



Wisconsin: Home to 76,000 Clean Energy Jobs

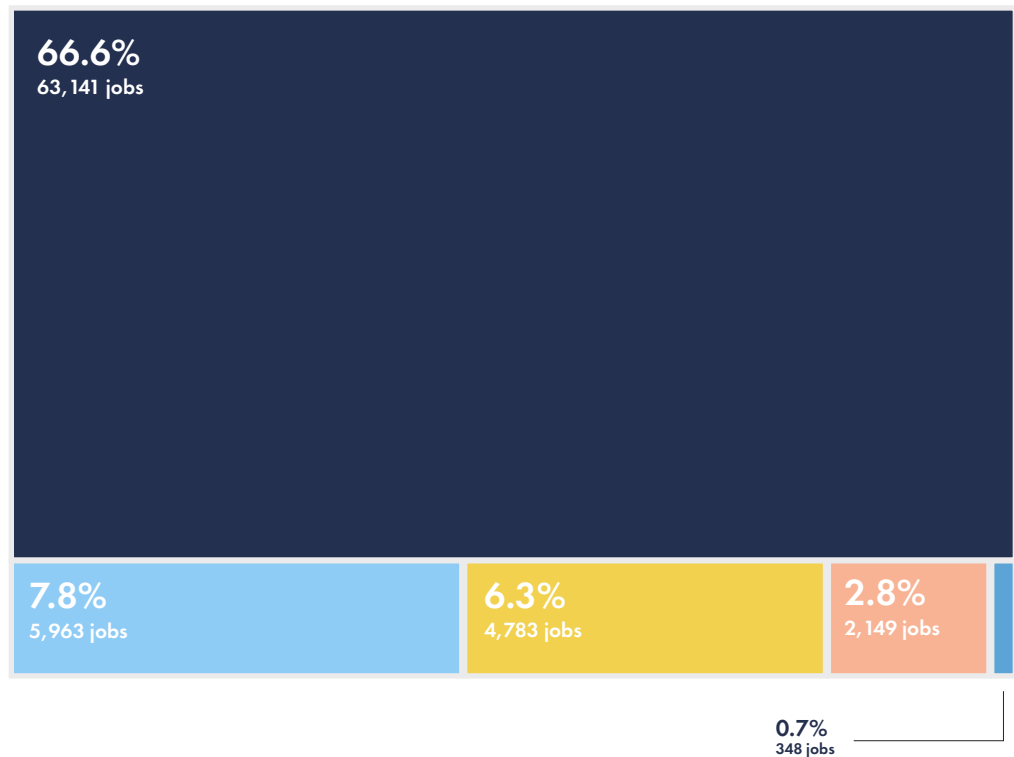
THE CLEAN ENERGY INDUSTRY CREATED 1,800 JOBS IN WISCONSIN IN 2018

Clean energy is a major industry in the state, employing 76,383 people -- nearly enough to pack every seat at Lambeau Field. In 2018, the industry added 1,786 Wisconsin jobs. That's a growth rate of 2.4 percent. Energy efficiency continues to be the largest clean energy employer in Wisconsin; the sector is home to about four out of every five Wisconsin clean energy jobs. In any given year, hundreds of different Wisconsin companies and establishments create clean energy jobs. Combined, these employers anticipate adding more than 6,000 clean energy jobs in Wisconsin in 2019 -- an 8.4 percent growth rate

SECTOR BREAKDOWN

Fig. 1:
Clean Energy Technology
Sectors, 2018

- Energy Efficiency
- Renewable Energy Generation
- Advanced Transportation
- Advanced Grid
- Clean Fuels

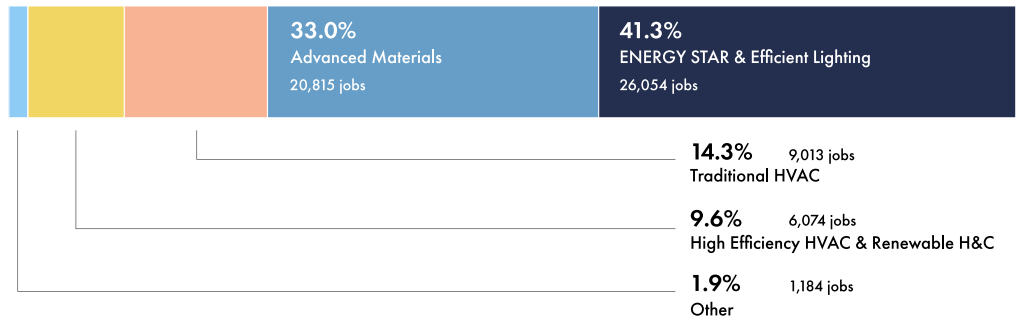


1. Unless otherwise stated, all data is based on the 2019 USEER. Energy Futures Initiative. (2019). The U.S. Energy Employment Report. Washington, DC. www.usenergyjobs.org. The Data provided relies on thousands of data points provided via survey. EFI, NASEO and BWRP have made every effort to supply current and accurate information but assume no responsibility or liability for any decisions based upon the information presented. For more information on the survey methodology see cleanjobsmidwest.com/about.

ENERGY EFFICIENCY DOMINATES WISCONSIN'S CLEAN ENERGY WORKFORCE

63,141 Wisconsinites work in energy efficiency. That's more than any other sector in the clean energy industry. In 2018, Wisconsin employers created 842 energy efficiency jobs, a 1.4 percent growth rate. Energy efficiency workers are active throughout the value chain -- they manufacture ENERGY STAR-rated kitchen appliances; install efficient lighting systems at car dealerships; implement software that optimizes traditional heating, ventilation and air conditioning (HVAC) systems in high schools, and handle advanced building materials at new office towers.

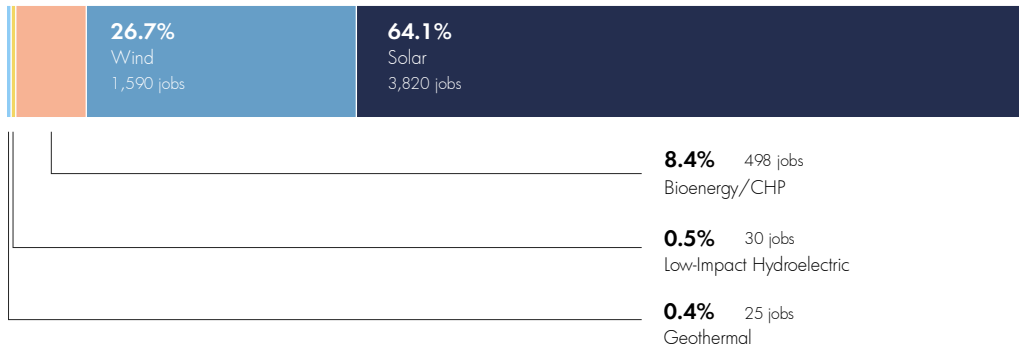
Fig. 2:
Energy Efficiency Subsectors,
2018



RENEWABLE ENERGY GENERATION EMPLOYS 6,000

The state's second-largest clean energy sector is renewable energy generation, with 5,963 jobs. That's 303 more than 2017, a 5.4 percent growth rate, doubling the sector's broader, regionwide growth rate (2.7 percent). Underscoring the health of Wisconsin's renewables sector is that nationally, renewable energy jobs actually declined.

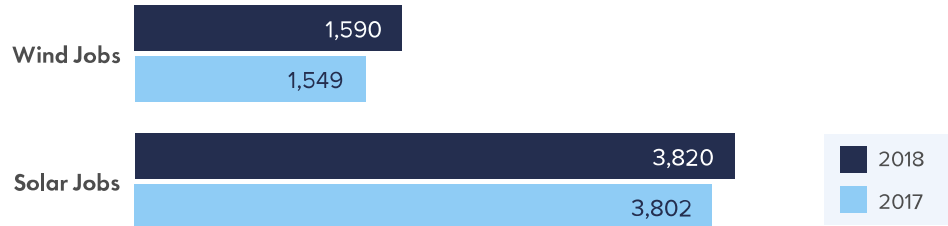
Fig. 3:
Renewable Energy Subsectors,
2018



Solar employs more people in Wisconsin (3,820) than any other renewables sub-sector. Wisconsin solar jobs ticked upward 0.5 percent year-over-year, countering a significant downward national solar jobs trend.

Wind is also a big Wisconsin renewables employer with 1,590 jobs. In the bioenergy/combined heat and power sub-sector, jobs spiked about 85 percent, from roughly 267 to 498. Other job-creating sub-sectors in the renewable energy generation sector include geothermal and low-impact hydroelectric power.

Fig. 4:
Wind and Solar Jobs, 2018 and 2017 Comparison



ADVANCED TRANSPORTATION’S U-TURN

Advanced transportation is the state’s third-largest clean energy sector with 4,783 Wisconsinites employed in the space. After enduring significant job losses in 2017, the sector rebounded by adding jobs at a 14 percent clip in 2018. Still, it wasn’t enough to make up for the rocky 2017.

Two advanced transportation sub-sectors were primarily responsible for the sector’s overall growth -- plug-in hybrid vehicles (29 percent growth rate in jobs) and plug-in electric vehicles (21 percent). Each sub-sector added more than 200 jobs.

ENERGY STORAGE LEADS ADVANCED GRID SECTOR

Advanced grid employs 2,149 people in Wisconsin. Jobs in the sector grew 3.7 percent from 2017 to 2018. Energy storage jobs are the sector’s largest employer with 1,098 jobs, up 2.4 percent from 2017. Advanced grid also encompasses jobs in smart grid, microgrid, and other grid modernization work.

SMALL DROP IN CLEAN FUELS JOBS

Clean fuels are a relatively small sector in Wisconsin, employing 348 people. This is a loss of 21 jobs over the past year. Clean fuels include non-corn ethanol, non-woody biomass, and other technologies not yet in wide commercial production like algal biofuel, syngas, bioheat blends, and landfill gas.

Fig. 5:
Top 3 MSAs in Clean Energy Employment, 2018

Metro Area (MSA)	Total Clean Energy Employment	Renewable Energy Employment	Energy Efficiency Employment
Milwaukee-Waukesha-West Allis, WI MSA	20,085	1,426	16,758
Madison, WI MSA	8,715	634	7,258
Chicago-Naperville-Joliet, IL-IN-WI MSA	3,708	956	2,505

CLEAN ENERGY INDUSTRY OUTLOOK

The clean energy sector constitutes a significant segment of Wisconsin's overall labor market. Combined, the various clean energy sectors -- energy efficiency, renewables, energy storage, clean fuels, etc. -- are now responsible for about 2.5 percent of all jobs in the state.² In 2018, clean energy jobs in Wisconsin grew 2.4 percent, a bit shy of the state's overall job growth rate.

In Wisconsin, clean energy employers are optimistic, projecting 8.4 percent growth in 2019. That's higher than the regional average of 7 percent anticipated clean energy job growth. However, employers also reported difficulty hiring. Nearly 88 percent of Wisconsin clean energy businesses surveyed reported it being "somewhat" or "very" difficult to hire workers.

Focusing on just renewable energy sector jobs, Wisconsin was an outlier in its high growth rate. Nationally, tariffs on solar modules led businesses in the residential solar space to restructure and shed jobs. This led to a decrease in renewable energy jobs across the country. But in Wisconsin, renewable energy jobs grew by more than 5 percent. This labor market dynamic -- adding renewables jobs even as they fell nationally -- was common across the Midwest in 2018.

COMPARING CLEAN ENERGY JOBS TO FOSSIL FUEL JOBS

In 2018, 9,185 Wisconsinites worked in jobs in fossil fuel energy industries like coal, natural gas, and oil.³ While a regionally significant employer, fossil fuel jobs are only a fraction of the number of clean energy jobs.

Electric power generation jobs using fossil fuels put 3,513 people to work, compared to nearly 6,000 jobs in renewable energy generation.

Coal jobs, meanwhile, dropped about 8 percent due to a range of market factors including inexpensive natural gas and increased demand for renewable energy.

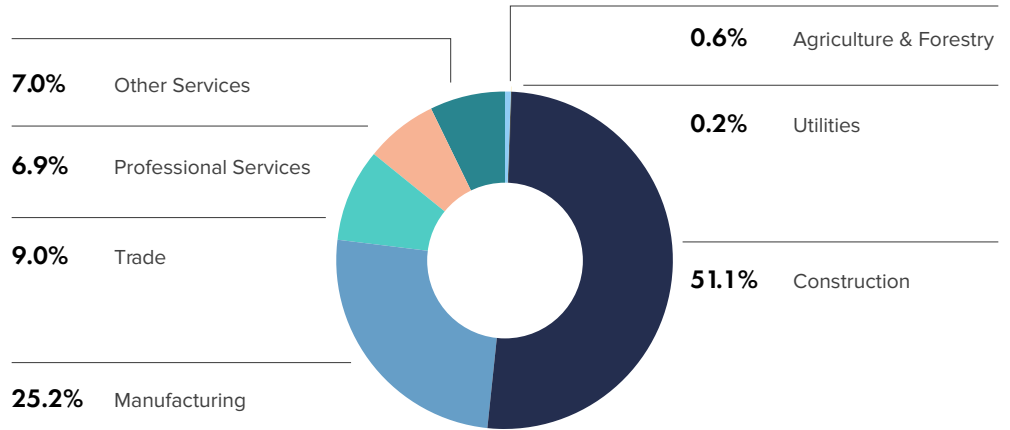
2. U.S. Bureau of Labor Statistics Local Area Unemployment Statistics, 2018 Preliminary data

3. 2019 US Energy and Employment Report. This figure does not include gas station workers.

VALUE CHAIN

Clean energy jobs can be categorized by the role they play in the value chain. This report divides the clean energy jobs value chain into the following categories: agriculture, utility, construction, manufacturing, trade, professional service, and other service jobs. Each category captures jobs from multiple different clean energy sectors. For example, construction jobs can include energy efficiency jobs and renewable energy jobs.

Fig. 6:
Clean Energy Jobs Value
Chain, 2018



When Wisconsin clean energy jobs are broken down by their placement in the value chain, construction makes up 51.1 percent of jobs, while manufacturing represents 25.2 percent.

DEMOGRAPHICS

In Wisconsin, 12.2 percent of clean energy jobs are held by veterans. Since veterans make up 6 percent of the national labor force⁴, the clean energy industry is relatively effective at attracting veterans entering the private-sector workforce. The large ratio of veterans transitioning to clean energy jobs is also in part the result of the U.S. Department of Defense's ongoing investments in technologies like renewable energy and energy efficiency for national security and budgetary reasons. The military has also funded training programs that prepare veterans for private-sector employment in industries like solar.

Small businesses drive the state's clean energy sector – 68.6 percent of Wisconsin clean energy businesses employ fewer than 20 individuals.

4. 2018 Bureau of Labor Statistics Current Population Survey (CPS)

SUMMARY

The clean energy industry in Wisconsin is a significant and fast-growing employer, adding about 1,800 jobs in 2018 for a 2.4 percent growth rate. Looking at specific sectors, advanced transportation jobs rebounded from a significant drop in 2017, with electric, hybrid, and plug-in hybrid vehicles leading the way. Meanwhile, solar jobs in the state increased even as the sector faced job losses in the U.S. overall. With jobs projected to grow 8.4 percent in 2019, clean energy businesses and establishments in Wisconsin appear to have a bullish outlook on the future.

The data and analyses presented in this report by Clean Energy Trust and Environmental Entrepreneurs are based on data collected for the 2019 U.S. Energy Employment Report (2019 USEER), produced by the Energy Futures Initiative (EFI) in partnership with the National Association of State Energy Officials (NASEO) and collected and analyzed by BW Research Partnership (BWRP).

4. 2018 Bureau of Labor Statistics Current Population Survey (CPS)

2019 CLEAN JOBS MIDWEST

