







Pennsylvania's Clean Energy Economy: Key Facts and Resources

E2's state profile demonstrates how energy efficiency and clean energy are creating jobs and spurring economic growth. We also provide a list of local government resources and contacts working to grow the state's clean economy.

EMPLOYMENT

Businesses in Pennsylvania have announced over 750 clean energy jobs, including:

-  3 in Energy Efficiency
-  520 in Wind Energy
-  220 in Solar Energy
-  30 in Building Efficiency

OTHER CLEAN JOB RESOURCES

- Brookings provides a two page fact sheet detailing clean job growth and wages in Pennsylvania: [Sizing the Clean Economy in Pennsylvania](#)
- The State of Pennsylvania offers a report on the needs and challenges for the state's green workforce: [The Pennsylvania Green Jobs Survey Report](#)

GENERATION

The Cheapest, Cleanest Form of Energy: None at All

The American Council for an Energy-Efficient Economy (ACEEE) estimates Pennsylvania’s investments in energy efficiency in 2011 saved the state 1,553,739 megawatt hours (MWh) – the equivalent of meeting the annual electricity needs of more than 148,000 Pennsylvanian households.¹ At the average price of electricity \$106 per MWh, Pennsylvania saved more than \$153,975,535 through energy efficiency programs.²

Existing Renewable Generation: What does Pennsylvania have today?

U.S. Department of Energy: Annual Renewable Generation (MWh)³

	2010	2011	2012
Wind	1,854,000	1,794,000	2,208,000
Solar	8,000	23,000	40,000
Geothermal	N/A	N/A	N/A
Biomass	1,708,000	1,653,000	1,788,000
Total:	3,570,000	3,470,000	4,036,000*
<i>All Energy Sectors:</i>	229,752,000	227,315,000	223,420,000

**In 2012, Pennsylvania generated enough renewable energy to power over 388,000 homes.*

Planned Renewable Generation: What projects are in development in Pennsylvania?

SNL Financial: Current Renewable Energy Projects in Place (MW)⁴

	Announced	Under Development	Under Construction	Total Projects in Place
Wind	587.9	80	-	667.9
Solar	3	20	-	23
Biomass	31.1	72.52	-	103.62
Total Renewables	622	172.52	-	794.52

¹American Council for an Energy-Efficiency Economy “The 2013 State Energy Efficiency Scorecard” November 2013. Online. Accessible: <http://aceee.org/research-report/e13k>

² Energy Information Administration “How Much Electricity Does an American Home Use?” March 2013. Online. Accessible: <http://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3>

³ Energy Information Administration “Electricity Data Browser” August 2013. Online. Accessible: <http://www.eia.gov/electricity/data/browser/>

⁴ SNL Financial provides business intelligence services such as data, analysis, and news. This information was sourced from a private subscription to SNL’s Energy Unlimited Package.

Technical Potential: What could Pennsylvania generate in the future?

The National Renewable Energy Laboratory (NREL) examined each state's geographic and agricultural resources to determine the maximum amount of renewable energy each state could feasibly produce.

NREL: Technical Renewable Potential in Pennsylvania (MWh)⁵

Onshore Wind	8,231,000
Offshore Wind	23,571,000
Utility Scale Photovoltaic	609,518,000
Rooftop Photovoltaic	22,215,000
Concentrated Solar Power	0
Geothermal	327,341,000
Biopower (Solid and Gas)	13,446,000
Total	1,004,321,000*

*The net technical potential of clean, renewable energy can meet **4.5 times** Pennsylvania's current electricity needs.

For more information on existing and planned renewable energy projects, visit NRDC's [renewable energy map](#), which shows specific developments and resource potential in each state.

For a full assessment of the energy sector in Pennsylvania, including a map of resource potential, and energy projects and infrastructure, categorized by county and congressional district, please visit the Energy Information Administration: [Pennsylvania State Profile](#)



⁵ National Renewable Energy Laboratory, "U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis" July 2012. Online. Accessible: <http://www.nrel.gov/docs/fy12osti/51946.pdf>

ECONOMY

CLEAN MANUFACTURING CAPACITY

- GLWN, a network of industry manufactures, provides a national map of suppliers in the wind industry: [Wind Industry Supply Chain Map](#)
- Pennsylvania's [Alternative Energy Portfolio Standard](#) (AEPS) has helped spur development.

STATE POLICY AND INVESTMENT

CleanEdge Ranking	23 rd	ACEEE: Energy Efficiency Scorecard Ranking	19 th
Ernst and Young: State Energy Attractiveness	10 th	Freeing the Grid	A (Net Metering) B (Interconnection Standards)
Energy Efficiency Resource Standard	Yes	Renewable Energy Standard	~18% by 2021

- The Database of State Renewable Incentives for Renewable Energy, DSIRE, details all state and municipal renewable energy policies for all fifty states: [DSIRE: Renewable Electricity and Energy Efficiency Incentives and Policies](#)
- The U.S. Department of Energy lists state policy supporting alternative fuels and energy efficient transportation: [DOE: Clean Fuel Incentives and Regulatory Policy](#)
- The Advanced Energy Economy Institute's [Public Utility Commission Portal](#) provides a helpful overview and links to the key regional and state energy and utility policymaking institutions in Pennsylvania.

FEDERAL POLICY AND INVESTMENT

Energy Type	2009 Federal Stimulus [Sec.1603]	USDA Grants	Loan Guarantees	Federal R&D Funding	Small Business Innovation Research
Wind	-	-	-	\$1,950,000	-
Solar	-	\$883,690	-	\$18,569,399	-
Geothermal	-	\$249,435	-	\$2,795,944	-
Biomass	\$1,080,429	\$15,466,232	-	-	-
Fuels	-	-	-	-	-
Energy Efficiency	-	\$1,316,971	-	-	\$221,717

Section 1603 of the 2009 American Recovery and Reinvestment Act (ARRA- commonly known as the Stimulus) offered payments in lieu of tax credits for the installation or construction of renewable energy systems. For the full list of projects awarded payments, click [here](#).

With the goal of effectively using agricultural resources to generate energy, the U.S. Department of Agriculture issues grants to American farmers to install renewable energy systems and efficient technology. For a list of grants, ranging from anaerobic digester facilities to photovoltaic systems, please click [here](#).

The Department of Energy's Loan Programs Office provides loan guarantees to select businesses to accelerate the deployment of advanced clean energy technology. For a detailed list of loan guarantees recipients, please click [here](#).

To learn more about the federal government funds clean energy research, please visit of the [Office of Energy Efficiency and Renewable Technology](#)

For further information on Small Business Innovation Research Grant awardees, please visit the [Department of Energy's Office of Science](#).



RESOURCES AND ADVOCACY

State Organizations

[Eco-USA: List of Pennsylvania's Environmental Organizations](#)

Eco-USA is a database of state environmental organizations.

[Mid-Atlantic Renewable Energy Association \(MAREA\)](#)

The Mid-Atlantic Renewable Energy Association (MAREA) is a nonprofit organization, dedicated to informing and educating the public on renewable energy production, energy efficiency, and sustainable living through meetings, workshops, educational materials, and energy fairs.

[Pennsylvania Solar Energy Industries Association](#)

As the national trade association in the U.S., the Solar Energy Industries Association (SEIA) is the power behind solar energy. Pennsylvania is home to more than 412 solar businesses, making it one of the largest solar employers in the nation.

[Renewable Energy Center at St. Francis University](#)

The Renewable Energy Center runs Pennsylvania's only Anemometer Loan Program. This wind assessment service allows landowners to learn if their site has commercial wind potential.

National and Federal Organizations

[EERE – Clean Energy in My State](#)

Users can explore the Department of Energy's statistics and policy information related to renewables and energy efficiency.

[National Governor's Association: Profile of Your State's Green Economy](#)

NGA seeks to provide a detailed, empirical account of each state's existing assets across multiple green sectors and serve as a foundation for identifying future growth areas and related needs.

[Advanced Energy by State \(AEE\)](#)

AEE is a national association of businesses and business leaders who are making the global energy system more secure, clean, and affordable.

[American Council on Renewable Energy: Pennsylvania Fact Sheet](#)

ACORE summarizes Pennsylvania's solar and wind irradiance, as well as its current policies in place to promote renewable energy.

[American Wind Energy Association: Wind Energy in Your State](#)

The American Wind Energy Association's summary of jobs directly supported by the wind industry in Pennsylvania.

[Solar Energy Industry Association: Policy in Your State](#)

SEIA compares Pennsylvania's solar capacity and potential to other states, and details the impact of solar energy throughout the state.