

Attached are draft model zoning ordinances. These model ordinances may be adopted in whole or in part, and with modification.

The Commission does not advocate for any of these model ordinances, but rather offers them as examples of things to be considered when zoning wind energy conversion facilities.

This is not an exhaustive list, and other items, such as insurance requirements, financial abilities, and setbacks should also be considered when drafting zoning ordinances.

## Model environmental siting ordinances

### Definitions

1. Anemometer means a temporary wind speed indicator constructed for the purpose of analyzing the potential for utilizing a wind energy turbine at a given site. This includes the tower, base plate, anchors, cables, and hardware, wind direction vanes, booms to hold equipment, data logger, instrument wiring, and any telemetry devices that are used to monitor or transmit wind speed and wind flow characteristics over a period of time for either instantaneous wind information or to characterize the wind resource at a given location.
  - a. dB(A) is a frequency weighting that related to the response of the human ear. The weighted sound pressure level by the use of the A metering characteristic and weighting specified in American National Standards Institute (ANSI) Specification of Sound Level Meters.
  - b. dB(C) is a frequency weighting closest to the linear or unweighted value. Sound level meters have a C-weighting network for measuring C-weighted sound levels meeting the characteristics and weighting specified in ANSI Specification of Sound Level Meters.
2. Construction includes any clearing of land, excavation, or other action that would affect the environment of the site.
3. Decibel means a unit of sound measurement, abbreviated dB.
4. Decommissioning means the process of terminating operation and completely removing a wind energy conversion facility and all related buildings, structures, foundations, access roads, and equipment.
5. Height (of turbine) refers to the vertical distance from the grade of the property as existed prior to construction to the highest point of a turbine rotor blade when in the upright position.
6. Non-participating dwelling is a dwelling on a non-participating parcel.
7. Non-participating parcel is a parcel of real estate that is not a participating parcel.
8. Occupied structure means a building in which people live, work, or frequent.
9. Operator is the entity responsible for the day-to-day operation and maintenance of a wind energy conversion facility.
10. Owner is the individual or entity, including their respective successors and assigns, which have an equity interest or own the wind energy conversion facility.
11. Participating dwelling means a dwelling on a participating parcel.
12. Participating parcel is a parcel of real estate on which any turbine of the wind turbine facility will be constructed.

13. Pre-existing background sound level (Also known as ambient background level.) is the amount of background noise at a given location prior to the installation of a wind energy conversion facility.  $L_{A90}$  is the statistical descriptor representing the quietest 10% of the time. It is not the minimum noise level.
14. Shadow flicker means the moving shadow, created by the sun shining through the rotating blades of a wind turbine.
15. Site means the location of an energy conversion facility
16. Sound pressure level (SPL) is the physical intensity of sound.
17. Wind energy conversion facility means one or more wind turbines, including appurtenant structures and facilities, rated at an individual or combined nameplate capacity of \_\_\_\_ kilowatts or greater.

## CRITERIA

1. Appearance. Wind turbines shall be painted with a non-reflective coating and in a uniform, off-white color. Turbines shall not display any advertising except for reasonable identification of the manufacturer or operator or the wind energy conversion facility. The design of the buildings and related structures at the wind energy conversion facility sites shall use materials, textures, and location that will blend the wind energy conversion facility into the natural setting and existing environment. Turbines shall be installed on tubular, monopole-type towers.
2. Approach permits. The applicant is responsible for obtaining an approach permit from the county engineer or the affected township for any new or reconstructed approach.
3. Archeological resource survey consultation. Unless the project is under the purview of the North Dakota Public Service Commission, and an Archeological Resource Survey is being prepared as part of that process, the applicant shall work with the State Historic Preservation Office (SHPO) at the State Historical Society of North Dakota at the beginning of the planning process for the wind energy conversion facility to determine whether an archaeological survey is recommended for any part of the proposed project. If recommended, the applicant shall contract with a qualified archaeologist to complete such surveys, and shall submit the results to the county planner and the SHPO. The SHPO will make recommendations for the treatment of any significant archaeological sites which are identified. Any issues in the implementation of these recommendations will be resolved by the County in consultation with the SHPO. All information provided or submitted under this provision is subject to North Dakota Century Code Section 55-02-07.1.
4. As-built plans and specifications. Within \_\_\_\_\_ calendar days after completion of construction, the applicant shall submit to the county building official, a copy of the as-built plans and specifications in both hard copy and in electronic digital format as specified by the county planner.
5. Biological resources survey. Unless the project is under the purview of the North Dakota Public Service Commission, the applicant, in consultation with the US Fish and Wildlife Service – Ecological Services Office (USFWS) and the North Dakota Department of Game and Fish (NDGF) shall, for the project site, conduct a preconstruction inventory of existing wildlife management areas, scientific and natural areas, recreation areas, native prairies and forests, wetlands, and any other biologically sensitive areas and wildlife resources, particularly birds and bats, within the site and assess the presence of state-listed or federally-listed or threatened species, and other protected species such as migratory birds. The results of the survey shall be submitted to the county planner, USFWS, and NDGF.
6. Changes. Any minor changes in the location or character of wind energy conversion facilities and structures may be authorized in writing by the county

7. Chemicals. The use of chemicals is limited to those herbicides and methods approved by the North Dakota Department of Agriculture and the North Dakota Department of Health. The applicant must contact the affected landowners prior to application.
8. Collector lines and communication cables. The applicant shall place electrical lines, known as collector lines, and communication cables underground when located on private property. Collectors and cables shall also be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner.
9. Complaints. Prior to the start of construction, the applicant shall submit to the county planner the company's procedures to be used to receive and respond to complaints.
10. Contact information. The applicant must provide a local contact authorized by the applicant to receive service and respond to all notices, demands, complaints, concerns or other requests. Local contact information must include the name of the local representation, local phone number, and physical address. Said contact information must be filed with the county planner prior to commencement of construction of the wind energy conversion facility.
11. Decommissioning plan. Unless the project is under the purview of the North Dakota Public Service Commission and a decommissioning plan is being prepared as a part of that process, prior to commencement of operation of a commercial wind energy conversion facility, the facility or turbine owner or operator shall file the estimated decommissioning cost per turbine, in current dollars at the time of filing, for the proposed facility or turbine and a comprehensive decommissioning plan that describes any expected effect on present and future natural resource development and how the facility or turbine owner or operator plans to pay for decommissioning the facility or turbine as required by section 69-09-10-05 at the appropriate time. The commission may at any time require the owner or operator of a commercial wind energy Conversion facility or wind turbine to file a report with the commission describing how the facility or turbine owner or operator is fulfilling this obligation.
12. Decommissioning requirements. Decommissioning and site restoration includes dismantling and removal of all towers, turbine generators, transformers, and overhead cables; removal of underground cables to a depth of twenty-four [60.96 centimeters] inches; removal of foundations, buildings, and ancillary equipment to a depth of three feet [91.44 centimeters] and removal of surface road material and restoration of the roads and turbine sites to substantially the same physical condition that existed immediately before construction of the commercial wind energy conversion facility or wind turbine. The site must be restored and

reclaimed to the same general topography that existed just prior to the beginning of the construction of the commercial wind energy conversion facility or wind turbine and with topsoil respread over the disturbed areas at a depth similar to that in existence prior to the disturbance. Areas disturbed by the construction of the facility and decommissioning activities must be graded, topsoiled, and reseeded according to natural resource conservation service technical guide recommendations and other agency recommendations, unless the landowner requests in writing that the access roads or other land surface areas be retained.

13. Drainage tile repair. The applicant shall take into account, avoid, promptly repair or replace all drainage tiles broken or damaged during all phases of project life unless otherwise negotiated with the affected landowner.
14. Electromagnetic interference assessment. Unless the project is under the purview of the North Dakota Public Service Commission and an electromagnetic interference assessment is being prepared as a part of that process, the applicant shall submit an assessment of microwave signal patterns in the project area prior to commencement of construction of the project.
  - a. The assessment shall be designed to provide data that can be used in the future to determine whether the turbines and associated facilities are the cause of disruption or interference of microwave patterns in the event residents complain about such disruption or interference after the turbines are placed in operation. The assessment shall be completed prior to operation of the turbines.
  - b. The applicant shall be responsible for alleviating any disruption or interference caused by the turbines or any associated facilities of residents' cell phone, television, radio, computer, satellite, or other electronic transmissions, receptions, or services.
  - c. The applicant shall not operate the wind turbine facility so as to cause microwave, television, radio, telecommunications, or navigation interference contrary to Federal Communications Commission (FCC) regulations or federal, state, or local laws.
  - d. In the event the wind turbine facility or its operations cause such interference as described in items b and c above, the applicant shall take measures necessary to correct problems within \_\_\_\_ calendar days.
15. Extraordinary events. Within \_\_\_\_ hours of an occurrence, the applicant shall notify the county planner of any extraordinary event. Extraordinary events include, but shall not be limited to, fires, tower collapse, thrown blade, collector or feeder line failure, or injured wind turbine facility worker or private person. The applicant shall, within \_\_\_\_ calendar days of the occurrence, submit a report to the county planner describing the cause of the occurrence and the steps taken to avoid future occurrences.

16. Feeder lines. The applicant shall place overhead or underground electric lines, known as feeder lines, on private land immediately adjacent to public rights-of-way (whether improved or not) except as necessary to avoid or minimize human, agricultural, or environmental impacts.
- a. Feeder lines may be placed on public rights-of-way only if approved or if the required permits have been obtained from the governmental unit responsible for the affected right-of-way.
  - b. In all cases, the applicant shall avoid placement of feeder lines in locations that may interfere with agricultural operations.
  - c. Any guy wires on the structures for feeder lines shall be marked with safety shields.
  - d. When feeder lines are placed on private property, the applicant shall place the feeder lines in accordance with the easement negotiated with the affected landowners.
  - e. All underground feeder lines must be placed at a depth of at least \_\_\_\_\_ feet.
  - f. A change of routes may be made as long as the feeders remain on public rights of way and approval has been obtained from the governmental unit responsible for the affected right of way.
17. Fence and gate repair. The applicant shall promptly repair or replace all fences and gates removed or damaged during all phases of the wind energy conversion facility's life and provide continuity of electric fence circuits unless otherwise negotiated with the affected landowner.
18. Fire protection and medical emergency plans. Prior to construction, the applicant shall prepare fire protection and medical emergency plans in consultation with the rural fire district, Sheriff's Department, Emergency Management, and local emergency medical service providers having jurisdiction over the area. The applicant shall submit the project for registry in the 911 system.
19. Hazardous waste. The applicant shall be responsible for compliance with all federal, state, and local laws applicable to the generation, storage, transportation, clean up, and disposal of hazardous wastes generated during any phase of the project's life.
20. Land restoration. The applicant shall, as soon as practical following construction of each turbine, considering the weather and preferences of the affected landowner, restore the area affected by any construction activities to the condition that existed immediately before construction began. The time period may be no longer than \_\_\_\_\_ months after completion of construction of the turbine. Restoration shall be compatible with the safe operation, maintenance, and inspection of the wind turbine facility.

21. Lighting. Wind turbines shall not be artificially lighted except to the extent required by the Federal Aviation Administration (FAA) or other applicable governmental regulatory authority.
22. Minimum ground clearance. The blade tip of any wind turbines shall, at its lowest point, have a ground clearance of not less than \_\_\_\_\_ feet.
23. Overweight load permits. The applicant is responsible for abiding by the state and local overweight load permitting process in accordance with North Dakota Century Code chapter 39-12. A special use permit issued under this ordinance to erect a wind turbine facility does not negate a hauler's obligation to obtain overweight load permits for hauling.
24. Performance history. All turbines shall be commercially available, utility scale, with an operational history of at least one year. Prototype turbines are not allowed.
25. Pre-construction meeting. Prior to the start of any construction, the applicant shall conduct a preconstruction meeting with the county building official to coordinate field monitoring of construction activities. The pre-construction meeting shall be open to all interested parties and shall address staging, complaints, emergency plans, and other pertinent issues.
26. Public safety plan. The applicant is encouraged to provide educational material to landowners within the site boundaries, and upon request, to interested person about the project and any restrictions or dangers associated with the project. The applicant is encouraged to also provide any necessary safety measures, such as warning signs and gates for traffic control or to restrict public access to turbine access roads, substations, and wind turbines. The applicant shall comply with provisions outlined in their public safety plan.
27. Road repair (private roads). The applicant shall promptly repair any damaged private roads, driveways, or lanes to a condition at least equal to the condition prior to construction of the wind energy conversion facility, unless otherwise negotiated with the affected landowner.
28. Road repair (public roads). Any road damage caused by the applicant, its independent contractor, employee, agent, contractor, or subcontractor shall be promptly repaired at the applicant's expense to current standards set out in the North Dakota Department of Transportation's (NDDOT) Standard Specifications for Road and Bridge Construction. If it is reasonably foreseeable that continued trips will make prompt repair to this standard unreasonable, intermediary measures must be taken by the applicant, if approved by the political subdivision in charge of the road, to ensure the public road remains passable and useable as has been the tradition in the community. Final repairs to these standards must be made promptly after the completion of the construction of the wind turbine facility.
29. Road use arrangements. Prior to construction, the applicant shall make satisfactory arrangements (including obtaining permits) for road use, access road



intersections, maintenance and repair of damages with governmental jurisdiction with authority over each road. The applicant shall notify the county planner of such arrangements on request.

30. Setbacks from dwellings and other structures. Minimum setbacks from dwellings are necessary to mitigate noise impacts. The horizontal distance between the center of a turbine monopole and any occupied dwelling shall not be less than \_\_\_\_ feet.
31. Setbacks from public roadways and utilities. Each wind turbine shall be set back not less than \_\_\_\_ times the height of the turbine from interstate or state roadway right-of-way. Each wind turbine shall be set back not less than \_\_\_\_ times the height of the turbine plus \_\_\_\_ feet from the centerline of any county or township roadway (either improved or not). Each wind turbine shall be set back not less than \_\_\_\_\_ times the height of the turbine from any railroad right-of-way or from any overhead utility.
32. Shadow flicker. Shadow flicker from wind turbines shall not exceed \_\_\_ hours per year at an occupied dwelling.
33. Sound. In order to reduce the risk of negative health impacts from large wind turbine noise, audible sound limits shall be based on pre-existing background sound levels plus a \_\_\_\_\_ dBA allowance for wind turbine noise or sound pressure level (SPL) not to exceed \_\_\_\_ dBA within \_\_\_\_\_ feet of any dwelling, business, or place of public gathering, whichever is lower; and a dBC limit not to exceed \_\_\_\_ dB above ambient background levels. Construction noise or reasonable and necessary maintenance activities are allowed to exceed these sound limits except between the hours of \_\_\_\_\_ to \_\_\_\_\_.
34. Temporary staging areas. The applicant shall negotiate with landowners to locate sties for temporary equipment staging areas.
35. Transfer of ownership of a wind energy conversion facility. Prior to any change in ownership or assignment of a controlling interest of any entity owning a wind energy conversion facility permitted in the county, including any assignment or transfer of a controlling interest to any corporation, partnership, or other entity controlled by or a subsidiary or affiliate of the wind energy conversion facility permitted in the county, applicant shall be made to the county planning commission, requesting transfer of the wind energy conversion facility special use permit. Approval of such transfer shall be conditioned upon explicit agreement by the new applicant to the special use permit. The application shall also include the new applicant's agent and contact information. A change of ownership that results in inability, unwillingness, or failure to abide by the conditions of this ordinance can be a basis for revocation of the special use permit.

36. Tree removal. The applicant shall minimize the removal of trees and shall not remove groves of trees or shelter belts without the written approval of the affected landowner.
37. Turbine access roads and protection of agricultural operations. The location and construction of access roads and other infrastructure shall, to the extent reasonably possible, not disrupt farming, agricultural operations, or the landscape of the County. In order to preserve the integrity of fields and capacity for efficient tilling, planting, and harvesting, the applicant shall work with the landowner to determine the most appropriate routing of access road locations.
38. Waste removal. The applicant shall remove all waste and scrap that is the product of construction, operation, restoration, and maintenance from the site and properly dispose of it upon completion of each task. Personal litter, bottles, and paper deposited by site personnel shall be removed on a daily basis.
39. Wildlife incidents. Any fatality or injury to any state-listed or federally-listed species or migratory bird or bat shall immediately be reported to the USFWS North Dakota Field Office and the USFWS Office of Law Enforcement. Also, if a dead or injured whooping crane or sandhill crane is found, operation of all turbines shall be immediately curtailed until it has been determined by the USFWS that there is no longer a threat to other birds in the area. If a whooping crane or sandhill crane is sighted within \_\_\_\_\_ miles of any wind turbine, that turbine or turbines should be immediately shut down, and the USFWS should be contacted for further coordination. Cranes usually move on within a few days, at which time, in consultation with the USFWS, the turbine(s) may be restarted.

## SPECIAL USE PERMIT APPLICATION SUBMITTAL ITEMS

The following items shall accompany the special use permit application.

1. Two (2) copies of a site plan. Site plans shall contain the following elements:
  - a. Type.
    - (1) A description of the type of facility proposed.
    - (2) A description of the purpose of the facility.
    - (3) The technology to be deployed.
  - b. Product.
    - (1) A description of the type of product to be transmitted
    - (2) A description of the source of the product to be transmitted
    - (3) A description of the final designation of the product to be transmitted
  - c. Size and design. A description of the proposed size and design, and any alternate size or design that was considered, including:
    - (1) the width of right of way

- (2) approximate length of facility
  - (3) estimated span lengths for electric facilities
  - (4) anticipated type of structure for electric facilities
  - (5) voltage for electric facilities
  - (6) the requirement for and general location of any new associated facilities for electric facilities
  - (7) estimated distance between surface structures for pipeline facilities
  - (8) pipe size for pipeline facilities
  - (9) maximum design operating pressure and temperature for pipeline facilities
  - (10) maximum design flow rate for pipeline facilities
  - (11) the number and general location of compressor or pumping stations
- d. Time schedule. The anticipated time schedule for the accomplishment of major events including:
- (1) the certificate of corridor compatibility
  - (2) the route permit
  - (3) completion of right of way acquisition
  - (4) construction start date
  - (5) construction completion
  - (6) testing operations
  - (7) in-service date
- e. Studies. Provide a copy of any evaluative studies or assessments of the environmental impact of the proposed facility submitted to the federal and state agencies listed in section 69-06-01-05 and any response received from those agencies.
- f. Need.
- (1) An analysis of the need for the proposed facility based on present and projected demand for the product transmitted, including the most recent system studies supporting the analysis of the need.
  - (2) A description of any feasible alternatives methods for serving the need.
  - (3) A statement justifying any deviations from the most recent ten-year plan that the facility may present.
- g. Location.
- (1) The width of a corridor must be at least ten percent of its length, but not less than one mile [1.61 kilometers] or greater than six miles [9.66 kilometers] unless another appropriate length is determined by the commission.
  - (2) Select a study area that includes a proposed corridor of sufficient width to enable the commission to evaluate the factors addressed in North Dakota Century Code section 49-22-09.

(3) Discuss the factors in North Dakota Century Code section 49-22-09 to aid the commission's evaluation of the proposed route. (4) Discuss the utilities policies and commitments to limit the environmental impact of its facilities, including copies of board resolutions and management directives.

(4) Identify and map the criteria that led to the proposed route location within the designated corridor.

(5) The criteria to be evaluated must include all of the following:

- a. exclusion areas
- b. avoidance areas
- c. selection criteria
- d. policy criteria
- e. design construction limitations
- f. economic considerations

(6) Discuss the relative value of each criteria and how the proposed corridor location was selected giving consideration to all criteria and how the location, construction, and operation of the facility will affect each criteria.

(7) Discuss the general mitigative measures that will be taken to minimize adverse impacts that result from a route location in the proposed corridor and the construction and operation of the facility..

(8) List the qualifications of the people in the various disciplines that contributed to the corridor location study.

h. Maps.

(1) Map the criteria that led to the proposed route location within the designated corridor and the location of any new associated facilities. Several different criteria may be shown on each map depending on the map scale and the density and nature of the criteria.

(2) include an 8 ½ by 11 black and white map suitable for newspaper publication depicting the site area.

2. Discuss present and future natural resource development in the area.

3. Fees. The permit fee is \_\_\_\_\_.