

M E M O R A N D U M

To: Clients & Friends

From: Dickinson Wright PLLC, Chris Pirik, Terrence O'Donnell, & Will Vorys

Date: May 15, 2018

Re: Ohio Power Siting Board's Proposed Wind Rules 4906-4-08 and 4906-4-09

On September 22, 2016, the Ohio Power Siting Board (OPSB or Board) requested comments on proposed revisions to Ohio Administrative Code (OAC) Rule 4906-4-08 and new OAC Rule 4906-4-09, which establish regulations associated with commercial scale wind farms in Ohio. On March 15, 2018, after several separate comment periods, a rehearing process, and numerous iterations of proposed rules, the OPSB finalized its rule package.<sup>1</sup> Below we summarize relevant and pertinent rule revisions, which took effect April 26, 2018.

**Amended OAC Rule 4906-4-08  
 Health and safety, land use and ecological  
 Attachment A**

This rule generally sets forth the information a developer must file with its initial OPSB certificate application. The stated intent behind the revisions is to provide greater clarity regarding sound standards, blade shear, ice throw, shadow flicker, navigable airspace interference, communication interference, and ecological impacts. The revisions also enhance language regarding existing land use, setback waivers, visual impacts, and mapping.<sup>2</sup>

1. **Sound:** The old rule required the applicant to provide a description of the day and nighttime operational noise levels at the property boundary for each *nonparticipating* property adjacent to or within the project area. The new rule eliminates the word “non-participating,” requiring applicants to provide noise level descriptions at the boundary of each property adjacent to or within the project area. (Att. A at 2).

The old rule also required applicants to indicate the location of any noise-sensitive areas within one mile of the facility, and the operational noise level at each habitable residence, school, church, and other “noise-sensitive receptors.” The new rule defines sensitive receptors as “any occupied building.” (Att. A at 2).

2. **Ice Throw:** The old rule required applicants to evaluate and describe the potential impact from ice throw at the nearest property boundary and road. The new rule requires applicants to provide “a site-specific ice throw risk analysis and assessment study.” (Att. A at 3).

<sup>1</sup> Attached are the finalized rules.

<sup>2</sup> The underlined language & accompanying strikethroughs in this summary reflect new provisions.

3. **Shadow Flicker:** The old rule required applicants to evaluate and describe the potential impact from shadow flicker at habitable residences within at least 1/2 mile of a turbine. The new rule requires applicants to “evaluate and describe the potential cumulative impact from shadow flicker at ~~habitable residences~~ sensitive receptors within a distance of [10] rotor diameters or at least [1/2] mile, whichever is greater, of a turbine.” (Att. A at 4).
4. **Navigable Airspace Interference:** The old rule required applicants to describe measures they will take to minimize their facility’s interference with navigable airspace. The new rule adds an additional requirement that the applicant “coordinate such efforts with appropriate state and federal agencies.” (Att. A at 4).
5. **Communication Interference:** The new rule adds a provision regarding potential communication interference, which states “The applicant shall evaluate and describe the potential for the facility to interfere with microwave communication paths and systems and describe measures that will be taken to minimize interference. Include all licensed systems and those used by electric service providers and emergency personnel that operate in the project area.” (Att. A at 4).
6. **Ecological Information:** The old rule required applicants to provide information regarding ecological resources in the project area. As part of the rule, applicants must provide a map showing undeveloped or abandoned land surrounding the project area. The new rule adds the following: “such as wood lots or vacant ~~fields~~ tracts of land subject to past or present surface mining activities, not used as a registered game preserve or in agricultural production.” (Att. A at 4-5).
7. **Ecological Impacts:** The old rule required applicants to provide information regarding potential impacts to ecological resources during construction. The new rule maintains most information requirements but eliminates the requirement that applicants describe “measures to divert storm water runoff away from fill slopes and other exposed surfaces.” However, the new rule now requires applicant to describe “Avoidance measures for ~~major~~ state and federally listed and protected species and their habitat.” (Att. A at 6).
8. **Existing Land Use:** The old rule required the applicant to provide a table showing all *structures* within 1,000 feet of generation equipment and 250 feet of associated facilities. The new rule adds “property lines” and requires that the table identify all structures and “property lines” within so many feet of the generation equipment, turbine, collection line, access road, or other associated facilities. (Att. A at 7).  
  
The new rule also requires structures and property lines within 1,500 feet of generation equipment/turbines to be included in the table. This is an increase from the current rule that requires a distance of 1,000 feet. (Att. A at 7).
9. **Wind Farm Maps (Setback Requirements):** The old rule required applicants to provide maps depicting wind turbine setbacks in relation to property lines, habitable structures, electric transmission lines, gas pipelines, and state and federal highways. The new rule adds “gas distribution lines, hazardous liquid(s) pipelines” to the list of (setback) structures to be included in the map. (Att. A at 8).

The new rule also adds that “a state or federal highway” must be at least 1,125 feet in horizontal distance from the tip of the turbine’s nearest blade at 90 degrees. (Att. A at 8).

Finally, the new rule adds that any “gas distribution line” be at least “1.1 x turbine height” from the wind turbines. And in the list of structures to which this setback applies, the revisions also change “state or federal highway” to “public road” (Att. A at 8).

10. **Setback Waivers:** The new rule adds that “The setback shall apply in all cases except those in which all owner(s) of property adjacent to the wind farm property waive application of the setback to that property.” The new rule sets forth requirements for waivers, including that they must:

- a. Be in writing;
- b. Provide a brief description of the facility;
- c. Notify the applicable property owner(s) of the statutory minimum setback requirements;
- d. Describe the adjacent property subject to the waiver through a legal description;
- e. Describe how the adjacent property is subject to the statutory minimum setback requirements; and
- f. Advise all subsequent purchasers of the adjacent property subject to the waiver that the waiver of the minimum setback requirements shall run with the land.

The new rules also require the waiver be signed by the applicant and all applicable landowners, and be recorded in the county recorder’s office. (Att. A at 9).

11. **Landmark Mapping:** The new rule increases required mapping of landmarks within 5 miles of the project area to those within 10 miles. (Att. A at 10).

12. **Recreation and Scenic Areas:** The new rule adds “scenic areas” to the list of areas that must be identified in the application and increases required identification of recreation and scenic areas within 5 miles of the project area to those within 10 miles. (Att. A at 10).

13. **Visual impact evaluation of the facility:** The new rule also:

- a. Increases the area to be evaluated for purposes of a visual impact analysis from a 5 mile radius to a 10 mile radius.
- b. Adds that the evaluation be “conducted or reviewed by a licensed architect or other professional with experience in developing a visual impact assessment.”
- c. Adds that “the viewshed analysis shall not incorporate deciduous vegetation, agricultural crops, or other seasonal land cover as viewing obstacles. If the viewshed analysis includes atmospheric conditions, it shall incorporate the atmospheric conditions under which the facility would be most visible.”
- d. Adds that the description of the existing landscape shall include “documentation of a review of existing plans, policies, and regulations of the communities within the study areas, and list all references to identified visual resources or other indications of the visual preferences of the community.”
- e. Adds that the description of alterations caused to the landscape by the facility shall include “a description and illustration of the scale, form, and material of all facility structures.” (Att. A at 10-11).

**New OAC Rule 4906-4-09**  
**Regulations associated with wind farms**  
**Attachment B**

This new rule sets forth specific regulations that will apply to wind farms. The vast majority of the new rule contains current “conditions” that are found in at least one certificate that has been issued by the OPSB.<sup>3</sup> However, there are some requirements that are not found in any current certificate condition, as well as some notable revisions to current conditions.

The following are some of the requirements set forth in the new rule that are found in current certificate conditions:

- **Geotechnical exploration and evaluation**, including borings, shall be provided 60 days before the preconstruction conference. (Att. B at 1-2).
- **Blasting** requirements include notice to property owners and a pre-blast survey of structures within 1,000 feet of the blasting site. (Att. B at 2).
- **Construction and maintenance access plan, and vegetation management plan** to be submitted with the application. (Att. B at 3).
- **Wildlife protection** includes consultation with USFWS, ODNR, and OPSB, adherence to seasonal cutting dates, and the submission of a post-construction avian and bat monitoring plan 60 days prior to the first turbine becoming operational. (Att. B at 7).
- **Ice throw** minimization plans shall include restricting access to the facility, instructing workers of potential hazards, and installing a warning system. (Att. B at 8).
- **Sound** requirements include limitation on the hours of construction and operation. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The facility shall be operated so that the facility noise contribution does not result in noise levels at any non-participating sensitive receptor that exceed the project area ambient nighttime average sound level ( $L_{eq}$ ) by 5 dBA. From 7:00 a.m. to 10:00 p.m. only the facility may operate at the greater of: the project area ambient nighttime  $L_{eq}$  plus 5 dBA or the validly measured ambient  $L_{eq}$  plus 5 dBA at the location of the sensitive receptor. (Att. B at 8-9).
- **Blade shear** requirements include turbine generators being equipped with 2 braking systems, a pitch control system, a lightning protection system, and turbine shutoffs. (Att. B at 9).
- **Shadow flicker** requirements provide that, at a minimum, the facility shall be operated so that shadow flicker levels do not exceed 30 hours per year at any nonparticipating sensitive receptor within 1,000 meters of any turbine. (Att. B at 9-10).
- **Decommissioning** plans are to be provided to the OPSB and county engineer 30 days prior to the preconstruction conference and a revised plan shall be filed every 5 years from commencement of construction. The rule sets forth the timeline and process for decommissioning and requires that, at least 7 days prior to the preconstruction meeting, and every 5 years thereafter, the applicant retain a registered engineer to estimate the cost of decommissioning. The rule requires a performance bond, a road use agreement for decommissioning, and pre- and post-decommissioning surveys of the conditions of the public roads and bridges. (Att. B at 10-13).

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<sup>3</sup> See e.g. *Hardin*, Case No. 09-479-EL-BGN, Order (Mar. 22, 2010); *Timber Road I*, Case No. 09-980-EL-BGN, Order (Aug. 23, 2010); *Northwest*, Case No. 13-197-EL-BGN, Order (Dec. 16, 2013); *Greenwich*, Case No. 13-990-EL-BGN, Order (Aug. 25, 2014); *Scioto Ridge*, Case No. 13-1177-EL-BGN, Order (Mar. 17, 2014).

The following are new provisions or requirements not currently found in certificate conditions from previous orders of the OPSB:

1. **Change, Reconstruction, Alteration, or Enlargement (Amendments/Modifications)**: This new requirement provides that:

- a. Any amendment to a wind farm certificate shall be filed as an amendment application.
- b. An applicant “may seek review of a proposed modification(s) to a certificate” by filing the proposed modification in the public docket and noticing adjacent landowners immediately adjacent to the site of the proposed modification. A modification, as set forth in the rule, is not considered an amendment if such modification would be minimal in nature, and would be adequately addressed by the conditions of a certificate.
- b. Interested persons may file objections to the modification proposal within 21 days. If no objections are filed, the applicant may proceed. If objections are filed, OPSB staff may docket its recommendation. The new rule provides that the approval process for proposed modifications will be the same as the suspension process for accelerated applications (OAC Rule 4906-6-09)—this existing (suspension) process allows the OPSB to suspend an application for up to 90 days upon good cause shown.

The new rule appears intended to require the filing of all modifications to a certificate, but not all such modifications would appear to rise to the level of an “amendment.” (Att. B at 4-5).

2. **Aesthetics and Recreational Land Use**: The new rule:

- a. Requires lighting in associated structures and access roads to be “reasonably shielded from adjacent properties.”
- b. Requires “visible surfaces of wind farm structures...be a non-reflective, matte finished, non-obtrusive, and neutral color...”
- c. Requires an applicant to provide “photographic simulations or artist pictorial sketches of the proposed facility from at least one vantage point in each area of 3 square miles within the project areas, showing views to the north, south, east, and west.” Such simulations or sketches “shall incorporate the environmental and atmospheric conditions under which the facility would be most visible.” (Att. B at 6).

3. **Wildlife Protection**: The new rule:

- a. Requires the applicant to provide coordination letters from USFWS and ODNR Division of Wildlife. The applicant is to describe how it will address any agency recommendations.
- b. Requires applicant to contact OPSB staff within 24 hours if federal/state listed species are encountered during construction activities. The rule explains “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, board staff, and other applicable administrative agencies.”
- c. Requires that at least 60 days prior to the first turbine becoming operational, the applicant describe plans or maintaining blades in a stationary or nearly stationary stance during low speed conditions at night during bird and bat migratory seasons.

- d. Requires a mitigation plan to be developed if 1) construction activities result in significant adverse impact to federal or state listed/protected species, or 2) significant bird and bat mortality occurs during operation of the facility. (Att. B at 7).
4. **Ice Throw:** Provides that "... the potential impact from ice throw shall be presumptively deemed to satisfy safety considerations if the probability of one kilogram of ice landing beyond the statutory property line setback for each turbine location is less than one per cent per year." (Att. B at 8).
5. **Blade Shear:** The new rule requires that "[a]t a minimum, the design of the wind turbine generators shall conform to industry standards, including those of the American National Standards Institute, the International Electrotechnical Commission, or an equivalent standard. The [a]pplicant shall submit certificates of design compliance obtained by the equipment manufacturers from Underwriters Laboratories, Det Norske Veritas, Germanischer Lloyd Wind Energies, or other similar certifying organizations." (Att. B at 9).

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Should you have any questions regarding the OPSB's revised wind rules, please do not hesitate to contact us. Thank you.

**Terrence O'Donnell**

614.744.2583

[TODonnell@DickinsonWright.com](mailto:TODonnell@DickinsonWright.com)

**Christine Pirik**

614.591.5461

[CPirik@DickinsonWright.com](mailto:CPirik@DickinsonWright.com)

**Will Vorys**

614.744.2936

[WVorys@DickinsonWright.com](mailto:WVorys@DickinsonWright.com)

4906-4-08

**Health and safety, land use and ecological information.**

(A) The applicant shall provide information on health and safety.

(1) Equipment safety. The applicant shall provide information on the safety and reliability of all equipment.

(a) Describe all proposed major public safety equipment.

(b) Describe the reliability of the equipment.

(c) Provide the generation equipment manufacturer's safety standards. Include a complete copy of the manufacturer's safety manual or similar document and any recommended setbacks from the manufacturer.

(d) Describe ~~any~~the measures that will be taken to restrict public access to the facility.

(e) Describe the fire protection, safety, and medical emergency plan(s) to be used during construction and operation of the facility, and how such plan(s) will be developed in consultation with local emergency responders.

(2) Air pollution control. Except for wind farms, the applicant shall describe in conceptual terms the probable impact to the population due to failures of air pollution control equipment.

(3) Noise. The applicant shall provide information on noise from the construction and operation of the facility.

(a) Describe the construction noise levels expected at the nearest property boundary. The description shall address:

(i) Blasting activities.

(ii) Operation of earth moving equipment.

(iii) Driving of piles, rock breaking or hammering, and horizontal directional drilling.

(iv) Erection of structures.

(v) Truck traffic.

(vi) Installation of equipment.

- (b) Describe the operational noise levels expected at the nearest property boundary. The description shall address:
- (i) Operational noise from generation equipment. In addition, for a wind ~~facility~~farm, cumulative operational noise levels at the property boundary for each ~~non-participating~~ property adjacent to or within the project area, under both day and nighttime operations. The applicant shall use generally accepted computer modeling software (developed for wind turbine noise measurement) or similar wind turbine noise methodology, including consideration of broadband, tonal, and low-frequency noise levels.
  - (ii) Processing equipment.
  - (iii) Associated road traffic
- (c) Indicate the location of any noise-sensitive areas within one mile of the ~~proposed~~ facility, and the operational noise level at each habitable residence, school, church, and other noise-sensitive receptors, under both day and nighttime operations. Sensitive receptor, for the purposes of this rule, refers to any occupied building.
- (d) Describe equipment and procedures to mitigate the effects of noise emissions from the proposed facility during construction and operation, including limits on the time of day at which construction activities may occur.
- (e) Submit a preconstruction background noise study of the project area that includes measurements taken under both day and nighttime conditions.
- (4) Water impacts. The applicant shall provide information regarding water impacts
- (a) Provide an evaluation of the impact to public and private water supplies due to construction and operation of the proposed facility.
  - (b) Provide an evaluation of the impact to public and private water supplies due to pollution control equipment failures.
  - (c) Provide existing maps of aquifers, water wells, and drinking water source protection areas that may be directly affected by the proposed facility.
  - (d) Describe how construction and operation of the facility will comply with any drinking water source protection plans near the project area.



- (e) Provide an analysis of the prospects of floods for the area, including the probability of occurrences and likely consequences of various flood stages, and describe plans to mitigate any likely adverse consequences.
- (5) Geological features. The applicant shall provide a map of suitable scale showing the proposed facility, geological features of the proposed facility site, topographic contours, existing gas and oil wells, and injection wells. The applicant shall also:
- (a) Describe the suitability of the site geology and plans to remedy any inadequacies.
  - (b) Describe the suitability of soil for grading, compaction, and drainage, and describe plans to remedy any inadequacies and restore the soils during post-construction reclamation.
  - (c) Describe plans for the test borings, including closure plans for such borings. Plans for the test borings shall contain a timeline for providing the test boring logs and the following information to the board:
    - (i) Subsurface soil properties.
    - (ii) Static water level.
    - (iii) Rock quality description.
    - (iv) ~~Percent~~Per cent recovery.
    - (v) Depth and description of bedrock contact.
- (6) Wind Velocity. The applicant shall provide an analysis of ~~the prospects of high winds~~ wind velocities for the area, including the probability of occurrences and likely consequences of various wind velocities, and describe plans to mitigate any likely adverse consequences.
- (7) Blade shear. For a wind farm. ~~The~~the applicant shall evaluate and describe the potential impact from blade shear at the nearest property boundary and public road, ~~including its plans to minimize potential impacts and instruct workers of potential hazards.~~
- (8) Ice throw. For a wind farm. ~~The~~the applicant shall evaluate and describe, by providing a site-specific ice throw risk analysis and assessment study, the potential impact from ice throw at the nearest property boundary and public

road, including its plans to minimize potential impacts and instruct workers of potential hazards.

- (9) Shadow flicker. For a wind farm, ~~The~~ the applicant shall evaluate and describe the potential cumulative impact from shadow flicker at the property boundary and habitable residences sensitive receptors within a distance of ten rotor diameters or at least one-half mile, whichever is greater, of a turbine, including its plans to minimize potential impacts.
- (10) Radio and TV reception. The applicant shall evaluate and describe the potential for the facility to interfere with radio and TV reception and describe measures that will be taken to minimize interference.
- (11) Radar interference. The applicant shall evaluate and describe the potential for the facility to interfere with military and civilian radar systems and describe measures that will be taken to minimize interference.
- (12) Navigable airspace interference. The applicant shall evaluate and describe the potential for the facility to interfere with navigable airspace ~~microwave communication paths and systems~~ and describe measures that will be taken to minimize interference. The applicant shall coordinate such efforts with appropriate state and federal agencies. ~~Include all licensed systems and those used by electric service providers and emergency personnel that operate in the project area.~~
- (13) Communication interference. The applicant shall evaluate and describe the potential for the facility to interfere with microwave communication paths and systems and describe measures that will be taken to minimize interference. Include all licensed systems and those used by electric service providers and emergency personnel that operate in the project area.

(B) The applicant shall provide information on ecological resources.

- (1) Ecological information. The applicant shall provide information regarding ecological resources in the project area.
  - (a) Provide a map of at least 1:24,000 scale containing a one half-mile radius from the project area, showing the following:
    - (i) The proposed facility and project area boundary.
    - (ii) Undeveloped or abandoned land such as wood lots or vacant ~~fields~~ tracts of land subject to past or present surface mining

activities, not used as a registered game preserve or in agricultural production.

- (iii) Wildlife areas, nature preserves, and other conservation areas.
  - (iv) Surface bodies of water, including wetlands, ditches, streams, lakes, reservoirs, and ponds.
  - (v) Highly-erodible soils and slopes of twelve percent or greater.
- (b) Provide the results of a field survey of the vegetation and surface waters within one-hundred feet of the potential construction impact area of the facility. The survey should include a description of the vegetative communities, and delineations of wetlands and streams. Provide a map of at least 1:12,000 scale showing all delineated resources.
- (c) Provide the results of a literature survey of the plant and animal life within at least one-fourth mile of the project area boundary. The literature survey shall include aquatic and terrestrial plant and animal species that are of commercial or recreational value, or species designated as endangered or threatened.
- (d) ~~Conduct and Provide~~provide the results of field surveys of the plant and animal species identified in the literature survey.
- (e) Provide a summary of any additional studies which have been made by or for the applicant addressing the ecological impact of the proposed facility
- (2) Ecological impacts. The applicant shall provide information regarding potential impacts to ecological resources during construction.
- (a) Provide an evaluation of the impact of construction on the resources surveyed in response to paragraph (B)(1) of this rule. Include the linear feet and acreage impacted, and the proposed crossing methodology of each stream and wetland that would be crossed by or within the footprint of any part of the facility or construction equipment. Specify the extent of vegetation clearing, and describe how such clearing work will be done so as to minimize removal of woody vegetation. Describe potential impacts to wildlife and their habitat.
  - (b) Describe the mitigation procedures to be utilized to minimize both the short-term and long-term impacts due to construction, including the following:

- (i) Plans for post-construction site restoration and stabilization of disturbed soils, especially in riparian areas and near wetlands. Restoration plans should include details on the removal and disposal of materials used for temporary access roads and construction staging areas, including gravel.
  - (ii) A detailed frac out contingency plan for stream and wetland crossings that are expected to be completed via horizontal directional drilling.
  - (iii) Methods to demarcate surface waters and wetlands and to protect them from entry of construction equipment and material storage or disposal.
  - (iv) Procedures for inspection and repair of erosion control measures, especially after rainfall events.
  - ~~(v) Measures to divert storm water runoff away from fill slopes and other exposed surfaces.~~
  - ~~(vi)~~(v) Methods to protect vegetation in proximity to any project facilities from damage, particularly mature trees, wetland vegetation, and woody vegetation in riparian areas.
  - ~~(vii)~~(vi) Options for disposing of downed trees, brush, and other vegetation during initial clearing for the project, and clearing methods that minimize the movement of heavy equipment and other vehicles within the project area that would otherwise be required for removing all trees and other woody debris off site.
  - ~~(viii)~~(vii) Avoidance measures for major state of federally listed and protected species and their habitat, in accordance with paragraph (D) of rule 4906-4-09 of the Administrative Code.
- (3) Operational ecological impacts. The applicant shall provide information regarding potential impacts to ecological resources during operation and maintenance of the facility.
- (a) Provide an evaluation of the impact of operation and maintenance on the undeveloped areas shown in response to paragraph (B)(1) of this rule.
  - (b) Describe the procedures to be utilized to avoid, minimize, and mitigate both the short- and long-term impacts of operation and maintenance. Describe methods for protecting streams, wetlands, and vegetation, particularly

mature trees, wetland vegetation, and woody vegetation in riparian areas. Include a description of any expected use of herbicides for maintenance.

(c) Describe any plans for post-construction monitoring of wildlife impacts.

(C) The applicant shall provide information on land use and community development.

(1) Existing land use. The applicant shall provide information regarding land use in the region and potential impacts of the facility through the following maps and related information.

(a) Provide a map of at least 1:24,000 scale showing the following within one-mile of the project area boundary:

(i) The proposed facility.

(ii) Land use, depicted as areas on the map. Land use, for the purposes of paragraph (C) of this rule, refers to the current economic use of each parcel. Categories should include residential, commercial, industrial, institutional, recreational, agricultural, and vacant, or as classified by the local land use authority.

(iii) Structures, depicted as points on the map. Identified structures should include residences, commercial centers or buildings, industrial buildings and installations, schools, hospitals, churches, civic buildings, and other occupied places.

(iv) Incorporated areas and population centers.

(b) Provide, for the types of structures identified on the map in paragraph (C) (1)(a) of this rule, a table showing the following:

(i) For all structures and property lines within one thousand five hundred feet of the generation equipment or wind turbine, the distance between both the structure or property line and the equipment or nearest wind turbine.

(ii) For all structures and property lines within two hundred fifty feet of a collection line, access road, or other associated facility, the distance between both the structure or property line and the associated facility.

- (iii) For each structure and property in the table, whether the ~~structure is on a property that~~ is being leased by the applicant for the proposed facility.
  - (c) Provide an evaluation of the impact of the proposed facility on the above land uses identified on the map in paragraph (C)(1)(a) of this rule. Include, for each land use type, the construction impact area and the permanent impact area in acres, in total and for each project component (e.g., turbines, collection lines, access roads), and the explanation of how such estimate was calculated.
  - (d) Identify structures that will be removed or relocated.
- (2) Wind farm maps. For wind farms only, the applicant shall provide a map(s) of at least 1:24,000 scale showing the proposed facility, habitable residences, and parcel boundaries of all parcels within a half-mile of the project area. Indicate on the map, for each parcel, the parcel number and whether the parcel is being leased by the applicant for the proposed facility, as of no more than thirty days prior to the submission of the application. Include on the map the setbacks for wind turbine structures in relation to property lines, habitable residential structures, electric transmission lines, gas pipelines, gas distribution lines, hazardous liquid(s) pipelines, and state and federal highways, consistent with no less than the following minimum requirements:
- (a) 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 subsurface foundation) to the tip of a blade at its highest point.
  - (b) The wind turbine shall be at least one thousand, one hundred, twenty-five feet in horizontal distance from the tip of the turbine's nearest blade at ninety degrees to the property line of the nearest adjacent property, including a state or federal highway, at the time of the certification application.
  - (c) The distance from a wind turbine base to any electric transmission line, gas pipeline, gas distribution line, hazardous liquid(s) pipeline, or ~~state or federal highway~~ public road 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 subsurface foundation) to the tip of a blade at its highest point.

(d) Minimum setbacks from property lines and residences may be waived ~~in the event that all owners of property adjacent to the turbine agree to such waiver~~ pursuant to the procedures set forth in paragraph (C)(3) of this rule.

(3) Setback waivers. The setback shall apply in all cases except those in which all owner(s) of property adjacent to the wind farm property waive application of the setback to that property. The waiver(s) must meet the following requirements:

(a) Content of Waiver. The waiver shall:

(i) Be in writing;

(ii) Provide a brief description of the facility;

(iii) Notify the applicable property owner(s) of the statutory minimum setback requirements;

(iv) Describe the adjacent property subject to the waiver through a legal description;

(v) Describe how the adjacent property is subject to the statutory minimum setback requirements; and

(vi) Advise all subsequent purchasers of the adjacent property subject to the waiver that the waiver of the minimum setback requirements shall run with the land.

(b) Required Signature. The waiver shall be signed by the applicant and the applicable property owner(s), indicating consent to construction activities without compliance with the minimum setback requirements.

(c) Recordation of Waiver. The waiver shall be recorded in the county recorder's office where the property that is the subject of the waiver is located.

~~(3)~~(4) Land use plans. The applicant shall provide information regarding land use plans.

(a) Describe formally adopted plans for future use of the project area and surrounding lands for anything other than the proposed facility.

(b) Describe the applicant's plans for concurrent or secondary uses of the site.

(c) Describe the impact of the proposed facility on regional development, including housing, commercial and industrial development, schools,

transportation system development, and other public services and facilities.

- (d) Assess the compatibility of the proposed facility and the anticipated resultant regional development with current regional plans.
- (e) Provide current population counts or estimates, current population density, and ten-year population projections for counties and populated places within five miles of the project area.

(D) The applicant shall provide information on cultural and archaeological resources

- (1) Landmark mapping. The applicant shall indicate, on a map of at least 1:24,000 scale, any formally adopted land and water recreation areas, recreational trails, scenic rivers, scenic routes or byways, and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within ~~five~~ten miles of the project area. Landmarks to be considered for purposes of paragraph (D) of this rule are those districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of natural landmarks, the ~~Ohio state historical society~~preservation office, or the Ohio department of natural resources.
- (2) Impacts on landmarks. The applicant shall provide an evaluation of the impact of the proposed facility on the preservation and continued meaningfulness of these landmarks and describe plans to avoid or mitigate any adverse impact.
- (3) Recreation and scenic areas. The applicant shall describe the identified recreation and scenic areas within ~~five~~ten miles of the project area in terms of their proximity to population centers, uniqueness, topography, vegetation, hydrology, and wildlife. Provide an evaluation of the impact of the proposed facility on identified recreational and scenic areas within ~~five~~ten miles of the project area and describe plans to mitigate any adverse impact.
- (4) Visual impact of facility. The applicant shall evaluate the visual impact of the proposed facility within at least a ~~five~~ten-mile radius from the project area. The evaluation shall be conducted or reviewed by a licensed landscape architect of other professional with experience in developing a visual impact assessment. The applicant shall:
  - (a) Describe the visibility of the project, including a viewshed analysis and area of visual effect, shown on a corresponding map of the study area. The viewshed analysis shall not incorporate deciduous vegetation.



agricultural crops, or other seasonal land cover as viewing obstacles. If the viewshed analysis includes atmospheric conditions, it shall incorporate the atmospheric conditions under which the facility would be most visible.

- (b) Describe the existing landscape and evaluate its scenic quality. This description shall include documentation of a review of existing plans, policies, and regulations of the communities within the study area, and list all references to identified visual resources or other indications of the visual preferences of the community.
  - (c) Describe the alterations to the landscape caused by the facility, including a description and illustration of the scale, form, and materials of all facility structures, and evaluate the impact of those alterations to the scenic quality of the landscape.
  - (d) Evaluate the visual impacts to the resources identified in paragraph (D)(~~H~~) of this rule, and any such resources within ten miles of the project area that are valued specifically for their scenic quality.
  - (e) Provide photographic simulations or artist's pictorial sketches of the proposed facility from public vantage points that cover the range of landscapes, viewer groups, and types of scenic resources found within the study area. The applicant should explain its selection of vantage points, including any coordination with local residents, public officials, and historic preservation groups in selecting these vantage points.
  - (f) Describe measures that will be taken to minimize any adverse visual impacts created by the facility, including, but not limited to, project area location, lighting, turbine layout, visual screening, and facility coloration. In no event shall these measures conflict with relevant safety requirements.
- (E) The applicant shall provide information regarding agricultural districts and potential impacts to agricultural land.
- (1) Mapping of agricultural land. The applicant shall identify on a map of at least 1:24,000 scale the proposed facility, all agricultural land, and separately all agricultural district land existing at least sixty days prior to submission of the application located within the project area boundaries. Where available, distinguish between agricultural uses such as cultivated lands, permanent pasture land, managed woodlots, orchards, nurseries, livestock and poultry confinement areas, and agriculturally related structures.

- (2) Agricultural information. The applicant shall provide, for all agricultural land, and separately for agricultural uses and agricultural districts identified under paragraph (E)(1) of this rule, the following:
- (a) A quantification of the acreage impacted.
  - (b) An evaluation of the impact of the construction, operation, and maintenance of the proposed facility on the land and the following agricultural facilities and practices within the project area:
    - (i) Field operations such as plowing, planting, cultivating, spraying, aerial applications, harvesting.
    - (ii) Irrigation.
    - (iii) Field drainage systems.
    - (iv) Structures used for agricultural operations.
    - (v) The viability as agricultural district land of any land so identified.
  - (c) A description of mitigation procedures to be utilized by the applicant during construction, operation, and maintenance to reduce impacts to agricultural land, structures, and practices. The description shall illustrate how avoidance and mitigation procedures will achieve the following:
    - (i) Avoidance or minimization to the maximum extent practicable of any damage to field tile drainage systems and soils in agricultural areas.
    - (ii) Timely repair of damaged field tile systems to at least original conditions, at the applicant's expense.
    - (iii) Segregation of excavated topsoil, and decompaction and restoration of all topsoil to original conditions unless otherwise agreed to by the landowner.

Replaces: 4906-13-04, 4906-13-06, 4906-13-07, 4906-17-05,  
4906-17-08

Effective:

Five Year Review (FYR) Dates: 6/16/2021

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Certification

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Date

Promulgated Under: 111.15  
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Prior Effective Dates: 6/26/2016

4906:0-4-09**Regulations associated with wind farms.**

For both an economically significant wind farm and a major utility facility consisting of wind-powered electric generating units, the application shall state the applicant's commitment to comply with the following regulations and the board shall require that each of the following requirements be satisfied.

(A) Construction, location, use, maintenance, and change.

(1) Adherence to other regulations. Construction and operation of all proposed wind farms shall be consistent with all applicable state and federal requirements, including all applicable safety, construction, environmental, electrical, communications, and federal aviation administration requirements.

(2) Construction, operations, and maintenance safety.

(a) Equipment safety

(i) The applicant shall comply with the manufacturer's most current safety manual, unless such safety manual conflicts with paragraph (C)(2) of rule 4906-4-08 of the Administrative Code.

(ii) The applicant shall maintain a copy of this safety manual in the operations and management building of the facility.

(b) Geological features

(i) Sixty days prior to the preconstruction conference, the applicant shall provide a fully detailed geotechnical exploration and evaluation to confirm that there are no issues to preclude development of the facility.

(ii) The geotechnical exploration and evaluation shall include borings at each turbine location to provide subsurface soil properties, static water level, rock quality description, per cent 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.

(iii) The applicant must fill all boreholes and borehole abandonment must comply with state and local regulations.

(iv) The applicant shall provide copies of all geotechnical boring logs to board staff and to the Ohio department of natural resources division of geological survey prior to construction.

(c) Blasting. Should site-specific conditions warrant blasting, the applicant shall submit a blasting plan to the board, at least thirty days prior to blasting.

(i) 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.

(ii) Prior to the use of explosives, the applicant or explosive contractor shall obtain all required licenses and permits. The applicant shall submit a copy of the license or permit to the board within seven days of obtaining it from the local authority.

(iii) The blasting contractor shall utilize two blasting seismographs that measure ground vibration and air blast for each blast. One seismograph shall be placed beside the nearest dwelling, or at least at the nearest accessible property line to the dwelling, and the other placed at the discretion of the blasting contractor.

(iv) At least thirty days prior to the initiation of blasting operations, the applicant must notify, in writing, all residents or owners of dwellings or other structures within one thousand feet of the blasting site. The applicant or explosive contractor shall offer and conduct a pre-blast survey of each dwelling or structure within one thousand feet of each blasting site, unless waived by the resident or property owner. The survey must be completed and submitted to the board at least ten days before blasting begins.

(3) Location. Wind farms shall be sited in locations that comply with paragraph (C) (2) of rule 4906-4-08 of the Administrative Code and applicable provisions of this rule.

(4) Maintenance and use.

- (a) The applicant shall maintain the wind farm equipment in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and security measures.
- (b) The applicant shall have a construction and maintenance access plan based on final plans for the facility, access roads, and types of equipment to be used. The plan shall consider the location of sensitive resources, as identified by the Ohio department of natural resources, and explain how impacts to all sensitive resources will be avoided or minimized during construction, operation, and maintenance. The plan shall include locations of erosion control measures. The plan shall provide specific details on all wetlands, streams, and/or ditches to be impacted by the facility, including those where construction or maintenance vehicles and/or facility components such as access roads cannot avoid crossing the waterbody. In such cases, specific discussion of the proposed crossing methodology for each wetland and stream crossing, and post-construction site restoration, must be included. The plan shall include the measures to be used for restoring the area around all temporary access points, and a description of any long-term stabilization required along permanent access routes.
- (c) The applicant shall have a vegetation management plan. The plan must identify all areas of proposed vegetation clearing for the project, specifying the extent of the clearing, and describing how such clearing work will be done so as to minimize removal of woody vegetation. The plan must also describe how trees and shrubs around structures, along access routes, at construction staging areas, during maintenance operations, and in proximity to any other project facilities will be protected from damage. Priority should be given to protecting mature trees throughout the project area, and all woody vegetation in wetlands and riparian areas, both during construction and during subsequent operation and maintenance of all facilities; low-growing trees and shrubs in particular should be protected wherever possible within the proposed right-of-way. The vegetation management plan should also explore various options for disposing of downed trees, brush, and other vegetation during initial clearing for the project, and recommend methods that minimize the movement of heavy equipment and other vehicles within the right-of-way that would otherwise be required for removing all trees and other woody debris off site.

(d) For both construction and future right-of-way maintenance, the applicant shall limit, to the greatest extent possible, the use of herbicides in proximity to surface waters, including wetlands along the right-of-way. Individual treatment of tall-growing woody plant species is preferred, while general, widespread use of herbicides during initial clearing or future right-of-way maintenance should only be used where no other options exist, and with prior approval from the Ohio environmental protection agency. Prior to commencement of construction, the applicant shall describe the planned herbicide use for all areas in or near any surface waters during initial project construction and/or future right-of-way maintenance.

(e) Within its plans for post-construction site restoration and stabilization of disturbed soils, such restoration plans shall include:

(i) 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.

(ii) 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 environmental protection agency regulations.

(5) Change, reconstruction, alteration, or enlargement.

(a) Any amendment to a wind farm certificate shall be proposed by the applicant to the board as an amendment application, as provided in rule 4906-3-11 of the Administrative Code.

(b) Unless otherwise ordered by the board or administrative law judge, modification(s) shall not be considered amendments under this rule if such modification(s) would be minimal in nature, and would be adequately addressed by the conditions of a certificate.

(c) An applicant may seek review of a proposed modification(s) sought under paragraph (A)(5)(b) of this rule by filing the proposed modification(s) in the public docket of the certificate case and shall provide written notification of such filing to staff and all landowners immediately adjacent to the site of the proposed modification(s). The notification shall

reference, and include a copy of, paragraph (A)(5) of this rule. In the filing submitted in the public docket, the applicant shall present its rationale as to why the applicant is seeking the proposed modification(s) and must demonstrate that the proposed modification(s) satisfies paragraph (A)(5) (b) of this rule. Staff or any interested person may file objections to the applicant's proposal within twenty-one days. If no objections are filed within the twenty-one day period, the applicant may proceed with the proposed modification(s). If objections are filed within the twenty-one day period, board staff may subsequently docket its recommendation on the matter. The board will process proposed modification(s) under the suspension process set forth for accelerated applications as outlined in rule 4906-6-09 of the Administrative Code.

(B) Erosion control. Within its procedures for inspection and repair of erosion control measures, the applicant shall employ the following erosion and sedimentation control measures, construction methods, and best management practices when working near environmentally-sensitive areas or when in close proximity to any watercourses:

- (1) During construction of the facility, seed all disturbed soil, except within actively cultivated agricultural fields, within seven days of final grading. Denuded areas, including spoils piles, shall be seeded and stabilized in accordance with the applicant's approved stormwater pollution prevention plan, if they will be undisturbed for more than twenty-one days. Re-seeding shall be conducted in accordance with the applicant's approved stormwater pollution prevention plan as necessary until sufficient vegetation in all areas has been established.
- (2) Inspect and repair all erosion control measures after each rainfall event of one half of an inch or greater over a twenty-four-hour period, and maintain controls until permanent vegetative cover has been established on disturbed areas.
- (3) Delineate all watercourses, including wetlands, by fencing, flagging, or other prominent means.
- (4) Avoid entry of construction equipment into watercourses, including wetlands, except at specific locations where construction has been approved.
- (5) Prohibit storage, stockpiling, and/or disposal of equipment and materials in these sensitive areas.
- (6) Locate structures outside of identified watercourses, including wetlands, except at specific locations where construction has been approved.



(7) 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.

(C) Aesthetics and recreational land use.

(1) In the event of vandalism on any generating facility, the applicant shall immediately remove or abate the damage to preserve the aesthetics of the project to pre-vandalism condition.

(2) No commercial signage or advertisements may be displayed on any turbine, tower, or related infrastructure, except for reasonable identification of the manufacturer or operator of the wind farm.

(3) All structures that require lighting by the federal aviation administration, including construction equipment, shall be lit with the minimum lighting required by the federal aviation administration. Lighting of other parts of the wind farm, such as associated structures and access roads, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from adjacent properties.

(4) The visible surfaces of wind farm structures shall be a non-reflective, matte finished, non-obtrusive, and neutral color such as white, off-white, gray, or beige.

(5) The applicant shall provide a plan to avoid adverse impacts of the proposed facility on landmarks in the surrounding area. Landmarks, for the purpose of this rule, refer to those districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of natural landmarks, the state historic preservation office, or the Ohio department of natural resources. If avoidance measures are not feasible, the applicant shall describe why impacts cannot be avoided and shall provide an evaluation of the impact of the proposed facility on the preservation and continued meaningfulness of registered or potentially eligible landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance and describe plans to mitigate any adverse impact. The mitigation plan shall contain measures to be taken should previously-unidentified archaeological deposits or artifacts be discovered during construction of a project.

(6) The applicant shall provide photographic simulations or artist's pictorial sketches of the proposed facility from at least one vantage point in each area of three square miles within the project area, showing views to the north, south, east,

and west. The photographic simulations or artist's pictorial sketches shall incorporate the environmental and atmospheric conditions under which the facility would be most visible.

(D) Wildlife protection. The applicant shall satisfy the following requirements to avoid or mitigate impacts to federal or state listed and protected species.

- (1) The applicant shall coordinate with the United States fish and wildlife service, the Ohio department of natural resources division of wildlife, and board staff to determine if any actions are necessary to avoid impacts to federal or state listed and protected species or other species which may be impacted. The applicant shall provide coordination letters received from the United States fish and wildlife service and the Ohio department of natural resources division of wildlife. If the United States fish and wildlife service, the Ohio department of natural resources division of wildlife, or board staff identify any recommendations for the avoidance of impacts to specific species, the applicant shall describe how it shall address all recommendations.
- (2) The applicant shall contact board staff within twenty-four hours if federal or state listed 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, board staff, and other applicable administrative agencies.
- (3) The applicant shall avoid construction in federal or state listed and protected species' habitats during seasonally restricted dates, or at restricted habitat types, as provided by the Ohio department of natural resources and the United States fish and wildlife service, unless coordination efforts with the Ohio department of natural resources and the United States fish and wildlife service allows a different course of action.
- (4) The applicant shall submit a post-construction avian and bat monitoring plan to the board. During operation of the facility, if significant mortality occurs to birds or bats, the applicant will develop a mitigation plan.
- (5) At least sixty days prior to the first turbine becoming operational, the applicant shall describe plans for maintaining turbine blades in a stationary or nearly stationary stance during low wind speed conditions at night during bird and bat migratory seasons.
- (6) If construction activities result in significant adverse impact to federal or state listed and protected species, the applicant will develop a mitigation plan or adaptive management strategy.

(E) Ice throw.

- (1) The ice throw analysis shall, at a minimum, include the probability of ice throw impacts at the nearest property boundary and public road.
- (2) The applicant's plans to minimize potential impacts shall include:
  - (a) Restricting public access to the facility with appropriately placed warning signs or other necessary measures,
  - (b) Instructing workers on the potential hazards of ice conditions on wind turbines, and
  - (c) Installing and utilizing an ice warning system to 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.
- (3) In addition to the use of the safety measures enumerated in paragraph (E)(2) of this rule, the potential impact from ice throw shall be presumptively deemed to satisfy safety considerations if the probability of one kilogram of ice landing beyond the statutory property line setback for each turbine location is less than one per cent per year.

(F) Noise.

- (1) General construction activities shall be limited to the hours of seven a.m. to seven p.m., or until dusk when sunset occurs after seven p.m. Impact pile driving, hoe ram, and blasting operations, if required, shall be limited to the hours between ten a.m. to five 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. Sensitive receptor, for purposes of this rule, refers to any occupied building. The applicant shall notify property owners or affected tenants within the meaning of paragraph (B)(2) of rule 4906-3-03 of the Administrative Code of upcoming construction activities including potential for nighttime construction activities.
- (2) The facility shall be operated so that the facility noise contribution does not result in noise levels at any non-participating sensitive receptor within one mile of the project boundary that exceed the project area ambient nighttime average sound level (Leq) by five A-weighted decibels (dBA). During daytime operation only (seven a.m. to ten p.m.), the facility may operate at the greater of: the project area ambient nighttime Leq plus five dBA; or the validly measured ambient Leq plus five dBA at the location of the sensitive receptor. After

measured ambient Leq 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. Non-participating, as used in this context, refers to a property for which the owner has not signed a waiver or otherwise agreed to be subject to a higher noise level.

(G) Blade shear. The applicant shall provide its plans to minimize potential impacts from blade shear. These plans shall include restricting public access to the facility with appropriately placed warning signs or other necessary measures, and instructing workers on the potential hazards.

(1) To minimize the possibility of blade shear, all wind turbine generators must be equipped with:

(a) Two independent braking systems, which may include aerodynamic overspeed controls and mechanical brakes operated in a fail-safe mode, but shall not include stall regulation;

(b) A pitch control system;

(c) A lightning protection system; and

(d) Turbine shutoffs in the event of excessive wind speeds, uncontrolled rotation, excessive blade vibration, stress, or pressure on the tower structure, rotor blades, and turbine components.

(2) Bypass or override of wind turbine safety features or equipment is prohibited.

(3) At a minimum, the design of the wind turbine generators shall conform to industry standards, as effective at the time the applicant submits its application, including those of the American National Standards Institute, the International Electrotechnical Commission, or an equivalent industry standard. The Applicant shall submit certificates of design compliance obtained by the equipment manufacturers from Underwriters Laboratories, Det Norske Veritas, Germanischer Lloyd Wind Energies, or other similar certifying organizations.

(H) Shadow flicker.

(1) The facility shall be designed to avoid unreasonable adverse shadow flicker effect at any non-participating sensitive receptor within 1,000 meters of any turbine. At a minimum, the facility shall be operated so that shadow flicker levels do not exceed thirty hours per year at any such receptor. Non-participating, as used in

this context, refers to a property for which the owner has not signed a waiver or otherwise agreed to be subject to a higher shadow flicker level.

(2) 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.

(I) Decommissioning and removal.

(1) The applicant shall provide the final decommissioning plan to the board and the applicable county engineer(s) at least thirty days prior to the preconstruction conference. The plan shall:

(a) Indicate the intended future use of the land following reclamation.

(b) Describe the 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.

(c) 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.

(2) The applicant shall file a revised decommissioning plan to the board and the applicable county engineer(s) every five years from the commencement of construction. The revised plan shall include advancements in engineering techniques and reclamation equipment and standards. The revised plan shall be applied to each five-year decommissioning cost estimate.

(3) The applicant shall, at its expense, complete decommissioning of the facility, or individual wind turbines, within twelve 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 twelve months, or if the board deems the facility or turbine to be in a state of disrepair warranting decommissioning, the wind farm 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 farm or individual turbines for good cause as shown by the applicant. 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.

- (4) Decommissioning shall include the removal and transportation of the wind turbines and towers 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 thirty-six inches beneath the soil surface and transported off site. The disturbed area shall be restored to the same physical condition that existed before construction of the facility. Damaged field tile systems shall be repaired to the satisfaction of the property owner.
- (5) 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.
- (6) 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.
- (7) At least seven days prior to the preconstruction conference, the applicant shall retain an independent, registered professional engineer, licensed to practice engineering in the state of Ohio to estimate the total cost of decommissioning in current dollars, without regard to salvage value of the equipment. Said estimate will be converted to a per-turbine basis calculated as the total cost of decommissioning of all facilities divided by the number of turbines in the most recent facility engineering drawings. This estimate shall be conducted every five years. Said estimate shall include:
- (a) 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 publication or guidelines approved by staff;
  - (b) The cost to perform each of the activities; and
  - (c) An amount to cover contingency costs, not to exceed ten per cent of the above calculated reclamation cost.
- (8) The applicant, facility owner, and/or facility operator shall post and maintain for decommissioning a performance bond in an amount equal to the per-turbine decommissioning costs multiplied by the sum of the number of turbines constructed and 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 the performance bond shall be mutually agreed upon by the board and the applicant, the facility owner, and/or the facility operator. The performance bond shall ensure the faithful performance of all requirements and reclamation conditions of the most recently filed and approved decommissioning and reclamation plan. At least thirty 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 performance bond demonstrating that adequate funds have been posted for the scheduled construction. Once the performance bond is provided, the applicant, facility owner and/or facility operator shall maintain such funds or assurance throughout the remainder of the applicable term. The applicant, facility owner, and/or facility operator shall obtain a new performance bond every five years with an updated decommissioning cost estimate from its engineer and revised decommissioning plan.

- (9) The facility owner and/or facility 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 facility operator under the guidance of the appropriate regulatory agency. The applicant shall provide financial assurance to the counties that it will restore the public roads and bridges it uses to their pre-decommissioning condition. These terms shall be defined in a road use agreement between the applicant and the county engineer(s) prior to construction. The road use agreement shall contain provisions for the following:
- (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 facility 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.

(10) The performance bond shall be released by the holder of the bond 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.



Effective:

Five Year Review (FYR) Dates:

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Certification

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Date

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