



July 13, 2020

Theresa White
Executive Director
Ohio Public Siting Board (OPSB)
180 E Broad St.
Columbus, OH 43215

Ms. White and OPSB Staff,

As an industry with significant interest in the state of Ohio, the Utility Scale Solar Energy Coalition of Ohio (USSEC) values our engagement in the OPSB's rulemaking process. As such, we have worked with the group's 17 members, representing the majority of the utility-scale solar interconnection filings in Ohio, to offer initial comments and proposed edits to Chapter 4906-4 of the Ohio Administrative Code for consideration.

Our members discussed these rules at length and we would welcome the opportunity to do the same with OPSB Staff. We look forward to working together through the rulemaking process.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jason Rafeld".

Jason Rafeld
USSEC Executive Director
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Chapter 4906-4 Certificate Applications for Electric Generation Facilities

4906-4-01 Purpose and scope.

(A) This chapter sets forth the rules governing standard certificate applications for electric generation facilities.

(B) The board may, upon an application or motion filed by a party, waive any requirement of this chapter other than a requirement mandated by statute.

4906-4-02 Project summary and applicant information.

(A) The applicant shall provide a summary of the proposed project. The summary should be suitable as a reference for state and local governments and for the public. The summary shall include the following:

- (1) A statement explaining the general purpose of the facility.
- (2) A description of the general location, size, and operating characteristics of the proposed facility.
- (3) A discussion of the suitability of the site for the proposed facility.
- (4) An explanation of the project schedule (a Gantt chart is acceptable).

(B) The applicant shall provide information regarding its future plans for additional generation units or facilities in the region, if any.

- (1) The applicant shall provide a description of any plans for future additions of electric power generation units for the site (including the type and timing) and the maximum electric power generation capacity anticipated for the site.
- (2) The applicant shall provide a brief description of the applicant's history, affiliate relationships and current operations, and a description of the company that will construct and operate the facility, if different from the applicant.

4906-4-03 Project description in detail and project schedule in detail.

(A) The applicant shall provide a description of the project area's geography, topography, population centers, major industries, and landmarks.

(1) The applicant shall provide a map of at least 1:24,000 scale containing a two-mile radius from the project area and showing the following features:

- (a) The proposed facility.
- (b) Population centers and administrative boundaries.
- (c) Transportation routes and gas and electric transmission corridors.

(d) Named rivers, streams, lakes, and reservoirs.

(e) Major institutions, parks, and recreational areas.

(2) The applicant shall provide the area, in acres, of all owned and leased properties that will be used for construction and/or operation of the project, and the number of properties.

(B) The applicant shall provide a detailed description of the proposed generation facility.

(1) The applicant shall submit the following for each generation equipment alternative, where applicable:

(a) Type, number of units, estimated net demonstrated capacity, heat rate, annual capacity factor, and hours of annual generation.

(b) For wind farms, the turbine hub height, tip height, rotor diameter, and blade length for each model under consideration.

(c) Fuel quantity and quality (i.e., ash, sulfur, and British thermal unit value).

(d) A list of types of pollutant emissions and estimated quantities.

(e) Water volume requirement, source of water, treatment, quantity of any discharge and names of receiving streams.

(2) The applicant shall describe, in as much detail as is available at the time of submission of the application, the construction method, site preparation and reclamation method, and preliminary design as shown on a preliminary site plan that depicts the maximum spatial extent of the facility and describes all major types of components that will comprise the facility and includes materials, color and texture of surfaces, and dimensions of all facility components, including the following:

(a) Electric power generation plant or wind-powered electric generation turbines, including towers and foundations.

(b) Fuel, waste, water, and other storage facilities.

(c) Fuel, waste, water, and other processing facilities.

(d) Water supply, effluent, and sewage lines.

(e) Associated electric transmission and distribution lines and gas pipelines.

(f) Electric collection lines.

(g) Substations, switching substations, and transformers.

(h) Temporary and permanent meteorological towers.

(i) Transportation facilities, access roads, and crane paths.

(j) Construction laydown areas.

(k) Security, operations, and maintenance facilities or buildings.

(l) Other pertinent installations.

(3) The applicant shall submit a brief description of the need for new electric transmission line(s) or gas pipelines associated with the proposed facility.

(4) The applicant shall supply a map of at least 1:12,000 scale of the project area, showing the following features:

(a) An aerial photograph.

(b) The proposed facility, including all components listed in paragraph (B)(2) of this rule.

(c) Road names.

(d) Property lines.

(C) The applicant shall provide a detailed project schedule.

(1) The applicant shall provide a proposed project schedule in Gantt chart format covering all major activities and milestones, including:

(a) Acquisition of land and land rights.

(b) Wildlife and environmental surveys/studies.

(c) Receipt of grid interconnection studies and other critical path milestones for project construction.

(d) Preparation of the application.

(e) Submittal of the application for certificate.

(f) Issuance of the certificate.

(g) Preparation of the final design.

(h) Construction of the facility.

(i) Placement of the facility in service.

(2) The applicant shall describe the proposed construction sequence.

(3) The applicant shall describe the potential impact of critical delays on the in-service date.

4906-4-04 Project area selection and site design.

(A) The applicant shall describe the selection of the project area.

(1) The applicant shall provide a description of the study area or the geographic boundaries of the area considered for development of the project, including the rationale for the selection.

(2) The applicant shall provide a map of suitable scale that depicts the boundary of the study area and the general sites which were evaluated.

(3) The applicant shall provide a comprehensive list and description of all qualitative and quantitative siting criteria utilized by the applicant, including any weighting values assigned to each.

(4) The applicant shall provide a description of the process by which the applicant utilized the siting criteria to determine the proposed project area and any alternative area(s).

(5) The applicant shall provide a description of the project area(s) selected for evaluation, and the factors and rationale used by the applicant for selecting the proposed project area and any alternative area(s).

(B) The applicant shall describe the process of designing the facility layout.

(1) The applicant shall provide a constraint map showing setbacks from residences, property lines, utility corridors, and public rights-of-way, and any other constraints of the site design.

(2) The applicant shall provide a description of the criteria used to determine the facility layout and site design, and a comparison of any site design alternatives considered, including equipment alternatives where the use of such alternatives influenced the site design.

(3) The applicant shall provide a description of how many and what types of comments were received and how those comments were addressed in designing the preliminary layout.

4906-4-05 Electric grid interconnection.

(A) The applicant shall describe how the facility will be connected to the regional electric grid.

(B) The applicant shall provide information on interconnection of the facility to the regional electric power grid.

(1) The applicant shall provide information relating to their generation interconnection request, including interconnection queue name, number, date, and website.

(2) The applicant shall provide system studies on their generation interconnection request. The studies shall include, but are not limited to, the feasibility study and system impact study.

4906-4-06 Economic impact and public interaction.

(A) The applicant shall state the current and proposed ownership status of the proposed facility, including leased and purchased land, rights-of-way, structures, and equipment.

(B) The applicant shall provide information regarding capital and intangible costs.

(1) The applicant shall provide estimates of applicable capital and intangible costs for the various alternatives. The data submitted shall be classified according to federal energy regulatory commission uniform system of accounts prescribed by the public utilities commission of Ohio for utility companies, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905. of the Revised Code (in which case, the applicant shall file the capital and intangible costs classified in the accounting format ordinarily used by the applicant in its normal course of business).

(2) The applicant shall provide a comparison of the total costs per kilowatt with the applicant's similar facilities, and explain any substantial differences.

(3) The applicant shall provide a tabulation of the present worth and annualized cost for capital costs and any additional cost details as required to compare capital cost of alternates (using the start of construction date as reference date), and describe techniques and all factors used in calculating present worth and annualized costs.

(C) The applicant shall provide information regarding operation and maintenance expenses.

(1) The applicant shall provide applicable estimated annual operation and maintenance expenses for the first two years of commercial operation. The data submitted shall be classified according to federal energy regulatory commission uniform system of accounts prescribed by the public utilities commission of Ohio for utility companies, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905. of the Revised Code (in which case, the applicant shall file the operation and maintenance expenses classified in the accounting format ordinarily used by the applicant in its normal course of business).

(2) The applicant shall provide a comparison of the total operation and maintenance cost per kilowatt with applicant's similar facilities and explain any substantial differences.

(3) The applicant shall provide a tabulation of the present worth and annualized expenditures for operating and maintenance costs as well as any additional cost breakdowns as required to compare alternatives, and describe techniques and factors used in calculating present worth and annualized costs.

(D) The applicant shall submit an estimate of the cost for a delay prorated to a monthly basis beyond the projected in-service date.

(E) The applicant shall provide information regarding the economic impact of the project.

(1) The applicant shall provide an estimate of the annual total and present worth of construction and operation payroll.

(2) The applicant shall provide an estimate of the construction and operation employment and estimate the number that will be employed from the region.

(3) The applicant shall provide an estimate of the increase in county, township, and municipal tax revenue accruing from the facility.

(4) The applicant shall provide an estimate of the economic impact of the proposed facility on local commercial and industrial activities.

(F) The applicant shall provide information regarding public responsibility.

(1) The applicant shall describe the applicant's program for public interaction during the siting, construction, and operation of the proposed facility. This description shall include detailed information regarding the applicant's public information and complaint resolution programs as well as how the applicant will notify affected property owners and tenants about these programs at least seven days prior to the start of construction.

(2) The applicant shall describe any insurance or other corporate programs for providing liability compensation for damages to the public resulting from construction, operation, or decommissioning of the proposed facility.

(3) The applicant shall evaluate and describe the anticipated impact to roads and bridges associated with construction vehicles and equipment delivery. Describe measures that will be taken to improve inadequate roads and repair roads and bridges to at least the condition present prior to the project.

(4) The applicant shall list all transportation permits required for construction and operation of the project, and describe any necessary coordination with appropriate authorities for temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility.

(5) The applicant shall describe and set forth a preliminary ~~the~~ plan for decommissioning the proposed facility prepared by an independent, registered professional engineer licensed to practice in Ohio, including a discussion of any financial arrangements designed to assure the requisite financial resources, the proposed frequency for updating the decommissioning plan, and plans to incorporate the reuse and recycling of removed components and materials.

4906-4-07 Compliance with air, water, solid waste, and aviation regulations.

(A) The information requested in this rule shall be used to determine whether the facility will comply with regulations for air and water pollution, solid and hazardous wastes, and aviation. Where appropriate, the applicant may substitute all or portions of documents filed to meet federal, state, or local regulations. Existing data may be substituted for physical measurements.

(B) The applicant shall provide information on compliance with air quality regulations.

(1) The applicant shall submit information regarding preconstruction air quality and permits.

(a) Provide available information concerning the ambient air quality of the proposed project area and any proposed alternative project area(s).

(b) Describe the air pollution control equipment for the proposed facility.

Stack gas parameters including temperature and all air pollutants regulated by the federal or state environmental protection agency shall be described for each proposed fuel. These parameters shall be included for each electric power generation unit proposed for the facility. Include tabulations of

expected efficiency, power consumption, and operating costs for supplies and maintenance. Describe the reliability of the equipment and the reduction in efficiency for partial failure.

(c) Describe applicable federal and/or Ohio new source performance standards (NSPS), applicable air quality limitations, applicable national ambient air quality standards (NAAQS), and applicable prevention of significant deterioration (PSD) increments.

(d) Provide a list of all required permits to install and operate air pollution sources. If any such permit(s) have been issued more than thirty days prior to the submittal of the certificate application, the applicant shall provide a list of all special conditions or concerns attached to the permit(s).

(e) Except for wind farms and photovoltaic facilities, provide a map of at least 1:100,000 scale containing:

(i) The location and elevation (ground and sea level) of Ohio environmental protection agency primary and secondary air monitoring stations or mobile vans which supplied data used by the applicant in assessing air pollution potential.

(ii) The location of major present and anticipated air pollution point sources.

(f) Describe how the proposed facility will achieve compliance with the requirements identified in paragraphs (B)(1)(c) and (B)(1)(d) of this rule.

(2) The applicant shall describe plans to control emissions and fugitive dust during the site clearing and construction phase.

(3) Except for wind farms and photovoltaic facilities, the applicant shall provide information regarding air quality for the operation of the proposed facility.

(a) Describe ambient air quality monitoring plans for air pollutants regulated by the federal or state environmental protection agency.

(b) On a map of at least 1:24,000 scale, show three isopleths of estimated concentrations that would be in excess of the U.S. environmental protection agency-defined "significant emission rates" when the facility is operating at its maximum rated output. The intervals between the isopleths shall depict the concentrations within a five-mile radius of the proposed facility. A screening analysis may be used to estimate the concentrations.

(c) Describe procedures to be followed in the event of failure of air pollution control equipment, including consideration of the probability of occurrence, expected duration and resultant emissions.

(C) The applicant shall provide information on compliance with water quality regulations.

(1) The applicant shall provide information regarding preconstruction water quality and permits.

(a) Provide a list of all permits required to install and operate the facility, including water pollution control equipment and treatment processes.

(b) On a map of at least 1:24,000 scale, show the location and sampling depths of all water monitoring and gauging stations used in collecting preconstruction survey data. Samples shall be collected by standard sampling techniques and only in bodies of water likely to be affected by the proposed facility.

Information from U.S. geological survey (USGS), Ohio environmental protection agency, and similar agencies may be used where available, but the applicant shall identify all such sources of data.

(c) Describe the ownership, equipment, capability, and sampling and reporting procedures of each station.

(d) Describe the existing water quality of the receiving stream based on at least one year of monitoring data, using appropriate Ohio environmental protection agency reporting requirements.

(e) Provide available data necessary for completion of any application required for a water discharge permit from any state or federal agency for this project. Comparable information shall be provided for the proposed site and any proposed alternative site(s).

(2) The applicant shall provide information regarding water quality during construction.

(a) Indicate, on a map of at least 1:24,000 scale, the location of the water monitoring and gauging stations to be utilized during construction.

(b) Provide an estimate of the quality and quantity of aquatic discharges from the site clearing and construction operations, including runoff and siltation from dredging, filling, and construction of shoreside facilities.

(c) Describe any plans to mitigate the above effects in accordance with current federal and Ohio regulations.

(d) Describe any changes in flow patterns and erosion due to site clearing and grading operations.

(e) Describe the equipment proposed for control of effluents discharged into bodies of water and receiving streams.

(3) The applicant shall provide information on water quality during operation of the facility.

(a) Indicate, on a map of at least 1:24,000 scale, the location of the water quality monitoring and gauging stations to be utilized during operation.

(b) Describe the water pollution control equipment and treatment processes planned for the proposed facility.

(c) Describe the schedule for receipt of the national pollution discharge elimination system permit.

(d) Provide a quantitative flow diagram or description for water and water-borne wastes through the proposed facility, showing the following potential sources of pollution, including:

(i) Sewage.

(ii) Blow-down.

(iii) Chemical and additive processing.

(iv) Waste water processing.

(v) Run-off and leachates from fuels and solid wastes.

(vi) Oil/water separators.

(vii) Run-off from soil and other surfaces.

(e) Describe how the proposed facility incorporates maximum feasible water conservation practices considering available technology and the nature and economics of the various alternatives.

(D) The applicant shall provide information on compliance with solid waste regulations.

(1) The applicant shall provide information regarding preconstruction solid waste.

(a) Describe the nature and amount of debris and solid waste in the project area.

(b) Describe any plans to deal with such wastes.

(2) The applicant shall provide information regarding solid waste during construction.

(a) Provide an estimate of the nature and amounts of debris and other solid waste generated during construction.

(b) Describe the proposed method of storage and disposal of these wastes.

(3) The applicant shall provide information regarding solid waste during operation of the facility.

(a) Provide an estimate of the amount, nature, and composition of solid wastes generated during the operation of the proposed facility.

(b) Describe proposed methods for storage, treatment, transport, and disposal of these wastes.

(4) The applicant shall describe its plans and activities leading toward acquisition of waste generation, storage, treatment, transportation and/or disposal permits. If any such permit(s) have been issued more than thirty days prior to the submittal of the certificate application, the applicant shall provide a list of all special conditions or concerns attached to the permit(s).

(E) The applicant shall provide information on compliance with aviation regulations.

(1) List all public use airports, helicopter pads, and landing strips within five miles [\(two miles for photovoltaic facilities\)](#) of the project area and all known private use airports, helicopter pads, and landing strips or property within or adjacent to the project area, and show these facilities on a map(s) of at least 1:24,000 scale. Provide confirmation that the owners of these airports have been notified of the proposed facility and any impacts it will have on airport operations.

(2) Provide the FAA filing status of each airport and describe any potential conflicts with air navigation or air traffic communications that may be caused by the proposed facility.

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) Describe the types of generation equipment that will comprise the facility and any setbacks typically recommended by manufacturers of such equipment, to be supplemented, Provide at least sixty days prior to the preconstruction conference, by copies of the generation equipment manufacturer's safety standards, ~~including~~ a complete copy of the manufacturer's safety manual or similar document and any recommended setbacks from the manufacturer.

(d) Describe 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 and photovoltaic facilities, 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 farm, cumulative operational noise levels at the property boundary for each 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 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) Submit the results of preliminary geotechnical testing sufficient to confirm the suitability of the site for the facility, and describe plans for the test borings, including closure plans for such borings, to support final design that includes. ~~Plans for the test borings shall contain~~ a timeline for providing the test boring logs and the following information to the board at least sixty days prior to the pre-construction conference:

(i) Subsurface soil properties.

(ii) Static water level.

(iii) Rock quality description.

(iv) Per cent recovery.

(v) Depth and description of bedrock contact.

(6) Wind Velocity. The applicant shall provide an analysis of high 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 applicant shall evaluate and describe the potential impact from blade shear at the nearest property boundary and public road .

(8) Ice throw. For a wind farm, 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 .

(9) Shadow flicker, For a wind farm, the applicant shall evaluate and describe the potential cumulative impact from shadow flicker at the property boundary and 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 and describe measures that will be taken to minimize interference. The applicant shall coordinate such efforts with appropriate state and federal agencies.

(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 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 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) Methods to protect vegetation in proximity to any project facilities from damage, particularly mature trees, wetland vegetation, and woody vegetation in riparian areas.

(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.

(vii) Avoidance measures for 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 property 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 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 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.

(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 ten miles ([two miles for photovoltaic facilities](#)) 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 state historical 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, [including a proposed Historic Resource Survey Research Design and a proposed Phase I Archeological Survey Research Design submitted for review to the Ohio Historic Preservation Office.](#)

(3) Recreation and scenic areas. The applicant shall describe the identified recreation and scenic areas within ten miles ([two miles for photovoltaic facilities](#)) 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 ten miles ([two miles for photovoltaic facilities](#)) 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 ten-mile radius ([two-mile radius for photovoltaic facilities](#)) from the project area. The evaluation shall be conducted or reviewed by a licensed landscape architect or 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) of this rule, and any such resources within ten miles ([two miles for photovoltaic facilities](#)) 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 ([including a preliminary lighting plan relative to homes and public roads](#)), turbine layout, visual screening, and facility coloration, [and including a preliminary landscaping plan that depicts the proposed perimeter locations and types of vegetation, with examples](#). In no event shall these measures conflict with relevant safety requirements.

(E) The applicant shall provide information regarding agricultural districts and potential impacts, [both temporary and permanent](#), 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, including the feasibility of the land being re-enrolled into the agricultural district program following decommissioning.

(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, including a preliminary vegetation management plan for operational areas that addresses type of ground cover, methods of maintenance, planned use of herbicides and pesticides, and control of invasive species. 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 or plans, during decommissioning, to restore such field tile drainage systems or implement functionally equivalent drainage systems.

(ii) Timely repair or, during decommissioning, restoration of damaged field tile systems to at least original conditions or implementation of functionally equivalent drainage systems, 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.

4906-4-09 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 one thousand 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.