



“Clean Energy in Michigan” Series, Number 2

Wind Turbine Economic Impact: Local Employment

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Questions:

How many local jobs are created by wind turbines?

What kinds of jobs are created by wind turbines?

Background

Many energy and environmental advocates tout the job benefits of renewable energy—and they aren’t exaggerating. Overall, there are an estimated 111,000 jobs in the wind industry¹, and Wind Turbine Technician is reported to be the second-fastest-growing profession, according to the Bureau of Labor Statistics².

However, not all—or even most—of the jobs in the wind energy industry are in the communities that host wind farms. For example, Clean Jobs America reported that 56% of wind jobs are in manufacturing and construction³. Further, not all wind energy jobs are long-term jobs. While some construction jobs are long-term as workers follow new projects from site to site, other jobs associated with the construction of wind turbines are temporary.

What is often of most interest to communities who are considering hosting wind energy projects is how many **long-term local** jobs will be created.

Estimating Long-Term Local Jobs

Based on interviews with the operators of wind energy projects in Michigan, each windfarm tends to have between 7 and 11 employees per 100 MW^{4,5}. So a 200MW windfarm would likely bring 14-22 long-term full-time equivalent (FTE) jobs to the community.

Smaller projects tend to have more FTE employees per 100 MW while larger projects tend to have fewer FTE employees per 100 MW. This implies that there are economies of scale for wind projects; as projects grow bigger, the number of employees added may plateau.

Construction of the first Gratiot County Wind turbine, Breckenridge, Gratiot County, MI.



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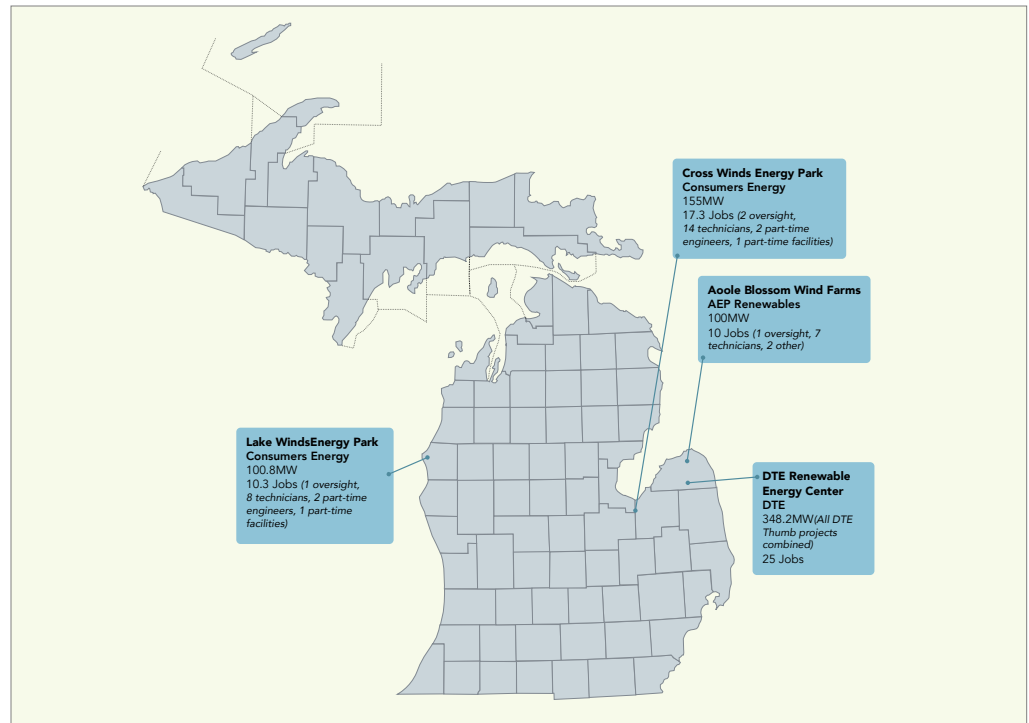
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The Clean Energy in Michigan series provides case studies and fact sheets answering common questions about clean energy projects in Michigan.

Find this document and more about the project online at graham.umich.edu/climate-energy/energy-futures.



Map shows the location of four wind energy employers

There are usually one or two managerial positions per wind project and the rest are wind turbine technicians, sometimes called wind specialists.

Statewide, this translates into about 10% of the estimated 2,000-3,000 total wind jobs in Michigan being in the communities that host wind projects.

Other local jobs

To be sure, these aren't the only local jobs that might result from wind development.

Construction jobs are a one-time economic stimulus that accounts for the majority of the jobs created by wind development. A project manager at Barton Malow, the construction contractor for Apple Blossom Wind Farm in Huron County, indicated that there were 130 construction jobs at peak (for a project of 100 MW), and that 94% of the workers were from Michigan, though not necessarily from Huron County⁶. Often, local firms are hired during the construction phase for aggregate hauling and excavation. There are also local jobs added in the hospitality and service industries during the construction period, to accommodate construction workers that come into the area.

There are also "induced jobs" from landowners spending lease revenues in local businesses, and local governments spending new tax revenues from wind development on construction projects or other services. These, however, can be trickier to tie directly to a specific wind development.

1 <https://www.e2.org/reports/clean-jobs-america-2019/>
 2 <https://www.bls.gov/emp/tables/fastest-growing-occupations.htm>
 3 <https://www.e2.org/wp-content/uploads/2019/04/E2-2019-Clean-Jobs-America.pdf>
 4 Employee numbers put in per 100 MW to standardize between larger and smaller wind projects
 5 Information complete for 34% of Michigan's wind capacity
 6 <https://geronimoenergy.com/wp-content/uploads/2014/11/Econ-Impact-AppleBlossom-email.pdf>