



## Ohio Administrative Code

### Rule 4906-4-09 Regulations associated with wind farms.

Effective: December 21, 2020

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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. Except where compliance is waived by the board pursuant to section 4906.13 of the Revised Code, an applicant will comply with state building code regulations in constructing structures not involved in generation or transmission of electricity.

(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.