

Susan Burgstrom

From: Isaak L. Simmers
Sent: Monday, August 1, 2022 9:10 AM
To: Susan Burgstrom
Subject: FW: Wind text amendments

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AUG 01 2022

CHAMPAIGN CO. P & Z DEPARTMENT

From: Rice Family <ricebunch@gmail.com>
Sent: Monday, August 1, 2022 7:59 AM
To: Darrel & Regina Rice <ricebunch@gmail.com>
Subject: Wind text amendments

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8/1/22

Dear ELUC member,

Thank you for your service to our county. Your time and efforts are appreciated.

I am writing this as a concerned Champaign County resident who lives in the footprint of the wind complex being proposed by Nextera Energy south and east of Philo. My ancestors have lived on and farmed this land since 1857. I and my neighbors are concerned about an industrial wind turbine complex with a 90 year lease affecting our valuable farmland and our quality of life.

I, and many of my neighbors, attended all four ZBA meetings this spring when the proposed text amendments re. wind energy were being discussed. Dozens of residents spoke out with concerns about height and noise limits and setback requirements. Only one person, in all four meetings, spoke in favor of increased height limits and reduced setback requirements, and this person was a wind energy employee. The ZBA members spent hours and hours in meetings and outside of meetings hearing testimonies and studying material related to these amendments. I support the ZBA's recommendations to ELUC as reflecting the concerns of the County residents who will actually be living within the footprints of these wind complexes.

The attorney present at two of these meetings recommended the ZBA and County re-evaluate all zoning requirements re. wind energy as the current zoning is out of date and inconsistent with neighboring counties who have increased their setbacks in recent years as more knowledge is gained re. wind energy. There appears to be no risk of the state taking wind zoning away from the county decision making process as this idea was met with much resistance.

Again, I ask you to please listen to the ZBA, which was appointed for this purpose, and to the rural residents of Champaign County who will be most affected by your decisions.

Thanks for your attention,

Darrel Rice

726 CR 1800 E, Philo

Susan Burgstrom

From: Isaak L. Simmers
Sent: Monday, August 1, 2022 9:11 AM
To: Susan Burgstrom
Subject: FW: Text amendments on wind

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CHAMPAIGN CO. P & Z DEPARTMENT

From: Benjamin Rice <bjrice94@gmail.com>
Sent: Monday, August 1, 2022 8:33 AM
To: Rice Benjamin <bjrice94@gmail.com>
Subject: Text amendments on wind

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Good morning,

I would like to thank you for your hours of service you provide to our county on the county board and on ELUC month after month.

I am a concerned farmer/resident of Sidney township that lives and farms in the proposed footprint of the Nextera Wind Energy industrial wind complex. I am the 6th generation to farm our family ground and I already have a house full of the 7th generation. The current wind policy that the county has is not favorable to the families that would be living in the footprint of an industrial wind complex. I do believe green energy has a place but I do not believe that any individual's homes or livelihoods should ever be affected by such a project and for such a long time (90 year leases is what is proposed).

I appreciated the ZBA and the time and energy that they put into this issue. Not only did they sit through 12 hours of public meetings but they also did a lot of research on their own between meetings. That was very evident in questions and comments they made during meetings. Their take away from these meetings and their research showed them that an industrial wind complex can have a very negative impact on the families that live in the footprint if proper zoning is not put in place. Only one person in all the county meetings that I have been to spoke in favor of industrial wind complexes and he wasn't even a rural resident that would be affected by this project but was instead an employee of a wind energy company.

Many of our neighboring counties have updated their wind zoning in recent years because 10-15 years ago when wind energy was new we didn't know enough about the adverse effects to write proper zoning. Please help update our current zoning to help keep it current with what we now know especially with how much taller/noisier these towers are getting.

The idea of the state taking away all county zoning is completely dead at the state level because of push back by most counties when this was proposed. Because of this please take seriously the recommendations by the ZBA because our county residents need to be protected by the county departments we have in place.

Thank you for taking the time to listen to my thoughts.

Benjamin
768 County Rd 1800 E
Philo, IL 61864

Susan Burgstrom

From: Ted Hartke <tedhartke@hartke.pro>
Sent: Monday, August 1, 2022 4:47 PM
To: Susan Burgstrom
Cc: Aaron Fenter; Adam Watson; Benjamin Rice; Brad Shotton; Brandon & Sarah Hastings; Cary & Pam Leerkamp; Darrel & Regina Rice; Dave & Traci Bosch; David Happ; Donald Carter; Doug Downs; Gary Place; Heidi Leerkamp; Jan Niccum; Jennifer Eisenmenger; Jennifer Miller; Josh Kamerer & Kim Decker; Justin Leerkamp; Kate Boyer; Kris Petersen; Lynn Rice; Michael Mooney; Michelle Wiesbrook; Mick & Mary Schumacher; Mike Lockwood; Natalie Thomas; rick@rickgallivan.com; Shannon Reel; Stephen Smith; Steven Herriott; Tiffany Byrne; Todd & Sharon Herbert; Todd Horton
Subject: Re: update on wind farm amendments

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Dear Susan,

With this short notice, I am unavailable to attend. Did you know that wind turbines (the noise being the root issue) can and has increased suicide? I will send that article and I expect you ELUC chairman to read the entire summary of the article for 5 minutes. Also, publish the entire research article so all of the public can see it on the large screen. Has the county fixed the speaker system so the public can actually hear the discussion? The audience really needs to hear about all of the issues. Does suicide count as being a serious enough problem to get Stephanie Fortado's attention? I really can't think of a more desperate sudden end-of-life injury that speaks of the mental and emotional reaction to losing your peaceful existence inside your own home.

Also, if Apex or another wind company presents information, I request a formal hearing which gives us full and equal access to cross-examination to expose lies and falsehoods presented by Josh Hartke and also the attorney from Apex who attended the previous meeting.

Lastly, the Health Canada study which promotes no wind turbine health problems has been exposed as a biased study. The research provided to health Canada was cherry-picked to avoid any anti wind outcome.

Best regards,

Ted Hartke

Sent from my iPhone

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CHAMPAIGN CO. P & Z DEPARTMENT

On Aug 1, 2022, at 9:21 AM, Susan Burgstrom <sburgstrom@co.champaign.il.us> wrote:

Good morning,

I just wanted to let you know that the August 11th joint ELUC/ZBA meeting has been cancelled.

On August 4th at 6:30 pm, ELUC will discuss a possible text amendment for wind farms. Information on that meeting can be found at:

http://www.co.champaign.il.us/CountyBoard/meetings_ELUC.php

Please feel free to spread the word about the meeting cancellation and about this Thursday's ELUC meeting.

Thanks,
Susan

Susan Burgstrom, AICP
Senior Planner
Champaign County Planning & Zoning
1776 East Washington Street
Urbana, IL 61802
Phone: 217-384-3708

Susan Burgstrom

From: Ted Hartke <tedhartke@hartke.pro>
Sent: Tuesday, August 2, 2022 11:53 AM
To: Susan Burgstrom
Cc: Aaron Fenter; Adam Watson; Benjamin Rice; Brad Shotton; Brandon & Sarah Hastings; Cary & Pam Leerkamp; Darrel & Regina Rice; Dave & Traci Bosch; David Happ; Donald Carter; Doug Downs; Gary Place; Heidi Leerkamp; Jan Niccum; Jennifer Eisenmenger; Jennifer Miller; Josh Kamerer & Kim Decker; Justin Leerkamp; Kate Boyer; Kris Petersen; Lynn Rice; Michael Mooney; Michelle Wiesbrook; Mick & Mary Schumacher; Mike Lockwood; Natalie Thomas; rick@rickgallivan.com; Shannon Reel; Stephen Smith; Steven Herriott; Tiffany Byrne; Todd & Sharon Herbert; Todd Horton
Subject: University of Illinois Eric Zou wind turbine noise increases suicide

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Dear Susan,

The University of Illinois researcher, based in Champaign County Illinois, found that wind turbine noise increases suicide. His name is Eric Zou, a researcher from our beloved college, published this article in this email in October of 2017.

I request Eric (Thorsland) read Eric Zou's findings out loud to everyone during the ELUC meeting. If he runs out of time, perhaps Dr. Fortado could finish it because it appears to me she has ignored or not read my testimony of undeniable direct effect about noise/sleep problems with wind turbines. If she reads Zou's research information then maybe the suicide connection will be comprehended. I was appalled that my presentations and experiences have been held in contempt by Thorsland/Fortado, as they ignored/dissmissed my input and refuse to hear a presentation frim me lasting more than 5 minutes. The absence of Thorsland and Fortado from the ZBA meetings is obvious from them both making statements which are polar opposite from the evidence presented and submitted at those hearings.

Also, Dr. Paul Schomer's findings stand. Schomer is the only person alive who was part of the Illinois octave band noise level creation. Schomer was co-author and working for InvEnergy when the 2013 (four month long) noise study was completed at my home 2 miles east of the Champaign County line. An attorney at the most recent ELUC meeting tried to discredit Schomer because he was not a medical doctor, however Schomer's PhD in Electrical Engineering-Acoustics from University of Illinois in 1971 shows us he is more than qualified.....and then afterwards becoming an adjunct professor of Electrical and Computer Engineering (Acoustics) and member of the graduate faculty of the U of I shows that he's not a person who should be diminished.

In our efforts for protecting minority rights, we keep in mind that the smallest minority is the individual. No person deserves being the receptor for sleep depriving incessant noise forced upon them by Thorsland/Fortado. Use 3250 foot setbacks so the 39 dBA noise limit can be achieved. To achieve the wildest dreams of the developers and hosts, allow for waivers to the setbacks and noise and let the wind companies negotiate directly with the nearby homeowners who don't mind the intrusion.

Here's the link for the entire text of the Eric Zou wind turbine noise suicide information.

<http://en.friends-against-wind.org/health/impact-of-wind-turbines-on-suicide>

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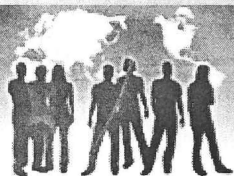
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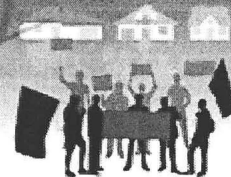
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"First they ignore you, then they laugh at you, then they fight you, then you win." - Gandhi



Friends against wind



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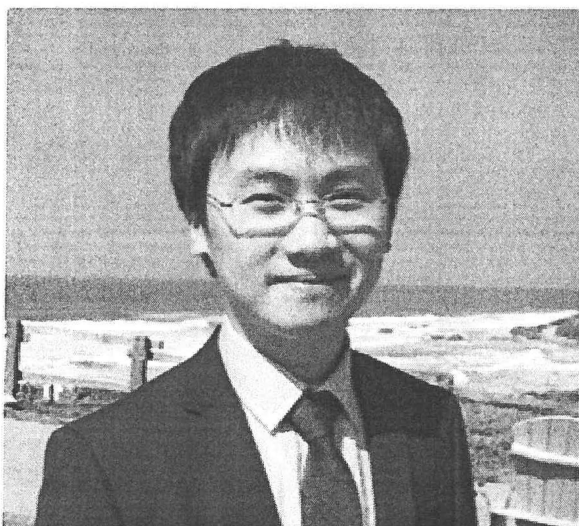
University of Illinois

October 2017

Illinois

The impact of wind turbines on suicide

"Exploiting over 800 utility-scale wind turbine installation events in the United States from 2001-2013, I show robust evidence that wind farms lead to significant increases in suicide."



Eric Zou — Department of Economics, University of Illinois at Urbana-Champaign

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By Eric Zou

Department of Economics, University of Illinois at Urbana-Champaign

Email: yzou9@illinois.edu

Website: www.eric-zou.com

Abstract

Current technology uses wind turbines' blade aerodynamics to convert wind energy to electricity. This process generates significant low-frequency noise that reportedly results in residents' sleep disruptions among other annoyance



Simplified Explanation of the Findings, Previous Research, and the Consequences



Three Decades of Wind Industry Deception



Wind Turbine Torture



Wind turbines... what they're doing to people's health, and how it's official



Groundbreaking study shows the link between 'wind turbine signatures' and health effects



Wind turbines "are a human health hazard."



Chevalier: wind turbines, ecological sham and new public health tragedy

This is the entire text:

University of Illinois October 2017 Illinois



The impact of wind turbines on suicide

“Exploiting over 800 utility-scale wind turbine installation events in the United States from 2001-2013, I show robust evidence that wind farms lead to significant increases in suicide.”



Eric Zou — Department of Economics, University of Illinois at Urbana-Champaign.

By Eric Zou

Department of Economics, University of Illinois at Urbana-Champaign

Email: yzou9@illinois.edu

Website: www.eric-zou.com

Abstract

Current technology uses wind turbines' blade aerodynamics to convert wind energy to electricity. This process generates significant low-frequency noise that reportedly results in residents' sleep disruptions, among other annoyance symptoms. However, the existence and the importance of wind farms' health effects on a population scale remain unknown. Exploiting over 800 utility-scale wind turbine installation events in the United States from 2001-2013, I show robust evidence that wind farms lead to significant increases in suicide. I explore three indirect tests of the role of low-frequency noise exposure. First, the suicide effect concentrates among individuals who are vulnerable to noise-induced illnesses, such as the elderly. Second, the suicide effect is driven by days when wind blows in directions that would raise residents' exposure to low-frequency noise radiation. Third, data from a large-scale health survey suggest increased sleep insufficiency as new turbines began operating. These findings point to the value of noise abatement in future wind technology innovations.

1. Introduction

The rising use of large machinery in industrial operation brings about significant noise pollution.

A common feature of machinery noise is that it contains significant amounts of energy in the low-frequency (< 100 Hz) range. With a low pitch, these sounds are less attenuated by barriers, travel longer distances, and their “rumbling” nature appears to be particularly annoying to many.¹ Over the past decade, the rapid growth of the wind energy industry has triggered an increase in the public and academic interest of the health risks of low-frequency

noise. By current technology, energy in wind flow is captured using large wind turbines that, with three giant and properly curved blades, convert air motions to rotational energy which is in turn used to generate electricity. As a byproduct of blade aerodynamics, wind turbines emit substantial low-frequency sound. Around the world, communities near some wind farms have made complaints, and on occasion have filed lawsuits, about health effects reportedly due to wind farms' low-frequency noise. Complainants contend that the noise causes headache, nausea, dizziness, and, most predominantly, sleep disruptions.

The phenomenon, usually referred to as “wind turbine syndrome” (Pierpont, 2009), has generated great academic and policy controversy. The debate can be summarized into three pairs of conflicting facts and views. First, industry groups deny the relevance of wind farms noise beyond certain distances, usually 500 meters. In contrast, independent measurements from the physics literature show that wind farms' low-frequency noise can be measured in homes kilometers away from the source (e.g. van den Berg, 2004; Moller and Pedersen, 2011; Ambrose, Rand, and Krogh, 2012). Second, wind turbines' noise contains a significant component at extremely low frequencies (< 20 Hz). Sound in this frequency region is typically inaudible to humans (“infrasound”), and so it should have no health effects through auditory channels (e.g. Basner et al., 2014). However, recent medical research suggests, although not yet conclusively, that exposure to infrasound can cause non-auditory responses such as the excitement of neural pathways responsible for attention and alerting, which might contribute to sleep loss (Weedman and Ryugo, 1996; Danzer, 2012; Salt, Lichtenhan, Gill, and Hartsock, 2013). Finally, while anecdotal evidence of wind turbine syndrome exists in almost every country that has wind farms, the epidemiology literature, which predominantly focuses on survey reports of various annoyance symptoms, has reached little consensus regarding the existence and the importance of wind farms' health impacts on a population scale (Bakker et al., 2012; McCunney et al., 2014; Schmidt and Klokke, 2014). Against this backdrop of uncertainty over whether and how wind turbines may affect health, the use of wind energy is growing. Better understanding of any potential health risks associated with wind farms is crucial in informing future policies that relate to a growing source of electricity generation.

This paper presents a new step toward greater understanding of wind turbine syndrome. There are two main innovations. First, to characterize wind turbine syndrome and to learn about its external costs, I study wind farms' impact on suicide, which can be consistently measured across the population using death records data. While suicide is an extreme situation, representing individuals who have reached the depths of despair (e.g., Case and Deaton, 2015; Case and Deaton, 2017), it is likely to be an enveloping measure of the many, disparate annoyance symptoms associated with wind turbine syndrome. In particular, suicide is closely related to sleep loss -- the signature symptom among wind turbine syndrome sufferers -- which has long been understood as a significant risk factor for suicidal ideation (Choquet and Menke, 1990; Roberts, Roberts, and Chen, 2001), suicide attempts (Tishler, McKenry, and Morgan, 1981), and suicide deaths (Farberow and MacKinnon, 1974; Fawcett, et al., 1990; Rod, et al., 2011). Suicide also merits study because of its high social costs, especially given the fact that suicides often occur as a result of impulsive behavior.

sometimes independent of any accompanying medical conditions (see e.g., Simon et al., 2001) – thereby cutting short lives for people who might otherwise have been expected to reach normal life expectancies. While the analysis focuses on suicide, I also use the death records data to consider potential responses of other major causes of death, as I describe in more detail below.

The second innovation of this paper is the use of a quasi-experimental estimation framework that delivers causal estimates on wind farms' adverse health effects. The basis of my research design is over 800 events of utility-scale wind turbines installation across the United States from 2001 to 2013, including both openings of new wind farms as well as major additions of turbines to existing farms. These events allow me to explore quasi-experimental variations in exposure to wind farms along three dimensions: (1) the abrupt change in exposure before and after the new turbines began operation, (2) the geographic variation in residents' exposure by their proximity to the wind farms, and (3) the year-to-year variation in whether installation events occur during a given time of year. Each of these variations - alone *and* in combination - produce effect estimates that are based on alternative natural comparison groups. Taken together, this rules out a range of potential confounding factors. Notably, I show that using the most saturated triple-difference method that exploits all three dimensions of variations yields very similar results to ones obtained using simpler designs, such as a pure before-versus-after event study style approach. This lends confidence to the identifying assumption that the installation of wind turbines can serve as a valid source of exogenous shocks for the purposes of this study.

My empirical analysis yields robust evidence that wind farms increase suicide. I find no significant changes in the suicide rate over the two years (which likely covers the entire construction period) before the turbines' installation, followed by a prompt increase by about 2 percent in the month when new turbines began generating power. This effect stays relatively stable for the following year. The suicide impact appears to be geographically widespread; effects can be detected at least within 25 km, but no farther than 100 km, to the wind farm. I find that wind farms have fairly precise zero effects on other major causes of deaths, except for some suggestive evidence of increases in deaths related to mental and nervous system disorders. These later estimates, however, are not precise enough to be conclusive. Importantly, the finding on suicide effect is robust to overrejection adjustments when the hypothesized effects of wind farms on other major causes of deaths are simultaneously tested for (Anderson, 2008).

I explore three tests to shed light on the role of low-frequency noise exposure. I begin by documenting an age profile for suicide, which shows that the most concentrated increase in suicide occurs among the elderly population. This is consistent with the view that individuals are increasingly sensitive to noise exposure at older ages (e.g., Miedema and Vos, 2003; Kujawa and Liberman, 2006; Muzet, 2007).

Second, exploiting changes in wind patterns, I find evidence of an agreement between wind farms' low-frequency noise radiation profile and suicide effects heterogeneity with respect

to wind directions. Specifically, I find that the suicide effect is explained mainly by days when residents spend downwind or upwind wind farms, while crosswind days are not predictive of the suicide effects. This is consistent with the “acoustic dipole” property that low-frequency noise typically exhibits: measured noise levels are higher at upwind and downwind locations while suppressed at crosswind locations (e.g., Hubbard and Shepherd, 1990; Oerlemans and Schepers, 2009).

Finally, the paper documents evidence of sleep responses to wind farms. I analyze self-reports of sleep in a sample of respondents from a large-scale health survey. I find a significant increase in reported number of nights of insufficient sleep following wind turbine installation. This effect appears to be explained by an increase in reports of sustained (more than seven nights per month) sleep insufficiency.

This paper contributes to the literature by delivering the first national-scale causal evidence on wind farms’ adverse health effects. Results of this paper imply that the costs of wind farms are significant even if one considers solely the consequences of suicides. My calculation suggests that wind farms installed between 2001 and 2013 resulted in a total of 34,000 life years lost (LYL) due to increased suicides within a year after installation. To put this number in perspective, during the same one-year time window, the new wind capacity generated roughly 150 million megawatt hours (mwh) of clean energy; by comparison, based on existing estimates of the per mwh health cost of coal-generated electricity (Epstein et al., 2011), generating the same amount of electricity with coal would have resulted in around 53,000 life years lost due to air pollution.

More broadly, this paper is related to the economic literature for developing empirically grounded cost-benefit analysis of wind energy. Existing literature has documented wind farms’ negative externality on nearby residents through evidence of lower levels of life satisfaction (Krekel and Zerrahn, 2017) and, more predominantly, reduced property values (e.g., Ladenburg and Dubgaard, 2007; Gibbons, 2015; Dröes and Koster, 2016). Importantly, wind farms’ impact on property value is found to be highly local (usually within few kilometers), and there is evidence that housing price effects are largely explained by whether wind farms are visible from the location of the house (Gibbons, 2015). My estimates show that the health effects of wind farms can occur far beyond “sightline” properties where declining property values have been observed. On the benefit side, wind industry operations may benefit local economies (e.g., Kahn, 2013); wind energy production also displaces electricity generation from fossil fuel sources (Cullen, 2013; Novan, 2015), and therefore may have both short-term air quality benefits and also longer-term climate benefits. Together, these cost-benefit parameters have a broad range of policy and regulatory implications such as wind farm siting decisions, the determination of subsidy levels to existing wind farms, and the social return to the development of quieter wind technologies.²

This paper’s findings also contribute to the understanding of the external determinants of suicide, a leading cause of death that claims around 0.8 million lives per year globally. While suicide is widely recognized as a consequence of the interplay between multiple

medical and social determinants, existing evidence predominantly focuses on internal risk factors such as psychiatric illnesses (e.g., Mann, et al., 2005; Hawton and Heeringen, 2009; Zalsman, et al., 2016). However, external determinants of suicide are also important, especially from a suicide prevention viewpoint (e.g., Carleton, 2017). My results suggest that exposure to wind farms is a significant stressor, which may be relevant for at-risk individuals' location choice. Moreover, in subsequent analysis I show that wind farms' suicide effects are strongly correlated with higher local access to firearms, which provides suggestive evidence on the scope for firearm restriction policies to mitigate increased propensity for suicide.

The remainder of the paper is organized as follows. Section 2 provides background, Section 3 describes primary data sources, Section 4 presents the identification strategy and main results, Section 5 presents evidence on the role of noise pollution, Section 6 reports the suicide effects heterogeneity by local gun access, Section 7 discusses the interpretation and the limitations of the results, and offers conclusions.

1. Atmospheric attenuation of sound energy increases at the rate of the square of the sound's frequency. Barriers' ability to absorb sound also decreases at lower frequencies. As a consequence, low-frequency noise exposure may appear stronger in indoor environments where walls block higher-frequency sounds (Ambrose, Rand, and Krogh, 2012; Moller and Pedersen, 2011). For a review, see Leventhall (2004).

2. For example, wind turbines can use vorticity, an aerodynamic effect that produces a pattern of vortices, to produce energy rather than using blades <http://www.wired.com/2015/05/future-wind-turbines-no-blades>; coating wind turbine blades may scatter turbulence when air passes the blades, mimicking the wing structure of owls www.cnn.com/id/102777259; floating wind turbines are able to capture high wind speed in higher altitudes, therefore increasing wind energy generation efficiency <http://www.altaerosenergies.com>.