



Offices of the Public Utilities Commission of Ohio
Room 11B
180 East Broad Street
Columbus, Ohio 43215

Attention Mr. Matt Butler

January 28, 2016

RE: Invitation to stakeholders to comment on industrial wind applications OHIO

CASE NUMBER: 12-1981-GE-BRO

Dear Chairman Andre T. Porter, Members of the Board James Zehringer, Craig Butler, David Goodman, Richard Hodges, David Daniels, Jeffrey Lechak, and Mr. Matt Butler;

C.c. Ohio Governor John Kasich, Presidential Candidate

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Thank you very much for the opportunity to address you with our input with respect to the above Case Number, 12-1981-GE-BRO. The North American Platform Against Wind Power represents over 370 North American groups and thousands of individuals, many of whom are your constituents. We also have the privilege of working with our European counterparts, EPAW (The European Platform Against Wind Power), with its 850 plus member groups. We are researchers, and distributors and analysts, as well as activists, with upwards of 10,000 hours of current news and information and research on turbine effects on wildlife, acoustics, and human health.

The Board under RC 4906.20(B)(2) requires enactment of rules as follows:

[T]he rules shall prescribe reasonable regulations regarding any wind turbines and associated facilities of an economically significant wind farm, including, but not limited to, their location, erection, construction, reconstruction, change, alteration, maintenance, removal, use, or enlargement and including erosion control, aesthetics, recreational land use, wildlife protection, interconnection with power and with regional transmission organizations, independent transmission system operators, or similar organizations, ice throw, sound and noise levels, blade shear, shadow flicker, decommissioning, and necessary cooperation for site visits and enforcement investigations.

We respectfully submit that our understanding of the effects of industrial wind proliferation is changing. Also, we are sadly globally compiling a history of devastating effects on economies. *Not a single country that we are aware of has done a cost benefit study prior to engaging.* With deep appreciation, we hope that others will take the example of the Governor and OPSB and adopt five year re-evaluation or recovery periods, where the Common Sense Initiative (Executive Order 2011-OIK), allows a thoughtful and consultative process so

that contradictory, out of date, immaterial, inappropriate or even harmful, with possible unintended consequences, regulations may be altered.

In light of this consultation, we submit the following comments re:

Revisions to Ohio Adm.Code 4906-4-08.

CONSIDERATION OF SETBACKS

“Ohio Adm.Code 4906-4-08(C)(2)(b) must be changed from 1,125 feet in horizontal distance from the tip of the turbine's nearest blade at 90 degrees to the exterior of the nearest, habitable, residential structure located on adjacent property, to 1,125 feet in horizontal distance from the tip of the turbine's nearest blade at 90 degrees to the property line of the nearest adjacent property.”

Firstly, we [congratulate Governor Kasich and the OPSB for issuing setbacks](#) related to property lines, not residences.

A good deal has materialized with world level understanding of wind turbine and health effects. The reports of adverse effects are the same, with up to 20% of a community in close proximity, being affected. Some report effects from fairly long distances, as in France at 32 km, and in AU at 10 km. Mr. Rick James, an esteemed American acoustician, wrote this to NA-PAW:

I have advocated for 1.25 miles (2km) since my 2008 paper with Kamperman, just for the audible sounds. Nina Pierpont said 1.25 miles based on her work. This distance was agreed upon during a conference call between Nina,

*George Kamperman and myself while we were preparing our respective manuscripts. **Considering the infra and very low frequency sound the information for Shirley Wind indicates 2.5 miles.** (Our emphasis) I have data to show that some are affected out to double that distance. Schomer has said 2.5 miles after considering Shirley and Cape Bridgewater. Cooper has said 4km (2.5 miles) based on Cape Bridgewater. Swinbanks in his 2015 Glasgow paper states that wind turbines 3km from his home in Michigan's Thumb cause vestibular and functional disturbances for him personally. Paul Gipe, who was working with AWEA at the time understood this. His 1996 book, *Wind Energy Comes of Age*, says 1.25 miles because of quiet rural/wilderness conditions and larger wind turbines on the horizon. **Those larger wind turbines are here.** (Our emphasis)*

Any of those distances would preclude wind turbines anywhere except the most isolated places and off shore without a lot of property being bought. Yet, wind turbines in remote and off-shore locations would adversely affect wildlife as I state in my comments on the NY Apex Lighthouse Wind Preliminary Scoping Statement.

As you can see, with larger turbines coming on line, we now have understandings of the effects over distances longer than previously assumed, requires us to rethink setbacks. The Shirley Wind Project has engendered such severe health problems that the Public Health Unit declared the wind project a [“human health hazard.”](#)

It would be, in our view, highly advantageous for the OPSB to include recognition in its siting rulings of the advancement of understanding also of ILFN (Infra and Low Frequency Noise). There really can be no proper mitigation of health complaints without this consideration, and affording residents protection. This is a matter of public leadership: it should not, in our view, be left to individual communities to prepare elaborate bylaws to protect citizens.

Dr. Sandy Reider also indicates that it is a “disservice” to ignore or deny these health impacts:

The Vermont Health Department and the Vermont Department of Public Service persist in reassuring us that there are no significant health effects related to industrial wind turbines under Vermont’s current noise standards.

Such a blanket statement is not only incorrect, it is a disservice to the Vermonters who are already experiencing adverse health effects, such as headaches, vertigo, nausea, anxiety, ringing in the ears and, most importantly, chronic repetitive sleep disruption. There is an ongoing academic debate about the mechanisms behind these effects (direct vs. indirect, the nocebo “it’s all in your head” effect, audible vs. inaudible infrasound), but little disagreement that some persons living too close to these large wind turbines are suffering, whatever the mechanism.

Critical methodological shortcomings plague many of the large-scale industry or government-sponsored studies that state agencies rely upon to establish protective sound levels:

— Failure to measure the full sound spectrum, in particular ignoring the very low frequencies that are likely responsible for many of the reported adverse health effects.

— They assume a constant sound pressure and tone, not at all like the impulsive sound produced by large turbines, which has its own distinct signature that differs from other environmental sources (planes, trains, automobiles, wind, leaves rustling).

— Sound levels are often averaged over an hour, or longer, making it possible for periods of very loud intrusive sound to fall within an “acceptable” calculated level.

— Measurements are usually not taken indoors, where the sound may be more intrusive due to the well-established resonance effects of low frequency sound.

— Most importantly, the large studies fail to focus their investigations on those households that are most severely affected.

In spite of these research design limitations, a recently released large Health Canada study found that at wind turbine sound pressure levels greater than 35 dB(A), health-related complaints will increase, and at levels greater than 40 dB(A) a significant number of persons will be “highly annoyed” (meaning adverse health effects, especially sleep disturbance).

The current Public Service Board threshold of 45 dB(A) of audible sound through an open window, averaged over an hour, has actually never been proven safe or protective. Some studies recommend that audible sound should not exceed 35 dB(A), or 5 dB(A) above normal background sound levels. (This is crucial in rural areas where background noise is minimal, particularly at night). The level should be a maximum, not an hourly average. Above 35 dB(A) there are likely to be significantly more complaints, particularly difficulty sleeping.

Several recent small, well-designed, independent clinical studies (Ambrose & Rand, Nissenbaum, Pierpont, Shomer, Cooper, Thorne) that do take the aforementioned factors into consideration, all conclude that lower, more protective noise limits for these huge industrial wind installations are needed (for more details: docs.wind-watch.org/DRSANDYREIDER_042413.pdf).

Given the above noted experts' views, **and** the recent ground breaking study by [Steven Cooper in AU](#), it is the opinion of NA-PAW that the unfortunate experience of the residents at the Shirley Wind Project in WI serves as an extremely useful learning curve, and that a setback of 2.5 miles is therefore recommended for Ohio and all others in the process of updating their policies and mandates. (We are pleased to supply you with the copious binders of studies and evidence collected by this community.)

[The declaration of Duke's Shirley Wind turbines as a "Human Health Hazard"](#)
follow a yearlong study linking the signature of inaudible low frequency noise

(created by the passing of the massive turbine blades past their supporting towers) to the homes that have been abandoned and to the homes where people continue to suffer. The Board of Health was asked to look at the study's raw data, the evidence linking the sound data to the wind turbines, peer reviewed medical research and the complaints of the people living in the conditions around Duke's Shirley Wind project. They looked at the facts, they listened to the residents, and they studied the medical literature, and then made the connection between Shirley Wind's operations and the suffering in Glenmore - declaring the wind turbines a "Human Health Hazard."

Additional Note:

UNU has suggested ice throw setback considerations be changed for non-participating residences and properties, and we respectfully suggest that all properties should have benefit of being thus protected by law. Even if one property owner suggests that he or she will waive that consideration, it would be, in our view, in the manner of providing public safety for all to have universal guidelines.

Ohio Adm.Code 4906-4-08(B)(1Kc) requires an applicant to provide results of a literature survey of plant and animal life within at least one-fourth mile of the project area boundary, including results of aquatic and terrestrial plant and animal species that are of commercial or recreational value, or species that are designated as endangered or threatened. UNU argues that this would be inadequate for mobile endangered species inclusive of the Indiana bat that may move in and out of the area; therefore, a broader range for a literature survey should be adopted.

WILDLIFE

NA-PAW fully concurs with UNU that wildlife study and impact assessment corridors must be much broader and that these areas must be suitably surveyed and protected. We respectfully request that a bylaw wildlife clause recently proposed by Somerset NY, be adopted at the State level in Ohio.

“Wildlife Impacts: An analysis of impacts on local wildlife shall be prepared, addressing impacts anticipated during construction, reconstruction, modification, or operation of each WECS. Wildlife impacts to be considered shall include, at a minimum, anticipated impacts on flying creatures (birds, bats, insects), as well as wild creatures existing at ground level. An assessment of the impact of the proposed development on the local flora and fauna. The analysis will include migratory and resident avian species and bat species. The scope of such assessment shall take into consideration New York State Department of Environmental Conservation and the United States Fish and Wildlife Service studies, standards and recommendations and must at a minimum consist of pre-construction data of three years, and literature/ studies/survey for threatened and endangered and species of concern and migratory species that provide relevant information on critical flyways and migration routes, and shall describe the potential impacts of any proposed facilities on bird and bat species, and an avoidance or mitigation plan to address any impacts, as well as plans for three-year post-installation studies. The reports shall provide sufficient information to allow the Town Board to make a determination on any mitigation conditions or a denial of permits as provided in standards for Commercial/Industrial WECS Section.

[As noted by UNU, the Indiana Bat](#) requires immediate and long term protection at every level, in order to ensure its existence. Bats usually have only one pup per year, and as we all know, are currently under siege by two major events: white nose syndrome, and industrial wind turbines. They are

attracted to turbines, to the insects that are likewise attracted to the lights. Thus, the turbines become eco death traps. The agricultural and health positive impacts of the presence of bats, any kind of bats, are well known.

NA-PAW recommends a wildlife study corridor of 3 miles surrounding any single or multiple wind turbine installation. We also recommend as in the Somerset bylaw, pre and post construction studies of three years of all bird and bat species, including insect life, as well as all important migration routes, and that these shall **be independent studies**, with recommendations and mandated measures on how to mitigate possible impacts. (Ohio is home to about 13 known species of bats: each bat consumes about 1000 insects per hour. Bats are nature's ecological treasures, saving us from disease, and providing natural insect control regarding crops. [The saving to agriculture](#) is noted to be about one BILLION per year worldwide.)

We emphasize that any and all wildlife impacts assessments must be carried out **independently**, as UNU attests. The facts are sadly now before us that developer led surveys and mortality studies, are not factual, but are often voluntary, and to our knowledge, mostly corrupted. We know that the mortality count areas, are just covering the span of the turbine blades circumference measurement, not inclusive of the area where birds and bats are flung to their deaths, or are quickly scavenged by predators. With these facts at hand, we now know that 90% of mortality is UN REPORTED. The USFWS numbers of bird and bat kills, which they estimate at around 575,000 birds and 600,000 bats per year, are closer to between 13 and 31 MILLION per year in the USA alone. How long can numbers like this be sustained, and apologized for? The green mantra of killing birds and wildlife and vast areas of habitat "for the good of our future children," has been exposed widely, and frankly, we cannot afford this assault on Nature much longer.

We completely concur with UNU on these matters immediately below:

*(f) Ohio Adm.Code 4906-4-08fB)aKdl requires an applicant to provide results of field surveys of plant and animal species identified in the literature survey. UNU proposes that these field studies be required for all endangered species identified in the survey or when the applicant has knowledge of an endangered species within a **specified distance** of the project area. (Our emphasis: we submit that 3 to seven miles or larger circumference be applied, as particular to the geography and migration routes and known habitats of endangered or at risk species.)*

(g) Ohio Adm.Code 4906-4-Q8fB)(lKe) requires an applicant to provide a summary of any additional studies that have been made by or for the applicant addressing the ecological impact of the proposed facility. UNU proposes the applicant be required to submit copies of all studies that the 12-1981-GE-ORD developer has knowledge of and access to even if they were not completed specifically for the developer.

(h) Ohio Adm.Code 4906-4-08fBK2Hblfvii) requires an applicant to provide avoidance measures for major species and their habitat. UNU proposes that the term "major species" be defined in the rules to, at a minimum, include species of commercial or recreational value or an endangered or threatened species.

*(i) Ohio Adm.Code 4906-4-08(B)f3Kc) requires an applicant to describe **(and guarantee, OUR addition)** post construction monitoring of wildlife impacts. UNU proposes an applicant be required to specify measures for mitigation and construction avoidance regarding these species. In addition, UNU proposes that mitigation be mandatory and all monitoring be done by state employees or third-party contractors working on behalf of the Board with the costs to be paid by the certificate holder.*

CONCLUSION

We would also mention that the wind industry is a system that operates with virtually no controls. [There are more accidents, and industrial deaths](#) than with any other source of electricity. There is what some call a "humanitarian disaster" on hand, worldwide, as many flee homes from ILFN and noise and

vibration, lose jobs from sleeplessness, and financially are greatly reduced, if not completely “finished.” These are facts.

But the most egregious fact is that industrial wind is an obsolete, non-performing, fully mature technology, no longer deserving of subsidies. In 2014, a study from India reports that point two of one percent of the world's power was achieved from about 250,000 industrial machines. NET ZERO. What a complete waste. The only thing wind power produces, is higher costs of electricity, and attendant job losses.

[The Fraser Institute in Canada](#), Canada's Premier think tank, indicated last year that wind turbine subsidies drain jobs and suck money from people's wallets. It further recommends that “The Ontario government should announce an immediate moratorium on new wind and solar power facilities, and revisit existing contracts that commit Ontarians to paying well above market rates for renewable electricity, the authors conclude.” “Wind and solar power systems provide less than 4% of Ontario's power but account for 20% of the cost paid by Ontarians, yet the government wants to triple the number of wind and solar generators,” energy analyst Adams said in a statement. “That's a good deal for wind and solar producers but a raw deal for consumers.” *(In 2014, [the Fraser Institute was ranked as the top think tank in Canada](#) and among the top 20 think tanks in the world (19th out of 6,618) in the Global Go To Think Tank Index Report published by the University of Pennsylvania.)*

We urge the Ohio Power siting Board to carefully consider the above recommendations in light of new and current facts around wind factories.

Thank you again for this opportunity.

Sincere best wishes,

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RESOURCES

<http://www.fws.gov/midwest/wind/wildlifeimpacts/inbafatalities.html>

<http://stopthesethings.com/2015/04/14/senates-wind-farm-inquiry-steven-coopers-evidence-on-his-groundbreaking-study/>

<https://www.wind-watch.org/news/2016/01/24/ignoring-harm-of-noise/>

<http://www.bccrwe.com/index.php/8-news/16-duke-energy-s-shirley-wind-declared-human-health-hazard>

http://www.bccrwe.com/images/stories/BCCRWE_Press_Release_%20101614Final.pdf

<http://www.fws.gov/midwest/endangered/mammals/inba/inbafactsht.html>

<http://wildlife.ohiodnr.gov/species-and-habitats/species-guide-index/mammals/little-brown-bat>

<http://www.sciencemag.org/news/2015/09/bats-are-worth-1-billion-agriculture>

<http://www.caithnesswindfarms.co.uk/accidents.pdf>

http://www.science20.com/news_articles/new_ohio_law_requires_wind_turbines_to_be_built_farther_from_homes-138699

<http://www.torontosun.com/2014/10/30/fraser-report-seeks-end-to-wind-turbines>

Steven Cooper's testimony at the Senate Hearings (Special Select Committee on Wind Turbines)

Mr Cooper: I am an acoustical consulting and vibration engineer based in Lilyfield, a suburb in Sydney. I am here in the capacity of myself and my company, although I am the author of the Cape Bridgewater wind farm noise study, which was funded by Pacific Hydro. The study is a small telephone book, and I do not intend in terms of my submission to go through that study. It identifies problems, issues, measurements and results that occurred from the wind farm study. For simplicity one can go to the executive summary in the conclusion. The importance is that study has been hailed around the world as finding new information and material previously not put together or understood with regard to wind farms. It is such a point that I have been invited to a number of conferences in America to talk about this very study.

Also:

Low Frequency Noise and Infrasound

Mr Steven Cooper from the Acoustic Group submitted that there are 'low frequency, infrasound components' in wind turbine noise that have: **...a unique signature associated with turbines and you can measure them near the turbines and measure them up to seven kilometres away...and seven kilometres away I can see this signature and the pattern is there.**

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“You cannot hear it because it is lower than the threshold of hearing, both in frequency and in level, but it is there. Professor Hansen added that low frequency noise is particularly difficult to avoid, as the techniques used to mitigate higher frequency are significantly less effective: The problem with wind farm noise is that it is dominated by low-frequency noise by the time it gets to people’s residences. Many residences, especially if windows are open, are sort of transparent to that noise. The noise level at low frequencies is not much less than what it is outside, whereas the higher-frequency noise—if there is a little bit left—gets attenuated through the walls of the house and the roof. What you are left with when you are inside is a dominant low-frequency noise, and there is no higher-frequency noise to mask it. There is nothing to mix with it. It is just this low-frequency, annoying noise.”

