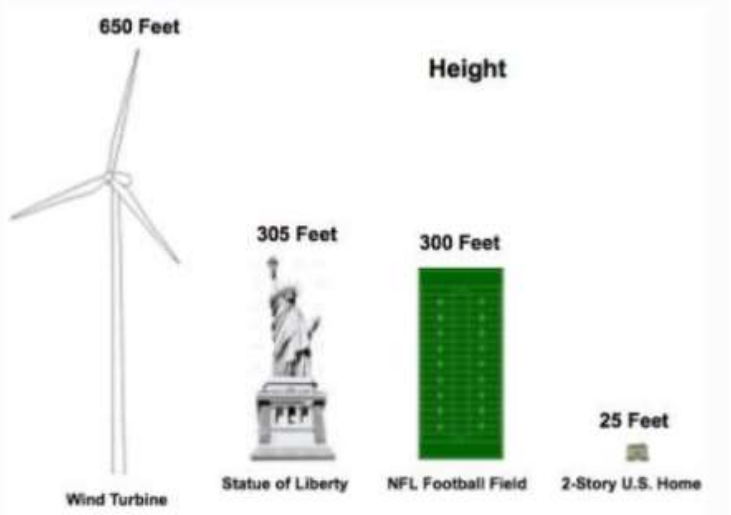
Industrial Wind Turbines



Picture clipped from Forbes article referenced at end of presentation

Impacts on People, Property and Environment

Presented by Steve Moreno to Leroy Township Board – 5 January 2021

*Revised 22 September 2021. Added LSE summary data, added Berkeley Labs page references, added Punch & James audiology study link. Added new link to 2013 Berkeley Labs study.

Introduction

We received a notification flyer from Apex Energy October 10th. I (Steve) called the number on the flyer and had conversation with a Brian of Apex. Brian described the proposed project, the land area for it, how that they had contacted the Township Board and that they had received positive feedback from farmers and other land owners in the proposed wind farm area. He described size of the proposed industrial wind turbines, erection process, substation location, power transmission to the substation, environmental impact study, how that safety of nearby residents and wildlife is ensured.

Initially, I was only opposed to industrial wind turbines because of their imposing size and how their appearance detracts from natural rural esthetic and the expectation one in the field next to my property would negatively affect my property value. I decided to research the subject and found that in addition to dominating the views and affecting property value, there are significant concerns for human and wildlife safety close to industrial wind turbines.

Most fact-based, Government and non-Government authored papers I read state that more post construction study is needed, especially related to the environment. Inaudible noise generated by industrial wind turbines up to several thousand meters from an industrial windmill is well documented to cause physical injury to the very young and those over age 50, such that the term Wind Turbine Syndrome was coined by Nina Pierpont, MD, PhD in 2009.

Farm animals, as well as local wildlife have been affected by low frequency noise and stray voltage. Bats and birds (including protected species) are being killed; annually, more than 111,000 bats are estimated to be killed by industrial wind turbines.

The American Wind Energy Association (AWEA) relies on a 2013 Berkeley Lab study as evidence industrial wind turbines do not affect real estate property values, however, more recently, courts in the UK and Canada have recognized close proximity of homes to industrial wind turbines are negatively impacted, even up to 14 km (approx. 7.5 miles) away from industrial wind turbines. Canadian Municipal Property Assessment Corporation has decreased property assessments as a result of close proximity to industrial wind turbines. Wolf Island (Ontario Canada) residential assessments were reduced from 2008 through 2012 – wind farm became operational 2009.

Wind Turbine Impacts on Human Physiology

Wind Turbines Generate Noise – Audible & Inaudible

- Acoustic Ecology Institute recommends at least a one-mile setback from homes.
- French National Academy of Medicine and U.K. Noise Association (referenced in AEI report) recommend 1.5km and 1.0km setback respectively.
- Noise complaints include mechanical noise vibrations transmitted from structure through ground into people's homes – Inaudible.
- Nina Pierpont, MD, PhD studied motion sickness symptoms of people living near wind turbines and has coined the term: Wind Turbine Syndrome. Dr. Pierpont is a graduate of John Hopkins university and is a pediatrics doctor in Malone, NY.
    - Mechanical energy transmitted from wind turbines affect the inner-ear
    - The very young and those over age 50 most susceptible
- Normal farming activities and the noise associated with them are part of living in a rural environment. Noise related to the generator and fan blades of turbines is a disruption to a person's right to a quite night. People move to the country to get away from constant noise. The audible nose is not like white noise of a fan, it more like intermittent thumps that are disruptive to sleep. It does not disburse over 500 feet. Its effect is felt up to a mile or more away.
- Flicker, a strobe light effect produced by rotating blades casting a moving shadow, is not part of the farming experience – this disruption to a peaceful existence, enjoyment of our personal property was not a consideration when evaluating to live in this township.
- In addition to the above, neighbors of industrial wind turbines have reported well water contamination related to pile driving foundations and audible nose in excess of guaranteed maximum.

Added 22 September 2021

- Dr. Jerry Punch & Richard James of MSU authored a paper Wind Turbine Noise and Human Health: A Four-Decade History of Evidence that Wind Turbines Pose Risks*. This paper summarizes "the past and present literature that addresses each of 12 selected statements". They look at adverse health effects caused by infrasound, present recommendations for setbacks, recommendations how to measure infrasound, permissible levels.

Wind Turbine Impacts on Property Values

American Wind Energy Association (AWEA) links a study prepared by Berkeley Lab in 2013 as evidence industrial wind turbines do not affect property values

There are several difficulties with this report. Only a few are listed below.

- The *Disclaimer*: Before the report begins they include a statement that the document is "believed to contain correct information", but they assume no responsibility for the "usefulness of any information". This does not instill high confidence in the results. Further:
- The report on Page 2 makes a factual, but misleading statement about lowering property assessments because of close proximity to wind turbines. While the Kenneys did loose their challenge, other property owners were granted reduced assessments directly related to proximity to the same Wolf Island wind farm. This information was available in September 2012 – Before Berkeley published their report.
- Also, referring to Wiggins v WPD Canada Corporation 2013 on Page 3 – The judge in the case recognized that property values in other pats of Canada were recognized as being negatively affected by close proximity to industrial wind turbines, but ruled against Wiggins in this case only because no turbine had been erected at the time the case was brough. Wiggins needed to wait for the turbine to be built in order for the judge to rule in their favor. WPD Canada, in order to avoid an almost sure loss in court walked away from the project. Wiggins won in the end . No turbines were built.

Additionally in this study:

- Properties beyond 3 miles of a turbine are assumed not negatively affected (Page 23). – Possibly because the 2008 version of the report surveyed home sales transactions within 10 miles of the 41 turbines in Massachusetts and the average distance from a turbine that study was 3.1 miles.
- The mean distance to the nearest turbine in this study is 4.96 miles (Pages 20 & 21) This is an increase of 1.86 miles compared to the 2008 report.
- The survey only examines real estate transactions, it does not consider home sales that did not go through or homes that were abandoned because occupants could not sell the property and left because they could not endure the physical harm to their bodies.
- Only 2.4% of the sample were transactions for property within 1 mile of a turbine
- The report acknowledges "perceived" property value decrease post-announcement, pre-construction of a project. It also likens industrial wind turbines as a "disamentiy" similar to high-voltage transmission lines.

Wind Turbine Impacts on Property Values

Other evidence of property value decrease is being recognized

In the UK

- London School of Economics produced a study in the 2014 stating property values near turbines are negatively affected up to 12%.

In Canada

- Real estate brokers and assessors are documenting property in close proximity to wind turbines decrease in value.
    - "I have had several deals fall apart in this area because, in the appraisal report, it has been mentioned that there are windmill visible or adjacent to the property and once a lender gets wind of that (forgive the pun), they will not fund a mortgage." said Ang3ela Jenkins, a mortgage agent at Dominion Lending Centers (Canadian Real Estate Wealth, 18 December 2014)

In the U.S.

- Michael McCann, of McCann Appraisal, LLC summitted testimony to Adams County Board, Adams County Illinois (June 8, 2010)
    - "Real estate sale data typically reveals a range of 25% to approximately 40% of value loss, with some instances of total loss as measured by abandonment and demolition of homes, some bought out by wind energy developers and other exhibiting nearly complete loss of marketability."
    - See also the Shineldecker (Mason County, MI) story lined in Web Resources. Shineldeckers purchased a farm they intended to work. The property was appraised for $260,000 in 2011 and sold four years later for $179,000. They, along with others in their community, sued Consumers Energy and settled out of court.

Added 22 September 2021

- London School of Economic study released in 2014 (after Berkeley) found property values decrease in areas where wind turbines are visible. The impact diminishes with distance: 5-6% within 1.24 miles, less than 2% between 1.24 and 2.5 miles, and less than 1% beyond 8.7 miles-where turbines will likely not be visible. It found also that proximity to large wind farms, 20 or more turbines, can drive down home values by as much as 12%. Close proximity to industrial wind turbines drive down property values even before construction begins. See Page 6 of the LSE report for critique of Berkeley 2013 report.
- Berkely & LSE studies were of approximate 2MW size turbines. APEX is proposing much larger

Wind Turbine Impacts on Wildlife

National Wind Coordinating Collaborative, National Wind Wildlife Institute

- A neutral forum where wind industry and wildlife advocates discuss wind energy and wildlife.
- The November 2019 forum included a discussion about bird and bat interactions with wind turbines.
- It was reported “Over 900 bird and 47 bat species are potentially affected,” and because of the complexity of the issues, there is a “lack of consensus on best strategies for minimizing the impact of wildlife and wind energy, especially bat-turbine interactions.” Even though this forum has been existence since 1994, there is no consensus on how to address the issue.

The Bat Association of Michigan State University links to a fact sheet: Economic Importance of Bats in Agriculture.

- In this report the authors estimate by 2020 an estimated 33,000 to 111,000 bats will be killed annually by wind turbines in the Mid-Atlantic Highlands alone”. Also, they estimate a colony of 150 big brown bats consume 1.3 million pest insects annually.

There are nine bat species in Michigan, all eat insects. A healthy bat population is a significant mitigation to the spread of heart worm and EEE.

There are repots that like humans, animals negatively react to the low frequency noise produced by wind turbines.

Summary

- Close proximity to industrial wind turbines creates significant health risks for humans and animals due to audible and inaudible noise, and flicker effects.
- There is already established evidence industrial wind turbines kill bats and birds in large numbers. This is having a negative effect on agriculture and the eco-system. See Economic Importance of Bats in Agriculture linked to MSU's Bat association website. As bat populations decline pest insects populations are increasing. Insect borne diseases will spread more freely.
- Real estate property values will decrease – The record of this effect is supported by university study and court cases.
- In keeping with Berkeley Labs real estate property value assumptions, minimum setback for industrial wind turbines in Michigan needs to be no less than 3 miles from any residence or barn that houses animals.
- Industrial wind turbines, especially the size planned for Kalamink, should not be placed within Leroy Township.

Web Resources

- AEI Wind Farm Noise 2012 – Acoustic Ecology Institute Report
- https://aeinews.org/aeiarchive/wind/index.html

- National Wind Coordinating Collaborative – 12th NWCC Wind Wildlife Research Meeting
- https://www.nationalwind.org/wp-content/uploads/2019/07/wwrm12proceedingsmarch2019-1.pdf

- Wind Turbine Syndrome
- https://www.windturbinesyndrome.com/wind-turbine-syndrome/what-is-wind-turbine-syndrome/

- Forbs – Do Wind Turbines Lower Property Values?
- https://www.forbes.com/sites/judeclemente/2015/09/23/do-wind-turbines-lower-property-values/?sh=1355f54748cb

Added 22 September 2022

- Wind Turbine Noise and Human Health: A Four-Decade History of Evidence that Wind Turbines Pose Risks*
- https://hearinghealthmatters.org/wp-content/uploads/sites/19/files/2016/09/16-10-21-Wind-Turbine-Noise-Post-Publication-Manuscript-HHTM-Punch-James.pdf

Web Resources

- Property Values Benefit from Wind Energy (American Wind Energy Association Website)
- ~~https://www.awea.org/wind-101/benefits-of-wind/wind-in-my-community/property-values~~
    - AWEA no longer links to the Berkeley Labs report.
- APEX links the Berkeley Labs report to their web site.
- https://www.kalaminkwind.com/property_values

- Direct link to Berkeley Labs report
- https://eta-publications.lbl.gov/sites/default/files/lbnl-6362e.pdf

- YES2RENEWABLES.ORG – What's really going on with wind farms and property prices?
- https://yes2renewables.org/2020/08/27/whats-really-going-on-with-wind-farms-and-property-prices/

- Canadian Real Estate Wealth
- https://www.canadianrealestatemagazine.ca/news/industry-criticizes-wind-turbine-report-186496.aspx

- WPD Canada turns off wind turbine project (Wiggens Won)
- http://ontario-wind-resistance.org/2017/09/28/wpd-canada-turns-off-wind-turbine-project/

Web Resources

- The Guardian – Windfarms can reduce house prices by up to 12%, says LSE
- https://www.theguardian.com/money/2014/apr/08/windfarms-reduce-house-prices-compensation
  - Link to LSE Paper is in The Guardian article. Click on LSE Findings in second paragraph.
- Direct link to paper here:
- http://www.spatialeconomics.ac.uk/textonly/SERC/publications/download/sercdp0159.pdf

- East County Magazine (San Diego, CA) Do Wind Turbines Harm Animals?
- https://www.eastcountymagazine.org/do-wind-turbines-harm-animals

- Stop These Things – No Place For Man or Beast: Irish Family Pockets €225,000 From Wind Power Outfit For Noise Torture
- https://stopthesethings.com/2020/11/20/no-place-for-man-or-beast-irish-family-pockets-e225000-from-wind-power-outfit-for-noise-torture/

Web Resources

- **Must Read This Article** – Stop These Things – Wind Turbine Noise Makes Life a Living Hell for Neighbors: Michigan Farmers Driven From Homes

➢ https://stopthesethings.com/2018/01/20/wind-turbine-noise-makes-life-a-living-hell-for-neighbours-michigan-farmers-driven-from-homes/

- Litigation – Lake Winds Wind Farm in Mason County, Ludington, MI

➢ Type "Shineldecker" in search box of www.stopthesethings.com for other relevant stories about this case.

- Bat Association of MSU

➢ http://www.batassociation.org/about-us/

- Economic Importance of Bats in Agriculture (Linked from Bat Association of MSU Website – Originally published by sciencemag.org April 1, 2011

➢ http://www.batassociation.org/resources/

Go to Research then click on the link to Economic Importance of Bats in Agriculture