Michigan represents the Midwest's evolution from traditional manufacturing and automotive jobs toward advanced transportation and clean energy technology. The state's iconic automotive industry is now leading the region in advanced transportation jobs, employing more people than the state's entire fossil fuel sector. With over 87,000 clean energy jobs, Michigan has the second highest percentage of clean jobs in the Midwest, marked by a diverse workforce with specialized training.



Third highest clean energy jobs number in the Midwest and a large manufacturing sector



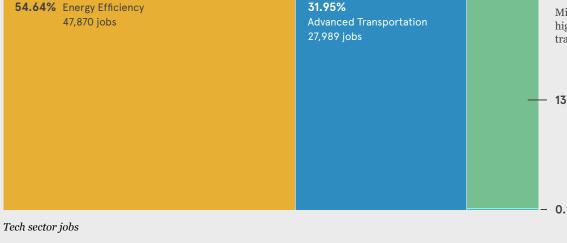
projected

Michigan is home to highest portion of advanced transportation jobs in the region

13.29% Renewable Energy 11,640 jobs

## 0.13%

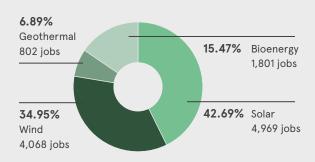
Advanced Grid 117 jobs



31.95%

Of the employment sectors in Michigan, energy efficiency makes up the largest share of the workforce, in keeping with the rest of the Midwest. In energy efficiency, we see traditional sectors such as the HVAC industry increasingly transitioning to embrace the clean energy economy as a business decision. Energy efficiency is an important part of their business and often requires special training, even if it does not occupy a majority of their time. 38% of energy efficiency workers spend at least 50% of their time conducting energy efficiency work. 27% of energy efficiency workers spend all of their time conducting energy efficiency work.

Renewable energy also plays an important role in the state's clean energy economy. Michigan has a strong base in solar manufacturing, and as a result has the second largest number of solar jobs in the Midwest (second only to Illinois). 54% of renewable energy workers spend at least 50% of their time conducting renewable energy work. 44% of renewable energy workers spend all of their time conducting renewable energy work. Within renewable energy, Michigan has 4,969 solar jobs, of which 2,779 (56%) spend more than half their time on solar.



Renewable generation subsectors

## Clean Jobs Midwest

The key story is Michigan's leadership role in advanced transportation. The century-old auto industry is undergoing a transition toward clean energy vehicles, and Michigan is adapting to new technology to keep the industry competitive. Advanced transportation employment is strong, leading the Midwest at 32%. Those jobs are an even split between electric and hybrid vehicles, and with this growth comes additional manufacturing jobs creating batteries for those vehicles.

MI	Installation & Maintenance	Manufacturing	Trade & Distribution	Engineeering & Research	Professional	Other
Jobs	43,877	19,309	8,949	5,288	8,025	2,168
%	50.08%	22.04%	10.21%	6.04%	9.16%	2.47%

Value chain

That added manufacturing component plays an important role in the advanced transportation sector, and in the evolution of Michigan's traditional industries. Early adoption of clean energy technology has allowed Michigan to take the lead in advanced transportation, and the sector now has more jobs than the fossil fuel industry in the state.

MSA	Total CJ	RE	EE	Other
Detroit-Warren-Livonia, MI MSA	37,269	4,885	20,327	12,056
Grand Rapids-Wyoming, MI MSA	7,298	957	3,980	2,361
Lansing-East Lansing, MI MSA	4,056	532	2,212	1,312

Top 3 MSAs in the region

In total, Michigan is home to over 19,000 clean energy manufacturing jobs — more than the number of jobs in the state's fossil fuels sector. Keeping up with the growing demand for skilled workers poses a significant challenge in Michigan. 9 in 10 employers report hiring difficulty, and 48% of those are due to lack of qualifications and education. With a rapidly changing industry, new skill sets are needed and businesses are seeking candidates who are up to the challenge. Diversity in the workforce is evident in the state's clean energy economy. Women represent more than 36% of clean energy workers, and make up 46% of recent hires.

Michigan's renewable portfolio standard of 10% by 2015 was met and plateaued at the end of 2015. Michigan's ranking for energy efficiency from an American Council for Energy-Efficient Economy (ACEEE) has slipped as other states embrace policies to reduce energy waste.

Extending Michigan's renewable energy and energy efficiency standards could drive further growth and investment in the state's thriving clean energy economy and once again make Michigan a leader in this sector.

## **About the Survey**

Clean Jobs Midwest is a survey of clean energy employment in 12 Midwestern states. The region currently employs 568,979 workers in sectors including renewable energy generation, clean transmission, energy efficiency, clean fuels, and advanced transportation.









