike	14	66	13	100	6.37
Potter	<10	21	<10	50	4.50
Schuylkill	60	345	88	532	5.08
Snyder	<10	138	33	199	5.45
Somerset	32	241	130	421	6.49
Sullivan	<10	13	<10	23	8.99
Susquehanna	<10	85	19	117	8.78
Tioga	14	122	55	219	6.70
Union	53	96	22	175	8.73
Venango	11	108	28	156	5.14
Warren	<10	55	22	100	4.65
Washington	48	1,111	136	1,384	3.82
Wayne	<10	184	44	241	8.24
Westmoreland	240	1,542	237	2,135	8.25
Wyoming	11	74	22	113	8.21
York	510	2,297	420	3,479	6.29
Unknown or Undefined	127	2,154	39	2,634	9.74

*Job density is measured as the number of workers employed per 1,000 county-level jobs.

Table 2// PENNSYLVANIA CLEAN ENERGY EMPLOYMENT by metro 2021

Metro	Renewable Generation Jobs	Energy Efficiency Jobs	Clean Vehicle Jobs	Total Clean Energy Jobs*
Allentown-Bethlehem-Easton	220	7,590	833	8,839
Altoona	37	517	125	736
Erie	167	1,038	164	1,504
Harrisburg-Carlisle	397	2,894	428	3,945
Johnstown	42	414	111	597
Lancaster	647	3,093	673	4,552
Lebanon	55	381	146	609
New York-Northern New Jersey-Long Island	14	66	13	100
Rural/Non-metro	1,078	10,082	1,245	13,215
Philadelphia-Camden-Wilmington	3,051	23,221	2,608	30,426
Pittsburgh	2,492	13,879	1,427	18,752
Reading	1,131	1,641	455	3,389
Scranton--Wilkes-Barre	376	1,961	333	2,904
State College	148	721	47	984
Williamsport	44	492	86	687
York-Hanover	510	2,297	420	3,479
Youngstown-Warren-Boardman	13	334	121	485

* Total includes jobs across all clean energy sectors, including clean fuels, clean vehicles, and storage and grid modernization.

- 1 Unless otherwise stated, all data is from the 2022 U.S. Energy and Employment Report (USEER), June 2022, Department of Energy (DOE). All employment findings in USEER is based on survey and data analysis collected from Q4 2021. See Pages 201-206 for methodology questions.
- 2 Choi, Joseph. (September 14, 2021). Two-thirds of businesses surveyed say they are struggling to hire employees. *The Hill*. <https://thehill.com/regulation/labor/572150-two-thirds-of-businesses-surveyed-say-they-are-struggling-to-hire-employees>.
- 3 Pennsylvania Department of Labor and Industry. (December 2022). Center for Workforce Information & Analysis. Yearly population and workforce data. <https://www.workstats.dli.pa.gov/Products/Pennsylvania-Profile/Pages/default.aspx>.
- 4 E2 (Environmental Entrepreneurs). (2020). *Clean Energy Employment Initial Impacts from COVID-19 Economic Crisis*, May 2020. <https://e2.org/reports/clean-jobs-covid-economic-crisis-may-2020>.
- 5 Quarterly Census of Employment and Wages, Fourth Quarter 2021. Available at https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables.
- 6 Employment density based on county employment from the Quarterly Census of Employment and Wages, Fourth Quarter 2021. Available at https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables.
- 7 United States Bureau of Labor Statistics (BLS) 2021 Q4 employment, all ownerships (accessed October 2021).



About E2

E2 is a national, nonpartisan group of business leaders, investors and others who advocate for smart policies that are good for the environment and good for the economy.

