

APPLICATION FILING REQUIREMENTS
WIND ENERGY SYSTEMS
LESS THAN 100 MW

September 2012



Wind Energy Systems Less Than 100 MW Application Filing Requirements September 2012

As set forth in Wisconsin Administrative Code § PSC 128.50, this document lists information required for a complete application to be filed with a political subdivision¹ to construct a new wind energy system with a capacity of less than 100 megawatts (MW). It does not apply to small wind energy systems as defined in Wis. Admin. Code § PSC 128.01(20) which are systems with a total nameplate capacity of 300 kilowatts (kW) or less and that consist of individual wind turbines with an installed nameplate capacity of not more than 100 kW. The political subdivision is responsible for enforcing its wind energy system ordinance and permit provisions (Wis. Admin. Code § PSC 128.04(1)).

The applicant is responsible for ensuring the accuracy of all information submitted (Wis. Admin. Code § PSC 128.30(3)). The political subdivision may request additional information sufficient to understand the wind energy system. Additional information may be requested by the political subdivision to determine if the application is complete and also after the application is deemed complete. The applicant is required to respond to all reasonable requests in a timely, complete, and accurate manner (Wis. Admin. Code § PSC 128.31(2)).

Pre-Application Consultation Process

It is recommended that the applicant consult with the political subdivision prior to submitting its application. This pre-application consultation is most productive as a series of discussions rather than one meeting. Topics that may be discussed during the pre-application process include:

- Applicable portions of the filing requirements.
- Application formats, such as paper versus electronic, Adobe Acrobat (*.pdf) versus Geographical Information System (GIS) data files.
- Anticipated review timelines and important milestones.
- When and how permits/approvals from state and/or federal regulatory agencies should be shared with the political subdivision.
- Filing procedures of the political subdivision for handling confidential information.
- Fees associated with the review of a wind energy system application (Wis. Admin. Code § PSC 128.32(5)).

¹ Political subdivision means a city, village, town, or county. Political subdivisions are not required to regulate wind energy systems. If the city, village or town within a county does not adopt a wind siting ordinance, but the county has a wind siting ordinance, then the terms of the county ordinance will apply. If the political subdivision does not adopt an ordinance regarding wind energy systems, then there is no substantive wind siting requirements in that jurisdiction.

Pre-application Notice

At least 90 days before an owner files an application with the political subdivision to construct a wind energy system, the owner must provide written notice of the planned wind energy system to all of the following:

- a) Landowners within one mile of a planned wind turbine host property.
- b) The political subdivision(s) within which the wind energy system may be located (wind energy system refers to all wind energy facilities, e.g., turbines, collector lines, substation).
- c) Emergency first responders and air ambulance service providers serving the political subdivision(s).
- d) The Wisconsin Department of Transportation.
- e) The Public Service Commission of Wisconsin.
- f) The Department of Natural Resources, Office of Energy.
- g) The Wisconsin Department of Agriculture, Trade, and Consumer Protection.
- h) The Office of the Deputy Undersecretary of the U.S. Department of Defense.

The notice must include the following:

- a) A complete description of the proposed wind energy system including the number and size of the planned wind turbines.
- b) A map showing the planned location of all wind energy system facilities.
- c) Owner contact information.
- d) A list of potential permits or approvals the owner anticipates may be necessary for construction of the wind energy system.
- e) Whether the owner will request a joint application review process under Wis. Admin. Code § PSC 128.30(7) and each political subdivision that may participate in the joint review process.

Other State Regulatory Reviews

In addition to meeting the requirements of the political subdivision, as specified in this application filing requirements, the applicant may need to consult and/or acquire permits/approvals from the Wisconsin Department of Natural Resource (WDNR), Wisconsin Department of Transportation (WisDOT), Federal Aviation Administration (FAA), U.S. Fish and Wildlife Service (USFWS), and U.S. Army Corps of Engineers (USACOE). Meeting with these agencies early in the planning process should simplify the review process. Communication and approvals from other regulatory agencies should be shared freely with the political subdivision.

WisDOT Permits and Reviews

WisDOT oversize and overweight permits will be required for transporting large wind turbine components to turbine construction sites. In addition, a review by the WisDOT Bureau of Aeronautics for high structure permits may also be required. It is important for applicants to contact the WisDOT at an early stage in project development.

WDNR Permits and Review

The WDNR permits required for the project can be identified during the pre-application process. WDNR regulates construction site erosion control and storm water management plans, wetland and waterway permits, and incidental take permits for endangered or threatened species. The type of permits and approvals depends on the location of the project and ancillary facilities being proposed. WDNR may require field studies related to wetlands, waterways, or threatened or endangered species.

The WDNR Office of Energy staff will assist the applicant in determining the type of field work that should be completed (1) prior to submitting an application, (2) while the application is under review, and (3) after construction. WDNR will require project information such as the project schedule, major project actions, and current aerial photos of the project area at least 2 to 4 months before the beginning of the appropriate time period for the field work. WDNR will discuss with the applicant the timing and scope of the required studies based on project specifics. WDNR has issued guidelines for wind energy projects which can be found at <http://dnr.wi.gov/topic/Sectors/Wind.html>.

Application Formats

Applications can be submitted in a variety of formats depending on the technical capacities of the political subdivision conducting the review. Some information is best reviewed in its native format and not in an Adobe Acrobat (*.pdf) format. For example the political subdivision may request tables and spreadsheets be submitted in a Microsoft Excel format and maps be accompanied by GIS data files. The political subdivision will discuss application formats during the pre-application consultations.

Confidential Materials

The political subdivision shall establish filing procedures for handling confidential information if it does not already have such procedures in place. The amount of application materials filed confidentially should be kept to a minimum and confidential filing procedures should be reserved only for materials with clearly defined proprietary information.

Application Size

Applicants should minimize the physical size of their applications by eliminating superfluous information not material to the project.

- Only submit those pages relevant to the information requirements.
- Minimize duplicative information. An appendix is the appropriate location for information that is referred to in several different sections of the application.
- Submit only official correspondence between the applicant and state, local and federal government agencies.
- Applications should be printed double-sided, as appropriate.

Application Copies

The political subdivision will determine the reasonably necessary number of paper and electronic copies of the application that should be filed by the applicant (Wis. Admin. Code § PSC 128.30(4)). Each copy of the application shall include all worksheets, maps, and other attachments included in the application (Wis. Admin. Code § PSC 128.30(4)). The complete application must be made available to the public at a local library and at the political subdivision's business office or some other publicly-accessible location (Wis. Admin. Code § PSC 128.30(6)(a)). The applicant should submit sufficient copies for the political subdivision to conduct its review as well as the copies needed for public review of the application. The political subdivision will determine the appropriate formats for the application copies.

Application Completeness

The review for completeness will start the day after the applicant notifies the political subdivision in writing that all application materials have been submitted. At that point, the political subdivision will initiate a 45-day completeness review period. The applicant will be notified if an application is deemed complete by the end of the 45-day period. If the application is found to be incomplete, the political subdivision will send the applicant a letter identifying the deficiencies. The applicant may then submit revised or supplement application materials as requested by the political subdivision for a new 45-day application completeness review. There is no time limit for an applicant to submit the revised or supplemental materials in order to remedy identified deficiencies. If a political subdivision makes no completeness determination in writing within the defined review period, the application is deemed complete.

Each 45-day completeness review period begins the day after the event specified above such as the day after the applicant notifies the political subdivision all application materials are submitted or the day after the applicant submits revised or supplemental materials due to a finding of incompleteness. The 45-day period includes Saturdays and Sundays. If the period ends on a statewide legal holiday or on a weekend, the period would end on the subsequent Monday.

Applicants should be aware that complete applications rarely answer all the questions that the political subdivision needs to ask to understand the proposed project. It is likely that applicants will be called upon to provide additional information and data to support their applications throughout the review process. Applicants must respond to all reasonable political subdivision inquiries made subsequent to a determination of completeness in a timely, complete, and accurate manner.

Application Filing Requirements Wind Energy Systems Less Than 100 MW

A complete application must contain the following information or a showing must be made as to why the information is not applicable. The application's organization must follow the major format and numbering system of these filing requirements. Questions about the applicability of specific information requirements should be discussed with the political subdivision during pre-application consultations.

1.0 PROJECT OVERVIEW

1.1 Project Owners

Identify the owners of the proposed project including their names, addresses, and percent of ownership. If different, identify the operators of the proposed project including names and addresses.

1.2 Project Description

Describe all features of the proposed project including the size and location of the project area, the number and the capacities of the proposed wind turbines, the lifespan of the facility, operation & maintenance (O&M) building, collector circuits, the number of participating property owners, and the facilities necessary to connect the project to the transmission system.

1.3 Application Maps

Provide maps that use the best and most recent data available. Maps must clearly portray the project in a format and scale that is unambiguous and easy to understand. Labels and symbology used on the maps must be clearly visible. The scale of the maps and number required to show all relevant data will be discussed during pre-application consultations. Maps should show all pertinent aspects of temporary and permanent features discussed in the application.

- Aerial photographs not more than three years old
- Project Data
 - Project area (at a minimum all properties within 0.5 mile of any proposed wind energy system facility)
 - Proposed wind turbine sites
 - Proposed turbine pads
 - Proposed construction footprints at turbine sites
 - Properties with project easements or other forms of land rights
 - Proposed underground collector circuits
 - Proposed overhead collector circuits
 - Proposed electric lines and structures
 - Proposed access roads
 - Local roads/culverts that would be altered or modified
 - Proposed construction crane paths

- Proposed interconnection facilities, new substation, and/or expansion of an existing substation
- Proposed operation and maintenance building, if applicable
- Proposed construction laydown areas
- Meteorological towers
- Any other structure required for the operation of the proposed wind energy system
- Environmental Data
 - Rivers, lakes, and other waterways
 - Wetlands (identified by the Wisconsin Wetland Inventory and/or field delineations)
 - Soils
 - Topography
 - Floodplains
 - Depth to bedrock
- Parcel Data
 - Private properties
 - Public properties (symbolized differently than private properties)
 - Tribal or other types of properties
 - Political subdivisions
- Land Use
 - Land cover
 - Zoning
 - Sensitive sites (e.g. daycare centers, schools, hospitals, cemeteries, etc.)
 - Confined animal dairy operations
 - Airports, airstrips, heliports (public and private) within and near the project area (see Section 3.3 of this document)
 - Roads
 - Recreation areas, trails
- Utility Data
 - Existing transmission
 - Distribution, telephone, or cable lines that would be affected by the proposed project
 - Other existing utilities necessary to understand the proposed project (natural gas lines, railroads, etc.)

1.4 Wind Turbine Description

Provide a technical description of the proposed wind turbine model(s) chosen or being considered including, but not limited to the following:

- 1.4.1. Dimensions (total height, hub height, blade length, rotor swept area, etc.)
- 1.4.2. Turbine capacities
- 1.4.3. Cut-in and Cut-out speeds
- 1.4.4. Fixed or variable speed – include rpm
- 1.4.5. Rated wind speed

- 1.4.6. Look and finish of wind turbines
- 1.4.7. Turbine foundation dimensions, depth, and types
- 1.4.8. Transformer type, location, and physical size of transformer pad at each turbine site
- 1.4.9. Turbine coolant or heating systems

1.5 Overhead Collector Circuits

- 1.5.1. If overhead collector circuits are part of the proposed project, explain the reason for not constructing the circuits underground.
- 1.5.2. Provide an inspection schedule for the overhead collector circuits when construction is completed.

1.6 Substation/Interconnection Facilities

If the proposed wind energy system includes a new substation/interconnection facility or modifications to an existing substation, provide the following information:

- 1.6.1. Location and dimensions of any new proposed substation, interconnection facility, or addition to an existing substation.
- 1.6.2. The location of any electric lines entering and leaving the substation/facility, including turning structures, guy wires, and describe impacts to adjacent landowners.
- 1.6.3. The location of any access roads.
- 1.6.4. Any equipment noise or facility lighting that might be perceptible to adjacent property owners.
- 1.6.5. Proposed look and landscaping surrounding facility.

1.7 Other Proposed Facilities

Describe the location and layout for any other facility needed such as:

- 1.7.1. Parking lots.
- 1.7.2. Sheds or storage buildings.
- 1.7.3. Supplies of water, sewers, or septic systems.

1.8 Proposed Turbine Lighting

- 1.8.1. Submit documentation from the Federal Aviation Administration (FAA) regarding the proposed wind energy system.
- 1.8.2. Describe the FAA-approved lighting that would be used for the proposed wind energy system, including the substation, O&M building, and any other proposed facilities.
- 1.8.3. Identify any proposed use of shielding or control systems approved by the FAA to reduce visibility of lighting to individuals on the ground.

1.9 Safety

- 1.9.1. Identify the wind energy system safety measures that would be used to prevent access and make the turbines not readily climbable by unauthorized individuals.
- 1.9.2. Provide samples of warning signs that would be located at the base of each wind turbine and at every intersection of a wind turbine access road and a public road.
- 1.9.3. Identify any safety features that would be used on any other proposed feature of the project.

1.10 Brownfields (as defined in Wis. Stat. § 560.13(a)(a))

Identify the location and describe any facilities that would be constructed on brownfields. Describe the type of brownfield and if there are any construction or operation limitations for the project because of the properties' brownfield status.

1.11 Proof of Insurance

Submit proof of general liability insurance relating to claims for property damage or bodily injury in effect during construction, operation, and decommissioning of the proposed facility.

1.12 Notices

Submit representative copies of all notices and who the notices were/would be issued to, including the following:

- 1.12.1. Pre-application notice issued 90 days prior to submitting the application in compliance with Wis. Admin. Code § PSC 128.105(1)(a).
- 1.12.2. Public notice of application filing to political subdivision that meets Wis. Admin. Code § PSC 128.30(5).
- 1.12.3. Notice of complaint process in compliance with Wis. Admin. Code § PSC 128.42(1)
- 1.12.4. Notification regarding noise criteria in compliance with Wis. Admin. Code § PSC 128.14(6)(a), if such notification will be or is anticipated to be used.
- 1.12.5. Notification regarding shadow flicker rules in compliance with Wis. Admin. Code § PSC 128.15(5)(a), if such notification will be or is anticipated to be used.
- 1.12.6. Prior to the initial operation of the facility, notification of noise criteria and shadow flicker rules to non-participating residence or occupied community building owners within 0.5 mile of a constructed wind turbine in compliance with Wis. Admin. Code §§ PSC 128.14(6)(b) and PSC 128.15(5)(b).

1.13 Siting Criteria

- 1.13.1. Identify the siting criteria used to design the proposed project.
- 1.13.2. Specify whether the siting criteria used meets or exceeds those specified by Wis. Admin Code § PSC 128.13 (1)(a), Table 1.
- 1.13.3. Identify if any additional siting criteria or greater setbacks than those specified in Wis. Admin. Code § PSC 128.13(1)(a), Table 1, were used to design the proposed project.
- 1.13.4. Describe the reasons for and the effects of any additional siting standards.
- 1.13.5. Discuss how wind turbines were located so as to minimize any individual hardships.
- 1.13.6. Identify any nonparticipating landowners or community building owners which agreed to a setback waiver as described in Wis. Admin. Code § PSC 128.13(1)(d).

1.14 State, Federal, and Local Permits, Approvals, and Correspondence

- 1.14.1. Provide a list of all state, federal, and county permits/approvals required to construct and operate the proposed wind energy system.
- 1.14.2. Provide copies of the permits/approvals or their current status including, but not limited to:
 - 1.14.2.1. WDNR wetland and waterway permits.
 - 1.14.2.2. WDNR Construction Site Erosion Control and Storm Water Discharge Permit.
 - 1.14.2.3. WDNR-approved endangered resource review.
 - 1.14.2.4. If applicable, WisDOT high structure permits.
 - 1.14.2.5. FAA aeronautical study determinations.
- 1.14.3. Provide copies of all official correspondence between the applicant and all regulatory entities.
- 1.14.4. **State and Federal Recommendations** (*if required by the political subdivision*)
 - 1.14.4.1. Provide any non-binding recommendations from state or federal agencies regarding constructing, operating, or decommissioning the proposed wind energy system.
 - 1.14.4.2. Discuss the recommendations and whether they are incorporated into the proposed wind energy system construction, operation, or decommissioning.

1.15 Monetary Compensation *(if required by the political subdivision)*

- 1.15.1. Specify if nonparticipating landowners would receive monetary compensation.
- 1.15.2. Discuss the criteria for determining which non-participating landowners would receive monetary compensation.
- 1.15.3. Discuss how and if the payments would be modified annually.

1.16 Decommissioning

- 1.16.1. Provide decommissioning estimates as required by the political subdivision for the actual and necessary cost of decommissioning.
- 1.16.2. If the wind energy system would be more than one megawatt, provide proof of the financial ability of the applicants to fund the actual and necessary cost of decommissioning in a form and amount as required by the political subdivision.
- 1.16.3. Submit a decommissioning and site restoration plan which includes deconstruction sequence, construction details environmental impacts, and site restoration.

2.0 PROJECT CONSTRUCTION DESCRIPTION and IMPACTS

- 2.1** Provide the anticipated construction schedule, in-service date, and any seasonal or regulatory constraints and electric system outage constraints.
- 2.2** Describe the sequence for constructing the proposed wind energy system.
- 2.3** Describe the construction impacts and zone of disturbance that may be associated with the construction of each type of facility.
- 2.4** If applicable, discuss construction methods that would be used where bedrock is close to the surface and the potential impacts.
- 2.5** Identify any soil conditions related to site geology, groundwater, contamination, erosion, etc. that might create circumstances requiring special methods or management during construction.

2.6 Construction and Delivery Vehicle Descriptions

- 2.6.1. Identify roads and routes in the project area that would be used by construction equipment and to haul heavy and oversized equipment and materials.
- 2.6.2. Describe the types of construction equipment and delivery vehicles that would use local roads. Diagrams and information should specify the following details:
 - 2.6.2.1. Gross vehicle weight (loaded and unloaded for all vehicles using local roads.
 - 2.6.2.2. Overall vehicle length.
 - 2.6.2.3. Turning radius.
 - 2.6.2.4. Minimum ground clearance.
 - 2.6.2.5. Minimum slope tolerance.

2.7 Roads and Infrastructure Impacts

- 2.7.1. Local Infrastructure Impacts
Identify and discuss any anticipated impact of the wind energy system on local infrastructure during construction and during operation, including but not limited to roads, bridges, culverts, sewer, and electric distribution or any other lines.
- 2.7.2. Road Modifications
Describe and submit the following information regarding modifications to local roads necessary for the construction of the proposed wind energy system (e.g., turn radii expansion, road culvert reconstruction to withstand heavy traffic, impacts to wetlands or drainage swales due to road modifications, etc.):
 - 2.7.2.1. Location of road modifications.
 - 2.7.2.2. Complete description of modification.

- 2.7.2.3. Tree clearing that would occur along roads (in road ROW and on private property).
- 2.7.2.4. Environmental issues associated with road modification.
- 2.7.2.5. Any post-construction changes to road modifications.

2.7.3. Road Impacts

- 2.7.3.1. Describe the process which would be used to determine the condition of roads pre-construction and post-construction.
- 2.7.3.2. Describe how and when road repairs would be performed on local roads and how disputes on causes of road damage would be resolved.

2.7.4. Electric Distribution and Other Lines

- 2.7.4.1. Provide the likely locations where existing electric distribution and other lines would need to be disconnected in order to allow passage of equipment and materials.
- 2.7.4.2. Describe how residents would be notified before disconnection of local power, telephone, or cable.
- 2.7.4.3. Estimate the typical duration of the outage resulting from equipment or materials delivery.

2.8 Access Roads

- 2.8.1. Provide the width of access roads during construction and post-construction.
- 2.8.2. Describe construction materials.
- 2.8.3. Describe any site access control (i.e., fences or gates).

2.9 Crane Paths

- 2.9.1. Description of width and depth of crane path preparations.
- 2.9.2. Describe construction materials.
- 2.9.3. Describe any site access control (i.e. fences or gates).
- 2.9.4. Post-construction management of crane paths and methods that would be used to recover the land.

2.10 Collector Circuits (overhead and underground)

- 2.10.1. Length and location of collector circuits that would be constructed.
- 2.10.2. Voltage of collector circuits.
- 2.10.3. Configuration of collector circuits.
- 2.10.4. Construction methods for collector circuits (i.e., trench dimensions, burial method, collector poles, etc.).

2.11 Temporary Laydown Areas

- 2.11.1. Identify the location, footprint, and existing land use of all temporary laydown/staging areas and any additional temporary workspace.
- 2.11.2. Describe the impacts to the proposed areas.

2.12 Hazardous Materials

- 2.12.1. Provide a list of hazardous materials to be used on-site during construction and operation of the proposed project.
- 2.12.2. Discuss spill containment and cleanup measures including the Spill Prevention, Control, and Countermeasures (SPCC) and Risk Management planning.

2.13 Post-Construction Restoration

For each temporary impact, describe the revegetation and restoration efforts after the facilities are constructed, including at locations of access roads, crane paths, and laydown areas.

3.0 COMMUNITY IMPACTS

3.1 Existing Land Uses

- 3.1.1. Describe existing land uses within one-half mile of all proposed wind-turbine sites.
- 3.1.2. Discuss any changes to existing land uses that occurred since the pre-application notice was provided.
- 3.1.3. Discuss how the construction and operation of wind turbine sites and related facilities might impact the identified existing land use.
- 3.1.4. Discuss how the impacts have been minimized or would be mitigated.
- 3.1.5. Describe the potential aesthetic impacts to the community and how these impacts would be mitigated.
- 3.1.6. Provide representative photo simulations of the proposed project in the project area.

3.2 Agriculture

- 3.2.1. Describe how the design of the proposed wind energy system minimizes the conversion of land from agricultural use.
- 3.2.2. Describe construction methods that would be used to minimize soil compaction, topsoil mixing, and damage to drainage systems on agricultural lands.
- 3.2.3. Aerial Spraying or Seeding Operations *(if required by the political subdivision)*
 - 3.2.3.1. Discuss the use of aerial spraying for pest control or seeding at project area farm operations.
 - 3.2.3.2. Discuss the impacts of the proposed wind energy system on aerial spraying or seeding operations.
 - 3.2.3.3. Identify potential mitigation of these impacts including monetary compensation.

3.3 Airports and Airspace

- 3.3.1. Identify the location and owner of private and public airports, airstrips, or heliports in the project area or which may be affected by the proposed project including:
 - 3.3.1.1. Public airports within 5 miles of the nearest turbine location.
 - 3.3.1.2. Private use airports/landing strips within two miles of the project area.
- 3.3.2. Identify the location and owner of any heliports at a medical facility used for air ambulance service within the project area or which may be affected by the proposed project.

- 3.3.3. Discuss any wind turbine setbacks used in the vicinity of airports or heliports to protect airport approaches including:
 - 3.3.3.1. Any turbine locations subject to height limitation zoning or land use controls due to municipally owned public use airports as specified under Wis. Stat. § 114.136.
 - 3.3.3.2. Any turbine locations that would be subject to a WisDOT tall structure permit under Wis. Stat. § 114.135.

3.4 Construction Impacts to Project Area

- 3.4.1. Discuss the anticipated traffic congestion during construction that would be experienced on project area roads and how the congestion would be minimized and mitigated.
- 3.4.2. Discuss the anticipated noise and lighting disturbances during construction and how the impacts would be minimized and mitigated.

3.5 Noise from Operating Wind Turbines

- 3.5.1. Discuss how the proposed wind energy system is designed to minimize noise at nonparticipating residences or occupied community buildings to the extent practicable.
- 3.5.2. Provide noise estimates that show compliance with a noise standard established by the political subdivision under Wis. Admin. Code § PSC 128.14.
- 3.5.3. Specify whether the noise criteria used to design the project will result in the following at the outside wall nearest a proposed wind turbine of nonparticipating residences or occupied community buildings under normal operating conditions:
 - 3.5.3.1. Noise from the proposed wind energy system would not exceed 50 dBA during daytime hours of 6am to 10pm.
 - 3.5.3.2. Noise from the proposed wind energy system would not exceed 45 dBA during the nighttime hours of 10pm to 6am.
- 3.5.4. Provide the methods for assessing pre-construction noise levels for the proposed project.
- 3.5.5. Provide the methods for assessing post-construction noise levels.
- 3.5.6. Identify the properties of nonparticipating residences and occupied community buildings for which the applicant has secured noise waivers.

3.6 Shadow Flicker From Operating Wind Turbines

- 3.6.1. Discuss how the proposed wind energy system is designed to minimize shadow flicker at nonparticipating residences or occupied community buildings.

- 3.6.2. Provide the results of shadow flicker computer modeling that shows the operation of the proposed project would not exceed shadow flicker limits established by the political subdivision under Wis. Admin. Code § PSC 128.15.
- 3.6.3. Specify whether the shadow flicker criteria used to design the project will result in shadow flicker not exceeding 30 hours per year of shadow flicker at nonparticipating residence or occupied community buildings.
- 3.6.4. Based on computer modeling, identify the properties of nonparticipating residences or occupied community buildings that would experience 20 hours or more of shadow flicker.
- 3.6.5. Describe the options for mitigating shadow flicker on nonparticipating residences or occupied community buildings that would experience 20 or more hours of shadow flicker.
- 3.6.6. Identify the properties of nonparticipating residences and occupied community buildings for which the applicant has secured shadow flicker waivers.

3.7 Signal Interference of Commercial and Personal Communications from Operating Wind Turbines

- 3.7.1. Discuss how the proposed wind energy system is designed to minimize signal interference to commercial communications² and personal communications³ to the extent practicable.
- 3.7.2. Specify whether any wind turbines are proposed within existing line-of-sight communication paths used by government or military entities to provide services essential to protect public safety.
- 3.7.3. Identify and discuss the types and particulars of commercial and personal communications that may be affected by the operation of the proposed wind energy system, including:
 - 3.7.3.1. Line-of-site analysis for potential interference with microwave communications.
 - 3.7.3.2. Analysis of the potential television interference within the project area and within one mile of the project boundary.
 - 3.7.3.3. Aviation radar installations, Doppler weather radar installations of the National Weather Service, and any broadcast television stations.
 - 3.7.3.4. Any other personal communications systems such as cell phone, radio, and internet (WiFi).

² Commercial communications includes communications used by government and military entities for emergency purposes, licensed amateur radio service, and non-emergency communications used by agricultural, business, government, and military entities including aviation radar, commercial mobile radio service, fixed wireless service, global positioning, line-of-sight, microwave, personal communications service, weather radar, and wireless internet service (Wis. Admin. Code § PSC 128.01(1)).

³ Personal communication includes wireless telecommunications, personal communications service, radio, television, wireless internet service, and other systems used for personal use purposes.

- 3.7.4. Discuss the potential options that would be available to mitigate interference of commercial and personal communications.
- 3.7.5. Describe the procedure for communication complaint resolution that would be established once the wind energy system is operational and during the life of the project.

3.8 Stray Voltage

- 3.8.1. Discuss the involvement and recommendations of the local electric distribution company regarding the testing for stray voltage prior to construction of all dairy and confined animal operations within 0.5 mile of a wind energy system.
- 3.8.2. Briefly discuss the involvement of PSCW staff in determining the manner in which stray voltage testing would be conducted and on which properties.
- 3.8.3. Identify the dairy or confined animal operations within 0.5 miles of any proposed wind energy system facility.
- 3.8.4. Submit the testing procedures that would be used on the identified properties prior to the start of construction and post-construction when the wind energy system is fully operational.

3.9 Emergency Procedures

- 3.9.1. Identify the first responders the applicant has worked with regarding emergency planning for the proposed wind energy system.
- 3.9.2. Describe the collaborative process for developing local emergency plans between the applicant and area first responders.
- 3.9.3. Provide a copy of the emergency plan (may be filed confidentially) or its status.
- 3.9.4. Provide details for any first responder annual training that would be conducted by the applicant.

3.10 Complaint Resolution

Describe the procedures that would be used for complaint resolution when the wind energy system is operational and during the life of the project.

3.11 Shared Revenue and Community Benefits

- 3.11.1. For each political subdivision, provide an estimate of the shared revenue resulting from the proposed project, if applicable (Wis. Stat. Ch. 79).
- 3.11.2. Describe any other benefits (e.g., employment, infrastructure improvements) the community would receive due to the operation or construction of the proposed project.