



**Wind energy has been part of Indiana's fuel mix since 2006, bringing manufacturing investment opportunities and diversity to Indiana's generation portfolio.**

## Did You Know?

- Indiana has over 2,300 MW of wind capacity and is home to the 4th largest wind farm in the U.S.
- Indiana ranks 12th in the U.S. for the number of wind turbines, 1,264.
- In 2019, wind generated 6% of electricity in Indiana, with 16 projects in service.
- Over 1,100 MW of new wind projects are in development or construction.

Wind energy refers to creating electricity using wind, or air flows that occur in the earth's atmosphere. Modern wind turbines are used to capture kinetic energy from the wind and generate electricity.

## HOW DOES WIND GENERATE ELECTRICITY?

When the wind blows past a wind turbine, its blades capture the wind's kinetic energy and rotate, converting it into mechanical energy. This rotation turns an internal shaft connected to a gearbox, which increases the speed of rotation by a factor of 100. That spins a generator that produces electricity. Indiana has several wind energy facilities.

## WHAT TYPE OF WIND FACILITIES EXIST?

There are three main types of wind energy:

- **Utility-scale wind:** Wind turbines that range in size from 100 kilowatts to several megawatts, where the electricity is transmitted across the grid by MISO or PJM, then delivered to the end user by electric utilities.
- **Distributed or "small" wind:** Single small wind turbines below 100 kilowatts are used to directly power a home, farm or small business and aren't connected to the grid.
- **Offshore wind:** Wind turbines are erected in large bodies of water, usually on the continental shelf. Offshore wind turbines are large and generate more power.

## THE SCALE OF WIND TURBINES

Typically standing at least 80 meters (262 feet) tall, tubular steel towers support a hub with three attached blades and a "nacelle," which houses the shaft, gearbox, generator, and controls. Wind measurements are collected, which direct the turbine to rotate and face the strongest wind, and the angle or "pitch" of its blades is optimized to capture energy. A typical modern turbine will generate electricity when wind speeds reach six to nine miles per hour (mph), known as the cut-in speed. Turbines will shut down if the wind is blowing too hard (roughly 55 miles an hour) to prevent equipment damage. To learn more about wind energy, check out [www.awea.org](http://www.awea.org).

