

## Wind Power Myths and Facts

Recent national studies show that an overwhelming majority of Americans support wind energy development. This support crosses party lines, with Pew Charitable Trusts finding that 83 percent of Americans support wind, including 75 percent of conservative Republicans.

Wind opponents often make a number of arguments that on their face may seem reasonable. Unfortunately, many of these arguments are not based on fact. This document tackles some of the most common myths and explains the truth behind wind power.

### **Myth 1. Wind turbines are noisy.**

Today's modern wind turbines are remarkably quiet. What sound there is can be mechanical (such as from the gearbox) or aerodynamic (from air moving past the blades). Modern turbine designs have greatly reduced the mechanical sounds to the point where normally what you hear at a wind farm is a light "whooshing" sound of the blades passing through the air. Other factors do play a part, such as distance from the turbine, height, topography, vegetation and wind conditions, but wind farms overall are very quiet compared to other industrial facilities. In fact, because the wind is blowing whenever the turbines are spinning, that "whooshing" sound is often lost in the sound of the wind itself.

### **Myth 2. Infrasound (low-frequency sound) can cause health problems.**

Many arguments against wind turbine noise mention the effects of infrasound, or sound at frequencies outside the range of normal human hearing. Infrasound is all around us, comes from a number of common sources (e.g., wind, ocean waves, breathing, your beating heart) and does not pose a health threat, according to numerous experts, including professors Robert J. McCunney, Robert Dobie and David M. Lipscomb. On the other hand, there are very real threats to human health from fossil fuel energy production. Scientific American recently reported that particulate pollution from fossil-fueled power plants caused more than 30,000 premature deaths, 600,000 asthma attacks and 5 million lost workdays.

### **Myth 3. "Shadow flicker" can trigger epileptic seizures.**

Shadow flicker can occur when the blades of a turbine pass in front of the sun to create a recurring shadow on an object. Using sophisticated modeling, a project can easily minimize the flicker effect by employing software that will curtail turbines at times when flicker is most prevalent. In 2009, the American Wind Energy Association and the Canadian Wind Energy Association established a multidisciplinary scientific advisory panel to review current literature on the perceived health effects of wind turbines and found that shadow flicker is not harmful to persons with epilepsy. Shadow flicker from wind turbines occurs much more slowly than the light "strobing" associated with seizures. The strobe rates generally necessary to cause seizures in people with photosensitive epilepsy are five to 30 flashes per second. Large wind turbine blades cannot rotate this quickly. Seneca Wind has designed the project to minimize shadow flicker below the Ohio Power Siting Board threshold of 30 hours per year at any non-participating home within 1,000 feet of a turbine.

### **Myth 4. Wind turbines can cause "Wind Turbine Syndrome."**

"Wind turbine syndrome" is not a recognized condition or disease of any kind. The term comes from a self-published book by Dr. Nina Pierpont. Her conclusions have been debunked by independent scientific studies from government research bodies around the world. A 2014 scientific review published in the peer-reviewed journal "Frontiers in Public Health" (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4063257/>) strongly refutes the existence of wind turbine syndrome. There have been numerous peer-reviewed scientific studies (in 2009, 2011 and 2015) that have concluded wind turbines do not cause health problems.

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### **Myth 5. Wind isn't really environmentally friendly.**

Several studies by reputable research organizations have found that wind turbines are champions in the reduction of CO<sub>2</sub>, despite the CO<sub>2</sub> created in their manufacture. Depending on the wind farm, the amount of CO<sub>2</sub> generated by construction is offset after three to nine months of operation. Even using carbon-based fuel for backup power results in a CO<sub>2</sub> offset. A report by the National Renewable Energy Lab found that by increasing wind and solar power generation to 35 percent, fuel costs would be reduced by 40 percent and carbon emissions would be reduced by 25 percent.

### **Myth 6. Wind farms are a major killer of bats and birds.**

Buildings, cars, power lines, and radio and cell phone towers cause far more deaths to birds than wind turbines. House cats kill 1.3 to 4 billion birds a year alone. At the same time, wind developers work to minimize harm to wildlife by carefully siting turbines where they will have the least impact and work with federal and state environmental agencies to prevent significant effects on bird or bat populations. Wind farm developers typically conduct a minimum of two years of pre-construction avian use surveys and a minimum of one year of pre-construction bat surveys; the results of these studies are used to inform locations of wind turbines to avoid impacts to the greatest extent practicable. Wind farm operators are typically required by state and federal agencies to conduct several years of post-construction fatality monitoring for birds and bats. The U.S. Fish and Wildlife Service and Ohio Department of Natural Resources will review post-construction monitoring reports for compliance with project permits and management plans.

### **Myth 8. Wind is not a reliable energy source.**

Studies by the experts who plan and operate the electricity grid show that much higher levels of renewable energy can be achieved reliably, while significantly reducing carbon emissions. Increasing the amount of wind energy and other variable renewable resources on the grid is likely to decrease the need for baseload power. Inflexible baseload plants can actually be a significant impediment to the growth of wind energy, as the inability to turn baseload plants off during periods of low electric demand can cause the supply of electricity to exceed demand.

### **Myth 9. Only big, out-of-state developers benefit from wind energy.**

Entire communities benefit from wind development. The Seneca Wind project, for example, will provide a new source of income for landowners and provide \$56 million in tax revenues during the life of the project. These taxes will be shared among schools, townships, the county and the state. It also will provide enough clean energy to power almost 60,000 homes each year. Wind power also reduces health care and environmental costs associated with air pollution.

### **Myth 10. Wind farms depress property values for those in or near the project area.**

In 2009, the Ernest Orlando Lawrence Berkeley National Laboratory published a study titled The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis. This study analyzed data from approximately 7,500 sales of single-family homes within 10 miles of 24 existing wind facilities in nine different states and found “no evidence... that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities.” The author of this study, Ben Hoen, completed a second study on this topic at the Ernest Orlando Lawrence Berkeley National Laboratory in 2013 entitled A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States. This study is based on more than 50,000 home sales within 10 miles of 67 different wind facilities in 27 states, and found “no statistical evidence that home prices near wind turbines were affected in either the post-construction or post-announcement/pre-construction periods.”