

# **APPLICATION FILING REQUIREMENTS WIND ENERGY PROJECTS**

**Public Service Commission of Wisconsin  
Wisconsin Department of Natural Resources**



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# Application Filing Requirements

## Wind Energy Projects

This document lists information required for a sufficient application for the construction of a wind energy generation facility that requires either a Certificate of Authority (CA) under Wis. Stat. § 196.49 or a Certificate of Public Convenience and Necessity (CPCN) under Wis. Stat. § 196.491 from the Public Service Commission of Wisconsin (PSC). It applies to all public utility wind energy projects over the CA cost threshold and any non-utility wind energy project with a capacity of 100 megawatts (MW) or greater.

The CPCN and CA are PSC certifications, but the applicant might also need to request certain Wisconsin Department of Natural Resource (DNR) permits. This document therefore also refers to information required for permits from the DNR under Wis. Stat. § 30.025.

Overall, the filing requirements are intended to assist applicants and organize information consistently to facilitate PSC and DNR application reviews.

Utility applications must include an analysis of project need and costs. Other types of applicants such as Independent Power Producers (IPP) may not be required to provide this information. In several sections of this Application Filing Requirements (AFR), IPPs proposing merchant plants and utilities are treated differently because of differences in the PSCW's statutory authority. In those sections, such as Section 1.3, items that pertain only to utilities or to both utilities and IPPs are marked. In all other sections of this AFR where differences in treatment are not noted those sections apply to BOTH utilities and IPPs. Consult with PSC staff during the pre-application consultations to verify which filing requirements apply to a specific project.

## Joint PSC/DNR Pre-Application Consultation Process

An applicant must consult with both the PSC and DNR prior to submitting its application under Wis. Stat. § 30.025(1m) and Wis. Admin. Code § PSC 4.70(1). This pre-application consultation process is a series of discussions with the staff of these two agencies. Each agency has its own requirements, but the two agency reviews interrelate.

A proposed project may require wetland, waterway, construction storm water, and any other applicable permits from DNR. DNR Office of Energy staff can help determine permitting requirements during pre-application discussion. During the pre-application process, the PSC and DNR staff will identify the number of paper copies of the application that the state agencies may require.

Topics discussed during the pre-application process include:

- PSC and DNR staff contacts
- Applicable portions of the filing requirements for each agency
- Appropriate application formats and subject matter, such as for maps and diagrams
- Specific permits and approvals required for the project
- PSC's and DNR's projected review estimated timelines and important milestones
- Site alternatives and project boundaries
- Appropriate type, scope, and timing of required field work (habitat assessments, wetland delineations, biological surveys, etc.)

During the pre-application period, the applicant should also solicit additional information from other interested persons through public outreach.

## **DNR Joint Application Needs**

Like the PSC, DNR requires a thorough joint application for the project review to proceed. The applicant must also consult DNR staff to ensure that particular requirements for the joint application are met.

### **Permits and Application Requirements**

DNR permits required for the project will be identified during the pre-application process and with the help of the applicant's Engineering Plan, described in the next subsection.

Under Wis. Stat. § 30.025, the two agencies must follow a common review timetable if impacts to wetlands and/or navigable waters are involved. For this reason, a complete application containing both DNR and PSC required information is submitted to both agencies at the same time. Specific DNR permit application requirements can be confirmed by the DNR Office of Energy's Energy Project Liaison staff (<https://dnr.wi.gov/topic/Sectors/Energy.html>). The requirements include information and materials needed for analysis of potential impacts to rare species and natural communities, and wetland or waterway construction permits.

### **Engineering Plan**

An Engineering Plan required under Wis. Stat. §196.491(3)(a)3 must be submitted to DNR before a CPCN application may be submitted to the PSC. The Engineering Plan must:

- Show the proposed facility locations.
- Describe the facilities, including major components that could have impacts to natural resources.
- Briefly describe the anticipated effects of the proposed facilities on air quality, water quality, wetlands, solid waste disposal capacity, and other natural resources.

## Endangered Resources

Applications must include an Endangered Resources (ER) Review from the DNR or a Certified ER Reviewer, an ER Verification Form if the project is covered by the Broad Incidental Take Authorization (BITA) for No/Low Impact Activities, or a ‘No actions required/recommended’ finding from the DNR Natural Heritage Inventory (NHI) Public Portal, accessed at: <http://dnr.wi.gov/topic/erreview/publicportal.html>. The ER Review includes an analysis of the information contained in the NHI database to determine if there could be impacts to rare species and how to avoid/minimize those impacts. Specific ER screening requirements can be confirmed by the DNR Office of Energy’s ER Review staff (<https://dnr.wi.gov/topic/Sectors/Energy.html>). The applicant should complete an ER screening early in the pre-application process to determine what, if any, field work should be completed. DNR may require fieldwork to be conducted (1) prior to submitting an application, (2) while the application is under review, (3) prior to the start of construction, and (4) post construction.

## Wetlands and Waterways

The project area must be evaluated for the presence of wetlands and waterways and documentation of the evaluation must be submitted at the time of filing.

### Wetlands:

Project areas limited to temporary impacts may be evaluated for the presence of wetlands through conservative desktop methods or through a field evaluation. The conservative desktop method assumes that all areas mapped under “Mapped Wetlands” and “Wetland Soils & Indicators” layers on the DNR’s Surface Water Data Viewer (SWDV) are wetland. Field evaluations are required for all projects that involve permanent wetland fill, regardless of desktop wetland mapping.

### Waterways:

All waterways mapped under the “Surface Waters” layer on the DNR’s SWDV, and any additional field-identified waterways, shall be assumed navigable unless a navigability determination has been conducted by the DNR. If a navigability determination is requested, a navigability determination package shall be included in the application filing (see Section 6.1.3).

The applicant must submit a Waterway/Wetland Impact Location Table (DNR Table 1) and a Waterway/Wetland Environmental Inventory Table (DNR Table 2) for the entire project (including any alternative routes/areas). To complete the waterway sections of the DNR Tables, all DNR-mapped waterways plus any field identified waterways must be included in these tables, regardless of a navigability determination being requested.

The tables must be updated throughout the review process as more accurate information becomes available. The wetland and waterway unique features that are used in the DNR tables must also be included in the attributes tables of the submitted Geographic Information Systems (GIS) data, as well as the wetland and waterway maps, that are part of the project application.



## Other State Agencies

### WisDOT Permits and Reviews

Wisconsin Department of Transportation (WisDOT) oversize and overweight permits will be required for transporting wind turbine components to turbine construction sites. In addition, a review for high structure permits issued by WisDOT, Bureau of Aeronautics may also be required (See Section 8.6). Applicants should contact WisDOT at an early stage in project development and before submitting an application to the PSC to discuss the likely permitting needs and schedule for the project.

### DATCP Application Needs

Utility-proposed projects may require an Agricultural Impact Statement (AIS) from the Department of Agricultural, Trade and Consumer Protection (DATCP). If the project is subject to AIS requirements, DATCP requires the submittal of a complete Agricultural Impact Notice for Non-Linear Projects and associated tables and GIS data. Applicants should contact the DATCP AIS program prior to submitting an application to the PSC to determine DATCP filing requirements. DATCP may require a paper copy of the PSC application and associated GIS data.

## Application Formats

### Application Tables

The tables submitted as part of the application such as impacts, cost, and mailing list spreadsheets are to be submitted in Adobe Acrobat (\*.pdf) as well as Microsoft Excel spreadsheets. All documents that are part of the application must be submitted to ERF directly, not as documents that are attachments to (embedded within) a single PDF. Mailing lists as part of the application should be submitted to the ERF.

Some tables include an example worksheet which shows how the table should be completed. Many of the tables have embedded in the worksheet cells, the appropriate format for the data. Shaded cells contain protected embedded formulas that will generate the correct data.

Any submitted mailing lists must be uploaded to ERF as Microsoft Excel spreadsheets, be identical to the example shown below, and must meet the following format criteria as demonstrated below:

- Submit tables in Microsoft Excel.
- For property owners in the project area<sup>1</sup>, replace full name or business name with “LANDOWNER(S) OR CURRENT RESIDENT(S)” in the “name” column.
- Do not use punctuation marks.
- Capitalize all data entries.
- Comply with current U.S. Postal Service mailing standards.

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<sup>1</sup> See Section 14.1 of this AFR for the specifications of ‘project area’ for Property Owner/Resident mailing list.

- Only use the Email column, if addresses are known and not more than one year out-of-date.
- Mailing list(s) should be able to be cross-referenced with the submitted GIS parcel data through the name or address column, but do not add additional columns or formatting. Mailing lists should include property owners, both participating and non-participating, located up to one mile from the facilities that are part of the application.

### Sample Mailing List Table

attention	name	address	city	state	zip	email
CITIZENS UTILITY BOARD	COREY SINGLETARY	625 NORTH SEGOE ROAD STE 101	MADISON	WI	53703	SINGLETARY@CUBWI.ORG
CLEAN WISCONSIN	KATHRYN NEKOLA	634 WEST MAIN STREET STE 300	MADISON	WI	53703	KNEKOLA@CLEANWISCONSIN.ORG
	LANDOWNER/CURRENT RESIDENT	123 EAST STREET	MADISON	WI	53703	
	LANDOWNER/CURRENT RESIDENT	456 WEST STREET	MADISON	WI	53703	

Contact PSC staff regarding any questions about mailing list submittals.

Contact DNR Office of Energy’s Energy Project Liaison staff (<https://dnr.wi.gov/topic/Sectors/Energy.html>) for questions regarding the two DNR tables.

### Geographic Information System Submissions

GIS data files are now compatible with ERF and must be submitted to the docket via the ERF “[Upload GIS Files \(Public\)](#)” page<sup>2</sup>. GIS data files must be submitted in a format that is compatible with the current version of ArcGIS. Data file names should be descriptive of the contents.

Provide the following GIS-related items as part of the application:

- GIS data used to produce all maps submitted as part of the application and additional items as detailed in Section 4.2. **Only provide shapefiles. Do not provide geodatabases or aerial imagery raster data.**
- A spreadsheet listing all GIS data files required in Section 4.2, a file description, the source of the data, and the date when the data was collected or published.

All GIS data from local to statewide resolution must be projected in “NAD 1983 HARN Wisconsin TM (Meters)” projection system.

### Photographic and Line Drawing Submissions

- Line drawings must be in AutoCad and may be in either \*.dwg or \*.dxf format. The preference is \*.dwg.

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<sup>2</sup> Total file size limit per submission is 20 MB. Split files into multiple submissions as appropriate.

- Any photographic renderings (photo simulations) of proposed facilities on the existing landscape must be submitted in a high-resolution raster format.
- Scanned maps and diagrams that cannot be submitted in any other format must be submitted in \*.gif format at a depth of 256 colors or less.

## Application Size

Applicants are required to minimize the physical size of their applications by eliminating superfluous information not material to the case.

- Only submit those pages relevant to the information requirement. Do not submit multi-page ordinances, land use plans, etc. unless the entire document would be helpful for context.
- 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. PSC staff needs to review this correspondence to verify that the applicant has applied for the necessary permits and to ascertain the status of the permit review. Do not include unofficial minutes of meetings, records of telephone conversations, or billings from the PSC or DNR.
- Applications should be printed double-sided. Exceptions to this requirement are maps sized larger than 11 x 17 inches.

## Confidential and CEII Materials

Organize the application so that all confidential materials are only in Appendices and separated from non-confidential materials. Submit confidential materials in compliance with the confidential materials handling procedures of each agency.

Confidential project documents, such as Endangered Resource Reviews and cultural resource documents must be submitted confidentially to PSC and DNR.

***Prior to submitting any critical energy infrastructure information (CEII) related to the project, contact the Commission staff case coordinator for instructions regarding how to do so.***

## PSC Electronic Regulatory Filing (ERF) System

The ERF system is the official file for all dockets considered by the Commission. Use the ERF system to post all confidential and non-confidential application materials, including all materials provided to DNR. No joint application materials should be provided separately to DNR through the DNR's E-Permitting site, unless specifically requested to do so, but should be posted to ERF. Both the initial application and the complete application must be submitted using the ERF system.

Instructions for submitting documents to the ERF system can be found on the PSC website. Search for “ERF Policy/Procedure” on the PSC Homepage search bar for the current instructions.

## Application Completeness

For CPCNs, PSC and DNR staff will examine the application during a 30-day completeness review period as required under Wis. Stat. §196.491(3)(a)2. The applicant will be notified if an application is deemed complete by the end of the 30-day period. If the application is found to be incomplete, PSC will send the applicant a letter identifying the deficiencies. The applicant may then submit revised or supplemented application materials to the PSC and DNR for a new 30-day application completeness review. There is no statutory time limit for an applicant to submit the revised or supplemental materials in order to remedy identified deficiencies.

Applicants should be aware that complete applications rarely answer all the questions that the PSC and DNR must address. It is likely that applicants will be called upon to provide additional information and data to support their applications throughout the review process. Applicants will be expected to respond to all staff inquiries made subsequent to a determination of completeness in a timely, complete, and accurate manner.

## Filing the Application

*For CA applications*, check with PSC case coordinator and the DNR during the pre-application process to determine how the application should be filed and how many paper copies are necessary. Electronic versions of all submitted application materials must be sent to both the PSC and DNR.

*For CPCN applications*, a two-step process must be followed.

### Step 1 – Initial CPCN Applications

- Send to the PSC case coordinator and DNR Office of Energy project manager the number of paper copies of the non-confidential portion of the application agreed upon by PSC staff and the applicant.
- Coordinate with PSC<sup>3</sup> and DNR<sup>4</sup> to submit the following:
  - The entire non-confidential portion of the application in Adobe Acrobat (\*.pdf) format.
  - Microsoft Excel versions of tables.
  - GIS data that support all maps submitted in the application and/or requested in these filing requirements.<sup>5</sup> **Only provide shapefile GIS data. Do not provide geodatabases or aerial imagery raster data.**

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<sup>3</sup> Contact the PSC Case Coordinator of the docket for instructions.

<sup>4</sup> Contact the Water Reg/Zoning Specialist at DNR Office of Energy assigned to your application for instructions.

<sup>5</sup> Consult Section 4.2 of this document for a detailed description on how this data should be organized.

- File with PSC Records Management, using confidential material handling procedures, electronic versions of confidential portions of the application including spreadsheets, NHI unredacted materials, etc., as described in the PSC ERF Filing Policy/Procedures guide.<sup>6</sup>

***Prior to submitting any CEII related to the project, contact the Commission staff Case Coordinator for instructions regarding how to do so.***

## **Step 2 – After CPCN Application Is Deemed Complete**

The PSC may require as many as five complete paper applications. Again, check with the PSC case coordinator to verify the appropriate number of paper applications. Applicants are encouraged to reuse applicable portions of the initial applications in order to create the required number of complete paper applications. Upon the PSC declaring the application to be complete, submit the following:

- Send to the PSC case coordinator and DNR Office of Energy project manager, paper versions of the non-confidential portions of the complete application. Again, the PSC encourages the reuse of unchanged portions of the initial applications.
- Send to the PSC case coordinator and DNR Office of Energy project manager, paper copies of the confidential portions of the application. Do NOT send paper copies of CEII material.
- Coordinate with PSC<sup>3</sup> and DNR<sup>4</sup> to electronically submit the following:
  - The non-confidential portion of the complete application in Adobe Acrobat (\*.pdf) format.
  - Microsoft Excel versions of the PSC- and DNR-required tables.
  - Any updated GIS data or modeling data.
- Using confidential material handling procedures, as described in the ERF Filing Policy/Procedure Guide, file with PSC Records Management, confidential appendices, spreadsheets, etc.

Post to ERF the revised complete application (confidential and non-confidential).

***Prior to submitting any CEII related to the project, contact the Commission staff case coordinator for instructions regarding how to do so.***

## **Public Copies of CPCN Applications**

Electronic copies of the initial application and of the complete application must be sent to the clerks of municipalities and towns in the project area, and to the main public libraries that serve the project area (Wis. Stat. § 196.491 and Wis. Admin. Code § PSC 111.51).

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<sup>6</sup> Contact PSC Records Management Unit at [psscrecordsmail@wisconsin.gov](mailto:psscrecordsmail@wisconsin.gov) with any questions on filing confidential materials.

Within 10 days of filing a CPCN application, the Commission shall send electronic copies of the application to municipalities, towns, and libraries. At the request of a clerk or library, a paper copy of the application must be sent. Under Wis. Admin. Code § PSC 111.51, the Commission may fulfill this obligation by directing the applicant to conduct the mailings. In this case, proof of delivery will be required. Commission staff will provide a cover letter to accompany the application explaining that this is an initial application and that it may differ from the application that the Commission deems complete.

Within 10 days after the Commission determines that an application is complete or the application is considered to be complete, the Commission must send an electronic copy of the complete application to municipalities, towns, and libraries. At the request of a clerk or library, a paper copy of the application must be sent. The Commission may fulfill this obligation by directing the applicant to conduct the mailings. In this case, proof of delivery is required.

## **Public Copies of CA Applications**

There are no requirements for distributing copies of a CA application to the public.

## **Contact for Questions**

If you have questions about the Application Filing Requirements, visit the PSC website at: <https://psc.wi.gov/Pages/ForUtilities/Energy/FilingRequirements.aspx> for information. Initial questions can be directed to the Environmental Review Coordinator listed on that website.



# Application Filing Requirements Construction of a Wind Powered Electric Generation Facility Requiring a CPCN or CA

Any generation facility of 100 megawatts (MW) or greater requires an application for a Certificate of Public Convenience and Necessity (CPCN). A complete CPCN application will contain the information listed in this document. Exceptions will be documented during the pre-application consultation process. Information that an applicant believes does not apply to the proposed project may not be omitted without a showing as to why the information is not applicable. Applications must follow the organization and format of this Application Filing Requirement (AFR).

A Certificate of Authority (CA) will be required for any Wisconsin utility proposing to build a generation facility rated at less than 100 megawatts (MW), where the cost exceeds the thresholds established in Wis. Admin. Code § PSC 112.05(3). These filing requirements also apply to CA projects. Consult with Commission staff prior to submitting an application.

## Project Area and Turbine Site Alternatives

Under Wis. Stat. §§ 1.11, 196.025(2m)(c), and 196.491(3), and Wis. Admin. Code ch. PSC 4, the Commission decision for *all* CPCN and CA projects must include an evaluation of alternatives. These alternatives include:

### Alternative Project Areas

For this analysis the application must describe the method and factors used to evaluate and eliminate competing project areas and why the proposed project site is the applicant's chosen option.

### Alternative Turbine Sites

The applicant must provide alternative turbine sites for the Commission to consider. Wisconsin Admin. Code § 111.53(1)(f) states the site-related information that must be provided for each of two proposed power plant sites for large electric generation facility CPCN applications.

***Alternative turbine sites must be viable and true alternatives to proposed sites.*** As a standard, an application should have a total number of viable turbine sites that are at least 25% greater than the minimum number of sites needed to achieve the rated output of the project. For example, for a 120 MW wind turbine project using 2 MW turbines, the application must identify and fully

describe 75 turbine sites (60 sites + 15 alternative sites). The proposed and alternative turbine sites must be identified as such in the application materials.

For utility projects requiring a CPCN an additional evaluation of alternative methods of supply is also required.

### **Alternative Methods of Supply**

Describe the alternative methods of supply considered in the course of developing the proposed project including a no-build option. Alternative forms of supply can include other forms of renewable energy such as solar, biomass, fuel cells etc. For a utility project, an alternative source of supply could also be a purchase power contract. This requirement that alternative methods of supply must be described does not apply to a CPCN application for a wholesale merchant plant, as defined in Wis. Stat. § 196.491(1)(w).

*Do not break a single project into two or more smaller projects in order to avoid the regulatory review process under Wis. Stat. § 196.491(3) or to avoid the regulatory review process under Wis. Stat. §196.49 (Wis. Admin. Code § PSC 112).*

## **1. Project Description and Overview**

### **1.1. General Project Location and Description of Project and Project Area**

(The overall size of the project area will have an impact on the amount of data and analyses required in this AFR. It is recommended that the project area be optimized so that the project retains flexibility for siting turbines while at the same time reducing the total area for which data will be required.) Provide the following information about the project:

- 1.1.1. Project Location – counties and towns in the project area.
- 1.1.2. Size of project area (acres) and area to be disturbed by construction activities (acres).
- 1.1.3. Size (rated capacity), in both DC and alternating current (AC) MWs, of the proposed project. When providing the DC MW size, a range can be provided. (If an actual turbine model is not yet under contract, the applicant must provide information on at least two turbine models that are being considered. Those turbines must represent the maximum and minimum megawatt size under consideration for purchase for the project.)
- 1.1.4. Number of turbine sites proposed for the project and the number of alternative turbine sites that have been identified (See the discussion on page 1 regarding alternatives).
- 1.1.5. Identify any new or modified electric transmission lines or other electric transmission facilities that might be needed. Provide all associate MISO interconnection studies, such as definitive planning phase studies, as well as the MISO interconnection queue number(s) associated with the project and any ancillary energy storage systems, such as battery energy storage systems (BESS).
- 1.1.6. Provide a general map showing the location of the project area, nearest communities, townships, and major roads. Include an inset map showing



where the project is located in the state. Scale should be appropriate for showing communities within at least 10 miles of the project area boundary.

## 1.2. Ownership

Identify the corporate entity or entities that would own and/or operate the plant.

## 1.3. Project Need/Purpose

***Independent Power Producers (IPP) (merchant plants) skip to Subsection 1.3.6.***

Subsections 1.3.1 thru 1.3.5 apply to **utilities only**. These subsections focus on compliance with Wis. Stat. § 196.374, the Renewable Portfolio Standard (RPS).

- 1.3.1. The utility's renewable baseline percentage and baseline requirement for 2001-2003 and the amount of renewables needed in the future.
- 1.3.2. Amount of renewable energy currently owned and operated by the utility as defined by the RPS requirements for additional renewable energy.
  - 1.3.2.1. Total existing renewable generation capacity.
  - 1.3.2.2. Total energy produced by renewable assets in previous calendar year separated by generation type (Hydro, biomass, methane, wind, etc.).
  - 1.3.2.3. Amount of renewable energy acquired through purchase power agreements (separated by type (hydro, biomass, wind, etc.)).
  - 1.3.2.4. Amount of RPS credits purchased.
- 1.3.3. Expected annual energy output for the project, including expected capacity factor. Discuss how any associated energy storage systems will impact the expected energy output.
- 1.3.4. Other need not covered in Section 1.3.1
  - 1.3.4.1. Monthly demand and energy forecast for peak and off peak periods over the next 20-25 years.
  - 1.3.4.2. Describe how the availability of purchase power was analyzed, including purchase power agreements or energy efficiency and demand response options.
  - 1.3.4.3. Provide Attachment Y and Attachment Y-2 retirement or economic suspension studies performed by MISO.
  - 1.3.4.4. Provide the capacity position and planning reserve margin forecast for the next 10 years
  - 1.3.4.5. Identify plant retirements forecast over the next 20-25 years.
  - 1.3.4.6. Describe how the existing and expected applications for generation from IPPs have been factored into your forecast.
  - 1.3.4.7. Describe how the proposed project meets the requirements the Energy Priorities Law, Wis. Stats. §§ 1.12 and 196.025(1).
  - 1.3.4.8. Describe the utility's compliance under Wis. Stat. § 196.374 for energy efficiency.

### 1.3.5. ***Utilities Only*** – Generation Capacity Expansion Modeling

The generation capacity expansion modeling should be performed in a software program like EGEAS or similar software and include a 30-year extension period. Coordinate with

PSC<sup>7</sup> to electronically submit the generation capacity expansion modeling data set(s). In addition to filing the generation capacity expansion modeling data set(s), a document describing the filing and making any necessary request for confidential treatment should be filed on the Commission's ERF system<sup>8</sup>.

- 1.3.5.1. Describe the 25-year optimal generation expansion plan for all of the entities that are part of the generation plan.
  - 1.3.5.2. Describe how the availability of purchase power was analyzed, including purchase power agreements or energy efficiency and demand response options.
  - 1.3.5.3. Provide the capacity position and planning reserve margin forecast for the next 10 years
  - 1.3.5.4. Provide Attachment Y and Y-2 retirement or economic suspension studies performed by MISO.
  - 1.3.5.5. The wind resource should be modeled as non-dispatchable, using an hourly wind profile if the project does not include a storage component. If the proposed wind project includes a storage component, the project can either be modeled as two units, one non-dispatchable (wind resource) and one dispatchable (storage component) or as a single unit as long as the single unit can accurately reflect the operational characteristics of the project.
  - 1.3.5.6. Discuss how energy efficiency was modeled, including if energy efficiency/demand response were selectable alternatives in any generation capacity expansion modeling or if energy efficiency/demand response was incorporated into the load forecasts in the model as peak demand or energy production reductions.
- 1.3.6. **IPPs Only** – Energy Agreements
- 1.3.6.1. Identify all Wisconsin utilities under contract for delivery of energy from the proposed project.
  - 1.3.6.2. For each utility under contract or with which an agreement in principle for delivery of energy is in place provide the following, by utility:
  - 1.3.6.3. Rated capacity under contract.
  - 1.3.6.4. Annual energy to be delivered under contract or expected to be delivered, including expected capacity factor.

#### 1.4. Alternatives

- 1.4.1. **Utilities (CPCN) – Supply Alternatives.** Describe the supply alternatives to this proposal that were considered (including a “no-build” option) and present the justification for the choice of the proposed option(s).

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<sup>7</sup> Contact the PSC Case Coordinator for instructions.

<sup>8</sup> Consult PSC Records Management staff at [PSCRecordsMail@wisconsin.gov](mailto:PSCRecordsMail@wisconsin.gov) for specific filing requirements.

- 1.4.1.1. Describe any alternative renewable fuel options considered and why those options were not selected.
  - 1.4.1.1.1. Solar
  - 1.4.1.1.2. Biomass
  - 1.4.1.1.3. Hydro
  - 1.4.1.1.4. Landfill Gas
  - 1.4.1.1.5. Fuel Cell
- 1.4.1.2. Describe Purchase Power Agreements (PPAs) considered or explain why a PPA was not considered for this project.
- 1.4.1.3. No-Build Option.
- 1.4.2. ***Utilities (CPCN) – Demand-Side Alternatives***

Conduct an analysis to identify the options that were considered for using demand-side programming to reduce, alter, or eliminate the need for the project. The analysis should include:

  - 1.4.2.1. A description of the existing services available to customers, including any demand response programs or voluntary energy efficiency programs operated by the utility.
  - 1.4.2.2. An indication of the amount of additional energy efficiency and demand response needed to reduce, alter, or eliminate the need for the project. This analysis should clearly identify and distinguish the amount of energy efficiency and demand response assumed to be achieved through Focus on Energy and utility programs from the additional energy efficiency and demand response needed to affect the project.
  - 1.4.2.3. An analysis identifying the feasibility of achieving the amount of energy efficiency and demand response needed to reduce, alter, or eliminate the need for the project. This analysis should take into account:
    - 1.4.2.3.1. A clear definition of the energy efficiency and demand response programming options considered by the utility, and the potential savings, defined as the reduction in energy and capacity associated with the programs, that are available through those options;
    - 1.4.2.3.2. The cost-effectiveness of available energy efficiency and demand response options, relative to the costs per unit of the proposed project;
    - 1.4.2.3.3. The total savings required to reduce, alter, or eliminate the need for the project, and the corresponding financial investment required to achieve those savings; and
    - 1.4.2.3.4. The utility’s ability to implement new or expanded programs to achieve available savings.

Utilities are encouraged to integrate this analysis with the generation expansion planning modeling conducted under Section 1.3.5. It may be appropriate for

analysis to address multiple different scenarios that distinguish between options for reducing, altering, and eliminating the project need.

#### 1.4.3. **Utilities (CPCN OR CA) and IPPs (CPCN) – Project Area Selection**

- 1.4.3.1. Alternative Project Areas. Describe the project area screening and selection process used to select the proposed project area. Provide the following:
- 1.4.3.1.1. List individual factors or site characteristics used in project area selection.
  - 1.4.3.1.2. Explain in detail how brownfields were considered in the selection of sites to develop.
  - 1.4.3.1.3. Explain how individual factors and project area characteristics were weighted for your analysis and why specific weights were chosen.
  - 1.4.3.1.4. Provide a list of all project areas reviewed with weighted scores for each siting factor or characteristic used in the analysis.
- 1.4.3.2. Provide a narrative describing why the proposed project area was chosen.

#### 1.5. **Utilities (CPCN OR CA) and IPPs (CPCN) – Turbine Site Selection**

- 1.5.1. List the individual factors or characteristics used to select the proposed and alternative turbine sites.
- 1.5.2. Provide information on how turbine site characteristics and the type/s of turbines chosen factored into the selection of final turbine sites. Discuss any risks associated with supply chain disruption for the turbines under consideration and how such risks would be mitigated.
- 1.5.3. Turbine setback distances
  - 1.5.3.1. Minimum setback distances (in feet) from:
    - residences
    - property lines
    - other buildings (*e.g.* animal barns, storage sheds)
    - roads
    - wetlands and waterways
    - existing utility infrastructure (*i.e.* natural gas pipelines, electric distribution lines)
    - any other features.
  - 1.5.3.2. Identify any sites where setback waivers are needed or have been executed.
  - 1.5.3.3. Identify any sites where non-participating “good neighbor” agreements have been executed.
  - 1.5.3.4. Status of easement agreements:
    - 1.5.3.4.1. Identify all turbine sites, proposed and alternative, for which an easement agreement has been signed.

- 1.5.3.4.2. Identify turbine sites where easement agreements have not been signed and provide a short description of the status of negotiations.
- 1.5.4. Identify whether setbacks are consistent with local zoning (county or municipality) or if there are variations from local zoning setbacks, describe why.

## 1.6. Utilities Only – Cost

- 1.6.1. Provide capital cost of the completed facility organized by Plant Account Codes (PAC) found in the PSC’s Uniform System of Accounts for Private Electric Utilities – 1/1/90. Provide a breakdown within each PAC and a subtotal. Include, at least, the following PACs:
  - 1.6.1.1. PAC 340 –Land and Land Rights.
  - 1.6.1.2. PAC 341 – Structures and improvements (operation and maintenance (O&M) buildings, access roads).
  - 1.6.1.3. PAC 344 – Generators (turbines towers, foundations, engineering, procurement, construction management, erection).
  - 1.6.1.4. PAC 345 – Accessory Electrical Equipment (substation, meteorological towers, collector circuit system, SCADA).
- 1.6.2. Provide the complete terms and conditions of all lease arrangements.
  - 1.6.2.1. Turbine site lease
  - 1.6.2.2. Setback waivers
  - 1.6.2.3. Neighbor or non-participant agreements
  - 1.6.2.4. Provide a statement demonstrating how conditions of Wis. Stat. § 196.52(9)(a)3(b) have been met (this pertains to leased generation contracts).
  - 1.6.2.5. Affiliated interest approvals required. Include those applied for or received.
- 1.6.3. Discuss and provide the comparative costs of the alternatives identified and evaluated in Section 1.4.
- 1.6.4. Describe the effect of the proposed project on wholesale market competition. Include a description of how, at the time of this filing, the proposed facility will be treated as an intermittent resource in the Midcontinent Independent System Operator, Inc. (MISO) market.
- 1.6.5. Provide an estimate of the expected life span for the power plant.
- 1.6.6. Describe how the facility will be decommissioned at the end of the project’s life. Describe expected decommissioning actions and timelines.
  - 1.6.6.1. Provide an estimate of the cost of and source of funding for decommissioning. State whether financial security would be provided to cover decommissioning costs, including the amount and time it would be provided.
  - 1.6.6.2. State how the start of decommissioning would be decided, including a description of what constitutes site abandonment.
  - 1.6.6.3. Discuss any recycling or repurposing options that can be employed to eliminate waste streams for electric generating site components, including any BESS systems.

### 1.7. **IPPs Only – MISO and Project Life Span**

- 1.7.1. MISO Market. Describe how, at the time of this filing, the proposed facility will be treated as an intermittent resource in the MISO market.
- 1.7.2. Provide an estimate of the expected life span for the power plant.
- 1.7.3. Describe how the facility will be decommissioned at the end of its life span. Describe expected decommissioning actions and timelines.
  - 1.7.3.1. Provide an estimate of the cost of and source of funding for decommissioning. State whether financial security would be provided to cover decommissioning costs, including the amount and time it would be provided.
  - 1.7.3.2. State how the start of decommissioning would be decided, including a description of what constitutes site abandonment.
  - 1.7.3.3. State whether a participating landowner could be responsible for decommissioning costs in any situations.
  - 1.7.3.4. Discuss any recycling or repurposing options that can be employed to eliminate waste streams for electric generating site components, including any BESS systems.

### 1.8. **Utilities and IPPs – Required Permits and Approvals**

- 1.8.1. Approvals and Permits. For each of the regulatory agencies listed below provide the following information:
  - regulatory agency,
  - the approvals/permits required,
  - application filing date,
  - the status of each application,
  - agency contact name and telephone number:
  - 1.8.1.1. Federal
    - 1.8.1.1.1. Federal Aviation Administration (FAA)
    - 1.8.1.1.2. U.S. Army Corps of Engineers
    - 1.8.1.1.3. U.S. Fish and Wildlife Service
    - 1.8.1.1.4. Other federal agencies not listed above
  - 1.8.1.2. State
    - 1.8.1.2.1. WisDOT
    - 1.8.1.2.2. DNR
    - 1.8.1.2.3. DATCP
    - 1.8.1.2.4. Other state agencies not listed above
  - 1.8.1.3. Local Permits – including county, town, city, and village
- 1.8.2. Correspondence with Permitting Agencies. Provide copies of correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or project planning and siting. Provide copies of any correspondence to or from local governments. This should continue after submittal of the application.

## 2. Technical Description – Project Area, Turbines, Turbine Sites, and Ancillary Facilities

### 2.1. Estimated Wind Speeds and Projected Energy Production

Provide a complete wind speed and energy production assessment for the project. This report should include, at a minimum:

- 2.1.1. Wind speeds and source of wind speed data used in analysis, including the name of any modeling program used to estimate such data.
- 2.1.2. Wind roses (monthly and annual).
- 2.1.3. Gross and net capacity factor (explain the method used to calculate the capacity factors and provide the data used).
- 2.1.4. Estimated energy production of project.
  - 2.1.4.1. Estimated production losses.
  - 2.1.4.2. Estimated net energy production.

### 2.2. Turbine Type and Turbine Characteristics

- 2.2.1. Identify the manufacturer and model of turbine generator to be used. (If no Turbine Purchase Agreement has been signed, applicants should identify the turbine or turbines being considered. It is acceptable to identify a range by providing information on the largest and smallest turbine being considered, however, consult with Commission staff prior to preparing the application.)
- 2.2.2. Turbine Delivery Date – Indicate whether or not this date is firm. Discuss how supply chain risks could impact the project.
- 2.2.3. Total number of turbines required for project.
- 2.2.4. Technical Characteristics of Turbines.
  - 2.2.4.1. Hub Height.
  - 2.2.4.2. Blade Length.
  - 2.2.4.3. Swept Area.
  - 2.2.4.4. Total Height.
  - 2.2.4.5. Cut-in Speed.
  - 2.2.4.6. Cut-out Speed.
  - 2.2.4.7. Fixed or Variable Speed – include rpm.
  - 2.2.4.8. Rated Wind Speed.
  - 2.2.4.9. Turbine Power Curve (provide actual data – wind speed and rated output needed to create the curve).
- 2.2.5. Technical Characteristics of Turbine Towers.
  - 2.2.5.1. Type of tower and material used.
  - 2.2.5.2. Tower dimensions and number of sections required.
- 2.2.6. Scale drawings of turbines including turbine pad and transformer box.

### 2.3. Construction Equipment and Delivery Vehicles

Provide a description of the types of construction equipment needed to build the project and the types of delivery vehicles that would be used to deliver turbines, towers, and blades to tower sites. For large equipment and vehicles include:

- 2.3.1. Types of construction equipment and delivery vehicles
- 2.3.2. Gross vehicle weight (loaded and unloaded) for all vehicles using local roads
- 2.3.3. For vehicles used for turbine/tower/blade/crane delivery (diagrams or drawings of vehicles are acceptable). Include:
  - 2.3.3.1. Overall vehicle length
  - 2.3.3.2. Turning radius
  - 2.3.3.3. Minimum ground clearance
  - 2.3.3.4. Maximum slope tolerance
- 2.3.4. **Cranes.** Describe types of cranes to be used and for what purpose. Include:
  - 2.3.4.1. Weight of crane
  - 2.3.4.2. Crane lift rating
  - 2.3.4.3. If assembly of crane is required at work site answer the following
    - 2.3.4.3.1. Time required to assemble crane.
    - 2.3.4.3.2. If the crane must be disassembled and reassembled during construction explain why.
- 2.3.5. **Roads and Infrastructure.** Estimate the potential impacts of construction and delivery vehicles on the local roads. Provide the following:
  - 2.3.5.1. Describe methods to be used to handle heavy or large loads on local roads.
  - 2.3.5.2. Probable routes for delivery of heavy and oversized equipment and materials.
  - 2.3.5.3. Potential for road, culvert, or right-of-way damage, and any compensation for such damage.
  - 2.3.5.4. Probable locations where local roads would need to be modified, expanded, or reinforced in order to accommodate delivery of turbines, blades, or towers.
  - 2.3.5.5. Include an estimate of whether or not trees near or in road right-of-way (ROW) might need to be removed.
  - 2.3.5.6. Provide an estimate of likely locations where local electric distribution lines will need to be disconnected in order to allow passage of equipment and materials.
    - 2.3.5.6.1. Describe how residents will be notified before local power would be cut.
    - 2.3.5.6.2. Estimate the typical duration of a power outage resulting from equipment or materials delivery.
- 2.3.6. **Construction Traffic.** Describe anticipated traffic congestion and how congestion will be managed, minimized or mitigated. Include:
  - 2.3.6.1. List of roads most likely to be affected by construction and materials delivery.
  - 2.3.6.2. Duration of typical traffic disturbance and the time-of-day disturbances are most likely to occur.

## 2.4. Other Project Facilities

- 2.4.1. **Turbine Site Foundation.** Describe the type of foundation or foundations to be used. If more than one type of foundation may be needed describe each



and identify under what circumstances each foundation type would be used. Include the following:

- 2.4.1.1. Dimensions, surface area and depth required for each foundation.
- 2.4.1.2. Amount of soil excavated for each foundation type.
- 2.4.1.3. Describe how excavated soils will be handled including disposal of excess soil.
- 2.4.1.4. Materials to be used for the foundation. Include:
  - 2.4.1.4.1. Approximate quantity and type of concrete required for typical foundation.
  - 2.4.1.4.2. Materials required for reinforcement.
  - 2.4.1.4.3. Description of the tower mounting system
- 2.4.1.5. Provide technical drawings of each foundation type to be used showing foundation dimensions.
- 2.4.2. **Turbine Site Construction Area.** Describe turbine site construction area. Include the number of, location, and dimensions for:
  - 2.4.2.1. Crane pads
  - 2.4.2.2. Lay-down areas
  - 2.4.2.3. Parking area
  - 2.4.2.4. Provide a scale drawing showing the general construction setup for turbine sites.
- 2.4.3. **Access Roads**
  - 2.4.3.1. Provide the total number and miles of required turbine access roads. This should be provided for both temporary (used during construction only) and permanent access (for long term facility operation and maintenance). State if any temporary access roads would be converted into permanent access roads.
  - 2.4.3.2. Describe materials to be used and methods for construction of access roads including road bed depth.
  - 2.4.3.3. Specify the required width of temporary and permanent access roads. Fully describe any differences between final road size and that required during construction. (*i.e.* if access roads would be used for temporary crane paths).
  - 2.4.3.4. Describe any site access control (*i.e.* fences or gates).
- 2.4.4. **Crane Paths.** Provide the following if cross-country crane paths would be needed to move construction cranes between turbine sites:
  - 2.4.4.1. Explain why existing roads and access roads cannot be used and why cross-country crane paths are required.
  - 2.4.4.2. Description of materials to be used and methods for construction of crane paths.
  - 2.4.4.3. Crane path widths and depths.
  - 2.4.4.4. Discuss when and how crane paths would be removed and land restored.
- 2.4.5. **General Construction Areas**

- 2.4.5.1. Identify the number, size, and location of lay-down areas outside of those found at the turbine sites and any other areas used for material storage.
- 2.4.5.2. Identify size and location of construction parking areas.
- 2.4.5.3. Describe the expected use of these areas after project completion.
- 2.4.5.4. Provide a list of all hazardous chemicals to be used on site during construction and operation (including liquid fuel).
- 2.4.5.5. Discuss spill containment and cleanup measures including the Spill Prevention, Control, and Countermeasures (SPCC) and Risk Management planning for the chemicals proposed.
- 2.4.5.6. Discuss any temporary storm water ponds, sediment basins, or other actions to manage storm water flow from these sites.

#### 2.4.6. **Transmission and Distribution Interconnection**

If the project includes the construction of an electric generator tie line, that is not the subject of a separate application before the Commission, provide the following information:

- 2.4.6.1. Describe any transmission or distribution grid interconnection requirement.
- 2.4.6.2. Identify the length of the tie line.
- 2.4.6.3. Provide details on the types of structures (underground or overhead, single pole/H-frame, direct embed/concrete caisson, typical span length, etc.) and lines that would be constructed as part of any necessary electric transmission generator tie line, including the height of the structures. If the installation would be underground, identify the installation method(s), such as directional bore, open-cut trench, plow, etc.
- 2.4.6.4. Describe the transmission configuration (single-circuit, double circuit, etc.).
- 2.4.6.5. Describe the right-of-way (ROW) size needed for the tie line and the status of any easements or other land agreements with property owners.
- 2.4.6.6. Describe all communications and agreements, official or otherwise, with the transmission or distribution owner.
- 2.4.6.7. For transmission interconnections, indicate the project's MISO generation interconnection queue number(s), as well as those of any associated energy storage project associated with the wind project, and provide copies of the latest draft or final MISO report for the project interconnect. During the PSC review process applicant must continue to supply the latest reports from MISO. Discuss how the project will be interconnected to the grid (MISO generator interconnection queue, surplus interconnection request, or similar).

- 2.4.6.8. Indicate how equipment access would occur, and if off-ROW access roads would be utilized. If off-ROW access roads would be utilized, provide the following:
    - 2.4.6.8.1. Provide the number of off-ROW access roads proposed, and an identifying name or number for each off-ROW access road.
    - 2.4.6.8.2. For each route, provide the dimensions (length and width) and construction method, including if any modifications would be needed to utilize the off-ROW access roads, such as road widening, road fill placement, or tree clearing.
    - 2.4.6.8.3. Discuss the reasons for the necessity for off-ROW access roads such as topography, rivers/wetlands, etc. If protection of a natural resource is a reason, discuss how the resource would be protected during construction and operation of the proposed project.
    - 2.4.6.8.4. Provide quantitative land cover information for off-ROW access roads similar to the information provided in PSC Impact Tables.
    - 2.4.6.8.5. If the off-ROW access roads would be modified post-construction, provide details.
  - 2.4.6.9. Describe the type of construction machinery that would be used.
  - 2.4.6.10. Describe the construction disturbance zone, if different from the ROW.
  - 2.4.6.11. Describe how spoil materials would be managed on and off-site.
  - 2.4.6.12. Describe the dewatering method(s) that may be utilized during excavation activities, such as pit/trench dewatering or high capacity wells. Identify treatment methods that would be utilized to treat the discharge, and the discharge location.
- 2.4.7. **Collector Circuits**
- 2.4.7.1. Total number of miles of collector circuits required – separated by circuit type (overhead vs. underground).
  - 2.4.7.2. Specify the collector circuit voltage to be used.
  - 2.4.7.3. Transformer type, location, and physical size of transformer pad at each turbine site.
  - 2.4.7.4. Underground Collector Circuits
    - 2.4.7.4.1. Conductor to be used.
    - 2.4.7.4.2. Burial depth and width of trench (if applicable).
    - 2.4.7.4.3. Describe installation type(s) and how lines would be laid (e.g. open-cut trench, vibratory plow, directional bore, etc.) Provide scale drawing of underground circuit.
  - 2.4.7.5. Overhead Collector Circuits
    - 2.4.7.5.1. Size of pole to be used.
    - 2.4.7.5.2. Engineering drawing of structure to be used.

**2.4.8. Construction Site Lighting**

- 2.4.8.1. Describe the site lighting plan during project construction.
- 2.4.8.2. Provide copies of any local ordinances relating to lighting that could apply.

**2.5. Substation**

If the project includes the construction of a substation or modifications to an existing substation, provide the following information:

- 2.5.1. A complete electrical description of required substation facilities including a list of transformers, busses, and any interconnection facilities required.
- 2.5.2. Indicate the size (in acres) of the land purchase required for the new substation or substation expansion.
- 2.5.3. Indicate the actual size of the substation or substation addition in square feet, the dimensions of the proposed substation facilities, and the orientation of the substation within the purchased parcel. This should include the size of any new driveways associated with the substation.
- 2.5.4. Identify current land ownership and whether applicant has control of property or whether or not an option to buy has been signed.
- 2.5.5. Describe substation construction procedures (in sequence as they would occur) including erosion control practices (see Section 3.1).
- 2.5.6. Describe associated permanent storm water management facilities that would be constructed, or expansion of or modifications to existing storm water treatment facilities. Identify the locations of the point(s) of collection and discharge.

**2.6. Operations and Maintenance Building**

- 2.6.1. Describe the purpose and use of the proposed O&M building.
- 2.6.2. Number of full-time employees that would be working at the facility.
- 2.6.3. Indicate the size (physical dimensions and acres) of the land purchase required for the building.
- 2.6.4. Building and Building Footprint
  - 2.6.4.1. Provide a drawing or diagram of the O&M building with dimensions including square feet, and the size of any permanent driveways or parking lots for the building to be constructed.
  - 2.6.4.2. Describe the type of building to be constructed (metal, frame, etc.).
- 2.6.5. Lighting and Security Plan for O&M Property
  - 2.6.5.1. Describe how the building property would be lit and how the lighting plan minimizes disturbance to nearby residences.
  - 2.6.5.2. Describe any security plans for the property (fences etc.).
- 2.6.6. Describe any other facilities needed, including:
  - 2.6.6.1. Parking lots.
  - 2.6.6.2. Sheds or storage buildings.
  - 2.6.6.3. Supplies of water.
  - 2.6.6.4. Sewer requirements.

- 2.6.6.5. Construction of any storm water management facilities, or expansion of or modifications to existing storm water treatment facilities. Identify the locations of the point(s) of collection and discharge.

## **2.7. Battery Storage**

If the proposed project would include a large-scale Battery Energy Storage System (BESS) or plans to include one in the future, provide the following information. State clearly if the project is seeking authorization to construct a BESS in the current wind electric generation facility docket. Provide all of the environmental impact information for the BESS if one is being proposed, identical to the environmental impact information provided with all other project facilities.

- 2.7.1. Describe the location of the proposed BESS, including a map that shows its placement within the other project facilities. Discuss if the BESS will be centralized in one location or distributed throughout the project site and why either design choice was made or is being considered.
- 2.7.2. Explain what criteria was used to decide whether to use a BESS and provide information on how its inclusion would affect the electrical design of the project and MISO interconnection process. Provide the MISO interconnection queue number(s) for any associated BESS project.
- 2.7.3. Identify the manufacturer and model of battery systems to be used. (It is acceptable to identify several potential units). Include technical specifications.
- 2.7.4. Provide information on how the BESS would be installed, any changes to project impacts through its inclusion, and ongoing operations and maintenance actions it would require.
- 2.7.5. Discuss any security and safety requirements specific to the BESS both on site and for local first responders.
- 2.7.6. Describe construction procedures (in the sequence as they would occur), including erosion control practices (see Section 3.1).
- 2.7.7. Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water treatment facilities, to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 128. Identify the locations of the point(s) of collection and discharge.
- 2.7.8. If applicable, describe any risk analysis the applicant conducted when siting the BESS and Collector Substation within a “potential impact radius” of any natural gas pipelines in the area. Provide a description of how any risks to facilities could be mitigated.

## **3. Construction Sequence and Workforce**

### **3.1. Construction Sequence and Schedule**

- 3.1.1. Provide the construction schedule for the proposed project, identifying any potential seasonal or regulatory constraints. Include a timeline showing

construction activities from beginning of construction to in-service for all major components of the project, including any BESS system. Identify all *critical path* items.

- 3.1.2. Provide a description of the staging and construction sequence required for building the proposed project at a typical turbine site. Include the delivery of materials.
- 3.1.3. Provide an estimate of the time required to complete construction at a typical turbine site.
- 3.1.4. Provide a description of the staging and construction sequence for any other facilities to be constructed.
- 3.1.5. If grading, land leveling, or any other activity resulting in bare soil would be occurring, indicate how much area (square feet or acres) of bare soils would occur at a given time.

### 3.2. Workforce

- 3.2.1. Provide information on the workforce size and skills required for plant construction and operation.
- 3.2.2. Estimate how much of the expected workforce would come from local sources.

## 4. Project Maps, GIS Data, and Photo Simulations

In addition to providing the static maps listed below, GIS data used to create those maps must also be submitted with the application (see Section 4.2 for a list of GIS data required and pages vi-vii for instructions on GIS map projections). The extent of the orthorectified aerial imagery in the static maps must be inclusive enough to show the landscape context within which the proposed facilities would be placed. Typically, this requires extending the map extent to at least two miles beyond any project boundary. **Submitted GIS data should be shapefiles only. Do not provide geodatabases or aerial imagery raster data.**

**Provide the maps in both hard copy and digital versions.**

**Refer to Application Formats in the Introduction.**

### 4.1. Project Area Maps

Basic (background) features for both the general and the detailed project area maps must include: a recent aerial imagery (no older than three years), county boundaries, major roads, water bodies and waterways, and municipality boundaries. All features should be labeled appropriately. In addition, the maps should contain the following features:

- 4.1.1. **General Project Area Map.** (The extent of this map should show the entire project area and reach at least one mile beyond the project area boundary. Approximate scale 1:4800.) Clearly show:
  - The boundaries of the project area,
  - All proposed and alternative turbine sites (symbolized differently and identified by number),

- Any new substation facilities or required expansion of an existing substation,
- O&M Building and facilities,
- Distribution and transmission interconnection, and;
- All turbine access roads.

4.1.2. **Detailed Project Area Map.** (The scale for this map should be larger than that of the general project map so that the added detail is clearly visible. This usually necessitates a series of maps.) Clearly show:

- All the features listed for the General Project map,
- All collector circuits both underground and overhead, symbolized by the underground installation method,
- Any cross-country crane paths that may be needed during construction,
- Existing utility facilities (electric transmission and distribution, pipelines etc.),
- Industrial/commercial facilities out to one mile from project area boundary,
- All residences out to one mile from project area boundary,
- Day-care centers out to one mile from project area boundary, and;
- Hospitals or other health care facilities out to one mile from project area boundary.

*(If new residences, day-care centers, hospitals, or commercial or industrial facilities have been built since the date of the aerial imagery base map, note those features accurately on the detailed project area map.)*

4.1.3. **Topographic Maps.** Provide topographic maps at 1:24,000 or larger scale showing: project boundary, all turbine sites (proposed and alternative), substation facilities, collector circuits, access roads, and O&M building.

4.1.4. Substation

4.1.4.1. Provide a map showing the following features:

- The location, dimensions (in feet and acres), and layout of any new substation or proposed additions to an existing substation.
- Recent aerial imagery of the substation site.
- The location of all power lines entering and leaving the substation, including any turning structures. Show details in a separate diagram of any turning structures that might impact adjacent land owners (size, type of structure, guying, etc.).
- For new substations, show the location of the access road and the location of any new storm water management features (e.g. pond, swale, etc.). For the expansion of existing substations, show details on changes to access roads that may be required (width, length, location, etc.), as well as any other ground disturbing construction activities.

- Show parcel data including the name of landowners for the substation site or substation addition. Include adjacent landowners.
- Show topographic contours of the property.
- 4.1.4.2. Provide an engineering diagram(s) of the substation and substation equipment include any turning structures and interconnection facilities.
- 4.1.5. O&M Building
  - 4.1.5.1. Provide a map showing the O&M building, parking area, roads, and any other facilities overlaid upon a recent aerial imagery of the property.
  - 4.1.5.2. Provide an engineering drawing of the O&M building.
- 4.1.6. Natural Resources and Land Use/Ownership Maps
  - 4.1.6.1. Wetland and waterway maps. Refer to Section 6.3 for the map sets to provide.
  - 4.1.6.2. Land ownership maps, minimum scale 1:10,000 (map extent to 1.0 mile from the project boundary). Show the following features:
    - Current parcel boundaries and landowners
    - Roads
    - Municipal boundaries
    - Project boundary
    - All Turbine sites (proposed and alternative)
    - Access roads
    - Collector circuits
    - Crane paths
    - Topographic contours
  - 4.1.6.3. Public lands. Show the following features:
    - All publicly owned lands inside the project boundary and within two miles of the project area (parks, trails national/county/state forests, etc.). Public lands should be clearly labeled.
    - Project boundary
    - Turbine sites
    - Access roads
    - Substation
    - O&M Building
  - 4.1.6.4. Land cover. Show the following features
    - The distribution of vegetative communities within the project area using the land cover categories in Section 5.3
    - Project area boundary
    - Proposed and alternative turbine sites
    - Substation
    - O&M building



- Access roads
  - Crane paths
  - Collector circuits
- 4.1.6.5. Flood Insurance Rate maps (FIRMs) (within the project boundary). Provide flood insurance maps if the site is within one-half mile of a floodplain.
- 4.1.6.6. Soil Survey maps (within the project boundary).
- 4.1.6.7. Bedrock maps (within the project boundary). Map showing depth to bedrock for the entire project area.
- 4.1.7. Community Maps
- 4.1.7.1. Zoning maps. Provide a map or maps of the project area showing existing zoning (*e.g.* agriculture, recreation, forest, residential, commercial etc.). Map should show existing zoning out to 0.5 miles beyond the boundaries of the project area.
- 4.1.7.2. Sensitive sites. Additional map (if necessary) showing proximity to schools, day care centers, hospitals, and nursing homes up to 0.5 miles from the substation site.
- 4.1.7.3. Airports. Include the following features:
- All runways for public airports within 10 miles of the project boundary,
  - All runways for private airports within 10 miles of the project boundary,
  - All landing strips inside and within two miles of the proposed project boundary,
  - Project boundary,
  - Turbine sites both proposed and alternative.
- 4.1.8. Communication Infrastructure
- 4.1.8.1. Identify radio, microwave towers, and any NEXRAD or Doppler weather radar installations on a map and show the results of the line-of-sight analysis. Include communications and NEXRAD/Doppler installations within a 50-mile radius of the project area.

## 4.2. GIS Data

**Provide GIS data with attributes as listed and described below<sup>9</sup>. GIS attribute table information should be clearly labeled to identify fields and feature names.**

- 4.2.1. Project area boundary (polygon). Include area in acres.
- 4.2.2. Proposed turbine site components including:
- 4.2.2.1. Turbine locations identified by number (point).
- 4.2.2.2. Collector circuits (line). Include voltage, installation method, length in feet, length in miles, and differentiate whether located underground or overhead.

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<sup>9</sup> Each numbered item or sub-item (whichever is most granular) should be its own shapefile (*e.g.* 4.2.2.1 and 4.2.2.2 should be separate, also all facilities described in 4.2.24 should all be in the same shapefile).

- 4.2.2.3. Access roads (polygon). Include area in acres and differentiate between permanent and temporary.
- 4.2.2.4. Crane paths (polygon). Include path width in feet.
- 4.2.3. Alternative turbine site components including
  - 4.2.3.1. Turbine locations identified by number (point).
  - 4.2.3.2. Collector circuits (line). Include voltage, installation method, length in feet, length in miles, and differentiate whether located underground or overhead.
  - 4.2.3.3. Access roads (polygon). Include area in acres and differentiate between permanent and temporary.
  - 4.2.3.4. Crane paths (polygon). Include path width in feet.
- 4.2.4. Bore pits for trenchless installation of any facilities (point). Include whether used for proposed or alternative routes/areas if applicable.
- 4.2.5. Laydown areas (polygon). Include whether used for proposed or alternative routes/areas if applicable.
- 4.2.6. Temporary matting (polygon). Include whether used for proposed or alternative routes/areas if applicable.
- 4.2.7. Electric distribution lines within and up to one mile of the project area boundary (line). Include voltage of each line and phases present (e.g. A, B, and/or C).
- 4.2.8. Electric transmission lines within and up to one mile of the project area boundary identified by voltage (line). Include voltage.
- 4.2.9. Natural gas high-pressure pipelines within and up to one mile of the project area boundary (line).
- 4.2.10. New substation components including:
  - 4.2.10.1. Perimeter of entire parcel acquired or to be acquired (polygon).
  - 4.2.10.2. Perimeter of substation (polygon).
  - 4.2.10.3. Access road (polygon).
  - 4.2.10.4. Other facilities such as a retention pond or storm water management (polygon).
  - 4.2.10.5. All collector circuits entering the substation (line).
  - 4.2.10.6. Transmission interconnect (point).
- 4.2.11. Expansion of an existing substation components including:
  - 4.2.11.1. Perimeter of original substation and of expanded area (polygon).
  - 4.2.11.2. Boundary showing any new land acquisition (polygon).
  - 4.2.11.3. All new power lines and reconfigured line work (line).
  - 4.2.11.4. All collector circuits entering the substation (line).
  - 4.2.11.5. Other facilities such as permanent storm water management features (polygon).
  - 4.2.11.6. Location of any modified interconnection (point).
- 4.2.12. O&M Building components including:
  - 4.2.12.1. Perimeter of property acquired (polygon).
  - 4.2.12.2. Perimeter of building (polygon).
  - 4.2.12.3. Perimeter of other buildings (polygon).
  - 4.2.12.4. Perimeter of parking lot (polygon).
  - 4.2.12.5. Access road (polygon).

- 4.2.12.6. Other facilities such as permanent storm water management features (polygon).
- 4.2.13. Battery Energy Storage System components including:
  - 4.2.13.1. Perimeter of entire parcel acquired or to be acquired (polygon).
  - 4.2.13.2. Perimeter of Battery Energy Storage System (polygon).
  - 4.2.13.3. Access Road (polygon).
  - 4.2.13.4. Other facilities such as permanent storm water management features (polygon).
- 4.2.14. Wetlands and waterways in the project area:
  - 4.2.14.1. Delineated wetlands (polygon). See Section 6.
  - 4.2.14.2. Field identified waterways (polygon). See Section 6.
- 4.2.15. Land owners/buildings:
  - 4.2.15.1. All residences within and up to one mile of the project area boundary (point). Include land owner name, address, and status as either participating or non-participating.
  - 4.2.15.2. All parcels within and up to one mile of the project area boundary (polygon). Include land owner name, address, and status as either participating or non-participating.
  - 4.2.15.3. All industrial/commercial facilities within and up to one mile of the project area boundary (point). Include facility name, ownership name, and address.
  - 4.2.15.4. All confined animal operations<sup>10</sup> within and up to 0.5 miles of the project area boundary (point). Include type(s) of animal(s), the number of confined animals, and land owner name, address.
  - 4.2.15.5. All sensitive sites, including schools, daycares, hospitals, nursing homes, places of worship, and cemeteries within and up to one mile of the project area boundary (point). Include facility name, ownership name, and address.
  - 4.2.15.6. All other buildings within and up to 300 feet of the project area boundary (point). Include type of building.
- 4.2.16. All known/mapped culverts within the project area boundary (line).
- 4.2.17. All known/mapped drainage system features (e.g. field drains and ditches, main district drain, drain laterals) within the project area boundary (line).
- 4.2.18. All public lands within and up to two miles of the project area boundary (polygon).
- 4.2.19. All participating properties enrolled in the Conservation Reserve Program within the project area (polygon). Information would be dependent on authorization from landowners to release CRP information. Work with PSC staff if any information is considered sensitive and/or confidential.
- 4.2.20. All properties known to be enrolled in a conservation easement within the project area boundary (polygon). Include entity that holds rights to conservation easement (e.g. state/federal government, private land trust, etc.).

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<sup>10</sup> Any farming operation that has animals confined in building(s). Not limited to dairy operations, a specific number of animals, or the DNR's definition of Concentrated Animal Feeding Operations (CAFO).

- 4.2.21. All communication infrastructure in and near the project area boundary (point). Include radio, television, microwave towers, and any NEXRAD or Doppler weather radar installations located within and up to one mile of the project area.
- 4.2.22. All public and private airport runways and landing strips within and up to 10 miles of the project area boundary (point). Include facility name and public status.
- 4.2.23. Land cover/Vegetative communities within the project area boundary (polygon). Include acreages of each dissolved land type. Do not use obsolete DNR Land Cover data. See Section 5.3.
- 4.2.24. Land cover/Vegetative communities within each fenced area (polygon). Include acreages of each dissolved land type identified by fence area number. Do not use obsolete DNR Land Cover data. See Section 5.3.
- 4.2.25. Local zoning designations within and up to one mile of the project.

### 4.3. Photo Simulations

Photo simulations are required. Simulations should seek to provide an accurate representation of what the project area would most likely look like after the project is completed. *In order to be certain that any photo simulations provided in an application will be useful, consult with PSC staff before preparing and submitting photos.*

## 5. Natural and Community Resources, Description and Potential Impacts

### 5.1. Site Geology

- 5.1.1. Describe the geology of the project area.
- 5.1.2. Geotechnical Report on Soil Conditions
  - 5.1.2.1. Provide a summary of conclusions from any geotechnical report or evaluation of soils in the project area including:
    - Results of soil borings including a review of soil bearing capacity and soil settlement potential.
    - Identify any soil conditions related to site geology that might create circumstances requiring special methods or management during construction.
  - 5.1.2.2. Depth to bedrock
    - Identify any turbine sites where foundation construction must be modified because of the presence of bedrock.
    - Describe construction methods and foundation issues associated with situations where bedrock formations are near the surface.
    - Discuss the likelihood or potential that construction on bedrock formations may negatively impact private wells within two miles of turbine sites.

## 5.2. Topography

- 5.2.1. Describe the general topography of the project area.
- 5.2.2. Describe expected changes to site topography due to grading activities.

## 5.3. Land Cover

- 5.3.1. **Vegetative Communities in the Project Area.** List and identify the dominant plants in the following community categories: Analysis should use recent data, not greater than two years old. Land cover can be based on recent aerial imagery or on-site evaluation.

- 5.3.1.1. Agricultural

- Row/Traditional crops
- Specialty Crops/Other

- 5.3.1.2. Non-Agricultural Upland

- Prairie/Grasslands/Pasture/Fallow field
- Upland Woods

- 5.3.1.3. Wetlands (Eggars and Reed classification type)

- 5.3.2. Acres of Land Cover Categories in Project Area

Estimate of the number of acres within each land cover category listed below. Provide this information in table format and explain what method was used to calculate the areas reported.

- 5.3.2.1. Agricultural

- Row/Traditional crops
- Specialty Crops/Other

- 5.3.2.2. Non-Agricultural Upland

- Prairie/Grasslands/Pasture/Fallow field
- Upland Woods

- 5.3.2.3. Wetlands (Eggars and Reed classification type)

- 5.3.2.4. Developed Land

- Residential
- Commercial/Industrial

- 5.3.2.4.1. Floodplain

- 5.3.3. Land Cover Impacts

In table format, estimate the number of acres, in each land cover type identified in Section 5.3.2, that will be affected by project construction and or facilities. Breakdown impacts into temporary vs. permanent impacts for the following categories.<sup>11</sup>

- 5.3.3.1. Turbine Pads

- 5.3.3.2. Collector Circuits. For collector circuits in wooded areas, disclose whether or not a ROW around the cables would be maintained in an open (no tree) condition.

- 5.3.3.3. Access Roads

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<sup>11</sup> Temporary impacts are those that are typically recovered after construction is completed. Examples of temporary impacts include parking lots, lay-down area, crane paths and pads, and collector circuits located in farm fields. Permanent impacts are associated with access roads, turbine pads, collector circuits in forested areas where a cleared ROW is maintained, and substations.

- 5.3.3.4. Crane Paths
- 5.3.3.5. Substation
- 5.3.3.6. O&M Building

#### 5.4. Wildlife

- 5.4.1. **Describe existing wildlife resources** and estimate expected impacts to plant and animal habitats and populations.
- 5.4.2. **Avian and bat pre-construction surveys.** (See Habitat Surveys and Biological Assessments in the Introduction)
  - 5.4.2.1. Provide a summary of pre-application consultation meetings held with DNR for the purposes of determining whether or not pre-construction bird and/or bat studies would be required for the project.
  - 5.4.2.2. If, after consultation with DNR, avian and/or bat pre-construction studies are required, provide the following:
    - A copy of DNR approved survey methodologies for both avian and/or bat studies including the dates of surveys and a schedule for releasing data and reports to the PSC and DNR.
    - Copies of all data collected for all pre-construction studies (data should be provided using a format acceptable to DNR and PSC staff.).
    - Final report/s or analyses prepared using the data collected (minimum of three seasons).
- 5.4.3. Discuss any mitigation actions that have been evaluated to reduce the impacts to avian or bat species (i.e. operational curtailment, FAA-compliant non-permanent lighting, etc.). State which of these mitigation actions are planned to be used during the operational life of the project.

#### 5.5. Public Lands and Recreation

List all public properties within the project area and in a separate list all public properties within 10 miles of the project area boundary.

- 5.5.1. State properties, including but not limited to:
  - 5.5.1.1. Wildlife Areas
  - 5.5.1.2. Fisheries Areas
  - 5.5.1.3. State Parks
- 5.5.2. Federal properties, including but not limited to:
  - 5.5.2.1. Wildlife Refuges
  - 5.5.2.2. Parks
  - 5.5.2.3. Scenic Riverways
- 5.5.3. 5.5.3 County Parks/Recreation Trails
  - 5.5.3.1. Identify the owner/manager of each recreation resource.
  - 5.5.3.2. Provide any communications with these owners/managers.
  - 5.5.3.3. Discuss how short and long-term impacts to these resources will be avoided and/or minimized.

## 5.6. Local Zoning and Safety

### *Utilities (CA)*

- 5.6.1. Provide copies of any zoning ordinances affecting the project area and within two miles of the project boundary. Provide only the page(s) directly citing ordinance language.
- 5.6.2. Describe any zoning changes needed for the project.
- 5.6.3. Describe zoning changes that the applicant has requested of local government for the proposed project. Include:
  - 5.6.3.1. The name of the entity responsible for zoning changes.
  - 5.6.3.2. Description of the process required to make the zoning change.
  - 5.6.3.3. The outcome or expected outcome for requested zoning changes.
- 5.6.4. Township road safety and use plans.
  - 5.6.4.1. Provide details on any plan or permit requirement pertaining to local road safety, use, or repair.
- 5.6.5. Other conditional use permits.
  - 5.6.5.1. Provide details on any other conditional use permit required by local government.

### *Utilities and IPPs (CPCN)*

- 5.6.6. Provide a list of potential local issues normally associated with zoning, road use and safety, or other condition uses.
  - 5.6.6.1. Provide copies of all correspondence to and from local government pertaining to issues of zoning, safety, or local road use safety plans.
  - 5.6.6.2. Provide a discussion of how local concerns will be accommodated.

## 5.7. Land Use Plans

Provide a copy of all land-use plans adopted by local governments that pertain to the project area, extending out two miles from the project boundary. (See *Application Size* in the Introduction.) Include not only general land-use plans, but also other relevant planning documents such as:

- 5.7.1. County Recreation Plans
- 5.7.2. Farmland Preservation Plans
- 5.7.3. Highway Development Plans
- 5.7.4. Sewer Service Area Plans

## 5.8. Archaeological and Historic Resources

Confidential information includes only the specific location and other sensitive details of archaeological and human burial sites (e.g. maps).<sup>12,13</sup> Confidential information should be submitted on ERF as a confidential version in addition to a redacted public version. The Wisconsin Historical Society (WHS) can provide a list of qualified archaeologists, architectural historians, human burial specialists, or tribal preservation officers who may be required to perform steps of this review. Access to the Wisconsin Historic Preservation Database (WHPD) is required to complete this review. Access to WHPD is free at the WHS headquarters or can be used online for a fee. Depending on the outcome of this review, the Commission may be required to consult with the State Historic Preservation Office (SHPO). SHPO consultation may take up to an additional 30 days. The *Guide for Public Archeology in Wisconsin*, provides information about best management practices.<sup>14</sup>

- 5.8.1. Provide maps and a description of all archaeological sites, historic buildings and districts, and human burial sites within the project's area of potential effect (APE). For archaeological and historic sites, the APE is comprised of the physical project area where any ground disturbing activity may occur (e.g. digging, heavy equipment movement, etc.). For historic buildings and districts, the APE consists of the distance that the project may be visible from the outside of the project area. Maps of archaeological and burial sites must be submitted confidentially.
- 5.8.2. For archaeological sites and historic buildings or districts within the APE, determine the boundaries, historic significance, and integrity of each resource. Additional field surveys may be required to make these determinations. In some cases, such as a landowner not granting land access, field surveys may instead be performed following the approval of a project.
- 5.8.3. Identify the potential project effects on each resource.
- 5.8.4. Describe modifications to the project that would reduce, eliminate, avoid, or otherwise mitigate effects on the resources. Examples of modifications include changes to construction locations, modified construction practices (e.g. use of low-pressure tires, matting, etc.), placement of protective barriers and warning signage, and construction monitoring.
- 5.8.5. For any human burial sites within the APE, contact WHS to determine whether a Burial Site Disturbance Authorization/Permit is required.
- 5.8.6. Provide an unanticipated archaeological discoveries plan. The plan should outline procedures to be followed in the event of an unanticipated discovery

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<sup>12</sup> Wis. Stat. 157.70(2)(a): Any information in the catalog related to the location of any burial site, the disclosure of which would be likely to result in the disturbance of the burial site or the cataloged land contiguous to the burial site, is not subject to s. 19.35(1).

<sup>13</sup> Wis. Stat. 44.48(1)(c): The director may keep any specific information regarding archaeological resources closed to the public if the director determines that disclosure of the information would be likely to result in disturbance of the archaeological resources.

<sup>14</sup> *Guide for Public Archeology in Wisconsin*. The Wisconsin Archeological Survey. August 2012.



of archaeological resources or human remains during construction activities for the project.

- 5.8.7. Notify Wisconsin Tribal Historic Preservation Officers of any Native American human burial sites and significant prehistoric archaeological sites within the APE. Provide copies of all correspondence.

### **5.9. ER Review – Endangered, Threatened, and Special Concern Species and Communities**

In the Introduction, page ii of this document, additional details are provided on how to perform an Endangered Resources (ER) screening and about performing habitat assessments, if required.

- 5.9.1. Provide a copy of the completed ER screening and all supporting materials for all project areas, including all applicable components such as off-ROW access routes, staging areas, new substations, and expansions of existing substations (see *DNR Application Needs* in the Introduction).
- 5.9.2. Submit results from habitat assessments and biological surveys for the proposed project, if completed or if required to be completed per the ER screening. If surveys or assessments are required to be completed prior to construction but have not yet been completed, state when these surveys will be completed. Results from additional surveys conducted during the review of the application, prior to the start of construction, and/or post-construction must be submitted as they are completed.
- 5.9.3. For all project facilities and areas impacted by construction, discuss potential impacts to rare species as identified in the completed ER screening and/or field assessments.
- 5.9.3.1. For any required follow-up actions that must be taken to comply with endangered species law, discuss how each required action would affect the proposed project, and how the required action would be complied with.
- 5.9.3.2. For any recommended follow-up actions to help conserve Wisconsin's rare species and natural communities, discuss if and how any recommended actions would be incorporated into the proposed project.
- 5.9.3.3. If any recommended actions are not planned to be incorporated into project construction or operation, state the reasons why.
- 5.9.4. Provide communications with DNR and U.S. Fish and Wildlife Service, as applicable.

### **5.10. Invasive Species**

- 5.10.1. Describe locations where invasive species, forest pests, or diseases have been observed in the project area (e.g., invasive plants, oak wilt, etc.). State if invasive species surveys have occurred or will be conducted. If invasive species surveys have been conducted, provide documentation showing where surveys occurred and locations of invasive species found, indicating which species.

- 5.10.2. Describe mitigation actions that would be used to prevent the introduction or spread of invasive species, forest pests, or diseases.
- 5.10.3. Describe planned ongoing invasive species management for the project during operations.

### 5.11. Contaminated Sites

- 5.11.1. Using the Wisconsin Remediation and Redevelopment Database (WRRD), <http://dnr.wi.gov/topic/Brownfields/WRRD.html>, identify any contaminated sites (open and closed) within the project area and within two miles of the project area.
- 5.11.2. Using the Historic Registry of Waste Disposal Sites, <http://dnr.wi.gov/topic/Landfills/registry.html>, identify any Environmental Repair and Solid Waste disposal sites within the project area and within two miles of the project area.

### 5.12. Floodplain

- 5.12.1. Identify any work occurring in floodplains or flood-prone areas.
- 5.12.2. Discuss if impacts to the floodplain have been evaluated, and how impacts to the floodplain will be avoided or minimized.
- 5.12.1. Provide information on any discussions that have occurred with the application floodplain zoning authority, and how the project will comply with local floodplain ordinance(s). This requirement is not intended to preclude or otherwise modify Wis. Stat. §196.491(3)(i).

### 5.13. Vegetation Management and Site Restoration

- 5.13.1. Provide a vegetation removal plan that discusses the types and location of vegetation to be removed (i.e. herbaceous, agricultural crop clearing, shrub, forested, etc.), the timing of vegetation removal, and the equipment to be used.
- 5.13.2. Provide a detailed revegetation and site restoration plan that discusses the following items:
  - 5.13.2.1. Types of revegetation proposed for impacted areas. Include seed mixes if known, and if seed mixes will be pollinator friendly.
  - 5.13.2.2. Vegetation monitoring and management protocols for subsequent years after construction.

## 6. Waterway/Wetland Permitting Activities

This section covers information required by DNR for waterway and wetland permits. *The following subsections apply to both proposed and alternative turbine sites.* These sections should be consistent with the wetlands and waterway included in the DNR Tables 1 and 2 and associated wetland and waterway maps. See the Wetlands and Waterways section of the introduction portion of this document on what to include in DNR Tables 1 and 2 regarding waterway resources. Questions about this section should be directed to DNR Office of Energy's Energy Project Liaison staff.

## 6.1. Waterway Permitting Activities

This section should be consistent with the waterways included in DNR Tables 1 and 2 and associated maps. This section should apply to the proposed and alternative sites/routes and their associated facilities (for example, off-ROW access roads, staging areas, permanent structures, associated driveways and permanent storm water management features to be constructed).

- 6.1.1. Identify the number of waterways present, including DNR-mapped waterways and additional field identified waterways. Also identify the number of times the waterway meanders in and out of the ROW and indicate the number of waterway crossings.
- 6.1.2. Identify any waterways in the project area that are classified as Outstanding or Exceptional Resource Waters, Trout Streams, Wild Rice Waters, and/or Wild or Scenic Rivers.
- 6.1.3. State if you are requesting DNR staff perform a navigability determination on any of the DNR mapped waterways and/or field identified waterways that will be impacted and/or crossed by project activities. If a navigability determination is requested, provide the following information in a separate appendix with the application filing a table with columns for:
  - The crossing unique ID.
  - Waterbody Identification Code (WBIC) for each waterway (found in the Surface Water Data Viewer or in the GIS data for the DNR mapped waterways).
  - Latitude and longitude for each crossing.
  - Waterway name.
  - Waterway characteristics from field investigation.
  - Any other pertinent information or comments.
  - Site photographs, clearly labeled with the photo number, direction, date photo taken, and crossing unique ID. A short description of what the photo is showing, and any field observation must also be included in the caption.
  - Aerial photograph review of multiple years, including historical photos
  - Project map showing the following:
    - Aerial imagery (leaf-off, color imagery is preferred).
    - DNR mapped waterways (labeled with their unique ID).
    - Field identified waterways (labeled with their unique ID).
    - The location of each site photograph taken (labeled with the photo number).
    - The project area.
    - Call out box/symbol for each DNR mapped waterway crossing where the navigability determination is requested (labeled with their unique ID).
- 6.1.4. Provide the following:
  - 6.1.4.1. How many waterway crossings are proposed to be traversed with equipment for temporary access roads, and how that crossing will be accomplished (i.e. temporary clear span bridges (TCSB), driving on the bed, use of existing bridge or culvert, etc.).

- 6.1.4.2. How many structures are proposed to be placed below the ordinary high water mark (OHWM) of a waterway. Indicate if structures are temporary or permanent.
- 6.1.4.3. How many waterways will be impacted for permanent access roads, and how that crossing will be accomplished (i.e. placement of culvert, ford, permanent bridge, etc.).
- 6.1.4.4. Indicate if any other waterways will be impacted and/or crossed by other construction activities regulated under Chapter 30 Wis. Stats. (i.e. placement of a new storm water pond within 500 feet of a waterway, stream relocation, staging areas, placement of riprap, etc.).
- 6.1.4.5. How many waterways will be impacted and/or crossed by fence installation and footings.
- 6.1.4.6. How many waterways will be impacted and/or crossed by other construction activities or facilities (i.e. placement of a storm water pond within 500 feet of a waterway, stream relocation, staging areas, etc.).
- 6.1.4.7. For underground installation only: Indicate the amount of waterway crossings via underground installation and specify the installation method (i.e. X waterways will be bored, Y waterways will be trenched, etc.).
- 6.1.5. Provide the methods to be used for avoiding, minimizing, and mitigation construction impacts in and near waterways. This discussion should include, but not limited to, avoiding waterways, installation methods (i.e. directional bore versus open-cut trenching or plowing), equipment crossing methods (i.e. for temporary access, the use of TCSB versus temporary culvert; for permanent access, the use of permanent bridge versus permanent culvert), sediment and erosion controls, invasive species protocols for equipment, etc.
- 6.1.6. Describe fence crossings of waterways, including the location of support pilings (i.e. in waterway channel, at the top of the waterway banks) and the amount of clearance between the bottom of the fence and the ordinary high-water mark. Also describe any existing public use of the waterway and how this public use may be impacted by the fence crossing.
- 6.1.7. For waterways that will be open-cut trenched, provide the following:
  - 6.1.7.1. State if any waterways are wider than 35 feet (measured from OHWM to OHWM).
  - 6.1.7.2. The machinery to be used, and where it will operate from (i.e. from the banks, in the waterway channel) and if a TCSB is needed to access both banks.
  - 6.1.7.3. The size of the trench (length, width, and depth) for each waterway crossing.
  - 6.1.7.4. Details on the proposed in-water work zone isolation/stream flow bypass system (i.e. dam and pump, dam and flume, etc.).
  - 6.1.7.5. Details on the proposed dewatering associated with the in-water work zone isolation/stream flow bypass system, including where the dewatering structure will be located.

- 6.1.7.6. Duration and timing of the in-stream work, including the installation and removal of the isolation/bypass system and the trenching activity.
- 6.1.7.7. How impacts to the waterway will be minimized during in-water work (i.e. energy dissipation, sediment controls, gradually releasing dams, screened and floating pumps, etc.).
- 6.1.7.8. How the waterway bed and banks will be restored to pre-existing conditions.
- 6.1.8. For waterways that will be directionally bored, provide the following:
  - 6.1.8.1. The location and size of any temporary staging and equipment storage.
  - 6.1.8.2. The location and size of bore pits and their distance from waterways.
  - 6.1.8.3. Provide a contingency plan for bore refusal and a plan for the containment and clean-up of any inadvertent releases of drilling fluid (e.g. a frac-out).
- 6.1.9. For waterways that will have a TCSB installed across them, provide the following:
  - 6.1.9.1. Description of the TCSB proposed, including dimensions, materials, and approaches. Verify the TCSB will completely span the waterway.
  - 6.1.9.2. State if any waterways are wider than 35 feet (measured from OHWM to OHWM), and/or if any in-stream supports will be used.
  - 6.1.9.3. State how the TCSB placement and removal will occur (i.e. carried in and placed with equipment, assembled on site, etc.) and if any disturbance would occur to the bed or banks for the installation and removal, including bank grading or cutting.
  - 6.1.9.4. Duration of the placement of the TCSB.
  - 6.1.9.5. Sediment controls that will be installed during the installation, use, and removal of the TCSB's.
  - 6.1.9.6. How the TCSB's will be inspected during use and how they will be anchored to prevent them from being transported downstream.
  - 6.1.9.7. State if the required 5-foot clearance will be maintained, or if the standards in NR 320.04(3), Wis. Adm. Code will be complied with.
  - 6.1.9.8. How the waterway bed and banks will be restored when the TCSB is removed.
- 6.1.10. Describe the proposed area of land disturbance and vegetation removal at waterway crossings. Include a description of the type of vegetation to be removed (e.g. shrub, forest), and if this vegetation removal will be temporary (allowed to regrow) or permanent (maintained as cleared).
- 6.1.11. If any of the following activities are proposed, provide the information as detailed on the applicable permit checklist:

- New culvert placement:  
<https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-CulvertWPEDesign.pdf> (General Permit) or  
<https://dnr.wi.gov/topic/Waterways/documents/PermitDocs/IPs/IP-culvert.pdf> (Individual Permit).
- New permanent bridge placement:  
<https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-ClearSpanBridge.pdf> (General Permit, no in-stream supports) or  
<https://dnr.wi.gov/topic/Waterways/documents/PermitDocs/IPs/IP-bridgeTempCross.pdf> (Individual Permit, in-stream supports).
- 
- New storm water pond placed within 500 feet of a waterway:  
<https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-StormwaterPond.pdf>

## 6.2. Wetland Permitting Activities

This section should be consistent with the waterways included in DNR Tables 1 and 2 and associated maps. This section should apply to the proposed and alternative sites/routes (if applicable) and their associated facilities (for example, off-ROW access roads, staging areas, permanent structures, associated driveways and permanent storm water management features to be constructed).

- 6.2.1. Describe the method(s) used to identify wetland presence and boundaries within the project area (i.e. wetland field delineation, wetland field determination, conservative desktop review, etc.). If conservative desktop review was the only method used to identify the presence of wetlands, state if any areas will be field-verified (and when). If a combination of methods were used, describe which project areas utilized which method. The associated delineation report and/or desktop review documentation should be uploaded to the PSC's website as part of the application filing.
- 6.2.2. Identify the number of wetlands present and by wetland type, using the Eggers and Reed classification. Provide as an overall project total, as well as broken down by the proposed site and the alternative site(s) (if applicable) and their associated facilities.
- 6.2.3. Wetland functional values:
  - 6.2.3.1. Discuss the existing functional values of the wetland present. Functional values include but are not limited to floristic diversity, fish and wildlife habitat, flood storage, water quality, groundwater discharge and recharge, public use, etc.
  - 6.2.3.2. Discuss how the project may impact existing functional values of wetlands.

- 6.2.3.3. Provide Wisconsin Rapid Assessment Methodology (WRAM) forms, or other assessment methodology documentation, if completed.
- 6.2.4. Identify any wetlands in the project area that are considered sensitive and/or high-quality wetlands, including, but not limited to:
  - 6.2.4.1. Any wetlands in or adjacent to an area of special natural resource interest (ASNRI) (NR 103.04, Wis. Adm. Code).
  - 6.2.4.2. Any of the following types: deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded settings.
  - 6.2.4.3. Any wetlands with high functional values based on factors such as abundance of native species and/or rare species, wildlife habitat, hydrology functions, etc.
- 6.2.5. Provide the following:
  - 6.2.5.1. The number of wetlands that would have construction matting placed within them to facilitate vehicle access and operation and/or material storage. Provide the total amount of wetland matting, in square feet
  - 6.2.5.2. The number of structures that would be constructed within wetlands. Indicate if structures are temporary or permanent. Provide the total square footage of permanent and temporary wetland impact for the placement of structures.
  - 6.2.5.3. How many wetlands will have permanent fill placed within them. Provide the total amount of permanent wetland fill, in square feet.
  - 6.2.5.4. How many wetlands will be impacted for permanent access roads and indicate if culverts will be installed under the roads to maintain wetland hydrology.
  - 6.2.5.5. How many wetlands will be impacted and/or crossed by fence installation and footings.
  - 6.2.5.6. How many shrub and/or forested wetlands will be cleared for construction. Provide the total amount of shrub and/or forested wetland conversion, in square feet.
  - 6.2.5.7. How many wetlands will be impacted and/or crossed by other construction activities regulated under 281.36 Wis. Stats. (i.e. road building activities such as grading and cutting, substation upgrades, new tie-ins, vehicle/equipment access across wetland resulting in soil mixing or soil rutting, etc.).
  - 6.2.5.8. For underground installation only: how many wetlands will be crossed by collection lines and specify the installation method (i.e. X wetlands will be bored, Y wetlands will be trenched, etc.).

- 6.2.6. Describe if wetlands will be disturbed for site preparation activities:
    - 6.2.6.1. Grading, leveling, etc. across the site.
    - 6.2.6.2. If vegetation removal will be conducted in wetlands, describe how debris (i.e. brush piles, wood chips, etc.) would be handled and disposed of when clearing shrub and forested wetlands.
  - 6.2.7. Describe the sequencing of matting placement in wetlands and the anticipated duration of matting placement in wetlands. For matting placed in any wetland for longer than 60 consecutive days during the growing season, prepare and submit a wetland matting restoration plan with the application filing.
  - 6.2.8. For wetlands that will be open-cut trenched, provide the following:
    - 6.2.8.1. Provide details on the total disturbance area in wetland, including how total wetland disturbance was calculated. Include the size of the trench (length, width, and depth), where stockpiled soils will be placed (i.e. in upland, in wetlands on construction mats, etc.), and where equipment will operate.
    - 6.2.8.2. Details on the proposed trench dewatering, including the method(s) that may be used (pumps, high capacity wells, etc.), how discharge will be treated, and where the dewatering structure will be located.
    - 6.2.8.3. Duration and timing of the work in wetland.
    - 6.2.8.4. How the wetland will be restored to pre-existing conditions.
  - 6.2.9. For wetlands that will be directionally bored, provide the following:
    - 6.2.9.1. How bored wetlands and associated bore pits will be accessed.
    - 6.2.9.2. The location and size of any temporary staging and equipment storage.
    - 6.2.9.3. The location and size of bore pits and the distance from wetlands.
    - 6.2.9.4. Provide a contingency plan for bore refusal and a plan for the containment and clean-up of any inadvertent releases of drilling fluid (e.g. a frac-out).
  - 6.2.10. For wetlands that will be plowed, resulting in a discharge of fill (soil mixing and/or soil rutting), provide the following:
    - 6.2.10.1. Provide details on the total disturbance area in wetland, including how total wetland disturbance was calculated.
    - 6.2.10.2. Duration and timing of the work in wetlands.
    - 6.2.10.3. How the wetlands will be restored to pre-existing conditions.
- Note: Plowing through saturated or wet/soggy wetlands would likely result in soil mixing and rutting, and thus the plowing would then be 281.36 Wis. Stats. regulated activity.
- 6.2.11. For wetlands that will be crossed/accessed by vehicle/equipment resulting in a discharge of fill (soil mixing and/or soil rutting), provide the following:
    - 6.2.11.1. Provide details on the total disturbance area in wetland, including how total wetland disturbance was calculated.



- 6.2.11.2. Duration and timing of the work in wetlands.
- 6.2.11.3. How the wetlands will be restored to pre-existing conditions.

Note: Vehicle/equipment access through saturated or wet/soggy wetlands would likely result in soil mixing and rutting, and thus the plowing would then be 281.36 Wis. Stats. regulated activity.

- 6.2.12. Describe how fence installation will occur in wetlands, including the footing types (i.e. direct imbed, concrete, etc.), any associated wetland impact such as vegetation clearing, operation of equipment, etc.
- 6.2.13. For wetland vegetation that will be cleared or cut for construction, provide the following:
  - 6.2.13.1. Justification for why wetland trees and shrubs are proposed to be cleared, and what construction activity the clearing is associated with (e.g. transmission line installation, off-ROW access road, staging area, etc.).
  - 6.2.13.2. The timing and duration of vegetation removal
  - 6.2.13.3. Describe the type of equipment that will be used, and if the vegetation removal will result in soil disturbance, including rutting and soil mixing.
  - 6.2.13.4. The type of wetland and type of vegetation to be cleared.
  - 6.2.13.5. State if tree and shrubs that are removed will be allowed to regrow or be replanted, or if cleared areas will be kept free of trees and shrubs long-term.
  - 6.2.13.6. Indicate the plan for handling and disposing of the debris (brush piles, tree trunks, wood chips, etc.) resulting from vegetation clearing in wetlands. State if debris would be removed from all wetlands to be cleared and disposed of in upland or other non-wetland locations.
    - 6.2.13.6.1. If debris is not proposed to be removed from all wetlands during clearing, explain why disposal in non-wetland areas is not feasible.
    - 6.2.13.6.2. If debris is not proposed to be removed from all wetlands during clearing, state how debris left in wetland will not restrict re-vegetation growth, will not alter surface elevations, and will not obstruct water flow. If wood chips will be placed in wetlands, state the depth (in inches) proposed.
    - 6.2.13.6.3. If debris is not proposed to be removed from all wetlands during clearing, state how these wetlands will be monitored to ensure re-vegetation growth, surface elevations, and water flow are not impacted, and that the proposed depth of chip cover is adhered to. If re-vegetation growth becomes impeded, surface elevations become altered, and/or water flow becomes obstructed from wood chip

placement, state how these impacts will be addressed and corrected, if they should occur.

- 6.2.14. Provide the methods to be used for avoiding, minimizing, and mitigating construction impacts in and near wetlands. This discussion should include, but is not limited to, how wetland impact was first avoided then minimized by shifting the project boundary, relocating structures and/or fill outside of wetland, minimizing construction ROW through wetland, by installation methods (i.e. directional bore versus open-cut trenching, soil segregation during trenching, etc.), equipment crossing methods (i.e. use of construction matting, frozen ground conditions, etc.), sediment and erosion controls, invasive species protocols for equipment, etc. Additional guidance to prepare this discussion can be found here:  
<https://widnr.widen.net/s/fxdd8pmqgg/paasupp3utility>.
- 6.2.15. Indicate if an environmental monitor will be employed during project construction and restoration activities. If so, describe the monitors roles and responsibilities, frequency of visits, etc.
- 6.2.15.1. Describe how all wetlands within the project area will be restored. This discussion should include details on the seeding plan, maintenance and monitoring, restoring elevations and soil profiles, restoring wetland hydrology, etc.

### 6.3. Mapping Wetland and Waterway Locations, Impacts, and Crossings

Provide the following map sets, as described below, for each proposed and alternative sites/routes and associated components. Each map set should include an overview or index page that includes page extents for the corresponding smaller-scale map pages within the remainder of the map set. The smaller-scale map pages should show the project and resources in greater detail, include pages numbers to reference to the overview page, and have consistent scales throughout the pages.

- 6.3.1. Aerial map imagery showing the following:
- Delineated wetlands, labeled with the feature unique ID,
  - Wisconsin Wetland Inventory (“Mapped Wetlands” SWDV layer) and hydric soils (“Wetland Indicators & Soils” SWDV layer), if a delineation was not conducted,
  - DNR mapped waterways, labeled with the feature unique ID
  - Field identified waterways, labeled with the feature unique ID
  - Wind turbines and all connecting facilities (permanent and temporary access roads, fences, and collector circuits) with the installation method identified for the collector lines (i.e. directional bore, plow, open-cut trench, etc.).
  - O&M Building
  - New and existing substations (if existing substations will be expanded, include the expanded footprint) and associated driveways

- Staging areas (labeled with identifying name or number) and all temporary work spaces, such as crane pads
  - Generator tie line, including pole locations and all access roads, including off-ROW access roads in their entirety and labeled with the off-ROW access road label.
  - ROW
  - Locations of other temporary and permanent structures
  - Locations of proposed permanent storm water features (i.e. ponds, swales, etc.)
  - Vehicle crossing method of waterways for both permanent and temporary access, labeled by the crossing method (i.e. TCSB, installation of culvert, installation of bridge, installation of ford, use of existing culvert, use of existing bridge, use of existing ford, driving on the bed, etc.).
  - Placement of construction matting in wetlands.
  - Excavation areas in wetlands (i.e. bore pits, open-cut trench, etc.).
  - Locations of any other waterway or wetland impacting activity regulated under Wis. Stats. Chapter 30 and 281.36.
- 6.3.2. A map showing which method(s) were used to identify wetland presence and boundaries within the project area (i.e. wetland field delineation, wetland field determination, conservative desktop review).

## **7. Agricultural Impacts**

### **7.1. Current Agricultural Activities**

Provide information on current farming activities at the proposed turbine sites and wherever construction activities would occur or affect farming properties.

- 7.1.1. State whether a DATCP Agricultural Impact Statement (AIS) would be required. If the project would affect any properties used for agricultural purposes, submit one of the following, either 1.) a completed Agricultural Impact Notice (see DATCP website and search "Agricultural Impact Notice" for appropriate form or contact DATCP). Or, 2.) a release letter from DATCP stating that an AIS will not be written for this proposed project.
- 7.1.2. Identify current agricultural practices in the project area.
- 7.1.3. Identify the location of agricultural drainage systems (tiles, ditches, laterals), irrigation systems, erosion control and water management practices and facilities in the project area that could be impacted by construction activities or the location of the proposed facilities.
- 7.1.4. Identify any farming operations such as herd management, specialty crop production, field and building access, organic farming, etc. that could be impacted by the construction of the project.
- 7.1.5. Describe how damage to agricultural facilities and interference with farming operations would be minimized during construction.

- 7.1.6. Describe how damage to agricultural facilities would be identified and repaired.
- 7.1.7. Identify any farmland affected by the project that is part of an Agricultural Enterprise Area.
- 7.1.8. Identify any parcels of land in the project area that are part of a Drainage District, and identify the Drainage District if applicable. The County Drainage Board will need to be notified before undertaking any action, including any change in land use that will alter the flow of water into or from a district drain, increase the amount of soil erosion, or the movement of sediment solids to a district drain or affect the operation of the drainage district, or the costs incurred by the Drainage District. This applies to parcels of land that receive water from, or discharge water to a Drainage District, regardless of whether the land is included in the Drainage District. The following items apply when any part of a project is located within a Drainage District.
  - 7.1.8.1. Describe any permits needed from a Drainage District Board for construction and operation of the proposed project, and the status of any permits.
  - 7.1.8.2. Identify if and where any culverts would be installed in areas of the Drainage District.
  - 7.1.8.3. Provide any correspondence with State Drainage Engineer regarding the project.
- 7.1.9. Identify any lands within the project boundary that are enrolled in agricultural conservation or agricultural tax incentive programs, such as farmland preservation programs and permanent agricultural or conservation easements.
- 7.1.10. Describe the process for returning land to agricultural use after decommissioning, including any subsequent years of monitoring.

## **7.2. Stray Voltage**

Discuss induced voltage issues as they relate to the project, including collector circuits and any generator tie line. Provide the following information:

- 7.2.1. Identify the location of confined animal dairy operations within one-half mile of any proposed transmission or distribution centerline or other project facilities.
- 7.2.2. Identify the location of agricultural buildings within 300 feet of any proposed transmission or distribution centerline or other project facilities.
- 7.2.3. Discuss induced voltage issues related to the project and its transmission or distribution line routes.
- 7.2.4. Discuss any plans to conduct stray voltage testing pre- and post-construction.

# **8. Airports and Landing Strips**

## **8.1. Public Airports**

- 8.1.1. Identify all public airports inside the proposed project boundary.

- 8.1.2. Identify all public airports within 10 miles of the project boundary and list the distance to the nearest proposed turbine from the end of the runway.
  - 8.1.2.1. Identify separately all public airports within:
    - 8.1.2.1.1. 10,000 feet of the nearest turbine.
    - 8.1.2.1.2. 20,000 feet of the nearest turbine.
- 8.1.3. Describe any mitigation measures pertaining to public airport impacts.

## **8.2. Private Airports/Grass Landing Strips**

- 8.2.1. Identify all private airports/landing strips within the proposed project boundary.
- 8.2.2. Identify all private airports/landing strips within two miles of the project boundary.
- 8.2.3. Provide the distance from each private airport/landing strip (ends of runway) to the nearest turbines.
- 8.2.4. Describe any mitigation measures pertaining to private airport or airstrip impacts.

## **8.3. Commercial Aviation**

- 8.3.1. Identify all commercial air services operating within the project boundaries (*i.e.* aerial applications for agricultural purposes, state programs for control of forest diseases and pests (*i.e.* spongy moth (*Lymantria dispar*) control).
- 8.3.2. Describe any potential impact to commercial aviation operations
- 8.3.3. Describe any mitigation measures pertaining to commercial aviation

## **8.4. Emergency Medical Services – Air Ambulance Service**

- 8.4.1. Identify the provider/s of air ambulance services within the project area
- 8.4.2. Describe any planned mitigation of possible impacts to air ambulance services in the project area (*e.g.* establishment of safe landing zones, etc.)

## **8.5. Federal Aviation Administration**

- 8.5.1. Provide copies of all correspondence with the FAA.
- 8.5.2. Provide copies of all FAA determinations of hazard/no hazard.
- 8.5.3. Provide a summary of the status of all FAA determinations with details on how any unresolved problems with aircraft safety are being addressed.
- 8.5.4. Provide a detailed description of any obstruction marking and lighting that will be required by the FAA.

## **8.6. Wisconsin Department of Transportation – Bureau of Aeronautics – High Structure Permits**

- 8.6.1. Provide a list of all turbine sites requiring WisDOT high structure permits.
- 8.6.2. List the permit status and conditions for each turbine site requiring high structure permits.

## **9. Electric and Magnetic Fields (EMF)**

### **9.1. Provide an estimate of the magnetic profile created by collector circuits and any generator tie line (as applicable).**

Estimates should be made using the following criteria:

- 9.1.1. Show a separate profile for the typical buried collector circuits. If some trenches would support more than one buried circuit, provide a separate estimate for each bundled configuration.
- 9.1.2. Show a separate profile for any overhead collector circuits or generator tie line (as applicable).
- 9.1.3. Assume all turbines are working and project is producing at maximum capacity.
- 9.1.4. Show EMF profile at 0 ft., 25 ft., 50 ft., and 100 ft. from the centerline of each circuit type modeled.

## **10. Line-of-sight and Broadcast Communications**

### **10.1. Microwave Communications**

- 10.1.1. Provide a line-of-sight analysis showing that turbines, installed at all of the proposed (and alternative) wind turbine sites, will not interfere with microwave communications.
- 10.1.2. List potential impacts, mitigation measures used in design and post construction mitigation measures and plans.

### **10.2. Radio and Television interference**

- 10.2.1. Provide an analysis of the potential for television interference within and adjacent to (within one mile) of the project boundary.
- 10.2.2. Discuss how television interference will be eliminated or mitigated for the project.

### **10.3. NEXRAD interference**

- 10.3.1. Describe whether the proposed development is likely to interfere with any of the following Doppler weather radar installations:
  - 10.3.1.1. National Weather service WSR-88D NEXRAD Doppler radar network installations within 150 miles (250 km) of the project boundary.
  - 10.3.1.2. Doppler radar installations operated by broadcast television stations with Federal Communications Commission authorized service areas that completely or partially include the project area.

### **10.4. Other Communications Systems**

- 10.4.1. Provide an analysis or supportive data to predict whether or not any aspect of the proposed project will interfere with:

- 10.4.1.1. Cell phone communications
- 10.4.1.2. Radio broadcasts
- 10.4.1.3. Internet (WiFi)
- 10.4.1.4. Describe mitigation measures should interference occur during project operation.

## 11. Noise

Pre- and post-construction noise studies are required for all turbine projects. Noise measurement studies must be approved by PSC staff.

### 11.1. Noise studies

- 11.1.1. Provide existing (ambient) noise measurements and projected noise impacts from the project using the PSC's Noise Measurement Protocol. The PSC Noise Measurement Protocol can be found on the PSC website at: <https://psc.wi.gov/SiteAssets/WindNoiseProtocol.pdf>.
- 11.1.2. Provide copies of any local noise ordinance.
- 11.1.3. Provide turbine manufacturer's description of noise attenuating methods and materials used in the construction of proposed turbines.

### 11.2. Noise Complaints

- 11.2.1. Describe how noise complaints will be handled. Include a description of when and how subsequent noise measurements from specific residences or buildings would be conducted.
- 11.2.2. Discuss any mitigation measures that would be used to address noise complaints during the operation of the project.

## 12. Shadow Flicker

### 12.1. Shadow Flicker Analysis/Modeling

- 12.1.1. Provide an analysis showing the potential for shadow flicker in the area of a typical wind turbine site. Include contours for 100, 50, 30, and 20 hours per year of potential shadow flicker. (The analysis should list the basic assumptions used and the methodology/software used for creating the shadow flicker analysis.)

### 12.2. Mitigation

- 12.2.1. Describe mitigation available to reduce shadow flicker.
- 12.2.2. State the level at which anticipated shadow flicker would result in outreach to a landowner to proactively offer mitigation.

### 12.3. Complaint Process

- 12.3.1. In the event of an inquiry or complaint by a resident in or near the project area, describe what modeling or other analysis would be used to evaluate the possibility of shadow flicker at the residence.

- 12.3.2. If the likelihood were high that the resident would experience shadow flicker, describe what measures would be used to reduce the impacts on the resident.

## 13. Local Government Impacts

### 13.1. Joint Development and Other Agreements

- 13.1.1. Provide a summary of major agreement items agreed upon in any Joint Development Agreements (JDA) or other type of agreement including:
  - 13.1.1.1. All services to be provided by the city, town, and/or county during construction and when the plant is in operation (*e.g.* water, fire, EMS, police, security measures, and traffic control).
  - 13.1.1.2. Specifically, address community and facility readiness for incidents such as fires and critical turbine structure failures.
- 13.1.2. Provide a copy of all agreements with local communities (*e.g.* JDA)

### 13.2. Infrastructure and Service Improvements

- 13.2.1. Identify any local government infrastructure and facility improvements required (*e.g.* sewer, water lines, railroad, police, and fire).
- 13.2.2. Describe the effects of the proposed project on city, village, town and/or county budgets for these items.
- 13.2.3. For each site provide an estimate of any revenue to the local community (*i.e.* city, village, town, county) resulting from the project in terms of taxes, shared revenue, or payments in lieu of taxes.
- 13.2.4. Describe any other benefits to the community (*e.g.* employment, reduced production costs, goodwill gestures).

## 14. Landowners Affected and Public Outreach

### 14.1. Mailing Lists

**Provide a separate alphabetized list (names and addresses) in Microsoft excel for each of the groups described below:**

- 14.1.1. Property owners and residents within the project boundary and a separate list of property owners and residents from the project boundary out to a distance of one mile. It is strongly recommended that applicants consult with PSC staff in order to ensure that the format and coverage are appropriate considering the project type, surrounding land use, etc.
- 14.1.2. Public property, such as schools or other government land within one mile of the project area boundary.
- 14.1.3. Clerks of cities, villages, townships, counties, and Regional Planning Commissions directly affected. Also include on this list the main public library in each county the proposed facilities would occupy.
- 14.1.4. Applicable state and federal agencies.
- 14.1.5. Tribal government representatives for Native American Tribes that hold off-reservation treaty rights in Ceded Territory. This only applies to projects



within the following counties: Ashland, Barron, Bayfield, Burnett, Chippewa, Clark, Douglas, Dunn, Eau Claire, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Marinette, Menominee, Oconto, Oneida, Polk, Portage, Price, Rusk, Sawyer, Shawano, St. Croix, Taylor, Vilas, Washburn, and Wood County.

The following Tribes hold off-reservation treaty rights in Ceded Territory:

- Bad River Band of Lake Superior Chippewa Indians
- Lac Courte Oreilles Band of Lake Superior Chippewa Indians
- Lac du Flambeau Band of Lake Superior Chippewa Indians
- Red Cliff Band of Lake Superior Chippewa Indians
- St. Croix Chippewa Indians of Wisconsin
- Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians).

## 14.2. Public Outreach

- 14.2.1. List and describe all attempts made to communicate with and provide information to the public. Describe efforts to date and any planned public information activities. Provide copies of public outreach mailings.
- 14.2.2. Describe plans and schedules for maintaining communication with the public (*e.g.* public advisory board, open houses, suggestion boxes, and newsletters).
- 14.2.3. Identify all local media that have been informed about the project. The list of local media should include at least one print and one broadcast.

## 15. Aesthetic Impacts

### 15.1. Visual Impact Assessment

- 15.1.1. Provide a visual impact assessment (VIA) of the project that includes a map of all photo simulation locations agreed to by the applicant and Commission staff, and the photo simulations.
- 15.1.2. Include in the VIA a cumulative visibility analysis map showing the number of wind turbines visible over bare terrain within a 10-mile study area out from the project area boundaries. Provide information on how many turbines would be visible at residences within that 10-mile study area through estimated zones of visibility.
- 15.1.3. Include an analysis of visual impacts along any scenic roads, local parks or recreation facilities, or scenic viewpoints through the 10-mile assessment area.
- 15.1.4. Describe the turbine safety lighting to be used and how visual impacts from this lighting can be mitigated.

## 16. DNR Information regarding Erosion Control and Storm Water Management Plans (not PSC requirements)

This section serves as guidance for development of Erosion Control and Storm Water Management Plans associated with DNR NR 216 Permits. These are not requirements for a PSC CPCN or CA.

### 16.1. Erosion Control and Storm Water Management Plans

DNR requires a detailed description of temporary and permanent erosion and sediment control measures to be utilized during and after construction of the project.

If the project would involve one or more acres of land disturbance, the applicant's request for permits under Wis. Stat. § 30.025 must identify the need for coverage under the Construction Site Storm Water Runoff General Permit from DNR. The permit application itself must be submitted through DNR's electronic Water Permits system after the PSC order. This permit may also authorize construction site dewatering discharges under certain conditions.

The Storm Water Permit and Wis. Admin. Code ch. NR 216 require a site-specific Erosion Control Plan, Site Map, and Storm Water Management Plan. The permittee would be required to implement and maintain, as appropriate, all erosion and sediment control practices identified in the plans from the start of land disturbance until final stabilization of the site. Final stabilization means that all land-disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established with a density of at least 70 percent of the cover for the unpaved areas and areas not covered by permanent structures or equivalent stabilization measures.

The Erosion Control Plan, Site Map, Storm Water Management Plan, and any supporting documentation (such as modeling input/output, design specifications, geotech/soil report, site photos, etc.) must be submitted with the Storm Water Permit application through the DNR's ePermitting system.

**Erosion Control Plan** - See Wis. Admin. Code § NR 216.46 for details regarding information required in the Erosion Control Plan as part of a complete permit application. Sections include:

- Site-specific plans.
- Compliance with construction performance standards in Wis. Admin. Code § NR 151.11.
- Details about the site and the project.
- List and schedule of construction activities.
- Site map(s) with site, project, and erosion and sediment control details.
- Description of temporary and permanent erosion and sediment controls.
- Compliance with material management, velocity dissipation, and inspection schedule requirements.

**Storm Water Management Plan** – See Wis. Admin. Code § NR 216.47 for details regarding information required in the Storm Water Management Plan as part of a complete permit application. Sections include:

- Compliance with applicable post-construction performance standards in Wis. Admin. Code § NR 151.121 through § NR 151.128.
- Description of permanent storm water management practices at the site and technical rationale.
- Groundwater and bedrock information if using permanent infiltration devices.
- Separation distances of permanent storm water management practices from wells.

- Long-term maintenance agreement for site vegetation and any other permanent storm water management features.

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