



## Office of the Ohio Consumers' Counsel

Your Residential Utility Consumer Advocate

# CONSUMERS' FACT SHEET

### Office of the Ohio Consumers' Counsel

65 East State Street  
7th Floor, Columbus, OH  
43215-4213

E-MAIL:  
[occ@occ.ohio.gov](mailto:occ@occ.ohio.gov)

WEBSITE:  
[www.occ.ohio.gov](http://www.occ.ohio.gov)

# RENEWABLE ENERGY SOURCES WIND POWER



### What is wind?

Wind is an abundant, natural, and renewable resource that can be captured and converted into energy using wind turbines. Wind turbines come in several sizes, from 100 feet tall to 400 feet tall, but the concept is typically the same: the wind blows and turns two or three propeller-like blades around a rotor that is connected to a tower. This rotor then spins an electricity-producing generator.

The scale of wind energy capture ranges in size, from a single small turbine producing a few kilowatts of electricity, to a wind farm producing hundreds of megawatts. A 1-megawatt rated wind turbine can produce enough energy to power 200-300 households. If wind power were the only source of power for homes, a storage system would be needed, as the wind does not blow all the time; however, storage typically is not needed because wind generators make up only a portion of the power in a utility system, and other fuel sources are used when the wind is not blowing.

The most economical application of wind turbines is when they are grouped into “wind power plants” or “wind farms.” For example, a 152-turbine, 304-megawatt wind farm that lies in Van Wert and Paulding counties serves 76,000 homes annually.

Today, a 50-megawatt wind farm can be completed in 18 months to two years. Most of that time is needed to measure the wind and obtain construction permits. The wind farm itself can be built in less than six months.

### Ohio's current and future outlook

According to the American Wind Energy Association (AWEA) Ohio currently ranks 26th overall for total megawatts of wind energy produced. Through 2016, Ohio had an installed wind capacity of 545 megawatts, a drastic improvement from the eight megawatts produced in 2009.

Ohio is the nation's leader for wind-related manufacturing, with 61 facilities

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The Office of the Ohio Consumers' Counsel (OCC), the residential utility consumer advocate, represents the interests of 4.5 million households in proceedings before state and federal regulators and in the courts.

The state agency also educates consumers about electric, natural gas, telephone and water issues.

For more information, please visit the OCC website at [www.occ.ohio.gov](http://www.occ.ohio.gov).



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producing products for the wind energy industry – more than any other state per the American Wind Energy Association. Through 2016, the industry supported between 2,000 and 3,000 Ohioans' jobs.

Renewable energy standards were written into Ohio law in 2008. These standards required that 12.5 percent of all electricity sold in Ohio come from renewable energy by 2025. In both 2014 and 2015, the Ohio legislature voted to freeze the renewable energy standard requirements until January 1, 2017.

In June 2014, the Ohio legislature passed the biennial state budget bill with language that greatly increased the distance wind turbines must be from neighboring property. Since this change in law, there has not been significant wind farm development in Ohio.

### National outlook

The United States continues to expand its efforts on wind power generation. In 2016, the United States' wind energy capacity surpassed 82,000 megawatts producing approximately 5.5 percent of all generated electricity in the United States.

Most of the wind turbines in use today are on land. However, more off-shore wind sites are being built. The first off-shore wind farm was built off the coast of Rhode Island in 2016. A 2008 report from the U.S. Department of Energy indicates that wind energy could provide at least 20 percent of the nation's electricity by 2030, which would be enough electricity for 90 million homes.

### Pros and cons of wind power

Wind is a free, renewable resource that does not emit any pollutants into the environment. As many as 5,000 tons of carbon dioxide emission can be prevented each year by a single wind turbine. To absorb that much carbon dioxide would take 500 acres of forest.

Manufacturing turbine parts and building the wind turbines themselves creates a large opportunity for employment. Ohio has already created nearly 3,000 jobs because of investments in wind energy. This could climb higher if investments in wind power are strengthened.

Wind turbines can also provide extra income for farmers. A farmer in Ohio could make \$11,000-\$14,000 per year for each utility-scale wind turbine leased on the land, according to the Ohio Farm Bureau Federation. The land around the turbine can continue to be used for growing crops or grazing livestock.

One of the main issues with wind power is its variability and the need for constant wind to generate measurable amounts of electricity. Many people also have expressed little desire to have wind turbines near their homes because of the visual impact that they have on the landscape, and other issues. Lastly, there are reports each year of birds and bats killed after flying into a turbine's rotor blades; however, in many cases, research is performed on migratory flight patterns before building wind turbines to decrease the possibility of this occurring.

## Additional resources

**For additional information on wind power, visit these organizations:**

[U.S. Department of Energy Wind Energy Technologies Office](#)

[National Renewable Energy Laboratory](#)

[U.S. Energy Information Administration](#)