

# WIND TURBINES AND HEALTH



BY: Peter S. Thorne, David Osterberg and Kerri Johannsen

## EXECUTIVE SUMMARY

Wind produced electricity has made an extraordinary expansion around the world. Wind in Iowa has grown from almost no capacity in 2000 to more than 7,000 MW in 2018, placing Iowa first in the percentage of electricity coming from wind power.<sup>1</sup> As more people see wind development, some are raising questions about possible health impacts from turbines.

This joint statement from the Environmental Health Sciences Research Center at the University of Iowa College of Public Health, the Iowa Policy Project, and the Iowa Environmental Council summarizes the results of the best research available. A basic concept from the science of public health requires that a human health risk be a *true hazard* and that there is exposure to that hazard. This review concludes that there is little scientific evidence that sound from wind turbines represents such a risk to human health.

## REPUTABLE REVIEWS OF WIND TURBINE EXPOSURES AND HAZARD POTENTIAL

Two authoritative peer-reviewed, critical reviews of the available research have been done on the topic of wind turbines and health.<sup>1</sup> One was by the Council of Canadian Academies (similar to the National Academy of Sciences in the U.S.)<sup>ii</sup> and the other by Robert J. McCunney, a professor at the Massachusetts Institute of Technology (MIT) and several others.<sup>iii</sup>

## Neither review found a link between health outcomes and wind turbines.

Both found sufficient evidence that wind turbines cause annoyance in some cases. However, the studies reviewed did not measure sound levels independent of other factors, such as personal feelings about the turbines and the change in viewsheds. The Canadian review also found limited evidence of a direct or indirect relationship between wind turbines and sleep disturbance, though confounding factors could not be ruled out.

## CONFOUNDING FACTORS

When people experience symptoms of compromised health, yet there is not enough evidence to find more than annoyance and no other health effects, it is reasonable to look for other explanations, including confounding factors.

Two studies have found that beliefs and what people are told about the risks and benefits of wind turbines have a major impact on reported health, whether or not a person is actually exposed to turbine-like sound pressure. This is called the “nocebo” effect.

The McCunney review found evidence that residents who receive compensation for living near wind turbines are less likely to report adverse health effects than those who live nearby but do not receive economic benefit.

<sup>1</sup> Critical review articles are articles written by content experts to evaluate the state of the science and weigh the evidence regarding a particular hazard.

<sup>i</sup> AWEA, Wind Energy in Iowa, Oct. 2018, available at <https://www.awea.org/resources/fact-sheets/state-facts-sheets>.

<sup>ii</sup> Council of Canadian Academies, 2015. *Understanding the Evidence: Wind Turbine Noise*. Ottawa (ON): The Expert Panel on Wind Turbine Noise and Human Health, Council of Canadian Academies.

<sup>iii</sup> McCunney, R.J., Mundt, K.A., Colby, W.D., Dobie, R., Kaliski, K and Blais, M. *Wind Turbines and Health: A Critical Review of the Scientific Literature*. JOEM Vol 56, Number 11, November 2014.

# WIND TURBINES AND HEALTH



BY: [Peter S. Thorne](#), [David Osterberg](#) and [Kerri Johannsen](#)

A well-known study by Paul Slovic found that if people believe they are not in control of a technology, that it is applied without their consent, and that potential risks are not shared equitably, they might perceive the technology as more of a danger. In addition, if a technology is not fully understood by laypersons or if potential effects are invisible to human perception, a person's estimate of the hazard may also be elevated.<sup>iv</sup> Technologies that combine both factors, like a wind farm, may be seen as more risky and tend to draw opposition from neighbors.

To the extent that these two factors are at work, finding ways for residents to have more control over locating individual turbines or be compensated for the loss of their former viewscape might have an effect.

## CONCLUSION

**There is no authoritative evidence that sound from wind turbines represents a risk to human health among neighboring residents.**

The only causal link identified is that wind turbines may pose an annoyance to some who live near them. However, annoyance is likely influenced by a person's feelings about the impacts of wind turbines on viewsheds, whether they receive economic benefit from the turbines, whether they have had a say in the siting process, and attitudes about wind power generally.

Given the evidence and confounding factors, and the well-documented negative health and environmental impacts of power produced with fossil fuels, we conclude that development of electricity from wind is a benefit to the environment. We have not seen evidence that wind turbines pose a threat to neighbors. We conclude that wind energy should result in a net positive benefit to human health.

**Read the complete statement at**  
[www.iaenvironment.org/windhealth](http://www.iaenvironment.org/windhealth) or  
[www.iowapolicyproject.org](http://www.iowapolicyproject.org).

<sup>iv</sup> Slovic, Paul. "Perception of Risk." *Science*, vol. 236, no. 4799, 1987, pp. 280–285. JSTOR, [www.jstor.org/stable/1698637](http://www.jstor.org/stable/1698637).

### Authors:

#### PETER S. THORNE

Professor and Head,  
Department of Occupational  
and Environmental Health  
Director, Environmental Health  
Sciences Research Center,  
University of Iowa College of  
Public Health

#### DAVID OSTERBERG

Lead researcher at the  
Iowa Policy Project and  
Professor Emeritus,  
Department of Occupational  
and Environmental Health,  
University of Iowa

#### KERRI JOHANNSEN

Energy Program Director,  
Iowa Environmental Council