

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Power Siting Board's)	
Review of Rule 4906-4-08)	Case No. 16-1109-GE-BRO
of the Ohio Administrative Code)	

**COMMENTS OF UNION NEIGHBORS UNITED,
ROBERT AND DIANE McCONNELL, AND JULIA F. JOHNSON
PRESENTED AT JUNE 9, 2016 STAKEHOLDER MEETING**

Good morning. My name is Chris Walker. I am an attorney with Van Kley & Walker in Dayton, and I am here on behalf of four clients: Union Neighbors United, Robert and Diane McConnell, and Julia Johnson. I appreciate this opportunity to offer comments on the Board's Rule 4906-4-08. These comments do not address issues relating to wind turbine noise, which will be addressed by UNU's noise expert, Rick James.

(a) Shadow flicker exposures should be limited to 8 hours/year (4906-4-08(A)(9)).

According to a comparative study of international standards for wind energy siting prepared by the State of Minnesota in 2011, Germany's shadow flicker limits are widely referenced in government and wind energy association documents worldwide. Haugen, *International Review of Policies and Recommendations for Wind Turbine Setbacks from Residences: Setbacks, Noise, Shadow Flicker, and Other Concerns* at 6 (Minnesota Dep't of Commerce 2011), http://mn.gov/commerce/energyfacilities/documents/International_Review_of_Wind_Policies_and_Recommendations.pdf. The Minnesota study

notes that there is widespread confusion about Germany's limits. *Id.* Many sources reference Germany's worst-case exposure limit of 30 hours/year. The German 30-hour standard is a siting standard that takes into account maximum astronomical flicker duration on a given property. However, according to the Minnesota study (which included personal interviews with German contacts), the same German law limits actual shadow flicker exposure at residences, schools, workplaces, and health care facilities to 8 hours/year. *Id.* If setback distances are not sufficient to reduce shadow flicker to 8 hours/year, the law directs that turbines be turned off during periods when shadow flicker is an issue. *Id.* Denmark, which in 2011 had the highest wind energy capacity per capita and per land area in the world, *id.* at 18, applies a shadow flicker exposure guideline of 10 hours/year and includes a similar provision to curtail operation of offending turbines. *Id.*

Rule 4906-8-04 contains no standards for limiting shadow flicker impacts on neighboring properties. In practice, however, the Power Siting Board has been applying a standard of 30 hours/year on an *ad hoc* basis in its certificate proceedings. In the Power Siting Board's 2010 entry approving the Buckeye Wind certificate, the Board approved the Staff's recommendation of a 30-hour exposure standard, which was based in part on the German law. *Matter of the Application of Buckeye Wind, LLC*, Case No. 08-666-EL-BGN, Opinion, Order and Certificate at 44 (March 22, 2010). The Board also noted that as of the date of the Staff Report in that matter (2009), four U.S. states had adopted the 30-hour standard. Since that time, New Hampshire has adopted a shadow flicker standard incorporating the 8-hour limit. New Hampshire Siting Comm'n Rule 301.13(f)(2) (2015), http://www.gencourt.state.nh.us/rules/state_agencies/site100-300.html.

Revised Code 4906.20(B)(2) requires the Board to enact reasonable regulations regarding wind turbines and associated facilities. That statute specifically lists shadow flicker as a subject to be regulated. Rule 4906-4-08 contains no regulations on the subject of shadow flicker, other than the requirement that the applicant evaluate and describe potential impacts and its plans for minimizing potential impacts. O.A.C. 4906-4-08(A)(9). Since shadow flicker can be extremely disruptive and annoying to neighbors, reasonable regulation of the subject should include enforceable standards limiting actual shadow flicker effects on neighboring properties. Since Germany's standard has been widely-cited and has, in fact, been relied upon by the Board and its Staff, UNU recommends that the Board adopt a limit of 8 hours of actual exposure per year. The rule should also provide that wind turbine operations are subject to a curtailment order by the Board if neighboring property owners experience more than 8 hours of shadow flicker per year.

(b) Revised Code 4906.20(B)(2) requires the Board to enact reasonable regulations governing blade and ice throw risk.

As the Board is aware, in 2012 a wind turbine in the Timber Road wind farm in Paulding County malfunctioned, scattering chunks of blade around the surrounding area. In the Champaign Wind certification case, UNU offered evidence that blade fragments from that incident were thrown farther than 1,500' from the base of the turbine. *Matter of Application of Champaign Wind, LLC*, Case No. 12-160-EL-BGN, Schaffner Dir., UNU Exh. 21, p. 3, A9 and p. 4, A11.; Schaffner, Tr. VI 1331:7 - 1332:1.¹

If the outer 10% of a wind turbine blade falls to the ground, it hits with the same impact that a Ford Crown Victoria falls over two and a half times the height of Niagara Falls. Palmer Dir., UNU Exh. 22, p. 15:4-5. This does not take into consideration the additional kinetic energy

¹ All references to transcripts and exhibits in this subsection (b) are from the *Champaign Wind* case.

of a moving blade part due to rotational velocity. *Id.* at p. 15:5-7. The kinetic energy of a rotating blade, which under normal speed can rotate 212 miles per hour (*id.* at p. 6:28-30), can propel broken blade pieces for long distances and with great force. *Id.* at p. 17:1-11.

A flying three-kilogram sized piece of blade (6.6 pounds) would have the same effect as dropping a 40 pound concrete block from an 8-story window on a person below. *Id.* at p. 15:10-13. A one kilogram (2.2 pounds) sized blade piece can easily smash a vehicle's windshield and injure the occupants. *Id.* at p. 17:22-30. Blade fragments can be thrown at least 1,640 feet. Palmer Dir., UNU Exh. 22, p. 24:3-4; Palmer, Tr. VI 1433:16-18.

Yet Rule 4906-4-08 contains no regulatory standards for the protection of the public from blade throw or ice throw hazards. In fact, in its second entry approving Rule 4906-4-08 last November, the Board stated that concerns about blade and ice throw were “beyond the scope of our purview,” suggesting instead that such concerns were really focused on the General Assembly's statutory minimum setbacks. OPSB Case No. 12-1981-GE-BRO, Second Finding and Order at (16), p. 5 (Nov. 12, 2015). The Power Siting Board professed to have no authority to regulate wind farm hazards beyond the minimum statutory setbacks--notwithstanding the fact that those setbacks are *minimums*. As we have repeatedly pointed out, the Board's position also overlooked the fact that Revised Code 4906.20, in addition to establishing those minimum setbacks, specifically directs the Board to enact reasonable regulations governing blade and ice throw.

The statutory setbacks do not protect motorists on roadways that pass through wind energy facilities. In *Champaign Wind*, the Staff recommended a setback equivalent to 150 percent of the sum of turbine hub height and rotor diameter to safeguard individuals in occupied structures and on heavily traveled roads from ice and blade fragments thrown from a turbine.

Matter of Champaign Wind, LLC, Staff Report at 31. The Board adopted the Staff's recommendation. *Id.*, Opinion, Entry and Certificate at 44-45 (4/29/2013). UNU urges the Board to adopt an enforceable setback standard of at least this distance from all roadways, since the risk of being struck by blade or ice fragments is present for all motorists, not merely those on heavily-traveled roadways. Furthermore, the term "heavily-traveled roadways" is ambiguous and therefore not conducive to an enforceable setback standard.

Since turbines can throw blade or ice fragments at least 1,640 feet, UNU urges the Board to adopt in its rule an enforceable setback of at least 1,640 feet from all nonparticipating property lines for the purpose of protecting neighboring property owners from injury, death, or damage from flying ice or blade fragments. UNU Brief at 54-59. Although objectors have claimed that such a setback is more stringent than analogous requirements for protection of public health from power plant hazards, this is simply not the case. Power plants are normally situated in areas zoned for industrial operations; Ohio wind farms, on the other hand, are often proposed for areas with relatively dense residential populations. Even where power plants are located near residences, legal protections for neighboring residents are robust. For example, in 2002 American Electric Power opted to buy out the entire town of Cheshire, Ohio, in settlement of air pollution claims. <http://www.theatlantic.com/business/archive/2014/10/for-20-million-a-coal-utility-bought-an-ohio-town-and-a-clear-conscience/381499/>.

Other stakeholders may urge the Board to adopt setbacks based on a multiplier of turbine height. We have no objection to such an approach provided it adequately addresses the risks I have just described. The experience of Europe is relevant here. Denmark, which I mentioned earlier, applies a setback of 4X turbine height. International Review of Policies (Minnesota) at 18. But European setbacks are increasing. In 2014, Bavaria adopted a setback of 10X turbine

height. Gesetz zur Änderung der Bayerischen Bauordnung und des Gesetzes über die behördliche Organisation des Bauwesens, des Wohnungswesens und der Wasserwirtschaft, <https://www.verkuendung-bayern.de/gvbl/jahrgang:2014/heftnummer:19/seite:478>, summarized in <http://www.rechargenews.com/wind/1430483/second-german-state-plans-wind-turbine-distance-regulation>. In 2016, Poland—one of the strongest wind development performers in Europe--followed suit with a setback of 10X turbine height. “Poland adopts limits on where wind farms can be built,” <http://www.businessinsider.com/r-poland-adopts-limits-on-where-wind-farms-can-be-built-2016-5>; “Industry stands together to make economic case for wind energy in Poland,” <http://www.ewea.org/press-releases/detail/2016/03/08/industry-stands-together-to-make-economic-case-for-wind-energy-in-poland/>.

This Board is responsible for the safety of individuals living and working near wind turbines. This includes the landowners who lease their land for the turbines, non-participating neighbors living near the turbines, adults or children working or recreating on neighbors’ land near the turbines, and motorists driving on roads past the turbines. To fulfill its obligation, the Board should require a setback of at least 1,640 feet between turbines and the homes and land of nonparticipating landowners, and a setback of at least 1,000 feet from public roads.

(c) **Applications should express all parcel-specific information in a manner that can be readily interpreted by members of the public.**

In our experience, the format of past applications for wind farm certificates has often made it difficult or impossible for members of the public to find key information that is important to their properties and their community. For example, modeling reports have sometimes referenced surrounding properties using unintelligible codes rather than by address, parcel number, or other means that can be readily interpreted by the public. In other cases, members of the public have not been able to decipher modeling conclusions concerning a

particular parcel without the purchase of expensive proprietary software. We urge the Board to require that applications express all parcel-specific information, such as modeling inputs and results, in a manner that can be readily interpreted by members of the public.

(d) Manufacturer Safety Manuals and Recommended Setbacks (4906-4-08(A)(1)(c)):

We support the requirement that applicants provide copies of all manufacturer safety manuals and recommended manufacturer setbacks. However, in addition to formal safety manuals and setback recommendations, turbine manufacturers have also developed written recommendations concerning siting and “micro-siting” of turbines to address safety hazards and other siting considerations. These recommendations may be relevant to the Staff’s and Board’s review process. Therefore, we urge the Board to revise subsection (A)(1)(c) of this rule to read as follows: “Provide the generation equipment manufacturer’s safety standards, a complete copy of the manufacturer’s safety manual or similar document, any manufacturer-recommended setbacks, and any other manufacturer recommendations relating to safety, health, or turbine siting.”

(e) Land Use and Community Development (4906-4-08(C)):

Subsection (C)(1)(a) requires submission of a map showing specified information, such as prevailing land use, within one mile of the proposed facility. The Board’s previous rule required a map showing such information within five miles of the proposed facility. Ohio Adm. Code 4906-17-08(C)(1). A one-mile mapping area around the proposed facility may not pick up important land uses, such as airports, that would be affected by construction and operation of the facility. We urge the Board to retain the five-mile mapping distance set forth in its existing rule.

(f) Information regarding distance between turbines and adjacent properties. (4906-4-08(C)(1)(b)).

This rule calls for a table indicating, for each structure within 1,000 feet of a wind turbine, the distance between the structure and the turbine. Because all statutory setbacks are now to be measured from the nearest adjacent property, R.C. 4906.20(B)(2)(a), we submit that the distance to nearby structures is no longer of primary relevance. For purposes of the statutory setback requirements, the rule should require specification of distances from turbines and adjacent properties. In addition, for purposes of determining compliance with enforceable noise and safety standards, the Board should similarly require a table showing distances to all properties and public roads within 1,640 feet of each proposed turbine.

(g) Mapping of leased parcels (4906-4-08(C)(2)).

We strongly support the Board's proposal to require applicants to map all parcels leased by the applicant for the proposed facility. 4906-4-08(C)(2). Because applicants may be developing projects in stages, however, the rule should require the applicant to indicate all parcels it has leased for wind development—not just parcels it has leased for the facility that is the subject of the application. Identification of all leased properties is important to the Board, the Staff, and the public for the sake of assessing the potential for cumulative impacts from future wind energy development in the affected area.

(h) Visual Impact Study (4906-4-08(D)).

The rule provides no guidance for the number or selection of vantage points for visual simulations. We urge the Board to require visual simulations with north/south/east/west views for at least one location per square mile within one mile of the proposed project area.

(i) Wildlife Literature Survey (4906-4-08(B)(1)(c)):

The rule requires the applicant to provide the results of a “literature survey of the plant and animal life” within one-quarter mile of the project area. One-quarter mile is inadequate for mobile endangered species such as the Indiana bat, which may move freely in and out of the project area. We urge the Board to require a broader range for the initial literature survey.

(j) Wildlife Studies (4906-4-08(B)(1)(d)-(e)):

Subsections (B)(1)(d) and (e) call for submission of certain field studies, but do not require them. At a minimum, the rule should require submission of actual field studies for all endangered species identified in the literature survey, or where the applicant has knowledge of the presence of an endangered species within a specified distance of the project area.

As the Board is aware, wind developers have been known to purchase lease rights from other developers who may have conducted ecological surveys of the subject area. We are aware of at least one situation where the acquiring developer did not provide the Board with ecological studies conducted by its predecessor. Therefore, where the applicant is aware of and has access to studies (such as field studies) regarding the potential impact of the proposed facility, the Board’s rule should require the applicant to submit copies of all such studies with the application, regardless of whether the studies were performed “by or for the applicant.” 4906-4-08(B)(1)(e).

(k) Mitigation of Construction and Operational Impacts on Wildlife (4906-4-08(B)(2)(b)(viii)):

Subsection (B)(2)(b)(viii) of the rule requires that the applicant specify measures for avoiding construction impacts to “major species and their habitat.” The term “major species” appears to have carried over from the Board’s existing rules, but has not been defined in the current rules. That term should include, at a minimum, species of commercial or recreational

value, or species listed or proposed for listing as endangered or threatened under federal or Ohio law.

(I) Mitigation of Construction and Operational Impacts on Wildlife (4906-4-08(B)(3)):

Subsection (B)(3)(c) requires applicants to provide information on plans for post-construction monitoring of wildlife impacts caused by operational or maintenance activities. For major species (as described above), the rule should also require a plan for mitigation or avoidance of such impacts. Both the monitoring and mitigation/avoidance plans should be mandatory, not optional. In order to avoid conflicts of interest, the Board should require all monitoring to be conducted by State employees or third –party contractors working on behalf of the OPSB, with all associated costs to be paid by the certificate holder.

Thank you for your consideration and for the opportunity to comment on this rule.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

8/17/2016 5:17:28 PM

in

Case No(s). 16-1109-GE-BRO

Summary: Comments of Union Neighbors United et al. electronically filed by Mr. Christopher A Walker on behalf of Union Neighbors United and McConnell, Robert Mr. and McConnell, Diane Mrs. and Johnson, Julia F. Ms.