

Application for Commission Approved Use Permit

Submitted to Henry County Planning Commission

for the

Big Blue River Wind Farm

Fall Creek, Jefferson, Prairie, Henry, Harrison and Greensboro Townships
Henry County, Indiana

Prepared For:



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1.0 WECS PROJECT SUMMARY

Big Blue River Wind Farm, LLC (Applicant) is proposing to construct the Big Blue River Wind Farm (Project), a wind-powered electric generation facility in Henry County, Indiana. The Project is subject to review and approval by the Henry County Planning Commission (HCPC) under Henry County Code (Ordinance Number 2018-(03) 08-22), Title 5 – Utilities, Section 9.0 Zoning: Wind Energy Conversion Systems (Ordinance). The materials contained herein and attached hereto constitute the Applicant’s submittal for a Wind Energy Conversion System (WECS) Commission Approved Use (CAU) permit (WECS CAU Application). This WECS CAU Application has been prepared by the Applicant, with support from Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR). EDR has nearly 20 years of experience with siting, analyzing, and permitting wind-powered electric generating facilities.

The Project is located in Fall Creek, Jefferson, Prairie, Henry, Harrison, and Greensboro Townships, Henry County, Indiana. The proposed Project will include up to 38 turbines and associated necessary Project infrastructure (access roads, collection lines, performance towers, a substation, etc.) and provide up to 132 megawatts (MW) of renewable energy to the MISO Electric Power Market and the PJM regional transmission operating system. The Applicant has not yet determined the final turbine model(s) to be constructed and operated. Therefore, for the purposes of this WECS CAU Application, the Applicant is evaluating several different turbine models in order to provide the most conservative analysis for different resource area considerations. Table 1, below, provides a summary of the turbine models currently under consideration. The Applicant may consider similar or comparable turbine models at a future date should more efficient or suitable models become available.

Table 1: Potential WECS Turbine Selection for the Project

Turbine Manufacturer and Model	Turbine Capacity (MW)	Turbine Hub Height	Maximum Diameter of Rotors and Blades	Turbine Blade Length	Maximum Turbine Height
Siemens Gamesa (SG) 2.7-129	2.9 MW	87 meters (285 feet)	129 meters (423 feet)	63.5 meters (208 feet)	151.5 meters (497 feet)
General Electric (GE) Renewable Energy 2.5-127	2.8 MW	89 meters (292 feet)	127 meters (417 feet)	62.2 meters (204 feet)	152.5 meters (500 feet)
Acciona Windpower (AW) 132/3465	3.465 MW	84 meters (276 feet)	132 meters (433 feet)	64.7 meters (213 feet)	150 meters (492 feet)
Vestas (V) 120-2.2	2.2 MW	92 meters (302 feet)	120 meters (394 feet)	59 meters (194 feet)	152 meters (499 feet)
V 136-3.45	3.45 MW	82 meters (269 feet)	136 meters (446 feet)	66.7 meters (219 feet)	150 meters (492 feet)

1.1 APPLICANT, OWNER, AND OPERATOR INFORMATION

The current Applicant, Owner, and Operator information is provided below:

Name: Big Blue River Wind Farm, LLC
Contact: Mr. Derek Rieman
Address: 717 Texas Avenue, Suite 1000, Houston, TX 77002
Phone Number: (713) 332-5168

2.0 PARTICIPATING PROPERTY OWNERS AND ADJACENT PROPERTY OWNERS

The names and addresses of the anticipated participating property owners, property owners adjacent to any Project component (turbines, collection lines, substations, staging areas, etc.), and property owners next to adjacent parcels are included as Attachment A.

3.0 TOPOGRAPHIC MAP

Attachment B depicts the topographic map of the Project and the surrounding area, and encompasses an area within a 1-mile radius from the proposed Project with contours at 2-foot and 10-foot intervals.

4.0 SITE PLAN

The Site Plan is broken into six sheets, and the content of each sheet is described below. Please refer to Attachment C for the full Site Plan.

This Site Plan sets forth the proposed locations where Project components will be located within the Project site (all parcels containing Project components). The location of proposed Project components shown on the Site Plan is preliminary in nature and may change based on a variety of factors and Project specifications. The Applicant requests that, as an element of the WECS CAU Application approval process, flexibility be granted to relocate Project components within setback requirements as outlined in the Ordinance, or to utilize alternative locations upon completion of Project micro-siting. Any such project adjustments would be completed and submitted in the Improvement Location Permit filing.

Sheet 1: Project Layout

Sheet 1 of the Site Plan contains: the Project layout, Project site, and civil boundaries. The Project will not include guyed lines or anchor bases; therefore, they are not depicted on the Site Plan.

Sheet 2: Setbacks

Sheet 2 of the Site Plan contains: the Project layout, Project site, civil boundaries, property boundaries, primary structures, local roads, Federal and State highways, railroads, and overhead transmission lines.

Sheet 2 displays two anticipated setback areas required by the local zoning laws¹. Setbacks were calculated using the turbine model with the tallest tip height under consideration (GE 2.5-127) and are for planning purposes only. Once Applicant makes its final selection of a wind turbine model, the applicable setbacks required by the zoning laws will be based on the tip height for that selected model and Applicant will comply with those setbacks.

Sheet 3: Utilities, Public Institutions, and Recreational Resources

Sheet 3 of the Site Plan contains: the Project layout, Project site, civil boundaries, schools, Indiana Department of Natural Resources (IDNR) recreational facilities, railroads, existing overhead transmission lines, underground natural gas pipelines, parks, trails, campgrounds, golf courses, campgrounds, nursing homes, and hospitals. Data sources for Sheet 3 include Henry County GIS department, IDNR, Indiana Trails Inventory, Homeland Infrastructure Foundation-Level Data, and the National Pipeline Mapping System.

Sheet 4: Mapped Ecological Resources

Sheet 4 of the Site Plan contains: the Project layout, Project site, civil boundaries, County-regulated drainage tiles, and National Wetlands Inventory (NWI)-mapped wetlands.

Sheet 5: Delineated Ecological Resources

Sheet 5 of the Site Plan contains: the Project layout, Project site, civil boundaries, and delineated streams and wetlands, and approximated wetlands and streams.

Sheet 6: Historical Resources

Sheet 6 of the Site Plan contains: the Project layout, Project site, civil boundaries, cemeteries, historic bridges, Indiana Historic Sites and Structures Inventory (IHSSI) historic structures, National Register of Historic Places (NRHP)-listed sites, and NRHP-listed historic districts.

This Site Plan will also be distributed to the Office of Emergency Management, local fire departments and law enforcement agencies serving the site, the County Sheriff, and the Federal Aviation Administration (FAA).

5.0 TRAINING AGREEMENT (EMERGENCY SERVICES)

The Applicant agrees to provide, or cause to be provided, training to all Henry County emergency service agencies, including but not limited to, the Office of Emergency Management, additional law enforcement personnel as Henry County may designate, and emergency medical services and fire departments in both Henry County and such surrounding counties (Rush, Madison, Wayne, Randolph and Delaware Counties) who may wish to partake in such training. For additional information, please refer to Attachment D for the Training Agreement.

6.0 EVACUATION ZONE AND SAFETY PLAN

The Applicant has developed a Evacuation Zone and Safety Plan to provide direction for an emergency response during operation of the Project. The final Evacuation Zone and Safety Plan for Project operation will be developed in

¹ The Henry County Code requires three setback distances: 1.5x the sum of the WECS Tower Height (750 feet based on the largest turbine model under consideration for the Project [GE 2.5-127]) from any property line, dedicated roadway, railroad right-of-way (ROW), or overhead electrical transmission or distribution lines; 1,500 feet or 3x the WECS Tower Height (1,501 feet based on the largest turbine model under consideration for the Project) from primary buildings; 200 feet from an existing county-regulated drainage ditch or waterway; and 5x the sum of the WECS Tower Height (2,501 feet based on the largest turbine model under consideration for the Project [GE2.5-127]) from an incorporated municipality, and the property line of a public school, hospital or nursing home. Section 9.7(A)(5) of the Henry County Development Code allows for the lesser setback of 1.1x the sum of the WECS Tower Height (550.1 feet based on the largest turbine model under consideration for the Project [GE 2.5-127]) from property lines and primary structures if written consent from property owners are obtained.

coordination with local emergency services agencies. For additional information, please refer to Attachment E for the Evacuation Zone and Safety Plan.

7.0 SOUND EMISSIONS STUDY AND MAP

Burns & McDonnell conducted a noise assessment for the Project using three-dimensional noise modeling software, CadnaA. Projected noise levels from turbines were measured from 8 hertz (hz) to 8 kilohertz (kHz)² and modeled at nearby residences from 31.5 hz to 8 kHz and compared to County-level regulatory requirements.

The Ordinance provides that sound levels should be analyzed from 8 to 8,000 Hz for the WECS Project employing peer-reviewed methods. The sound level limit for WECS is an overall value of 43 in A-weighted decibels (dBA), and there are no sound level limits provided for specific octave bands in the ordinance. The American National Standards Institute (ANSI) has prescribed octave bands from 31.5 to 8,000 Hz, which are considered the industry standard for sound analysis and noise modeling.³ As such, the available predictive modeling software packages do not predict sound below the 31.5 Hz octave band. Because the vendor-provided sound data demonstrates dominant frequencies around 1,000 Hz, the octave band data for 31.5 to 8,000 Hz will be used to model the Project wind turbines and predict impacts at nearby residences. It should be noted that compliance noise measurements can be collected down to 6 Hz with typical equipment.

The noise assessment determined that the Project, with the inclusion of operational curtailment, will conform with the Ordinance requirements that state that at no point along the exterior of a Primary Building/Structure may the sound pressure attributable to a WECS exceed 43 dBA. For additional information, please refer to Attachment F for the Sound Emissions Study and Map.

8.0 SHADOW FLICKER ANALYSIS

Burns & McDonnell conducted a shadow flicker analysis for the Project using WindPRO, a widely accepted modeling software package developed specifically for the design and evaluation of wind power projects. The shadow flicker analysis determined that the Project, with the inclusion of operational curtailment, will conform with the Ordinance requirements that the Applicant shall limit modeled shadow flicker to no more than 30 hours per year at a residential dwelling of Non-Participating Property Owners using standard scientific engineering model assumptions. For additional information, please refer to Attachment G for the Shadow Flicker Analysis Report.

9.0 TRANSPORTATION PLAN AND ROAD USE AGREEMENT

The Applicant submitted a Transportation Plan and Agreement Regarding County Roads and Drains to the County for consideration and was approved on December 19, 2018. For additional information, please refer to Attachment H for the Transportation Plan and Road Use Agreement.

10.0 ARCHAEOLOGICAL RESOURCES AFFIDAVIT

The Applicant conducted a desktop review of recognized historic or heritage sites within 5 miles of the Project as noted by the Division of Historic Preservation and Archaeology of the IDNR. The locations of identified historic or heritage sites are depicted on Site Plan Sheet 6.

² 8 kHz is equivalent to 8,000 Hz.

³ ANSI/ASA S1.11-2004 (R2009): "Octave-Band and Fractional-Octave-Band Analog and Digital Filters"

In addition, the Applicant reviewed the IDNR State Historic Architectural and Archaeological Database (SHAARD) website (DNR, 2018) to determine the locations of any previously identified above-ground historic properties within 5 miles of the Project. Per the “Terms and Conditions” section of the SHAARD: Qualified Professional Archaeologist User’s Guide (Indiana Division of Historic Preservation and Archaeology, 2014), the locations of archaeological sites are confidential and may not be shared with the public. Due to these restrictions, the Applicant prepared an Archaeological Resources Affidavit describing the methodology employed to review these resources and, based on the current Project layout, determine that the proposed Project will have no impacts to any previously recorded archaeological sites. Based on EDR’s review of SHAARD, six previously recorded archaeological sites (HN-0054, HN-0098, HN-099, HN-0324, HN-0413, and HN-0414) occur in the vicinity of the Project (i.e., within or partially within the Project parcels). None of the six previously recorded archaeological resources in the vicinity of the Project will be impacted by Project-related construction. For additional information, please refer to Attachment I for the Archaeological Resources Affidavit.

11.0 INDEMNIFICATION AGREEMENT

The Applicant and County entered into an Indemnification Agreement on December 19, 2018. A copy of the Indemnification Agreement is included as Attachment J to this Application.

12.0 DECOMMISSIONING PLAN AND AGREEMENT

The Applicant and County entered into a Decommissioning Plan and Agreement on December 19, 2018. A copy of the Decommissioning Plan and Agreement is included as Attachment K to this Application.

13.0 FILING FEE

Please refer to Attachment L for proof of payment of the filing fee.

14.0 ESCROW AGREEMENT

For additional information, please refer to Attachment M for the Escrow Agreement.

15.0 MICROWAVE ANALYSIS

Comsearch completed a microwave beam path analysis for the proposed Project to analyze potential interference with microwave paths in the vicinity of the Project. Based on Comsearch’s analysis, no proposed turbine locations impact microwave beam paths in the vicinity of the Project. In addition, the National Telecommunications Information Administration (NTIA) stated that no agencies had issues with turbine placement in the area. For additional information, please refer to Attachment N for the Microwave Analysis Report and NTIA Concurrence Letter.

16.0 REFERENCES

Indiana Department of Natural Resources (DNR). 2018. Indiana State Historic Architectural and Archaeological Research Database. Available at: <https://www.in.gov/dnr/historic/4505.htm>. Accessed February 2019.

Indiana Division of Historic Preservation and Archaeology. 2014. *Indiana State Historic Architectural and Archaeological Research Database: Qualified Professional Archaeologist User's Guide*. Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, Indianapolis, IN.