

## Executive Summary

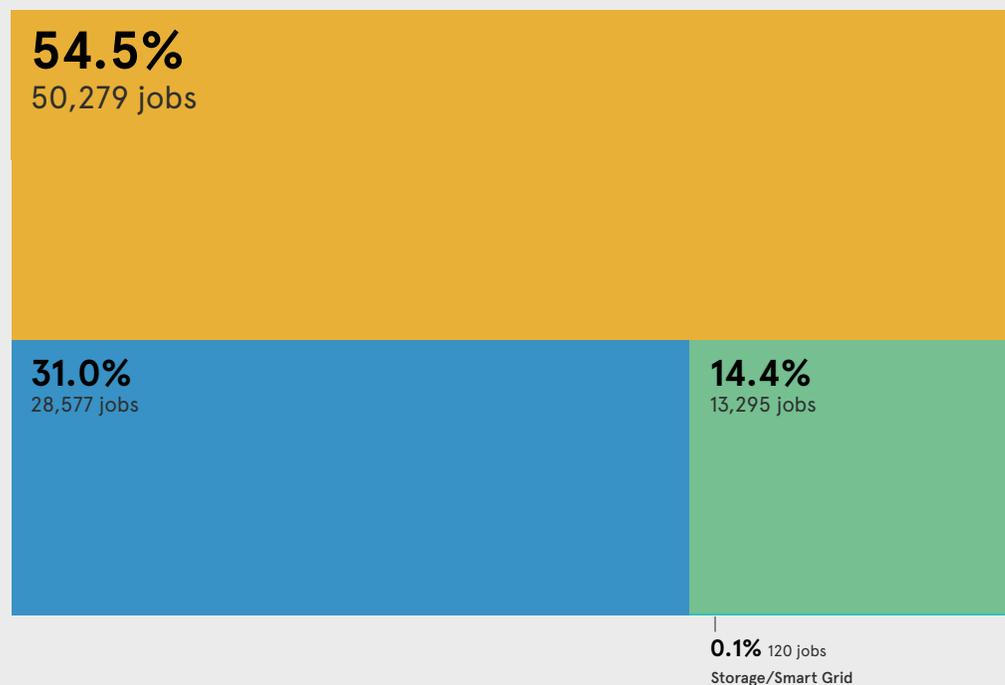
# Michigan continues to evolve from traditional manufacturing and automotive jobs toward advanced transportation and clean energy technology.

As clean energy jobs grow, Michigan's iconic and transforming automotive industry continues to lead the Midwest with over 28,577 jobs in advanced transportation. Overall, the state is home to 92,271 clean energy jobs. Michigan is transforming its economy to meet the demands of the changing energy landscape. Between 2015 and 2016, clean energy jobs in Michigan grew by 5.3%, almost three times faster than the 1.93% growth in jobs overall in Michigan.<sup>1</sup>

<sup>1</sup> Overall employment data comes from the [Bureau of Labor Statistics'](#) annual average of employment by state.

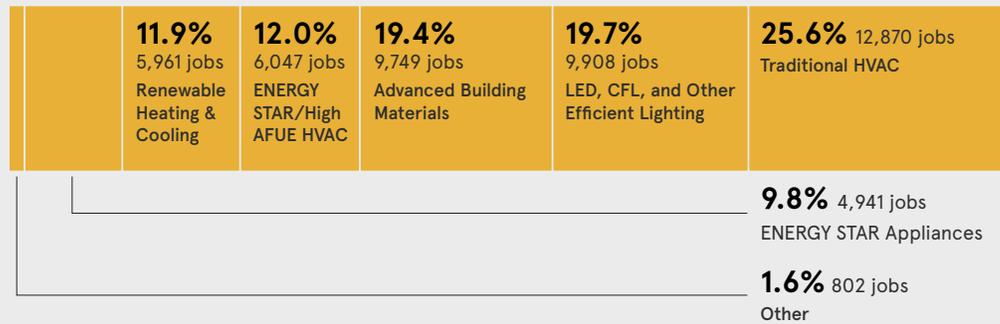
## Sector Breakdown

Fig. 1: Clean Energy Technology Sectors, 2016



Energy efficiency makes up the largest share of the clean energy workforce in Michigan, consistent with other states in the Midwest. The energy efficiency sector expanded by nearly 2,409 jobs in the state between 2015 and 2016; Michigan is now home to 50,279 energy efficiency jobs. The heating, ventilation, and air conditioning (HVAC) industry makes up the largest portion of energy efficiency jobs followed closely by advanced building materials and efficient lighting. These energy efficiency jobs include hardware and software implementers, contractors who can diagnose, adjust and verify the efficiency of HVAC systems, and system technicians.

Fig. 2:  
Energy Efficiency  
Subsectors, 2016



Renewable energy jobs also play 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 Ohio) with 5,672 jobs. Solar and renewable energy generation jobs are the fastest growing jobs sector in the Midwest and Michigan is no exception. Between 2015 and 2016, Michigan added 703 solar jobs—a 14.1% growth rate—tied for third highest growth rate in the Midwest. Renewable energy generation jobs overall—including solar, wind, geothermal, bioenergy, and low-impact hydropower—grew by 14.2%—by far the fastest growing clean energy sector.

Fig. 3:  
Renewable Energy  
Subsectors, 2016



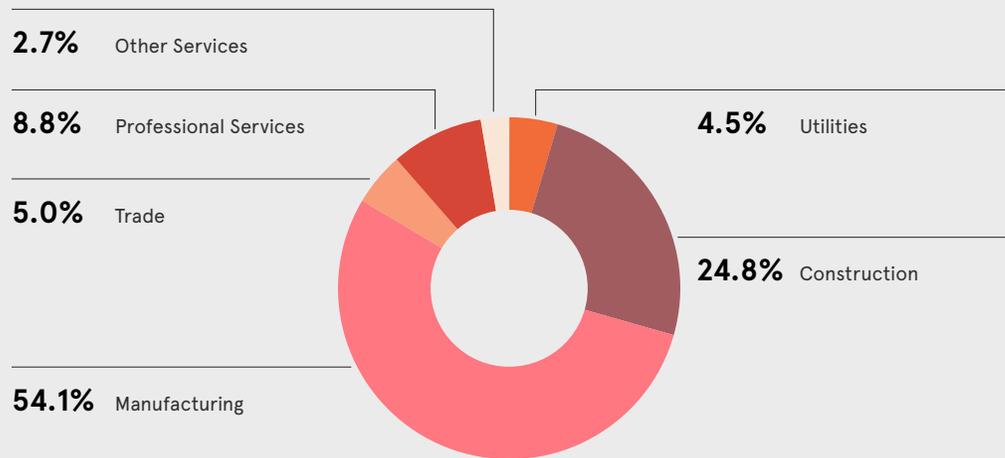
The key story is Michigan’s leadership role in advanced transportation. The century-old auto industry is undergoing a transition toward clean energy vehicles, and Michigan is adapting to new technology to keep the industry competitive. Advanced transportation employment is more robust in Michigan than in any other state in the region, and represents 31% of all clean energy jobs in Michigan. With 28,577 advanced transportation jobs, Michigan is home to more than 4 in 10 of the advanced transportation jobs in the Midwest. Those jobs are nearly evenly split between electric and hybrid vehicles, and with this growth comes additional manufacturing jobs creating batteries for those vehicles.

The advanced grid sector employed 120 Michiganders in 2016—largely unchanged from 2015.

**Value Chain**

Clean energy jobs can also be described by what role they play in the larger economic value chain. This report divides these clean energy jobs into agriculture jobs, utility jobs, construction jobs, manufacturing jobs, trade jobs, professional service jobs, and other service jobs. The divisions in the value chain described here include jobs from multiple technology sectors. For example, construction jobs can include some jobs in the energy efficiency sector as well as jobs in the renewable energy sector and every other technology sector.

Fig. 4: Clean Energy Jobs Value Chain, 2016



Michigan has more clean energy jobs in manufacturing—49,956 jobs—than any other state in the Midwest. This manufacturing trend plays an important role in the advanced transportation sector, and in the evolution of Michigan’s traditional industries.

Fig. 5: Top 3 MSAs in Clean Energy Employment, 2016 (job numbers rounded to nearest hundred)

| Metro Area (MSA)               | Total Clean Energy Employment | Renewable Energy Employment | Energy Efficiency Employment |
|--------------------------------|-------------------------------|-----------------------------|------------------------------|
| Detroit-Warren-Livonia, MI MSA | 39,300                        | 5,500                       | 21,400                       |
| Grand Rapids-Wyoming, MI MSA   | 7,700                         | 1,000                       | 4,100                        |
| Lansing-East Lansing, MI MSA   | 4,300                         | 600                         | 2,300                        |

**Recap**

There are 92,271 clean energy jobs in Michigan encompassing everything from the wind and solar industries to advanced vehicle manufacturing. Clean energy jobs in Michigan grew almost three times faster than all other jobs with renewable energy generation jobs growing the fastest. Looking towards the future, Michigan is well positioned for growth in this sector. The state has greatly improved its statewide energy policies with the American Council of an Energy-Efficient Economy listing Michigan as one of the most improved states on the ACEEE State Energy Efficiency Scorecard.<sup>2</sup>

<sup>2</sup> [2016 ACEEE State Scorecard](#)

Clean energy jobs are a large and growing part of the economy impacting every part of the value chain from agriculture to construction and manufacturing to professional services. Michigan’s robust advanced transportation sector and growing renewable energy sector will play a large role in positioning the state for a bright economic future.