

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Application of :
Champaign Wind, LLC, for a Certificate : Case No. 12-160-EL-BGN
to Construct a Wind-Powered Electric :
Generating Facility in Champaign County, :
Ohio. :

**POST-HEARING BRIEF
SUBMITTED ON BEHALF OF THE STAFF OF
THE OHIO POWER SITING BOARD**

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INTRODUCTION

Building a wind farm in a rural, agricultural setting will undoubtedly change the landscape. While the proposed project will remove only a small amount of farm land from production, wind turbines do emit noise. “Quality of life” factors, such as aesthetic view and shadow flicker, present themselves while safety concerns, albeit mathematically small, such as ice throw and blade shear, are part of wind farming. That such factors or “impacts” accompany commercial wind farming does not make the activity unlawful or even unreasonable. Quite to the contrary, the Ohio General Assembly has declared wind development to be both lawful and important to promote a diversified state energy portfolio. Local opposition, while vocal and passionate, contrasts with many farming families who welcome the economic development and tax and other benefits that this development brings to the area, including their ability to supplement lagging farm incomes. There are a finite number of sites in Ohio that can support a commercial-size wind farm. Elevation and good wind characteristics are key. The proposed project site in Champaign County has these characteristics and that is why it has been selected.

Project opponents seek to use this case to debate the policy merits of wind farming and to keep Champaign County a “wind farm free” zone. As the Ohio Power Siting Board (Board) deliberates this case, it must be mindful that this policy debate has already occurred and the General Assembly has already spoken. To sustain legal muster, the proposed Champaign Wind, LLC¹ (Champaign Wind or applicant) project need not be impact-free or without risk. Improvements and maintenance to local roads will be required and made. Aesthetics and other impacts will be addressed and minimized where possible. The passion of folks who oppose the project, while admirable, must not be allowed to cloud the task before the Board. Its adjudicatory role is to identify expected impacts and adopt measures that reasonably address and mitigate those impacts to the project area and environment. As the Board is well aware, it issued a Certificate of Public Convenience and Necessity for Buckeye I wind farm located in close proximity to Champaign Wind’s facility. Because of Buckeye I’s turbines close proximity to those involved in Champaign Wind’s project, the Board here need only consider incremental impacts. The Board’s Staff (Staff) submits that the Application and the numerous conditions proposed by its Staff, to address and mitigate impacts, adequately account for this. Staff respectfully requests that the Board adopt Staff recommended conditions contained in the Staff Report and as amended in Attachment A.

BACKGROUND AND PROCEDURAL HISTORY

On May 15, 2012, Champaign Wind filed this application to construct and operate a commercial wind farm in Champaign County, Ohio. Prior to filing the application, Champaign Wind

¹ The applicant is a wholly-owned subsidiary of Everpower Wind Holdings, Inc., a New York-based developer.

engaged in certain public outreach activities, including filing a project descriptive pre-application letter on January 16, 2012 and holding a public informational meeting on January 24, 2012.

This case has been the subject of extended litigation. Adjudicatory hearings commenced on November 8, 2012 and concluded on December 7, 2012. During 16 days of hearings, literally several thousand pages of transcripts and documentary evidence was offered and admitted. In all, testimony was taken from approximately 40 witnesses as the applicant, intervening parties (both supporting and opposing) and the Staff all received a full and fair opportunity to be heard on the merits.

The Board's charge is to evaluate the Champaign Wind application against the statutory criteria set forth in R.C. 4906.10. While the record contains conflicting viewpoints, to be sure, the majority of these statutory criteria are largely uncontested. For example:

- R.C. 4906.10(A)(1) (Basis of Need) – This criterion is not applicable to a generation project such as the commercial wind farm major utility facility in this case.²
- R.C. 4906.10(A)(8) (Water Conservation Practices) – This criterion has no application to this case.
- R.C. 4906.10(A)(7) (Agricultural Districts) – This criterion is largely uncontested. The record reflects that commercial wind farming is compatible with the predominately agricultural proposed site. A relatively small percentage of active farm land is affected by the project.³ The proposed project, subject to Staff-recommended conditions, is supported by the Ohio Farm Bureau Federation many of whose members are participating landowners in the project.
- R.C. 4906.10(A)(4) (Electric Grid) – No party has raised any substantive issues relative to connection of the proposed wind farm to the existing electric grid.⁴

² *In re Champaign Wind*, Case No. 12-160-EL-BGN (Staff Report of Investigation at 6) (October 10, 2012) (hereinafter “Staff Report”).

³ *Id.* at 49.

⁴ *Id.* at 40-42.

- R.C. 4906.10(A)(5) (Air, Water, Solid Waste and Aviation) – This criterion is largely uncontested save for several issues advanced by the city of Urbana regarding usage of its airport and, in particular, emergency Care Flight operations that are housed at Grimes Field. A “Determination of No Hazard” has been issued by the Federal Aviation Authority (FAA) for all 56 turbine locations in Champaign Wind, while the Applicant has also filed with and received clearances from the Ohio Department of Transportation Office of Aviation for all turbine locations as well.⁵ In addition to recommending temporary lighting for all structures 200 feet or higher (until permanent lighting is installed), the Staff has also recommended that the Board order the Applicant to coordinate with Care Flight providers to allow for the quick shut down of any turbines necessary to allow for emergency life flight services in or around the wind farm.⁶

The remaining statutory criteria that the Board must render findings upon, R.C. 4906.10(A)(2) (Nature of the Probable Environmental Impact), R.C. 4906.10(A)(3) (Minimum Adverse Environmental Impacts), and R.C. 4906.10(A)(7) (Public Interest, Convenience and Necessary) are contested and will be discussed at greater length throughout this brief.

The law requires the Board’s Staff to investigate an application for a major utility facility, such as this, to assess likely impacts and to recommend conditions to the Board to mitigate or minimize impacts to the project environment. Local roadways will be damaged and Staff conditions require that the applicant coordinate with local highway authorities to maintain and fix the roads. Ample Staff-recommended setbacks will help reduce impacts of turbine operational noise and safety risks associated with ice throw or blade shear. Annual shadow flicker hours will be minimized to levels below thresholds where human sensitivity is adversely impacted. The law does not, of course, require a finding that a major utility project be totally free of safety or other risks, or even minor annoyances to the public, as a precondition to Board approval. The Staff has proposed comprehensive recommendations for the Board’s studied consideration in order to

⁵ Staff Report at 44-45.

⁶ *Id.*

address and reduce Project impacts to reasonably acceptable levels. Staff submits that, if implemented, these conditions will allow this project to lawfully move forward under the requisite statutory criteria. The Staff respectfully requests that any certificate issued by the Board be made subject to such conditions.⁷

DISCUSSION⁸

The Staff Report discusses each R.C. 4906.10 criteria and speaks for itself. The Staff Report evidences its findings, and Staff will discuss and address only contested areas of that report, that include statutory criteria nos. 2, 3, 5, and 6 under R.C. 4906.10. The Staff Report provides all the discussion necessary on uncontested statutory criteria, nos. 1, 4, 7, and 8. For brevity also, Staff will limit its discussion to the contested conditions. In general, in response to conditions⁹ “contested” by the applicant, Staff accepts some of the applicant’s proposed modifications to conditions recommended in the Staff Report.¹⁰ Staff also considered conditions and/or modifications suggested by other parties during cross examination and proposes modifications to the Staff Report resulting from some of them also . The entirety of modifications to Staff conditions that Staff concurs with are identified in Attachment A.

⁷ Staff Report at 51-64. On the record, Staff witnesses agreed to modify or, in some cases, eliminate some of the conditions. These will be discussed at greater length later in this brief.

⁸ References to conditions by number employ the Staff Report condition number. All the conditions are shown in Attachment A including conditions still proposed to delete. If the Staff Report condition number changes because of deletions, the condition will continue to be referenced by its Staff Report condition number.

⁹ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Michael Speerschneider on behalf of Champaign Wind (Co. Ex. 5) at 11-12) (October 29, 2012) (hereinafter “Speerschneider Dir. Test.”).

¹⁰ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Donald Rostofer (Staff Ex. 2) at 7) (November 5, 2012) (hereinafter “Rostofer Dir. Test.”); Tr. VIII at 2030.

A. The Board should determine the facility serves the Public Interest, Convenience, and Necessity as recommended in the Staff Report.¹¹

The facility serves the public interest, convenience, and necessity because it facilitates state policies favoring alternative, renewable forms of energy, including wind-energy.¹²

Champaign Wind is a “renewable energy resource.”¹³ The General Assembly requires that utilities provide an ever-increasing portion of their electrical supply from such resources.¹⁴

Champaign Wind proposes to construct a major utility facility to add approximately 140 megawatts (MW) of alternative energy generating capacity.¹⁵ By promoting important state energy policies, the Project serves Ohio’s public interest, convenience and necessity.

Champaign Wind serves the public interest, convenience, and necessity also because of the economic benefits it provides the local community.¹⁶ The facility’s leased land is used primarily for agriculture and the facility is compatible with this use.¹⁷ The wind turbines impose a small footprint on the land - less than 1% of the total leased project will be used to permanently host facility components.¹⁸ In exchange for this small imposition, the wind turbines provide “a

¹¹ R.C. 4906.10(A)(6).

¹² R.C. 4928.02; Staff Report at 46-49; *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Stuart Siegfried (Staff Ex. 6) at 3) (November 5, 2012) (hereinafter “Siegfried Dir. Test.”).

¹³ R.C. 4928.35(A)(1).

¹⁴ R.C. 4928.64, 4928.65.

¹⁵ Staff Report at 6.

¹⁶ Siegfried Dir. Test. at 3.

¹⁷ Staff Report at 47.

¹⁸ *Id.*; *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Dale Arnold on behalf of the Ohio Farm Bureau Federation at 1) (November 5, 2012) (hereinafter “Arnold Dir. Test.”).

significant source of revenue.”¹⁹ Local landowners participating in the project will enjoy lease payments estimated, in the aggregate at, approximately \$975,000 annually and they can expect those revenues for decades.²⁰

Those revenues benefit not only the individual landowner but also the entire community by preserving agricultural land use and culture.²¹ In Ohio, the conversion of agricultural land to industrial development and urban sprawl constitutes the major threat to prime farm land.²²

“Dense housing, commercial strip malls and industrial development are not compatible with continued agricultural use.”²³ Anticipated lease payments enable farmers to continue farming, and to supplement their farming incomes while preserving the community’s agrarian flavor.²⁴

Champaign Wind will provide further economic benefits to the local community through increases in construction spending, wages, purchasing, and local tax revenues.²⁵ The facility’s construction and operation accompanied by the resulting economic activity will create hundreds of jobs and pump millions of dollars into the local economy.²⁶ It also will significantly increase local tax revenues by an estimated \$1,045,800 annually.²⁷ Such revenues will benefit local

¹⁹ Arnold Dir. Test. at 3.

²⁰ Staff Report at 47; Co. Ex. 1 at Vol. II, Ex. G at 14.

²¹ Arnold Dir. Test. at 3-4.

²² *Id.* at 3.

²³ *Id.* at 4.

²⁴ *Id.*

²⁵ Staff Report at 22.

²⁶ *Id.*

²⁷ *Id.* at 48.

schools, Champaign County and affected townships.²⁸ Accordingly, Champaign Wind serves the public interest, convenience, and necessity by benefiting the local community.

Additionally, the applicant offers protection against damage to public roads resulting from the construction and operation of the wind-farm.²⁹ The applicant will provide insurance against claims in the millions of dollars.³⁰ The applicant will maintain an insurance policy insuring, at a minimum, against claims of one million dollars per occurrence and up to two million dollars in the aggregate. Additionally, applicant will maintain an Umbrella Coverage insuring, at a minimum, against claims of \$10 million per occurrence and \$10 million in the aggregate.³¹ The applicant will also establish a road bond, or similar surety, through the County Engineer's office to provide adequate funds to repair any damage to public roads.³²

Finally, the applicant has engaged the public throughout this process as described in the Staff Report.³³ It hosted local informational meetings and it hosted annual displays at the Champaign County Fair.³⁴ The applicant also conducted a public meeting in January, 2012 in North Lewisburg.³⁵ The applicant maintains an informational website and maintains an office in Bellefontaine, Ohio.³⁶ The public has been informed of this project.

²⁸ Staff Report at 48.

²⁹ *Id.* at 46-47; Siegfried Dir. Test. at ____.

³⁰ Staff Report at 46-47.

³¹ *Id.*

³² *Id.*

³³ *Id.* at 46.

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

During what has been a very “public” process, abundant evidence has been adduced showing the facility serves the public interest, convenience, and necessity; nonetheless, opponents question the expected economic benefits, express concerns about the unknown with a future that includes the facility, mount attacks on wind-farms generally, and desire to promote urban sprawl. To some, change creates concern because it undermines the comfortable illusion that the past is a predictor of the future. If certainty in the future was the gauge for decisions, very little progress would occur and wisely the General Assembly has not established such a stifling standard for the Board. Staff has identified solid reasons that show the proposed project will promote the public interest, convenience, and necessity, as evidenced by significant local public support.

For these reasons, Staff recommends the Board find the facility serves the public interest, convenience, and necessity.

B. The Board should determine the facility will comply with Chapters 3704., 3734., and 6111 of the Revised Code and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the Revised Code as recommended in the Staff Report.³⁷

The facility will comply with the statutes and regulations specified in R.C. 4906.10(A)(5).³⁸ The Board should so find.

³⁷ R.C. 4906.10(A)(5).

³⁸ Staff Report at 43-45.

1. Air

The facility will not produce air pollution; that is one of its many advantages.³⁹ Air quality permits are not required for construction and operation of the proposed facility.⁴⁰ Staff believes that construction and operation of the facility, as described by the applicant, would satisfy fugitive dust rules adopted pursuant to R.C. Chapter 3704, and otherwise be in compliance with air emission regulations.⁴¹ The record reveals no dispute on this point.

2. Water

Neither construction nor operation of the proposed facility requires the use of significant amounts of water, so requirements under R.C. 1501.33 and 1501.34 are not applicable to this project. As indicated previously, the applicant has designed the project to avoid wetlands and to minimize disturbance to streams and streambeds.⁴² The applicant has indicated that it will implement a Storm Water Pollution Protection Plan (SWPPP), a requirement of its storm water permit, and will obtain a Clean Water Action Section 404 Permit and/or 401 permit from the U.S. Army Corps of Engineers and Ohio EPA, respectively, if required.⁴³ And, Staff Report condition 62 requires the applicant to obtain all required permits and authorizations prior to construction and comply with such permits.⁴⁴ Staff believes that construction of this facility, subject to the recommended conditions that appear in the Staff Report, as modified herein, would comply with the

³⁹ Staff Report at 43.

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² Tr. VI at 1623-1624.

⁴³ *Id.*

⁴⁴ Staff Report, Condition 62.

requirements of R.C. Chapter 6111, and the rules adopted pursuant to that chapter. Staff believes this is not disputed.

3. Solid Waste

Staff also believes that the applicant's solid waste disposal plans will comply with solid waste disposal requirements of R.C. Chapter 3734 and the rules adopted pursuant to those chapters. Staff believes this also is not disputed.

4. Aviation

As part of Staff's investigation, Staff contacted the Ohio Department of Transportation's Office of Aviation and coordinated the review of the facility's potential impacts on public airports in accordance with R.C. 4561.32.⁴⁵ The investigation reveals Champaign Wind's compliance with the rules and standards adopted under R.C. 4561.32. The Federal Aviation Administration (FAA) issued a No Hazard determination for all the turbine locations and, as Staff observed: "Given the preliminary FAA determinations of no hazard to air navigation, neither construction nor operation of the facility is expected to create any adverse impacts on ... airports or the existing travel network."⁴⁶ Additionally, the Ohio Department of Transportation, Office of Aviation issued notices of clearance for all turbines associated with this matter.⁴⁷ Staff recommends conditions 67 through 70, discussed in subsection D to ameliorate potential impacts

⁴⁵ Staff Report at 44.

⁴⁶ *Id.*

⁴⁷ *Id.*

resulting from the turbines and their construction.⁴⁸ With these conditions, Staff recommends the Board find R.C. 4906.10(A)(5) satisfied.

C. The Board should find that the nature of the probable environmental impact of the facility has been shown and that the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations, as recommended in the Staff Report.⁴⁹

The proposed facility has minimal environmental impacts. It will produce electricity without polluting the air and without using, much less polluting, water.⁵⁰ The facility will generate solid waste in amounts so small that the waste will be disposed in dumpsters emptied by a private contractor.⁵¹ When operational, this facility promises a negligible environmental impact.

Nevertheless, Staff conducted a comprehensive review scrutinizing 21 areas including: socioeconomic impacts; ecological impacts; and impacts on public services, facilities, and safety to identify the nature of the facility's environmental impacts.⁵² Staff considered: demographics, land use, cultural and archaeological resources, aesthetics, economics, surface waters, threatened and endangered species, vegetation, setbacks, roads and bridges, public and private water supplies, pipeline protection, blade shear, high winds, ice throw, construction noise, operational noise, shadow flicker, communications, and decommissioning.⁵³ Staff also recommended condi-

⁴⁸ Staff Report at 44-45.

⁴⁹ R.C. 4906.10(A)(2), (3).

⁵⁰ Staff Report at 43, 50.

⁵¹ *Id.* at 44.

⁵² *Id.*

⁵³ *Id.* at 28-37.

tions to reasonably minimize impacts and risks.⁵⁴ Staff believes that its recommended conditions will sufficiently mitigate any such impacts and allow the Board to find overall minimal adverse environmental impact.⁵⁵ In fact, the Staff Report provides the Board with a sound, objective, evidentiary basis for determining the existence of all R.C. 4906.10 criteria, and, the Staff submits, supports Board issuance of a certificate conditioned as Staff has recommended.⁵⁶

As throughout this brief, Staff will not repeat the Staff Report and, accordingly, will limit this discussion to what Staff believes are the most controversial issues associated with the criteria in R.C. 4906.10(A)(2) and (3).

1. Setbacks

R.C. 4906.20(B)(2) sets forth minimum setbacks for “economically significant wind farms.” The Board’s rules incorporate these minimum setback requirements in Rule 4906-17-08(C)(1)(c) and apply these minimum setbacks to all wind projects under its jurisdiction. That rule provides, in part, that:

- (i) The distance from a wind turbine base to the property line of the wind farm property shall be at least one and one-tenth times the total height of the turbine structure as measured from its tower’s base (excluding the sub-surface foundation) to the tip of its highest blade.
- (ii) The wind turbine shall be at least seven hundred fifty feet in horizontal distance from the tip of the turbine’s nearest blade at ninety degrees to the exterior of the nearest habitable residential structure, if any, located on adjacent property at the time of the certification application.

⁵⁴ Rostofer Dir. Test. at 4.

⁵⁵ Staff Report at 38-39.

⁵⁶ *Id.* at 28-39.

Champaign Wind states that proposed turbines are sited with setbacks from residential structures and property lines consistent with Rule 4906-17-08(C)(1)(c).⁵⁷ In the present case, the requirements of that rule translate to a required setback of at least 541 feet from nonparticipating property lines, and 919 feet from residential structures.⁵⁸ Staff submits that the evidence of record demonstrates that these setbacks are, in general, sufficient to ensure that any impacts are adequately minimized. The applicant's witness Poore testified that these setbacks were consistent with typical industry practice, and that all turbine locations for this project fell within those limits.⁵⁹

Staff found, however, that three of the proposed turbine sites, nos. 79, 95 and 129 did not meet the minimum setback requirements of Rule 4906-17-08(C)(1)(c). Staff witness Conway testified that Staff had learned of new construction that would result in a residence being within the recommended setback for proposed Turbine 79.⁶⁰ He recommended that the applicant relocate and/or resize Turbine 79 to conform to Staff's recommended conditions.⁶¹ Staff witness Rostofer testified that Staff learned at the local public hearing that Turbine 95 did not satisfy the statutory property line setback requirement, as the landowner had decided not to become a par-

⁵⁷ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Application for Certificate of Compatibility and Public Need at 71) (May 15, 2012) (hereinafter "Application").

⁵⁸ Staff Report at 28. Staff respectfully notes that, although that Staff Report was not offered as an exhibit at the evidentiary hearing, it is nonetheless a part of the record in these proceedings. R.C. 4906.07(C) provides that the Staff Report "shall become part of the record" of a public hearing with respect to any certificate application filed pursuant to R.C. 4906.06.

⁵⁹ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Robert Poore on behalf of Champaign Wind at 4) (October 29, 2012) (hereinafter "Poore Dir. Test.").

⁶⁰ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Andrew Conway on behalf of the Staff of the Ohio Power Siting Board at 5) (November 5, 2012).

⁶¹ *Id.*

icipating leaseholder.⁶² Finally, the Staff Report indicated that Turbine 129 was proposed to be located 613 feet to the southeast of a residential structure, but that this residence had been abandoned, was no longer habitable, and was scheduled for demolition.⁶³

Moreover, Staff concluded that evidence indicated that greater setbacks should be required, and recommended conditions that exceed the Board's rules. Specifically, Staff recommended that the applicant ensure a minimum setback distance from gas pipelines of at least 1.1 times the total height of the turbine structure as measured from its tower's base (excluding the subsurface foundation) to the tip of its highest blade.⁶⁴ The Board has not previously recommended such a setback. In addition, Staff's recommended setback with respect to heavily travelled roads exceeds the Board's setback requirements due to risks posed by ice throw.⁶⁵ Staff also found that certain of the proposed turbine models had specific safety standards for ice throw and blade shear that require setbacks that exceed the Board's setback rule for occupied structures. Consequently, Staff determined that turbines with dimensions similar to the proposed GE models would need to be located a distance of approximately 302 meters (991 feet) from any occupied structure or heavily travelled road.⁶⁶

2. Blade Shear

The applicant states that blade shear occurs when a rotor blade drops or is thrown from the nacelle. It offers that, although these occurrences could be dangerous, they are extremely

⁶² Tr. VIII at 2031.

⁶³ Staff Report at 28.

⁶⁴ *Id.* at 30; Tr. X at 2560.

⁶⁵ Tr. X at 2489, 2492.

⁶⁶ Staff Report at 31; Tr. at 2560.

rare, and it was pointed out that no member of the public has ever been injured as a result of blade shear.⁶⁷

According to the applicant, evidence suggests that the most common cause of blade failure is human error in interfacing with control systems. Champaign Wind asserts that the chance of such a failure has been reduced by a manufacturer reduction of human adjustments that can occur in the field.⁶⁸

In support of its current application, Champaign Wind asserts that modern utility-scale turbines are certified according to international engineering standards, including ratings for withstanding hurricane-strength winds. The engineering standards of the turbines under consideration for the proposed facility are of the highest level and, according to applicant, meet all federal, state, and local codes, and possess state-of-the-art braking systems, pitch controls, sensors, and speed controls. Turbines proposed for the current facility will be equipped with two independent braking systems that allow the rotor to be manually halted, and these turbines will automatically shutdown at wind speeds over the manufacturer's threshold. Moreover, Champaign Wind asserts that the turbines under consideration for the proposed facility will shut down if significant vibrations or rotor blade stress is sensed by the monitoring systems. Champaign Wind argues that all of these technological improvements reduce the risk of catastrophic tower collapse or blade shear.⁶⁹ Staff notes that the applicant has incorporated a wind turbine layout with a minimum setback distance of approximately 1,000 feet to residences, and a property line setback of 541 feet, further minimizing the potential for blade shear impacts.⁷⁰

⁶⁷ Application at 82.

⁶⁸ *Id.* at 83.

⁶⁹ *Id.* at 82.

⁷⁰ Staff Report at 31.

Union Neighbors United (UNU) witness Palmer testified in opposition to the applicant’s proposed setbacks on the basis that his “deterministic safety analysis” leads him to conclude that “[i]f an accident can harm someone, the public deserves to be protected.”⁷¹ However, despite his conclusion that “people protected in a vehicle will be at risk of serious injury or death at distances of at least 1000 feet (305 meters) and if unprotected by a vehicle, as for example mowing a lawn out of doors, or working on the fence line of a rural property, will be at risk of serious injury or death at distances of at least 1640 feet (500 meters),” he failed to identify a single instance where any member of the general public has ever been injured by an instance of blade shear.⁷² His recommended setback of 1640 feet is not supported and unnecessary.”⁷³

In context, UNU argues for an extreme “1 in 10 million” standard, claiming that anything less creates an unacceptable danger – not a risk – to person and property.⁷⁴ Mr. Palmer, however, testified that he performed no calculation of the risk that anyone might be struck either by ice or by a piece of a falling blade.⁷⁵ Nowhere does the law require that all danger or risk be eliminated, but, rather, only that impacts be identified and reasonably minimized. Certainly aware of the potential risks, the General Assembly did not deem it appropriate to define the “envelope of safety” for which Mr. Palmer and UNU argue.⁷⁶ Rather, it left that determination to the Power Siting Board.

⁷¹ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of William Palmer on behalf of Union Neighbors United at 19) (November 5, 2012) (hereinafter “Palmer Dir. Test.”).

⁷² Palmer Dir. Test. at 15.

⁷³ *Id.* at 24.

⁷⁴ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Jerry Punch on behalf of Union Neighbors United at 29) (November 5, 2012) (hereinafter “Punch Dir. Test.”).

⁷⁵ Tr. VI at 1472.

⁷⁶ *Id.* at 1439.

3. Noise

a. Construction Noise

Champaign Wind recognizes that construction noise will impact the surrounding residences and businesses in the project area. The impact to individual residences and businesses will be temporary in nature.⁷⁷

The applicant provided estimates of sound levels associated with operation of construction equipment. Noise levels during construction will be considerably higher than during operation of the proposed facility, and are expected to be in the range of 56 to 63 A-weighted decibels (dBA) at nearby homes over a period of several weeks.⁷⁸

Staff found that any adverse impacts of construction noise would be minimal because construction activities are temporary and intermittent, construction activities would primarily occur away from most residential structures, and most construction activities would be limited to normal daytime working hours. To ensure that such impacts are limited to daytime hours, Staff has recommended condition 35, which provides that:

- (35) General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving operations and blasting if required, shall be limited to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Rule 4906-5-08(C)(3), O.A.C., of upcoming construction activities including potential for nighttime construction activities.⁷⁹

⁷⁷ Application at 70-72.

⁷⁸ *Id.* at 71.

⁷⁹ Staff Report at 57.

Significantly, none of the intervenors raise any issues with regard to construction noise. Consequently, Staff recommends that the Board find that noise associated with the construction of the proposed facility has been determined and that impacts to the public will be tempered under condition 35.

b. Operational Noise

The applicant's witness Hessler conducted a field study to determine existing environmental sound levels within the project area. This was necessary, he testified, because the project's impact is necessarily related to how much its sound level will exceed the background level.⁸⁰ Based on his study, Mr. Hessler found that average ambient noise levels (L_{EQ}) across the project area ranged from 41 to 52 dBA during the day and from 35 to 45 dBA at night. The data provided by the applicant equates to an average project area daytime L_{EQ} of 45 dBA and an average project area nighttime L_{EQ} of 39 dBA.⁸¹

UNU witness James conducted his own study. The two consultants performed different studies, using very different methodologies, purporting to rely on different standards. The applicant's witness Hessler testified that, at the present time, no ANSI (American National Standards Institute) or ISO (International Organization for Standardization) standard exists for this specific type of field study.⁸² Throughout his cross-examination, Mr. Hessler indicated that there were a

⁸⁰ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Amended Direct Testimony of David Hessler on behalf of Champaign Wind at 13) (October 31, 2012) (hereinafter "Hessler Amended Dir. Test.").

⁸¹ Staff Report at 32.

⁸² *Id.*

number of adjustments that he made, and that he had to employ a number of additional techniques and analyses to adapt his study to wind turbine noise.⁸³

Staff determined that Hessler’s noise assessment was reasonable based on applicant’s use of: (1) the turbine with the higher sound power level of the types of turbines under consideration at the time that the study was conducted; (2) modeling at the wind speed that produces the greatest incremental noise levels; and (3) a background noise level obtained over a long period of time at lower wintertime sound levels.⁸⁴ Staff believes that the applicant’s determination of the ambient noise level in the project area was reasonable and recommends that the Board so find.

One of the issues in this case is the appropriate level at which to limit facility-related noise at non-participating residences. The applicant’s design limit was based on what it termed “OPSB precedent on other approved wind projects in the State,” and its design criteria as:

a Facility-related noise limitation at non-participating residences of 5 dBA over the nighttime average L_{EQ} background level unless the validly measured ambient L_{EQ} at the location of the complaint plus 5 dBA is greater. Since the measured average nighttime L_{EQ} sound in the Project Area was 39 dBA, a threshold of 44 dBA will be implemented for the proposed facility.⁸⁵

A significant difference in opinion is whether the appropriate ambient sound level should be the L_{EQ} or the L_{90} level. Mr. Hessler testified that L_{EQ} is the average, a measurement that “averages the sounds that you find during a specific time period.”⁸⁶ L_{90} “is the sound level that happens in the momentary lulls between anything happening at all, the very quietest . . . It’s the

⁸³ Tr. IV at 746-765.

⁸⁴ *Id.* at 32-33.

⁸⁵ Application at 72-73.

⁸⁶ Tr. IV at 793.

true, literally the background.”⁸⁷ Regardless of which sound measurement is used as the baseline ambient measure, all of the various experts agree on the level of permissible increase in noise that they would find to be acceptable. Mr. James, for example, stated on cross-examination, in part, that his “recommendation . . . was very similar to Mr. Hessler, . . . that we follow the standard rule of not increasing that more than 5 [dBA].”⁸⁸

UNU witness James testified that L_{90} is the appropriate measure to use for the characterization of background ambient sound levels.⁸⁹ Applicant’s witness Hessler agreed:

- Q. (Mr. Van Kley) In how many other projects that you have worked on for wind developers have you used the L_{90} as the background level instead of the L_{EQ} ?
- A. (Mr. Hessler) In all of them.
- Q. So this is the first project in which you’ve used the L_{EQ} as the background sound level?
- A. That’s correct.
- Q. Isn’t it true that the L_{EQ} is the poorest formula for measuring sound in quiet areas?
- A. Well, it’s the average level. It’s the actual average level that happened over every ten-minute measurement period. However, no, it’s not the -- it’s not normally used to quantify the background for this kind of an application. I’m only using it to follow the de facto State standard.
- Q. And you would agree with me, wouldn’t you, that the L_{EQ} is the poorest metric for measuring background -- for measuring sounds in quiet areas?
- A. No, I wouldn’t say it’s -- well, you could measure the L_{max} , that would be the absolute poorest, but no, the L_{EQ} is not normally used. I don’t normally use it.⁹⁰

⁸⁷ Tr. IV at 786.

⁸⁸ Tr. V at 1130.

⁸⁹ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Richard James on behalf of Union Neighbors United at 12) (November 6, 2012).

⁹⁰ Tr. IV at 794.

It is difficult to apply the L₉₀ level as a firm regulatory limit, however, because each project site is unique and different and should be evaluated on its own merits. Staff noted in its Staff Report that Ohio law does not provide standards for permissible noise impacts associated with wind turbine projects.⁹¹ Further, the Board has considered, and rejected, the adoption of specific wind farm noise standards in its rules. While numerous interested parties urged the Board to adopt various standards for operational noise levels, relying on various opinions including those offered by Messrs. Hessler and James, the Board has found that it, and its Staff, should:

evaluate the noise levels in association with each application on a case-by-case basis in light of the composition of the area surrounding the proposed facility and will impose conditions on the noise emissions during construction and operation of the wind-energy facility as the Board determines to be appropriate. Such conditions are enforceable pursuant to Section 4906.98, Revised Code. Accordingly, we find it unnecessary to impose noise standards as proposed by [Mr. James] or to adopt operational noise standards and measurement protocols as proposed by UNU.⁹²

In this case, noting a policy paper issued by the New York State Department of Environmental Conservation that espoused a similar conclusion, Staff observed that “[a] threshold of 5 dBA over average nighttime ambient noise levels (L_{EQ}) has been applied in recent stipulated cases that resulted in Board issuance of certificates in Ohio.”⁹³ While Staff submits that prior Board decisions are instructive and not necessarily dispositive, the facts in this case are adequate, in light of Staff’s recommended conditions, to support adoption of the applicant’s design criteria.

Regardless of whether the L₉₀ or L_{EQ} level is ultimately determined to be the most appropriate, applicant witness Hessler testified that a project design goal of 44 dBA is appropri-

⁹¹ Staff Report at 32.

⁹² *In the Matter of the Power Siting Board’s Adoption of Chapter 4906-17, and the Amendment of Certain Rules in Chapters 4906-1, 4906-5 and Rule 4906-17*, Case No. 08-1024-EL-ORD (Opinion and Order at 40) (October 28, 2008).

⁹³ Staff Report at 32.

ate for a wind project in a rural area.⁹⁴ He stated that, in his professional experience and opinion, “the likelihood of complaints is quite small whenever the average project sound level is below 45 dBA, *regardless* of the actual background sound level.”⁹⁵

Mr. Hessler further testified that modeling indicated that a number of non-participating residences would, however, experience levels above 45 dBA unless the affected turbines were operated in low noise mode.⁹⁶ As a result, Staff has recommended that no turbine be operated at a noise level that exceeds 44 dBA during nighttime operation.⁹⁷

In addition to modeling the turbines proposed in this application, Mr. Hessler also modeled the cumulative impact of these same turbines and those approved in the *Buckeye I* project. He concluded that there would be no additional impact, and that no additional restrictions would have to be placed on the approved Buckeye I turbines to maintain the design goal.⁹⁸

Although the applicant also employed an evaluation threshold of 50 dBA as a design goal for operational noise levels at non-participating *property boundaries*, as opposed to occupied *structures*,⁹⁹ the Board has not previously required such limits. Nor has the Staff evaluated, nor does it recommend, any such limit in this case.

The parties presented evidence on the potential health impacts of the proposed facility. The record demonstrates that wind turbine noise can be annoying depending on the distance from the turbine and other background noise. In contrast to the *Buckeye I* case, however, UNU offers

⁹⁴ Hessler Amended Dir. Test. at 5.

⁹⁵ *Id.* (emphasis added.)

⁹⁶ *Id.*

⁹⁷ Staff Report at 58.

⁹⁸ Hessler Amended Dir. Test. at 7.

⁹⁹ *Id.*

what it will no doubt characterize as sufficient “hard scientific evidence” to support a conclusion that wind turbines are a direct cause of health impacts to humans, sufficient to justify setbacks from residences greater than proposed. UNU witness Dr. Punch testified that high-level infrasound produced by wind turbines “causes health problems.”¹⁰⁰

But as applicant witness Dr. Mundt clearly explained in rebuttal, the studies relied on by Dr. Punch “are not epidemiological studies, and therefore cannot provide reliable evidence for determining causation.”¹⁰¹ Dr. Mundt concluded that none of these studies can individually or collectively provide sufficiently strong evidence to validly inform a conclusion that industrial wind turbines cause serious harm to human health.¹⁰² Staff submits that a thorough analysis of Dr. Mundt, the only epidemiological expert to testify in this case, demonstrates that there continues to be a lack of scientific evidence on potential health impacts associated with utility-scale wind projects.

Based on the information presented, noise below 45 dBA is not likely to result in health impacts, is unlikely to result in significant annoyance, and is not likely to result in a significant number of noise complaints. Furthermore, two of the recommended conditions in the Staff Report address the noise related concerns raised by UNU. First, Staff recommends that any certificate granted to the applicant require it to operate the facility does not result in noise levels at the exterior of any currently existing non-participating sensitive receptor that exceed the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA.¹⁰³ Further, Staff recommends that the

¹⁰⁰ Punch Dir. Test. at 8.

¹⁰¹ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Rebuttal Testimony of Kenneth Mundt on behalf of Champaign Wind at 18) (December 3, 2012).

¹⁰² *Id.* at 32.

¹⁰³ Staff Report at 59.

applicant be required to develop a complaint resolution process that shall include procedures for responding to complaints about excessive noise.¹⁰⁴

Mr. Hessler has recommended a modification to Staff Report condition 49. That condition provides that:

- (49) The facility shall be operated so that the facility noise contribution does not result in noise levels at the exterior of any currently existing non-participating sensitive receptor that exceed the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA. During daytime operation only (7:00 a.m. to 10:00 p.m.), the facility may operate at the greater of: (a) the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA; or, (b) the validly measured ambient L_{EQ} plus five dBA at the location of the sensitive receptor. After commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project-related noise complaints through its complaint resolution process.¹⁰⁵

Mr. Hessler testified that “it is impractical for any wind project to maintain a sound level below a given threshold all of the time under all conditions.” He indicated that naturally unsteady and uncontrollable wind and weather conditions would necessarily result in what he termed “short-term excursions” that exceed the 44 dBA limit.¹⁰⁶

While Staff is concerned about the characterization implied by the “short-term excursion” phraseology, it acknowledges that it did not intend that the noise limitation apply 100% of the time. It is Staff’s expectation that occasional, short term, deviations above the recommended noise level limitations are to be expected and tolerated under different wind and weather conditions that will necessarily vary from time to time. The reasonableness of the magnitude and

¹⁰⁴ Staff Report at 59.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.* at 8.

duration of any such short term deviation would be impossible to pre-determine, and it is Staff's expectation that this evaluation should be conducted as part of the complaint resolution process.¹⁰⁷

Staff believes that the applicant's operational noise study fairly represents the existing noise levels in the community and that the noise modeling conducted by the applicant was reasonable. With Staff's recommended conditions in place, Staff recommends that the Board find that the reasonably anticipated operational noise levels have been determined and are reasonable.

4. Shadow Flicker

Champaign Wind submitted, as part of its Application at Exhibit P, a shadow flicker analysis conducted by its consultant, edr Environmental Services, LLC (edr). Shadow flicker from wind turbines occurs when rotating wind turbine blades move between the sun and the observer, having the effect of rapidly increasing and decreasing the light intensity to the observer. Shadow flicker becomes more and more diffused as the distance between the turbine and an observer increases, and is essentially undetectable beyond 1,000 feet. Using a computer model, with data on turbine coordinates, turbine specifications, shadow receptor coordinates, wind speed and direction frequency distribution, monthly sunshine probabilities, and height contours, edr determined the theoretical number of hours per year of shadow flicker expected at each receptor.¹⁰⁸ edr's analysis was based on use of the GE 2.5-103 turbine model as its dimen-

¹⁰⁷ For purposes of completeness, Staff notes that Mr. Hessler did testify on cross-examination that "if that level is in compliance 95 percent of the time or more, to my mind the project is meeting the requirement or it's certainly the intent of the requirement." Tr. IV at 871. This viewpoint is consistent with Staff's expectations.

¹⁰⁸ Application at 84-89, App. Ex. P.

sions would result in the greatest amount of shadow flicker, predicting a “worst case” scenario, among the models under consideration.

The application indicates that there currently is no state or national standards for acceptable frequency or duration of shadow flicker from wind turbines. Champaign Wind used 30 hours per year as a shadow flicker threshold. Based on the results of the initial shadow flicker analysis, Champaign Wind’s consultant determined that, of the 880 structures within 1,100 meters of a proposed turbine, shadow flicker is expected to approach 30 hours per year at 11 residential structures.¹⁰⁹ When the analysis was refined to account for the effects of obstacles that could ameliorate or minimize the effects of shadow flicker, only eight (8) residential structures are expected to experience 30 hours or greater exposure to shadow flicker from the proposed turbines.¹¹⁰

The applicant also analyzed the cumulative impact of shadow flicker considering both this project and the previously approved Buckeye Wind I project. When combined, edr’s analysis showed that 16 non-participating residences would be expected to experience shadow flicker exposure in excess of the 30-hour threshold. When the analysis was refined to account for the effects of obstacles that could ameliorate or minimize the effects of shadow flicker, no more than twelve (and possibly fewer) residential structures would experience 30 hours or greater exposure to shadow flicker from the proposed turbines.¹¹¹

The applicant’s witness Poore testified in support of the shadow flicker study performed on behalf of the Company.¹¹² He testified that it was his opinion that the shadow flicker study

¹⁰⁹ Application at 85.

¹¹⁰ *Id.* at 87.

¹¹¹ *Id.* at 88-89.

¹¹² Poore Dir. Test.

was performed using methods and models typical to, and assumptions that were consistent with or more conservative than, the best practices in the wind industry.¹¹³ Mr. Poore further testified that he found the result of that study to be reasonable and plausible.¹¹⁴

Staff witness Strom authored the section on shadow flicker in the Staff Report, and filed direct testimony in support of that portion of the report.¹¹⁵ The Staff Report notes that Ohio statute does not provide standards for frequency or duration of shadow flicker from wind turbine projects, but that a maximum exposure to shadow flicker of 30 hours per year has been suggested or adopted in a number of jurisdictions. Staff considers a threshold of 30 hours of shadow flicker per year to be a reasonable limitation.¹¹⁶

Despite the applicant's model analysis and potential mitigation efforts, Staff is aware that actual shadow flicker levels may be different when the wind farm is in operation. Therefore, Staff recommends that the following condition (#50) become part of any certificate issued for the proposed facility:

- (50) The facility shall be operated so that the facility shadow flicker contribution does not result in shadow flicker levels that exceed 30 hours per year for any non-participating sensitive receptor. The Applicant shall complete a shadow flicker analysis for all inhabited nonparticipating sensitive receptors that have already been modeled to be in excess of 30 hours per year of shadow flicker. The analysis shall show how modeled shadow flicker impacts have been reduced to 30 or fewer hours per year for each such receptor. The analysis shall be provided to Staff at least 30 days prior to the preconstruction conference, for review and confirmation that it complies with this condition. This analysis may incorporate shadow flicker reductions for trees, vegetation, buildings, obstruc-

¹¹³ Poore Dir. Test. at 10.

¹¹⁴ *Id.*

¹¹⁵ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Raymond Strom on behalf of the Staff of the Ohio Power Siting Board) (November 5, 2012).

¹¹⁶ Staff Report at 33.

tions, turbine line of sight, operational hours, wind direction, sunshine probabilities, and other mitigation confirmed by Staff to be in compliance with this condition. After commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project-related shadow flicker complaints through its complaint resolution process.¹¹⁷

The applicant's witness Poore testified on cross-examination that he found the Staff's condition to be reasonable.¹¹⁸ No expert testimony regarding shadow flicker was presented by any other party. The Staff respectfully submits that the Board should find that Staff's recommendation that approved turbines should be subject to mitigation after construction if shadow flicker at any non-participating receptor exceeds 30 hours per year, is appropriate and should be adopted. The Staff respectfully submits that the Board should find that, with Staff's condition in place, the concern about shadow flicker has been adequately addressed and is not so excessive as to render the project contrary to the public interest as required pursuant to R.C. 4906.10(A)(6).

5. Turbine Safety Manuals

Although Champaign Wind has not yet chosen a turbine model for the proposed facility, it has stated that it will install Repower MM92 (2.05 MW), REpower MM100 (1.815 MW), Nordex N100 (2.5 MW), Gamesa G97 (2.0 MW), GE 1.6-100 (1.6 MW), or GE 2.5-103 (2.5 MW). Included in the application is a copy of the safety manual for each of the turbines (excepting the GE 2.5-103 turbine model), which address, among other topics: personal rescue, ascent and fall protection, protection against falling objects, material transport using the onboard crane, lighting, protection against noise, handling of hazardous substances, and electrical equipment.

¹¹⁷ Staff Report at 59.

¹¹⁸ Tr. III at 641.

It is important to recognize what the safety manuals are. As applicant witness Shears testified, safety manuals are “not a statutory document This is a safety document that [manufacturers] have developed and would inform the management plan, the operational management plan, and all the safety management component of that plan[C]learly it would be given significant weight in that safety plan that [applicant] would put together.”¹¹⁹

Staff has reviewed the safety manuals and Staff witness Conway testified that Staff supports a condition requiring the applicant to “comply with the turbine manufacturer’s safety manual.”¹²⁰ Furthermore, Staff recommends that the applicant maintain a copy of the manual onsite for the model of turbine selected for the project.¹²¹

The Staff respectfully requests that the Board adopt its recommendation.

6. Ice Throw

Ice throw can occur when accumulated ice on the wind turbine blades falls or is thrown from the blade. According to the applicant, ice can build up on the rotor blades, slowing the rotational speed, and potentially creating an imbalance in the weights of the blades. Champaign Wind explains that such imbalances can be sensed by the turbine’s computer controls and would typically result in the turbine being shut down until the ice melts.¹²²

The applicant asserts that field observations and studies of ice shedding indicate that most ice shedding occurs as air temperatures rise and the ice on the rotor blades begins to thaw, leading to a tendency for ice to drop off and fall near the base of the turbine. Occasionally, ice can

¹¹⁹ Tr. IV at 910.

¹²⁰ Tr. X at 2496.

¹²¹ Staff Report at 58.

¹²² Application at 82.

be thrown when it begins to melt and the blades begin to rotate again. However, Champaign Wind asserts that there have been no reported injuries caused by ice throw.¹²³ The applicant's witnesses Speerschneider¹²⁴ and Shears¹²⁵ testified that, in their professional experience, they were unaware of any instance where a member of the general public has been injured as a result of ice throw.

However small, Staff is aware that a risk of harm exists from ice shedding. As a result, Staff witness Conway recommended a number of common sense safety measures to minimize the impacts that ice throw could cause. Specifically, Staff recommends that public access be restricted with appropriately-placed warning signs, that workers be warned of potential hazards of ice conditions, that ice detection software and alarms that trigger an automatic shutdown be installed. Significantly, Staff recommends that a setback distance of 150% of the sum of the hub height and rotor diameter of the selected turbine be maintained from structures and arterial roads. This latter requirement would require that the applicant relocate and/or resize proposed turbines 87 and 91.¹²⁶ Significantly, UNU witness Palmer testified that his work supported Staff's recommended setback.¹²⁷ Although Mr. Palmer recommended that this setback be applied to all roads, Staff witness Conway explained that a lesser setback distance from non-arterial roads of only

¹²³ Application at 81.

¹²⁴ Speerschneider Dir. Test. at 10.

¹²⁵ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Christopher Shears on behalf of Champaign Wind at 3) (October 29, 2012).

¹²⁶ Staff Report at 32.

¹²⁷ Punch Dir. Test. at 32.

110% of the sum of the hub height and rotor diameter is reasonable given the expected level of traffic.¹²⁸

7. Complaint Resolution Process

As evidenced by the active participation by residents and their elected officials, there will no doubt be complaints that arise should this project be approved. Staff made a number of recommendations relating to complaint resolution. Its overall recommendation is presented as condition (5), providing that the applicant shall have in place a complaint resolution procedure to address potential public grievances resulting from project construction and operation.¹²⁹ Staff recommends that any certificate issued to the applicant include a condition that would require Champaign Wind to submit to Staff, for review and acceptance, a completed complaint resolution procedure at least 30 days prior to the preconstruction conference, that would cover complaints on issues such as noise, shadow flicker, etc., and would require notification to Staff of any complaint submitted.¹³⁰

Champaign Wind witness Speerschneider testified that he supports the creation of a complaint resolution process for the proposed facility, but expressed a desire that Staff proposed condition (5) be clarified to avoid any confusion over the applicant's obligation to resolve unfounded complaints.¹³¹ Specifically, Mr. Speerschneider suggested that the condition be reworded to require that the applicant "make a good faith effort," rather than "work," to mitigate or resolve issues. Staff submits that its condition is sufficiently clear and that it expects that the

¹²⁸ Tr. X at 2492.

¹²⁹ Staff Report at 51.

¹³⁰ *Id.*

¹³¹ Speerschneider Dir. Test. at 12.

applicant *will* mitigate or resolve all issues only where the complaint is well-grounded. Staff further recommended that the applicant have a complaint resolution process for facility noise issues.¹³² UNU witness Punch indicated on cross-examination that the type of complaint resolution process recommended by the Staff would be reasonable and appropriate, in his expert opinion, to resolve noise complaint issues.¹³³

Staff also recommended that the applicant have a complaint resolution process through which complaints related to shadow flicker from the facility can be resolved.¹³⁴ Staff witness Strom testified that this was not intended to require a separate process for shadow flicker, but only that such complaints must be contemplated by any proposed process.¹³⁵ A plan for complaint resolution is also recommended should site-specific conditions warrant blasting.¹³⁶

D. Staff's response to parties' specific suggestions and requests for modification of conditions recommended in the Staff Report.

The evidence supports a Board determination that the R.C. 4906.10 criteria exist and that the certificate should be issued with conditions. Staff recommends the Board issue the certificate with 67 conditions¹³⁷ intended to reasonably minimize the expected impacts of the project.¹³⁸ Based upon the record, Staff has agreed to amend or modify some conditions as indicated on

¹³² Staff Report at 33; see also Conditions (49) and (51).

¹³³ Tr. VII at 1760.

¹³⁴ Staff Report at 34; see also Conditions (50) and (51).

¹³⁵ Tr. XI at 2749.

¹³⁶ Staff Report at 58.

¹³⁷ See fn 1 regarding number references to conditions.

¹³⁸ Rostofer Dir. Test. at 4.

Attachment A. That freedom, of course, ends when the Board issues a certificate; “Only the Board has the authority to modify or change any part of a certificate, including conditions.”¹³⁹

The following is Staff’s response to requests to modify Staff Report conditions. If Staff does not respond directly, it is not proposing a change and does not believe an explanation beyond the Staff Report is needed.

1. Condition 5

Condition 5 as proposed in the Staff Report requires the applicant to develop a complaint resolution procedure that requires that procedure provide the applicant to “work to mitigate or resolve any issues” submitted.¹⁴⁰ The applicant wishes to change that requirement from “work to resolve” to “use best efforts to resolve.”¹⁴¹ Staff believes that applicant has not shown a significant difference in clarity or meaning between the two expressions and, for that reason, the Board should not adopt its request.

2. Condition 6

Staff believes the modifications applicant proposed are reasonable and Staff supports Board adoption.¹⁴²

3. Condition 8

Staff Report condition 8 requires the applicant to submit as-built specifications for the entire facility within 60 days after beginning commercial operation and it allows the applicant to

¹³⁹ Rostofer Dir. Test. at 4.

¹⁴⁰ Staff Report at 51.

¹⁴¹ Speerschneider Dir. Test. at 12.

¹⁴² Rostofer Dir. Test. at 7; Speerschneider Dir. Test. at 13.

seek an extension for good cause.¹⁴³ The applicant seeks to extend the stated period from 60 to 90 days. Staff believes the applicant has not shown this change is warranted. If the 60-day deadline presents a problem, the applicant can seek an extension under the Staff proposed condition. The Board, and to Staff, have an interest in timely information and the applicant seeks delay for no apparent reason. The Board should not adopt the request.

4. Condition 10

Staff believes the modifications applicant has proposed are reasonable and Staff supports Board adoption.¹⁴⁴

5. Condition 11

Condition 11 as proposed in the Staff Report limits the turbine models the applicant can choose to those listed in the application.¹⁴⁵ The applicant removed a model from consideration subsequent to filing the application, and that model (VESTAS), as well as any model not listed in the application, would be ineligible for consideration or selection under this condition. Under the Staff Report condition, the applicant must seek an amendment of its certificate if it selects a different turbine model for a change in technology than those listed in the application or the VESTAS model.

The applicant has not supported its proposed modification and the Board should reject it.

¹⁴³ Staff Report at 52.

¹⁴⁴ Rostofer Dir. Test. at 7; Speerschneider Dir. Test. at 13-14.

¹⁴⁵ Staff Report at 52.

6. Condition 15

Staff Report condition 15 requires the applicant to conduct a Phase I cultural resources survey and submit an amendment, modification, or mitigation plan to the Board if the survey discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion in the National Registry of Historic Places.¹⁴⁶ The applicant acknowledges the survey work is appropriate but seeks to do only that which is “necessary” and it seeks the option to provide mitigation to the Board Staff in place of an amendment or modification to the Board.¹⁴⁷ It does not present a rationale for the change.¹⁴⁸ Staff believes the Board should determine the appropriate action the applicant should undertake if the requisite find or site is discovered. Additionally, Staff believes the matter should be brought to the Board despite anyone’s belief in whether it is “necessary.” The applicant’s proposal should be rejected.

7. Condition 17

Staff Report condition 17 requires the applicant to develop a historic preservation mitigation plan in consultation with Staff and OHPO, detailing procedures for promoting the continued meaningfulness of the survey area’s rural history.¹⁴⁹ It is a response to the potential effect of the turbines on the perception of the traditional rural landscape enjoyed in the area. Staff found avoiding or minimizing such impacts was not practical in most cases and recommends the applicant develop a mitigation plan promoting the continued meaningfulness of the area’s rural his-

¹⁴⁶ Staff Report at 52-53.

¹⁴⁷ Tr. I at 25.

¹⁴⁸ Speerschneider Dir. Test. at 14-15.

¹⁴⁹ Staff Report at 53.

tory.¹⁵⁰ The applicant proposes eliminating the specifics for the plan providing for the Board’s direction¹⁵¹ while also specifically proposing that the plan may not inhibit the applicant’s operations and activities.¹⁵² The applicant does not support its request. Staff believes the Board should direct the applicant to provide a mitigation plan and adopt the Staff Report condition 17.

8. Conditions 19 through 22

Staff believes the modifications that applicant has proposed are reasonable and Staff supports Board adoption.¹⁵³

9. Condition 26

A survey of the proposed facility resulted in the capture of an Indiana bat, a state and federally listed endangered species.¹⁵⁴ Consequently, there is a possibility that construction, operation and decommissioning of the facility may result in an incidental take of Indiana bats.¹⁵⁵ Buckeye Wind LLC, a sibling subsidiary of the applicant, has applied for an Incidental Take Permit from the USFWS covering this facility and the *Buckeye* I wind-farm project. As part of that Incidental Take Permit application, Buckeye Wind LLC was required to develop a Habitat Conservation Plan (HCP), which is a comprehensive plan for ecological preservation that considers a species habitat and includes measures to minimize impacts and ensure long-term con-

¹⁵⁰ Staff Report at 21.

¹⁵¹ Speerschneider Dir. Test. at 15.

¹⁵² *Id.*

¹⁵³ Rostofer Dir. Test. at 7; Speerschneider Dir. Test. at 13-14.

¹⁵⁴ Staff Report at 26.

¹⁵⁵ *Id.*

servation of the species.¹⁵⁶ USFWS issued a draft Environmental Impact Statement (EIS) and Buckeye Wind LLC issued a draft HCP as described above, which were open for public comment.¹⁵⁷ Following USFWS’ review of the comments, a final EIS and HCP will be issued with the Incidental Take Permit, if approved.¹⁵⁸ For the Champaign Wind facility under consideration here, the Staff has recommended that the Board issue a certificate with a condition that requires compliance with the final HCP and USFWS’ Incidental Take Permit, including the Avian and Bat Protection Plan (ABPP) found in the USFWS’ draft EIS, EIS No. 20120211 .¹⁵⁹ Jennifer Norris, the ODNR Wind Energy Biologist, testified that the purpose of this condition is “to provide a framework on how the applicant has or plans to avoid, minimize, and mitigate the potential impacts the facility may have on non-federally listed birds and bats (which could include state-listed species).”¹⁶⁰ While condition 26 requires compliance with the ABPP found in the draft EIS, Ms. Norris testified that, if the ABPP is amended or modified as part of the final EIS issued by the USFWS with the Incidental Take Permit, ODNR and Staff would require compliance with the final, approved ABPP.¹⁶¹ Staff believes condition 26 can be clarified and recommends the changes shown in Attachment A.

¹⁵⁶ Staff Report at 26.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* Condition No. 26; Tr. VIII at 2025-2027. The ABPP is an appendix to the HCP. Tr. VIII at 2026.

¹⁶⁰ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Jennifer Norris on behalf of the Staff of the Ohio Power Siting Board at 1, 3-4) (November 5, 2012) (hereinafter “Norris Dir. Test.”); Tr. VIII at 2025-2027. The Incidental Take Permit covers one species. The ABPP protects nonfederal trust species, which includes state trust species. Tr. VIII at 2026.

¹⁶¹ Tr. VIII at 2026-2027.

10. Condition 28

ODNR has developed standardized protocols to assess risks to state protected species in its *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*, which include monitoring requirements to determine impacts to protected species. The Staff has recommended a condition that requires the applicant to comply with these protocols, which includes a requirement to conduct daily monitoring of a sample set of turbines to determine whether significant mortality to bats or birds has occurred.¹⁶² Ms. Norris testified that ODNR's standardized protocols call for daily sampling and that it is ODNR's recommendation that all wind facilities conduct daily sampling.¹⁶³ Ms. Norris also testified that another wind facility, the Blue Creek Wind Project, is subject to this same daily monitoring requirement.¹⁶⁴ While the applicant has suggested revisions to condition 28, Staff does not agree that these revisions are necessary and recommends that the Board issue a Certificate with condition 28 as it appears in the Staff Report of Investigation.¹⁶⁵

11. Conditions 31 through 34

Staff believes the modifications applicant proposes are reasonable and Staff supports Board adoption.¹⁶⁶

¹⁶² Staff Report at 55, Condition 28.

¹⁶³ Norris Dir. Test. at 1-2; Tr. VIII at 2023.

¹⁶⁴ *Id.*

¹⁶⁵ Speerschneider Dir. Test. at 18-20; Norris Dir. Test. at 4-5.

¹⁶⁶ Rostofer Dir. Test. at 7; Speerschneider Dir. Test. at 20-23.

12. Condition 35

Staff Report condition 35 is expected to ameliorate the potential noise impact of the project.¹⁶⁷ Significant, noticeable noise is expected from project construction.¹⁶⁸ Construction and delivery equipment such as dozers, excavators, pumps, cranes, and trucks produce significant noise, as does the pile driving and dynamite activities that may be necessary.¹⁶⁹ Such activities will, however, be limited to daytime working hours.¹⁷⁰ Condition 35 does nothing more than impose this limitation.¹⁷¹ It limits general construction activities to daylight hours essentially. It further limits blasting to between 10 a.m. to 5 p.m. Finally, it gives everyone a break once-a-week by limiting the foregoing activities to weekdays, Monday through Friday.¹⁷² Staff submits that these restrictions are reasonable. The applicant suggests allowing nighttime construction to build nacelle towers and rotors at night.¹⁷³ Staff Report condition 35 allows construction activities after 7:00 p.m. provided there is no increase in noise levels at sensitive receptors. Staff recommends the Board include this condition in any certificate.

¹⁶⁷ Staff Report at 32, 57.

¹⁶⁸ *Id.* at 32.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ *Id.* at 57.

¹⁷² *Id.*

¹⁷³ Speerschneider Dir. Test. at 24; Tr. II at 391.

13. Condition 40

Staff Report condition 40 requires the applicant provide notice of blasting operations to residents and owners of structures within 1,000 feet of the blasting site. Urbana asserted the fire department should be notified also. Staff agrees and recommends that change.

14. Condition 43

Urbana witness Ms. North testified that the turbines need postal addresses in order to help the 911 call center track the location of emergencies. She also stated that these addresses should be provided to the 911 call center. Staff agrees and recommends such a change.

15. Condition 47

Staff Report condition 47 requires minimum statutory setbacks “from any natural gas pipeline in the ground at the time of commencement of construction.”¹⁷⁴ In essence, Staff simply recommends that the Board apply its minimum setback standard, O.A.C. 4906-1-08 (C) (1) (c), to natural gas pipelines.¹⁷⁵ Like all setbacks, the minimum setback for natural gas pipelines in condition 47 promotes safety and, while the applicant has not discovered a natural gas pipeline in the project area, that failure does not diminish the significant risks presented by undiscovered ones if they exist. Although the applicant seeks to limit the setback standard only to natural gas transmission lines, no party objects to applying the minimum setback standard to all natural gas pipelines. Because the applicant has not explained how the risk of explosion, physical injury,

¹⁷⁴ Staff Report at 58.

¹⁷⁵ *Id.* at 30, 58.

and property damage exists only with natural gas transmission lines,¹⁷⁶ the Board should adopt condition 47 as Staff has proposed it.¹⁷⁷

16. Condition 49

Staff Report condition 49 proposes limits on noise levels from operation of the facility, providing a limitation for daytime (7 A.M. to 10 P.M.) and a more restrictive nighttime limitation (10 P.M. to 7 A.M.). Staff's recommended operational noise level limitations are based on a threshold of nighttime L_{EQ} plus 5 dBA, which has been applied in recent wind farm certificates in Ohio.¹⁷⁸ The applicant seeks to clarify that the recommended noise level limitations should be viewed as limitations that would be achieved over a long period of time, but which from time to time could be exceeded for short durations.¹⁷⁹ Staff agrees with the applicant's characterization of the intent of this type of operational noise limitation. The applicant seeks to restrict the daytime limitation to only residences, ignoring schools, churches and other "sensitive receptors" that could be located within range of noise produced by the facility. And, applicant proposes to apply its daytime limitation also at night.¹⁸⁰ Many locations such as residences, schools and churches, are classified as "sensitive receptors."¹⁸¹ Staff believes that, in general, "sensitive receptors" should not be subjected to greater noise levels than non-participating residences. However, Staff recognizes that there are likely to be times when such sensitive receptors are not occupied and

¹⁷⁶ Speerschneider Dir. Test. at 24-25.

¹⁷⁷ *Id.*

¹⁷⁸ Staff Report at 32-33.

¹⁷⁹ Hessler Amended Dir. Test. at 8.

¹⁸⁰ Speerschneider Dir. Test. at 25.

¹⁸¹ Tr. II at 398.

higher noise levels would not be offensive. Moreover, Staff believes a separate, and more restrictive, nighttime noise limitation is appropriate. As shown by the applicant's study of the project area, ambient nighttime noise levels are lower than those during the day.¹⁸² Moreover, the applicant's model results show that the more restrictive noise limitation is achievable, even at wind speeds above the critical wind speed of 6 m/s.¹⁸³ The applicant's own witness asserted that a more appropriate measure of ambient noise level is L₉₀, which is a significantly lower noise level than L_{EQ}. Although it may be reasonable to allow higher noise levels during the temporary L₉₀ lulls during windy daytime operation, it is not reasonable to allow this during nighttime operation, when the community is typically quieter and its residents are typically sleeping, especially when given the fact that the higher noise levels have not been shown to be necessary to successfully operate the facility.¹⁸⁴ Accordingly, Staff believes the certificate should include condition 49 as proposed in the Staff Report, with the appropriate allowance for short term noise level exceedences and for unoccupied sensitive receptor locations, as discussed above.

17. Condition 51

As stated under cross-examination,¹⁸⁵ Staff envisioned condition 51, the noise and shadow flicker complaint resolution procedure, as being part of the overall complaint resolution process (original condition 5). As such, the procedure developed pursuant to condition 51 should be subject to Staff review and confirmation that it complies with the requirements of this condition, prior to the pre-construction conference.

¹⁸² Staff Report at 32.

¹⁸³ Tr. XI at 2826.

¹⁸⁴ *Id.* at 2825-2827, 2830-2831.

¹⁸⁵ *Id.* at 2749.

18. Condition 52

Paragraph 52 provides for any microwave path or system impact assessment account for all known microwave paths or systems existing at the time of the assessment. The applicant asserted limiting the assessment to paths or systems existing on the date of its application, which would preclude consideration of new paths or systems installed between the date of application and the date of construction.¹⁸⁶ Pioneer Rural Electric Cooperative strongly endorsed Staff Report condition 52 because of the difficulties created by the applicant's proposal. As Mr. Musick explained, exempting a microwave path or system installed in the intervening time created in the applicant's proposal would inhibit Pioneer, and others, from expanding and the encountering risk of creating new microwave paths or systems that could be rendered inoperable by the facility.¹⁸⁷

Pioneer asserted that the applicant is in agreement with Pioneer and now accepts Staff Report condition 52.

19. Condition 53

Pioneer also asserted that the applicant agrees with Pioneer's proposal for changes to Staff Report condition 53.¹⁸⁸ Staff also agrees with the modifications proposed by Pioneer to condition 53.¹⁸⁹

¹⁸⁶ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Thomas Musick on behalf of Pioneer Rural Electric Cooperative at 5) (November 5, 2012) (hereinafter "Musick Dir. Test.").

¹⁸⁷ *Id.*

¹⁸⁸ *Id.* at 7.

¹⁸⁹ *Id.*, Exhibit A.

20. Condition 55

No one disputes the importance of a facility decommissioning requirement, including financial assurances for decommissioning, as a certificate condition.¹⁹⁰ Although the applicant recommends substituting two conditions from the Buckeye I certificate, it does not identify the changes it proposes to Staff Report condition 55 beyond the financial assurances provision in subpart (g).¹⁹¹ Staff disagrees with the applicant's suggested changes. The Board's decommissioning requirement, including financial assurances, has evolved since Buckeye I and Staff's recommendation reflects, Staff believes, the Board's most recent decisional thinking¹⁹² and should be adopted here.

As all the provisions of Staff Report condition 55, the financial assurances requirement is straightforward, providing one method applicable at all times requiring the applicant post financial assurances in an amount equal to the estimated cost of decommissioning.¹⁹³ It provides the certainty associated with an estimate based in explicit publications and guidelines while allowing flexibility when appropriate with Staff approval.¹⁹⁴ It reasonably minimizes the expected impacts of the project and it should be included in any certificate.¹⁹⁵

¹⁹⁰ See e.g., Staff Report at 36, 60-61; *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Jonathan Knauth on behalf of Champaign Wind at 3-4) (November 5, 2012) (hereinafter "Knauth Dir. Test."); Speerschneider Dir. Test. at 31-34.

¹⁹¹ Speerschneider Dir. Test. at 28-31.

¹⁹² Compare, Staff Report at 60-62 with *In the Matter of the Application of Black Fork Wind Energy, L.L.C. for a Certificate to Site a Wind-Powered Electric Generating Facility In Crawford and Richland Counties, Ohio*, (hereinafter: *In re Blackfork*) Case No. 10-2865-EL-BGN (Opinion and Order at 74) (January 23, 2012); *In re Blackfork*, Case No. 10-2865-EL-BGN (Stipulation and Recommendation at 14-16) (September 28, 2011); Staff Report, Condition 55.

¹⁹³ Staff Report at 61-62, Condition 55(g).

¹⁹⁴ *Id.*

¹⁹⁵ Rostofer Dir. Test. at 4.

The applicant presented an alternative that reduces financial assurances, eliminates the estimates' flexibility, and changes the method for determining the appropriate financial assurances in the first year to a fixed \$5,000 per turbine because "EverPower's [the applicant's parent] position that no bond would be needed ... and \$5,000 is acceptable."¹⁹⁶ Not surprisingly, no other party endorsed the applicant's proposal. It also proposes reducing financial assurances by the estimated salvage value of the equipment. While that may benefit the applicant, it endangers the necessary financial assurances. Relying on estimated scrap values to determine financial assurances is highly speculative and "tantamount to playing the futures market."¹⁹⁷ Scrap value is not a stable basis for financial assurances. Without reason, the applicant also unreasonably proposes eliminating any flexibility to employ publications and guidelines deemed more appropriate for developing an estimate than those named in the certificate during the decades this facility may operate. Finally, it proposes to use a stated amount in the first year for no better reason than its parent, EverPower, would accept it.¹⁹⁸ Staff recommends that the Board reject applicant's proposal and adopt the Staff's recommended condition.

21. Conditions 67 and 68

Conditions 67 and 68 promote safety in air travel by merely requiring information be provided in a timely manner to the flying public and the Board. Condition 67 merely requires that the applicant provide airports, such as Grimes Field and other flight service stations, with notices to airmen (NOTAMs) that alert pilots to the existence and location of very tall structures, those exceeding 200 feet, by providing the longitude and latitude coordinates as suggested to Staff by

¹⁹⁶ Tr. II at 407.

¹⁹⁷ Knauth Dir. Test. at 3.

¹⁹⁸ Tr. II at 407.

an employee of the FAA.¹⁹⁹ Condition 68 requires only that the applicant provide the Board with information required by the FAA at a time when the Board and its Staff can effectively use it. The applicant's objections to conditions 67 and 68 are unreasonable and limit important Board oversight and should be rejected in favor of Staff-recommended conditions 67 and 68.

22. Condition 70

Recognizing that the area's emergency helicopter service, CareFlight, may need to fly around, over, and through the project responding to emergencies, Staff correctly concluded that safety demands adoption of condition 70, a requirement that the applicant develop a plan with CareFlight to promote safe emergency response operations during critical times.²⁰⁰ The benefits of such planning are obvious and, in fact, the applicant and emergency responders recognize the importance of such prior emergency planning.²⁰¹ The planning should include shutting-down nearby turbines, if necessary, for safety reasons where indicated.²⁰² Condition 70 promotes safety for emergency responses and should be included in any certificate.

¹⁹⁹ Tr. VIII at 2055.

²⁰⁰ Staff Report at 64; Tr. VIII 2057.

²⁰¹ *In re Champaign Wind*, Case No. 12-160-EL-BGN (Direct Testimony of Mark Keller on behalf of the City of Urbana, Ohio at 3) (November 6, 2012) ; Tr. II at 412).

²⁰² Tr. VIII at 2059.

CONCLUSION

Based upon the foregoing, the Staff respectfully requests that the Board adopt the Staff's conditions, as amended, in any certificate issued by the Board.

Respectfully submitted,

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On behalf of the Staff of
The Ohio Power Siting Board

PROOF OF SERVICE

I hereby certify that a true copy of the foregoing Post-Hearing Brief, submitted on behalf of the Staff of the Ohio Power Siting Board, was served via electronic mail, upon the following parties of record, this ____ day of January, 2013.

/s/ Stephen A. Reilly _____

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ATTACHMENT A

ATTACHMENT A

IV. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by Champaign Wind LLC and the record compiled to date in this proceeding, Staff recommends that a number of conditions become part of any certificate issued for the proposed facility. These recommended conditions may be modified as a result of public or other input received subsequent to issuance of this report.

GENERAL CONDITIONS

Staff recommends the following conditions to ensure conformance with the proposed plans and procedures as outlined in the case record to date, and to ensure compliance with all conditions listed in this staff report:

- (1) The facility shall be installed as presented in the application, and as modified and/or clarified by the Applicant's supplemental filings and further clarified by recommendations in this *Staff Report of Investigation*.
- (2) The Applicant shall utilize the equipment and construction practices as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (3) The Applicant shall implement the mitigation measures as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (4) The Applicant shall conduct a preconstruction conference prior to the start of any construction activities. Staff, the Applicant, and representatives of the prime contractor and all subcontractors for the project shall attend the preconstruction conference. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for Staff review. The Applicant may stage separate preconstruction meetings for grading versus clearing work.
- (5) At least 30 days prior to the preconstruction conference, the Applicant shall have in place a complaint resolution procedure to address potential public grievances resulting from project construction and operation. The resolution procedure must provide that the Applicant will work to mitigate or resolve any issues with those who submit either a formal or informal complaint and that the Applicant will immediately forward all complaints to Staff. The Applicant shall provide the complaint resolution procedure to Staff, for review and confirmation that it complies with this condition, prior to the preconstruction conference.
- (6) At least 30 days before the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design, including the wind turbines, collection lines, substation, temporary and permanent access roads, any crane routes, construction staging areas, and any other associated facilities and access points, so that Staff can determine that the final project design is in compliance with the terms of the certificate. The final project layout shall be provided in hard copy and as geographically-referenced electronic data. The final design shall include

references at the locations where the Applicant and/or its contractors must adhere to a specific environmental condition in order to comply with the certificate. **[AMENDED]**.

- (7) If any changes are made to the project layout after the submission of final engineering drawings, all changes shall be provided to Staff in hard copy and as geographically-referenced electronic data. All changes outside the environmental survey areas and any changes within environmentally-sensitive areas will be subject to Staff review and acceptance, to ensure compliance with all conditions of the certificate, prior to construction in those areas.
- (8) Within 60 days after the commencement of commercial operation, the Applicant shall submit to Staff a copy of the as-built specifications for the entire facility. If the Applicant demonstrates that good cause prevents it from submitting a copy of the as-built specifications for the entire facility within 60 days after commencement of commercial operation, it may request an extension of time for the filing of such as-built specifications. The Applicant shall use reasonable efforts to provide as-built drawings in both hard copy and as geographically-referenced electronic data.
- (9) Any wind turbine site proposed by the Applicant but not built as part of this project shall be available for Board review in a future case.
- (10) If construction has commenced at a turbine location and it is determined that the location is not a viable turbine site, that site shall be restored to its original condition within 30 days. If the Applicant demonstrates that good cause prevents it from completing the site restoration within 30 days, it may request an extension of time for completing such site restoration. **[AMENDED]**
- (11) At least 60 days before the preconstruction conference, the Applicant shall file a letter with the Board that identifies which of the turbine models listed in the application has been selected. If the Applicant selects the GE 2.5-103 turbine model, then the Applicant shall submit a complete copy of the manufacturer's safety manual or similar document to Staff for review.
- (12) The certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate.
- (13) As the information becomes known, the Applicant shall provide to Staff the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.
- (14) The Applicant shall not commence any construction of the facility until it has a signed Interconnection Service Agreement with PJM, which includes construction, operation, and maintenance of system upgrades necessary to reliably and safely integrate the proposed generating facility into the regional transmission system. The Applicant shall provide a letter stating that the Agreement has been signed or a copy of the signed Interconnection Service Agreement to Staff.

SOCIOECONOMIC CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Socioeconomic Impacts** section of the Nature of Probable Environmental Impact:

- (15) Prior to commencement of any construction, the Applicant shall prepare a Phase I cultural resources survey program for archaeological work within the construction disturbance area, in consultation with Staff and the OHPO. If the resulting survey work discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion in the National Register of Historic Places, then the Applicant shall submit an amendment, modification, or mitigation plan to the Board.
- (16) Prior to commencement of any construction, the Applicant shall develop a cultural resource avoidance plan in consultation with Staff and the OHPO, detailing procedures for flagging and avoiding all potentially NRHP-eligible archaeological sites in the project area. The avoidance plan shall also contain measures to be taken should previously-unidentified archaeological deposits or artifacts be discovered during construction of the project.
- (17) Prior to commencement of construction, the Applicant shall develop a historic preservation mitigation plan in consultation with Staff and the OHPO, detailing procedures for promoting the continued meaningfulness of the survey area's rural history.
- (18) No commercial signage or advertisements shall be located on any turbine, tower, or related infrastructure. If vandalism should occur, the Applicant shall remove or abate the damage within 30 days of discovery or as extended by Staff for good cause shown, to preserve the aesthetics of the project. Any abatement other than the restoration to pre-vandalism condition is subject to review by Staff to ensure compliance with this condition.

ECOLOGICAL CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Ecological Impacts** section of the Nature of Probable Environmental Impact:

- (19) **[STAFF REPORT NO. 23].** The Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas, as mutually agreed upon between the Applicant and Staff, and as shown on the Applicant's final approved construction plan. Sensitive areas include but are not limited to areas of vegetation clearing, designated wetlands and streams, and locations of threatened or endangered species or their identified habitat. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction.
- (20) **[STAFF REPORT NO. 24].** The Applicant shall contact Staff, ODNR, and the USFWS within 24 hours if state or federal threatened or endangered species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and ODNR in coordination with the USFWS. Nothing in this condition shall preclude agencies having jurisdiction over the facility with respect to

threatened or endangered species from exercising their legal authority over the facility consistent with law.

- (21) **[STAFF REPORT NO. 25].** The Applicant shall adhere to seasonal tree cutting dates of November 1st through March 31st for removal of trees, if avoidance measures cannot be achieved.
- (22) **[STAFF REPORT NO. 26].** The Applicant shall implement all conservation measures and conditions outlined in the final HCP and USFWS' Incidental Take Permit. The applicant shall also implement all conservation measures and conditons outlined in the Avian and Bat Protection Plan found in the USFWS' draft EIS, EIS No. 20120211, which is subject to inclusion as an environmental commitment in the USFWS' Record of Decision (ROD). Following USFWS and/or ODNR approval of any modifications to the Avian and Bat Protection Plan, the applicant shall implement the draft conditions in the Avian and Bat Protection Plan, as amended. **[AMENDED].**
- (23) **[STAFF REPORT NO. 27].** The Applicant shall not work in the types of streams listed below during fish spawning restricted periods (April 15 to June 30), unless a waiver is sought from and issued by the ODNR and approved by Staff releasing the Applicant from a portion of, or the entire restriction period.
 - (a) Class 3 primary headwater streams (watershed < one mi²)
 - (b) Exceptional Warmwater Habitat
 - (c) Coldwater Habitat
 - (d) Warmwater Habitat
 - (e) Streams supporting threatened or endangered species
- (24) **[STAFF REPORT NO. 28].** Sixty days prior to the first turbine becoming operational, the Applicant shall submit a post-construction avian and bat monitoring plan for DOW and Staff review and confirmation that it complies with this condition. The Applicant's plan shall be consistent with ODNR-approved, standardized protocol, as outlined in ODNR's *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. This includes having a sample of turbines that are searched daily. The post-construction monitoring shall begin within two weeks of operation of the first turbine and be conducted for a minimum of two seasons (April 1 to November 15), which may be split between calendar years. If monitoring is initiated after April 1 and before November 15, then portions of the first season of monitoring shall extend into the second calendar year (e.g., start monitoring on July 1, 2011 and continue to November 15, 2011; resume monitoring April 1, 2012 and continue to June 30, 2012). The second monitoring season may be waived at the discretion of ODNR and OPSB Staff. The monitoring start date and reporting deadlines will be provided in the DOW approval letter and the OPSB concurrence letter. If it is determined that significant mortality, as defined in ODNR's approved, standardized protocols, has occurred to birds and/or bats, or a state-listed species is killed, then the DOW and OPSB Staff will require the Applicant to develop and implement a mitigation plan. If required, the Applicant shall submit a mitigation plan to the DOW and OPSB Staff for review and approval within 30 days from the date reflected

on ODNR letterhead, in coordination with OPSB Staff, in which the DOW is requiring the Applicant to mitigate for significant mortality to birds and/or bats. Mitigation initiation timeframes shall be outlined in the DOW approval letter and the OPSB concurrence letter.

- (25) **[STAFF REPORT NO. 29].** The Applicant shall conduct a presence/absence survey for the presence of the Eastern massasauga rattlesnake at the 20-acre wetland. The survey would be conducted by an USFWS- and ODNR-approved herpetologist. If Eastern massasauga rattlesnakes are not detected, then no further avoidance and minimization measures would be required. If Eastern massasaugas are detected, or if a survey is not conducted, then presence of this species would be assumed and the Applicant would need to implement USFWS- and ODNR-approved avoidance and minimization measures for protection of this species.

PUBLIC SERVICES, FACILITIES, AND SAFETY CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Public Services, Facilities, and Safety** section of the Nature of Probable Environmental Impact:

- (26) **[STAFF REPORT NO. 30].** The applicant shall restrict public access to the facility with appropriately placed warning signs or other necessary measures.
- (27) **[STAFF REPORT NO. 31].** The Applicant shall ensure all transportation permits are obtained prior to transport. The Applicant shall coordinate with the appropriate authority regarding any temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility. Coordination shall include, but not be limited to, the county engineer, Ohio Department of Transportation, local law enforcement, and health and safety officials. This coordination shall be detailed as part of a final traffic plan submitted to Staff prior to the preconstruction conference for review and confirmation that it complies with this condition. **[AMENDED]**
- (28) **[STAFF REPORT NO. 32].** The Applicant shall provide the final Champaign County delivery route plan and the results of any traffic studies to Staff and the County Engineer(s) 30 days prior to the preconstruction conference. The Applicant shall complete a study on the final equipment delivery route to determine what improvements will be needed in order to transport equipment to the wind turbine construction sites. The Applicant shall make all improvements outlined in the final delivery route plan prior to equipment and wind turbine delivery. The Applicant's delivery route plan and subsequent road modifications shall include, but not be limited to, the following: **[AMENDED]**
- (a) Perform a survey of the final delivery routes to determine the exact locations of vertical constraints where the roadway profile will exceed the allowable bump and dip specifications and outline steps to remedy vertical constraints.
 - (b) Identify locations along the final delivery routes where overhead utility lines may not be high enough for over-height permit loads and coordinate with the appropriate utility company if lines must be raised.
 - (c) Identify roads and bridges that are not able to support the projected loads from delivery of the wind turbines and other facility components and make all necessary upgrades.

- (d) Identify locations where wide turns would require modifications to the roadway and/or surrounding areas and make all necessary alterations. Any alterations for wide turns shall be removed and the area restored to its preconstruction condition unless otherwise specified by the County Engineer(s).
- (29) **[STAFF REPORT NO. 33].** The Applicant shall repair damage to government-maintained (public) roads and bridges caused by construction activity. Any damaged public roads and bridges shall be repaired promptly to their preconstruction state by the Applicant under the guidance of the appropriate public authority . Any temporary improvements shall be removed unless the County Engineer(s) request that they remain. The Applicant shall provide financial assurance to the Board of Commissioners of Champaign County that it will restore the public county and township roads in Champaign County it uses to their preconstruction condition. The Applicant shall also enter into a Road Use Agreement with the County Engineer(s) or other appropriate public authority prior to construction and subject to Staff review and confirmation that it complies with this condition. The Road Use Agreement shall contain provisions for the following: **[AMENDED]**
- (a) A preconstruction survey of the conditions of the roads.
 - (b) A post-construction survey of the condition of the roads.
 - (c) An objective standard of repair that obligates the Applicant to restore the roads to the same or better condition as they were prior to construction.
 - (d) A timetable for posting of the construction road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.
- (30) **[STAFF REPORT NO. 34].** The facility owner and/or operator shall repair damage to government-maintained (public) roads and bridges caused by decommissioning activity. Any damaged public roads and bridges shall be repaired promptly to their pre-decommissioning state by the facility owner and/or operator under the guidance of the appropriate public authority . The Applicant shall provide financial assurance to the Board of County Commissioners of Champaign County that it will restore the public roads and bridges it uses in Champaign County to their pre-decommissioning condition. These terms shall be defined in a Road Use Agreement between the Applicant and the County Engineer(s) or other applicable public authority prior to construction. The Road Use Agreement shall be subject to Staff review and confirmation that it complies with this condition, and shall contain provisions for the following: **[AMENDED]**
- (a) A pre-decommissioning survey of the condition of public roads and bridges conducted within a reasonable time prior to decommissioning activities.
 - (b) A post-decommissioning survey of the condition of public roads and bridges conducted within a reasonable time after decommissioning activities.
 - (c) An objective standard of repair that obligates the facility owner and/or operator to restore the public roads and bridges to the same or better condition as they were prior to decommissioning.

- (d) A timetable for posting of the decommissioning road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.
- (31) **[STAFF REPORT NO. 35].** General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving operations and blasting if required, shall be limited to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Rule 4906-5- 08(C)(3), O.A.C, of upcoming construction activities including potential for nighttime construction activities.
- (32) **[STAFF REPORT NO. 36].** The Applicant shall complete a full detailed geotechnical exploration and evaluation at each turbine site to confirm that there are no issues to preclude development of the wind farm. The geotechnical exploration and evaluation shall include borings at each turbine location to provide subsurface soil properties, static water level, rock quality description (RQD), percent recovery, and depth and description of the bedrock contact and recommendations needed for the final design and construction of each wind turbine foundation, as well as the final location of the transformer substation and interconnection substation. The Applicant must fill all boreholes, and borehole abandonment must comply with state and local regulations. The Applicant shall provide copies of all geotechnical boring logs to Staff and to the ODNR Division of Geological Survey prior to construction.
- (33) **[STAFF REPORT NO. 37].** Should site-specific conditions warrant blasting, the Applicant shall submit a blasting plan, at least 60 days prior to blasting, to OPSB Staff for review and confirmation that it complies with this condition. The Applicant shall submit the following information as part of its blasting plan:
- (a) The name, address, and telephone number of the drilling and blasting company.
 - (b) A detailed blasting plan for dry and/or wet holes for a typical shot. The blasting plan shall address blasting times, blasting signs, warnings, access control, control of adverse effects, and blast records.
 - (c) A plan for liability protection and complaint resolution.
- (34) **[STAFF REPORT NO. 38].** Prior to the use of explosives, the Applicant or explosive contractor shall obtain all required local, state, and federal licenses/permits. The Applicant shall submit a copy of the license or permit to Staff within seven days of obtaining it from the local authority.
- (35) **[STAFF REPORT NO. 39].** The blasting contractor shall utilize two blasting seismographs that measure ground vibration and air blast for each blast. One seismograph shall be placed at the nearest dwelling and the other placed at the discretion of the blasting contractor.
- (36) **[STAFF REPORT NO. 40].** At least 30 days prior to the initiation of blasting operations, the Applicant must notify, in writing, the local fire departments and all residents or owners of dwellings or other structures within 1,000 feet of the blasting site. The Applicant or

explosive contractor shall offer and conduct a pre-blast survey of each dwelling or structure within 1,000 feet of each blasting site, unless waived by the resident or property owner. The survey must be completed and submitted to Staff at least ten (10) days before blasting begins. **[AMENDED]**

- (37) **[STAFF REPORT NO. 41]**. The Applicant shall comply with the turbine manufacturer's most current safety manual and shall maintain a copy of that safety manual in the O&M building of the facility.
- (38) **[STAFF REPORT NO. 42]**. At least 30 days before the preconstruction conference, the Applicant shall submit to Staff for review and confirmation that it complies with this condition, a proposed emergency and safety plan to be used during construction, to be developed in consultation with the fire department(s) having jurisdiction over the area.
- (39) **[ADDITION]**. Before the first turbine is operational, the Applicant shall submit to Staff for review and confirmation that it complies with this condition, a fire protection and medical emergency plan to be used during operation of the facility, which shall be developed in consultation with the first responders having jurisdiction over the area.
- (40) **[STAFF REPORT NO. 43]**. The Applicant shall establish a postal address compatible with the local 911 system at each turbine site shall be clearly labeled with that address in case of fire or other emergencies prior to commercial operation. These addresses shall be provided to the 911 Dispatch Center Director located at 1512 South U.S. Route 68, Urbana, Ohio prior to commercial operation. **[AMENDED]**
- (41) **[STAFF REPORT NO. 44]**. The Applicant shall instruct workers on the potential hazards of ice conditions on wind turbines.
- (42) **[STAFF REPORT NO. 45]**. The Applicant shall install and utilize an ice warning system that may include an ice detector installed on the roof of the nacelle, ice detection software, warranted by the manufacturer to detect ice, for the wind turbine controller, or an ice sensor alarm that triggers an automatic shutdown.
- (43) **[STAFF REPORT NO. 46]**. The Applicant shall relocate and/or resize turbines 87 and 91 to conform to a setback distance that equals 150 percent of the sum of the hub height and rotor diameter from occupied structures, including businesses.
- (44) **[STAFF REPORT NO. 47]**. The Applicant shall adhere to a setback distance of at least 1.1 times the total height of the turbine structure, as measured from its tower's base (excluding the subsurface foundation) to the tip of its highest blade, from any natural gas pipeline in the ground at the time of commencement of construction.
- (45) **[STAFF REPORT NO. 48]**. Within six months of commencement of operation of the facility, the Applicant shall register the as-built locations of all underground collection lines with the Ohio Utilities Protection Service. The Applicant shall also register with the Ohio Oil and Gas Producers Underground Protection Service, if it operates in the project area. Confirmation of registration(s) shall be provided to Staff.
- (46) **[STAFF REPORT NO. 49]**. Except for short-term durations of time, the facility shall be operated so that the facility noise contribution does not result in noise levels at the exterior

of any currently existing non-participating occupied sensitive receptor that exceed the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA. During daytime operation only (7:00 a.m. to 10:00 p.m.), the facility may operate at the greater of: (a) the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA; or, (b) the validly measured ambient L_{EQ} plus five dBA at the location of the currently existing non-participating occupied sensitive receptor. After commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project-related noise complaints through its complaint resolution process.

- (47) **[STAFF REPORT NO. 50].** The facility shall be operated so that the facility shadow flicker contribution does not result in shadow flicker levels that exceed 30 hours per year for any non-participating sensitive receptor. The Applicant shall complete a shadow flicker analysis for all inhabited non-participating sensitive receptors that have already been modeled to be in excess of 30 hours per year of shadow flicker. The analysis shall show how modeled shadow flicker impacts have been reduced to 30 or fewer hours per year for each such receptor. The analysis shall be provided to Staff at least 30 days prior to the preconstruction conference, for review and confirmation that it complies with this condition. This analysis may incorporate shadow flicker reductions for trees, vegetation, buildings, obstructions, turbine line of sight, operational hours, wind direction, sunshine probabilities, and other mitigation confirmed by Staff to be in compliance with this condition. After commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project-related shadow flicker complaints through its complaint resolution process.
- (48) **[STAFF REPORT NO. 51].** The Applicant shall develop a complaint resolution process that shall include procedures for responding to complaints about excessive noise during construction, and excessive noise and excessive shadow flicker caused by operation of the facility. The complaint resolution process shall include procedures by which complaints can be made by the public, how complaints will be tracked by the Applicant, steps that will be taken to interact with the complainant and respond to the complaint, steps that will be taken to verify the merits of the complaint, and steps that will be taken to mitigate valid complaints. The Applicant shall provide its proposed noise and shadow flicker complaint resolution procedure, as part of its overall complaint resolution procedure, to Staff for review and confirmation that it complies with the requirements of this condition, prior to the pre-construction process. Mitigation, if required, shall consist of either reducing the impact so that the project contribution does not exceed the requirements of the certificate, or other means of mitigation reviewed by Staff for confirmation that it complies with this condition.
- (49) **[STAFF REPORT NO. 52].** At least 30 days prior to construction, the Applicant shall perform a study of the potential impacts of the project to any known microwave path or system. The Applicant shall contact all electric service providers that operate within the project area for a description of specific microwave paths to be included in the study. A copy of this study shall be provided to the electric service providers for review, and to Staff for review and confirmation that it complies with this condition. The assessment shall conform to the following requirements:
- (a) An independent and registered surveyor, licensed to survey within the state of Ohio,

shall determine the exact locations and worst-case Fresnel zone dimensions of all known microwave paths or systems operating within the project area, including all paths and systems identified by the electric service providers that operate within the project area. In addition, the surveyor shall determine the center point of all turbines within 1,000 feet of the worst-case Fresnel zone of each system, using the same survey equipment.

- (b) Provide the distance (feet) between the surveyed center point of each turbine identified within section (a) above and the surveyed worst-case Fresnel zone of each microwave system path.
 - (c) Separately provide the distance (feet) between the nearest rotor blade tip of each surveyed turbine identified within section (a) above and the surveyed worst-case Fresnel zone of each microwave system path.
 - (d) Provide a map of the surveyed microwave paths and turbines at a legible scale.
 - (e) Describe the specific, expected impacts of the project on all microwave paths and systems considered in the study.
- (50) **[STAFF REPORT NO. 53].** The Applicant shall mitigate all observed impacts (a) to microwave paths and systems identified in the communication studies performed for this project or required by the Board, (b) to new microwave paths or systems identified by an electric service provider after the communication studies are performed but prior to the date the Applicant advises such electric service provider of the final turbine layout; provided that construction has commenced on such new paths or system prior to the date the Applicant advises such electric service provider of the final turbine layout, or (c) to new microwave paths or systems identified by an electric service provider following the date the Applicant advises such electric service provider of the final turbine layout but only if the Applicant subsequently modifies the final turbine layout and such microwave paths or systems were modified or introduced in reliance upon the original final ayout; provided that construction has commenced on such new paths or systems prior to the date that the Applicant advises such electric service provider of the modified final turbine layout. Avoidance and mitigation shall consist of measures acceptable to Staff, the Applicant, and the affected path owner, operator, or licensee(s). **[AMENDED]**
- (51) **[STAFF REPORT NO. 54].** If any turbine is determined to cause NEXRAD interference, the Applicant shall propose a technical or administrative work plan, protecting proprietary interests in wind speed data, which provides for the release of real-time meteorological data to the National Weather Service office in Wilmington, Ohio. If an uncontrollable event should render this data temporarily unavailable, the Applicant shall exert reasonable effort to restore connectivity in a timely manner.
- (52) **[STAFF REPORT NO. 55].** The Applicant, facility owner, and/or facility operator shall comply with the following conditions regarding decommissioning:
- (a) The Applicant, facility owner, and/or facility operator shall provide the final decommissioning plan to Staff and the County Engineer(s) for review and confirmation

of compliance with this condition, at least 30 days prior to the preconstruction conference. The plan shall:

- (i) Indicate the intended future use of the land following reclamation.
 - (ii) Describe the following: engineering techniques and major equipment to be used in decommissioning and reclamation; a surface water drainage plan and any proposed impacts that would occur to surface and ground water resources and wetlands; and a plan for backfilling, soil stabilization, compacting, and grading.
 - (iii) Provide a detailed timetable for the accomplishment of each major step in the decommissioning plan, including the steps to be taken to comply with applicable air, water, and solid waste laws and regulations and any applicable health and safety standards in effect as of the date of submittal.
- (b) The facility owner and/or facility operator shall file a revised decommissioning plan to the Staff and the County Engineer(s) every five (5) years from the commencement of construction. The revised plan shall reflect advancements in engineering techniques and reclamation equipment and standards. The revised plan shall be applied to each five-year decommissioning cost estimate. Prior to implementation, the decommissioning plan and any revisions shall be reviewed by Staff to confirm compliance with this condition.
 - (c) The facility owner and/or facility operator shall, at its expense, complete decommissioning of the facility, or individual wind turbines, within 12 months after the end of the useful life of the facility or individual wind turbines. If no electricity is generated for a continuous period of 12 months, or if the Board deems the facility or turbine to be in a state of disrepair warranting decommissioning, the wind energy facility or individual wind turbines will be presumed to have reached the end of its useful life. The Board may extend the useful life period for the wind energy facility or individual turbines for good cause as shown by the facility owner and/or facility operator. The Board may also require decommissioning of individual wind turbines due to health, safety, wildlife impact, or other concerns that prevent the turbine from operating within the terms of the Certificate.
 - (d) Decommissioning shall include the removal and transportation of the wind turbines off site. Decommissioning shall also include the removal of buildings, cabling, electrical components, access roads, and any other associated facilities, unless otherwise mutually agreed upon by the facility owner and/or facility operator and the landowner. All physical material pertaining to the facility and associated equipment shall be removed to a depth of at least 36 inches beneath the soil surface and transported off site. The disturbed area shall be restored to the same physical condition that existed before erection of the facility. Damaged field tile systems shall be repaired to the satisfaction of the property owner.
 - (e) During decommissioning, all recyclable materials, salvaged and non-salvaged, shall be recycled to the furthest extent practicable. All other non-recyclable waste materials shall be disposed of in accordance with state and federal law.

- (f) The facility owner and/or facility operator shall not remove any improvements made to the electrical infrastructure if doing so would disrupt the electric grid, unless otherwise approved by the applicable regional transmission organization and interconnection utility.
- (g) Subject to confirmation of compliance with this condition by Staff, and seven days prior to the preconstruction conference, an independent, registered Professional Engineer, licensed to practice engineering in the state of Ohio, shall be retained by the Applicant, facility owner, and/or facility operator to estimate the total cost of decommissioning in current dollars, without regard to salvage value of the equipment. Said estimate shall include: (1) an identification and analysis of the activities necessary to implement the most recent approved decommissioning plan including, but not limited to, physical construction and demolition costs assuming good industry practice and based on ODOT's *Procedure for Budget Estimating and RS Means* material and labor cost indices or any other publication or guidelines approved by OPSB Staff; (2) the cost to perform each of the activities; (3) an amount to cover contingency costs, not to exceed 10 percent of the above calculated reclamation cost. Said estimate will be converted to a per-turbine basis (the "Decommissioning Costs"), calculated as the total cost of decommissioning of all facilities as estimated by the Professional Engineer divided by the number of turbines in the most recent facility engineering drawings. This estimate shall be conducted every five years by the facility owner and/or facility operator.
- (h) The Applicant, facility owner and/or facility operator shall post and maintain for decommissioning, at its election, funds, a surety bond, or similar financial assurance in an amount equal to the per-turbine Decommissioning Costs multiplied by the sum of the number of turbines constructed and under construction. The funds, surety bond, or financial assurance need not be posted separately for each turbine so long as the total amount reflects the aggregate of the Decommissioning Costs for all turbines constructed or under construction. For purposes of this condition, a turbine is considered to be under construction at the commencement of excavation for the turbine foundation. The form of financial assurance or surety bond shall be a financial instrument mutually agreed upon by the Board and the Applicant, the facility owner, and/or the facility operator. The financial assurance shall ensure the faithful performance of all requirements and reclamation conditions of the most recently filed and approved decommissioning and reclamation plan. At least 30 days prior to the preconstruction conference, the Applicant, the facility owner, and/or the facility operator shall provide an estimated timeline for the posting of decommissioning funds based on the construction schedule for each turbine. Prior to commencement of construction, the Applicant, the facility owner, and/or the facility operator shall provide a statement from the holder of the financial assurance demonstrating that adequate funds have been posted for the scheduled construction. Once the financial assurance is provided, the Applicant, facility owner and/or facility operator shall maintain such funds or assurance throughout the remainder of the applicable term and shall adjust the amount of the assurance, if necessary, to offset any increase or decrease in the Decommissioning Costs.

- (i) The decommissioning funds, surety bond, or financial assurance shall be released by the holder of the funds, bond, or financial assurance when the facility owner and/or facility operator has demonstrated, and the Board concurs, that decommissioning has been satisfactorily completed, or upon written approval of the Board, in order to implement the decommissioning plan.

AIR, WATER, SOLID WASTE, AND AVIATION CONDITIONS

Staff recommends the following conditions to address the requirements discussed in Air, Water, Solid Waste, and Aviation:

- (53) **[STAFF REPORT NO. 56].** Prior to the commencement of construction activities that require permits or authorizations by federal or state laws and regulations, the Applicant shall obtain and comply with such permits or authorizations. The Applicant shall provide copies of permits and authorizations, including all supporting documentation, to Staff within seven days of issuance or receipt by the Applicant. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference.
- (54) **[STAFF REPORT NO. 57].** At least seven days before the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, a copy of all NPDES permits including its approved SWPPP, approved SPCC procedures, and its erosion and sediment control plan. Any soil issues must be addressed through proper design and adherence to the Ohio EPA BMPs related to erosion and sedimentation control.
- (55) **[STAFF REPORT NO. 58].** The Applicant shall employ the following erosion and sedimentation control measures, construction methods, and BMPs when working near environmentally-sensitive areas and/or when in close proximity to any watercourses, in accordance with the Ohio NPDES permit(s) and SWPPP obtained for the project:
 - (a) During construction of the facility, seed all disturbed soil, except within actively cultivated agricultural fields, within seven days of final grading with a seed mixture acceptable to the appropriate County Cooperative Extension Service. Denuded areas, including spoils piles, shall be seeded and stabilized within seven days, if they will be undisturbed for more than 21 days. Re-seeding shall be done within seven days of emergence of seedlings as necessary until sufficient vegetation in all areas has been established.
 - (b) Inspect and repair all erosion control measures after each rainfall event of one-half of an inch or greater over a 24-hour period, and maintain controls until permanent vegetative cover has been established on disturbed areas.
 - (c) Delineate all watercourses, including wetlands, by fencing, flagging, or other prominent means.
 - (d) Avoid entry of construction equipment into watercourses, including wetlands, except at specific locations where construction has been approved.
 - (e) Prohibit storage, stockpiling, and/or disposal of equipment and materials in these sensitive areas.

- (f) Locate structures outside of identified watercourses, including wetlands, except at specific locations where construction has been approved.
 - (g) Divert all storm water runoff away from fill slopes and other exposed surfaces to the greatest extent possible, and direct instead to appropriate catchment structures, sediment ponds, etc., using diversion berms, temporary ditches, check dams, or similar measures.
- (56) **[STAFF REPORT NO. 59].** The Applicant shall remove all temporary gravel and other construction staging area and access road materials after completion of construction activities, as weather permits, unless otherwise directed by the landowner. Impacted areas shall be restored to preconstruction conditions in compliance with the NPDES permit(s) obtained for the project and the approved SWPPP created for this project.
- (57) **[STAFF REPORT NO. 60].** The Applicant shall not dispose of gravel or any other construction material during or following construction of the facility by spreading such material on agricultural land. All construction debris and all contaminated soil shall be promptly removed and properly disposed of in accordance with Ohio EPA regulations.
- (58) **[STAFF REPORT NO. 61].** The Applicant shall comply with fugitive dust rules by the use of water spray or other appropriate dust suppressant measures whenever necessary.
- (59) **[STAFF REPORT NO. 62].** The Applicant shall comply with any drinking water source protection plan for any part of the facility that is located within drinking water source protection areas of the local villages and cities.
- (60) **[STAFF REPORT NO. 63].** The Applicant shall provide a copy of any floodplain permit required for construction of this project, or a copy of correspondence with the floodplain administrator showing that no permit is required, to Staff within seven days of issuance or receipt by the Applicant.
- (61) **[STAFF REPORT NO. 64].** Thirty days prior to commencement of construction, the Applicant must notify, in writing, any owner of an airport located within 20 miles of the project boundary, whether public or private, whose operations, operating thresholds/minimums, landing/approach procedures and/or vectors are expected to be altered by the siting, operation, maintenance, or decommissioning of the facility.
- (62) **[STAFF REPORT NO. 65].** The Applicant must meet all recommended and prescribed FAA and ODOT Office of Aviation requirements to construct an object that may affect navigable airspace. This includes submitting coordinates and heights for all towers exceeding 199 feet at ground level for ODOT Office of Aviation and FAA review prior to construction, and the non-penetration of any FAA *Part 77* surfaces.
- (63) **[STAFF REPORT NO. 66].** All applicable structures, including construction equipment, shall be lit in accordance with FAA circular 70/7460-1 K Change 2, *Obstruction Marking and Lighting*; or as otherwise prescribed by the FAA. This includes all cranes and construction equipment. During construction, the Applicant shall ensure that all structures that reach 200 feet in height, at ground level, are temporarily marked and lit until permanent lighting is installed.

- (64) **[STAFF REPORT NO. 67].** The Applicant shall provide the flight service stations within proximity with notices to airman (NOTAM). These notices shall include the latitude and longitude coordinates for all structures, including cranes and construction equipment, that exceed 200 feet in height at ground level.
- (65) **[STAFF REPORT NO. 68].** The Applicant shall file all 7460-2 forms with the FAA at least 42 days prior to construction and to Staff for confirmation of compliance with this condition.
- (66) **[STAFF REPORT NO. 69].** Within 30 days of construction completion, the Applicant shall file the as-built transmission structure coordinates and heights (AGL) with the Ohio Office of Aviation and Federal Aviation Administration.
- (67) **[STAFF REPORT NO. 70].** The Applicant shall submit to Staff, for review and confirmation that it complies with this condition, a medical needs service plan for construction, testing, and operation of this facility, in coordination with the local emergency life flight service, CareFlight. This plan shall incorporate measures that assure immediate shut downs of any portion of the facility necessary to allow direct routes for emergency life flight services within the vicinity of the facility.

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