

Staff Report of Investigation

Buckeye II Wind Farm

Case Number
12-0160-EL-BGN

October 10, 2012



John Kasich, Governor

Power Siting
Board

Todd Snitchler, Chairman

In the Matter of the Application by Champaign Wind)	
LLC for a Certificate of Environmental Compatibility)	Case Number
and Public Need for the Buckeye II Wind Farm)	12-0160-EL-BGN

Staff Report of Investigation

Submitted to the
OHIO POWER SITING BOARD

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BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

In the Matter of the Application by Champaign Wind)	Case Number
LLC for a Certificate of Environmental Compatibility)	12-0160-EL-BGN
and Public Need for the Buckeye II Wind Farm)	

Members of the Board:

Todd Snitchler, Chairman, PUCO
Christiane Schmenk, Director, ODSA
Dr. Ted Wymyslo, Director, ODH
David Daniels, Director, ODA
Scott Nally, Director, Ohio EPA
Jim Zehringer, Director, ODNR
Jeffery J. Lechak, PE, Public Member

Louis Blessing, Jr., State Representative
Sandra Williams, State Representative
Tom Sawyer, State Senator
Shannon Jones, State Senator

To the Honorable Power Siting Board:

In accordance with provisions of the Ohio Revised Code (ORC) Section 4906.07(C), and the Board's rules, the Staff has completed its investigation in the above matter and submits its findings and recommendations in this staff report for consideration by the Ohio Power Siting Board (Board).

The *Staff Report of Investigation* has been prepared by the Staff of the Public Utilities Commission of Ohio. The findings and recommendations contained in this report are the result of Staff coordination with the Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Development Services Agency, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture. In addition, the Staff coordinated with the Ohio Department of Transportation, the Ohio Historic Preservation Office, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Federal Aviation Administration.

In accordance with ORC Sections 4906.07 and 4906.12, copies of this staff report have been filed with the Docketing Division of the Public Utilities Commission of Ohio on behalf of the Ohio Power Siting Board staff and served upon the Applicant or its authorized representative, the parties of record, and the main public libraries of the political subdivisions in the project area.

The staff report presents the results of the Staff's investigation conducted in accordance with ORC Chapter 4906 and the rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,


Klaus Lambeck, Chief
Facilities, Siting, & Environmental Analysis Division

ACRONYMS

BES	bulk electric system
BMP	best management practices
dBA	decibels (A-weighted)
DOW	ODNR Division of Wildlife
DPL	Dayton Power & Light
FAA	Federal Aviation Administration
HDD	horizontal directional drill(ing)
kV	kilovolts
MW	megawatts
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OAC	Ohio Administrative Code
ODA	Ohio Department of Agriculture
ODSA	Ohio Development Services Agency
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
Ohio EPA	Ohio Environmental Protection Agency
OHPO	Ohio Historic Preservation Office
OPSB	Ohio Power Siting Board
ORC	Ohio Revised Code
PUCO	Public Utilities Commission of Ohio
SPCC	Spill Prevention, Containment, and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service

I. POWERS AND DUTIES

OHIO POWER SITING BOARD

The Ohio Power Siting Board (Board or OPSB) was created in 1972, by amended Substitute House Bill 694. The Board is a separate entity housed within the Public Utilities Commission of Ohio (PUCO). The authority of the Board is outlined in Ohio Revised Code (ORC) Chapter 4906.

The Board is authorized to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities as defined in ORC Section 4906.01. Included within this definition are: electric generating plants and associated facilities designed for, or capable of, operation at 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity greater than or equal to 125 kilovolts (kV); and gas and natural gas transmission lines and associated facilities designed for, or capable of, transporting gas or natural gas at pressures in excess of 125 pounds per square inch. In addition, per ORC Section 4906.20, the Board authority applies to economically significant wind farms, defined in ORC 4906.13(A) as wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of five MW or greater but less than 50 MW.

Membership of the Board is specified in ORC Section 4906.02(A). The voting members include: the Chairman of the PUCO who serves as Chairman of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health (ODH), the Ohio Development Services Agency (ODSA), the Ohio Department of Agriculture (ODA), and the Ohio Department of Natural Resources (ODNR); and a member of the public, specified as an engineer, appointed by the Governor from a list of three nominees provided by the Ohio Consumers' Counsel. Ex-officio Board members include two members (with alternates) from each house of the Ohio General Assembly.

NATURE OF INVESTIGATION

The OPSB has promulgated rules and regulations, found in Chapter 4906 of the Ohio Administrative Code (OAC), which establish application procedures for major utility facilities and wind farms.

Application Procedures

Any person that wishes to construct a major utility facility or economically significant wind farm in this state must first submit to the OPSB an application for a certificate of environmental compatibility and public need.¹ The application must include a description of the facility and its location, summary of environmental studies, a statement explaining the need for the facility and how it fits into the applicant's energy forecasts (for transmission projects), and any other information the OPSB may consider relevant.²

Within 60 days of receiving an application, the OPSB must determine whether the application is sufficiently complete to begin an investigation.³ If an application is considered complete, the Chairman of the OPSB will cause a public hearing to be held 60 to 90 days after the official

¹ ORC 4906.04 and 4906.20

² ORC 4906.10(A)(1) and 4906.20(B)(1)

³ OAC 4906-5-05(A)

filing date of the completed application. At the public hearing, any person may provide written or oral testimony and may be examined by the parties.⁴ Parties include the Applicant, the Board's staff, public officials, and any person who has been granted a motion of leave for intervention.⁵

Staff Investigation and Report

The Chairman will also cause each application to be investigated and a report published by the Board's staff not less than 15 days prior to the public hearing. The report sets forth the nature of the investigation and contains the findings and conditions recommended by Staff. The Board's Staff, which consists of career professionals drawn from the Staff of the PUCO and other member agencies of the OPSB, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation (ODOT), the Ohio Historical Society, and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted under guidance of the OPSB rules and regulations in OAC Chapter 4906. The recommended findings resulting from the Staff's investigation are described in the staff report pursuant to ORC Section 4906.07(C). The report does not represent the views or opinions of the OPSB and is only one piece of evidence that the Board may consider when making its decision. Once published, the report becomes a part of the record and is served upon all parties to the proceeding and is made available to any person upon request.⁶ A record of the public hearings and all evidence, including the staff report, may be examined by the public at anytime.⁷

Board Decision

The OPSB may approve, modify and approve, or deny an application for a certificate of environmental compatibility and public need. If the OPSB approves, or modifies and approves an application, it will issue a certificate subject to conditions. The certificate is also conditioned upon the facility being in compliance with standards and rules adopted under the ORC.⁸

Upon rendering its decision, the OPSB must issue an opinion stating its reasons for approving, modifying and approving, or denying an application for a certificate of environmental compatibility and public need.⁹ A copy of the OPSB's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding.¹⁰ Any party to the proceeding that believes its issues were not adequately addressed by the OPSB may submit within 30 days an application for rehearing.¹¹ An entry on rehearing will be issued by the OPSB within 30 days and may be appealed within 60 days to the Supreme Court of Ohio.¹²

⁴ ORC 4906.07

⁵ ORC 4906.08(A)

⁶ ORC 4906.07(C) and 4906.10

⁷ ORC 4906.09 and 4906.12

⁸ ORC 4906.10(A) and (B)

⁹ ORC 4906.11

¹⁰ ORC 4906.10(C)

¹¹ ORC 4903.10 and 4906.12

¹² ORC 4903.11, 4903.12, and 4906.12

CRITERIA

The recommendations and conditions in this *Staff Report of Investigation* were developed pursuant to the criteria set forth in ORC Section 4906.10(A), which reads, in part:

The Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines all of the following:

- (1) The basis of the need for the facility if the facility is an electric transmission line or gas or natural gas transmission line;
- (2) The nature of the probable environmental impact;
- (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations;
- (4) In the case of an electric transmission line or generation facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability;
- (5) That the facility will comply with Chapters 3704., 3734., and 6111. of the Revised Code and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under Section 4561.32 of the Revised Code, the Board shall consult with the ODOT Office of Aviation of the Division of Multi-Modal Planning and Programs of the Department of Transportation under Section 4561.341 of the Revised Code.
- (6) That the facility will serve the public interest, convenience, and necessity;
- (7) In addition to the provisions contained in divisions (A)(1) through (A)(6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929. of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternate site.
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the Board, considering available technology and the nature and economics of the various alternatives.

II. APPLICATION

APPLICANT

Champaign Wind LLC (Applicant) is seeking authority to construct a wind-powered electric generating facility, or wind farm, in Champaign County, Ohio. The wind farm, including all leases and facility assets, would be owned and operated by the Applicant. The interconnection switching station would be transferred to Dayton Power & Light (DPL) following construction and the existing Urbana-Mechanicsburg-Darby 138 kV circuit will be retained by DPL. Champaign Wind LLC is a wholly-owned subsidiary of Everpower Wind Holdings, Inc (Everpower). Everpower is a New York-based developer, established in 2002, that focuses on the development of utility-grade wind projects.

To date, Everpower has over 2,200 MW of wind power projects under development in seven states. The company's 62.5 MW Highland project, located in Pennsylvania, became operational in August 2009. In November 2009, Everpower was purchased by Terra Firma, a private equity firm, and is poised to continue the growth of their wind portfolio.

HISTORY OF THE APPLICATION

Prior to formally submitting its application, the Applicant consulted with the Staff and representatives of the Board, including the Ohio EPA, regarding application procedures.

On January 16, 2012, the Applicant filed a pre-application notification letter regarding the project. On January 24, 2012, the Applicant held a public informational meeting at Triad High School in North Lewisburg, Ohio.

On May 9, 2012 and May 15, 2012, the Applicant filed a Motion for Waivers under OAC 4906-1-03. On May 15, 2012, the Applicant filed a Motion for Protective Order under OAC 4906-7-01(B)(8)(c).

On May 15, 2012, the Applicant filed its application for a certificate to construct the proposed wind-powered electric generating facility in Champaign County, Ohio.

On June 8, 2012, the UNU made a motion to intervene in the case.

On June 8, 2012, the Ohio Farm Bureau Federation made a motion to intervene in the case.

On July 13, 2012, the Board Chairman issued a letter to the Applicant stating that the application, as supplemented with subsequent filings, had been found to comply with the requirements of Chapter 4906-01, et seq., OAC.

On August 2, 2012, the Administrative Law Judge filed an Entry pertaining to the motions to intervene, the Applicant's waiver and protective order requests, and establishing a procedural schedule.

On August 2, 2012, the Administrative Law Judge issued an Entry scheduling a local public hearing for this case to take place on Thursday, October 25, 2012 at 6:00 p.m., at the Triad High School Auditoria, 8099 Brush Lake Road, North Lewisburg, Ohio. The adjudicatory hearing will commence on Thursday, November 8, 2012, at 10:00 a.m., 11th floor, Hearing Room 11-C, at the offices of the Public Utilities Commission of Ohio, 180 East Broad Street, Columbus, Ohio, 43215-3793.

On August 16, 2012, the Board of County Commissioners of Champaign County, Ohio, made motions to intervene in the case.

On August 16, 2012, the Board of Trustees of Urbana Township, Champaign County, Ohio, made motions to intervene in the case.

On August 16, 2012, the Board of Trustees of Union Township, Champaign County, Ohio, made motions to intervene in the case.

On August 20, 2012, the Board of Trustees of Goshen Township, Champaign County, Ohio, made motions to intervene in the case.

On September 17, 2012, Pioneer Rural Electric Cooperative, Inc., made motions to intervene in the case.

On September 27, 2012, the City of Urbana, Champaign County, Ohio, made motion to intervene in the case.

This summary of the history of the application does not include every filing in case number 12-0160-EL-BGNGN. The docketing record for this case, which lists all documents filed to date, can be found in the Appendix to this report and online at <http://dis.puc.state.oh.us>.

PROJECT DESCRIPTION

Project Area

The Applicant proposes to construct the Buckeye II Wind Farm with up to 56 wind turbines and 140 MW of capacity. The project is adjacent to the Buckeye Wind Farm that was issued a Certificate in case number 08-0666-EL-BGN on March 22, 2010. The project area covers approximately 13,500 acres of leased private land in Goshen, Rush, Salem, Union, Urbana, and Wayne townships in Champaign County. The project area and proposed facilities are shown on the maps in this report.

Wind Turbines

The Applicant has designed the project to accommodate six possible turbine models depending on availability and cost at the time of ordering. The proposed turbine models are the REpower MM92 (2.05 MW), REpower MM100 (1.815 MW), Nordex N100 (2.5 MW), Gamesa G97 (2.0 MW), GE 1.6-100 (1.6 MW), and GE 2.5-103 (2.5 MW). In a letter dated September 28, 2012, the Applicant stated that it has decided not to consider the Vestas V100 turbine for the Buckeye II Wind project. This decision was made by the Applicant based on a pending final resolution of an ongoing investigation of a Vestas V100 blade failure incident at the Timber Road II Wind Farm. Based on this letter, Staff has discontinued its investigation of this wind turbine model at this time. If the Applicant were to reconsider the Vestas V100 model, in the future, then it would need to seek an amendment due to the change in technology.

The structures would consist of a three-bladed horizontal axis turbine and nacelle on top of a white monopole tubular steel tower. The total height varies by turbine model, ranging from 476 feet (146 meters) to 492 feet (150 meters). The hub height is between 312 feet (95 meters) and 328 feet (100 meters). The maximum rotor diameter is 338 feet (103 meters). The Applicant expects that annual energy production for the Buckeye II Wind Farm would range from 235,000 to 429,900 MWh.

Turbine Foundations and Assembly

The Applicant would prepare a wind turbine assembly area by grading and removing vegetation within a 200-foot radius, or less, around each turbine location. The Applicant would adjust the turbine assembly area in order to avoid impacts to environmentally sensitive resources. The foundation construction process would generally proceed from hole excavation, outer form setting, rebar and bolt cage assembly, pouring and setting of the concrete, backfilling and compacting, through to site restoration.

Test borings for the site-specific geotechnical investigation will be performed during the final design stage. Final turbine foundation design would be chosen upon the results of the full site-specific geotechnical investigation. The Applicant is considering two types of foundations, including the spread footing foundation and rock anchored pile-supported foundation. These are commonly used foundation designs for wind turbines and are reasonable to use at the Buckeye II Wind Farm. Electric Collection System

A 34.5 kV electric collection system would be installed to transfer the power from each wind turbine to a collector substation, where it would be connected to DPL's Urbana-Mechanicsburg-Darby 138 kV electric transmission line. The 34.5 kV collection system would consist of 42 miles of underground cable buried at a depth of three feet, and about 5.5 miles of overhead collection lines.

Electric Substation and Transmission Line

The collector substation facility would be located near the intersection of State Route 56 and Pisgah Road. The substation would be designed to step-up the voltage from the 34.5 kV electric collection system to 138 kV. The substation would be enclosed by chain link fence and would contain a main step-up transformer, control house, and interconnection switchgear. The substation area would be just less than six acres.

O&M Building

A 6,000-square foot Operations and Maintenance building (O&M) would house operations personnel, provide parking, and store equipment and materials. The Applicant expects to make use of an existing structure, but it is possible that a new building would be constructed. If a new building is constructed, it would require a permanent land disturbance of less than two acres and would be aesthetically comparable to agricultural buildings in the area.

Permanent Meteorological Towers

The Applicant may install up to four permanent meteorological towers to monitor wind resources during operation of the wind farm. The potential sites for the permanent meteorological towers are in Figure 05-4 of the Application.¹³

Access Roads

Up to 25 miles of new or improved access roads would be needed to support the facility. The access roads would be up to 55 feet wide during construction. After construction, most access roads would be reduced to a width of 20 feet.

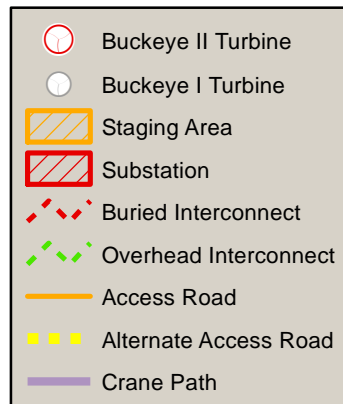
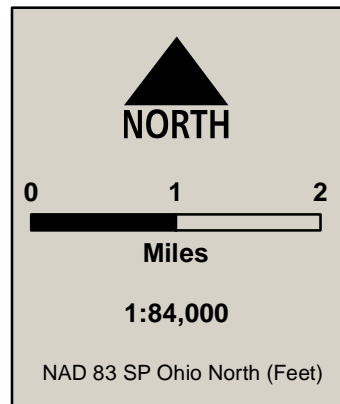
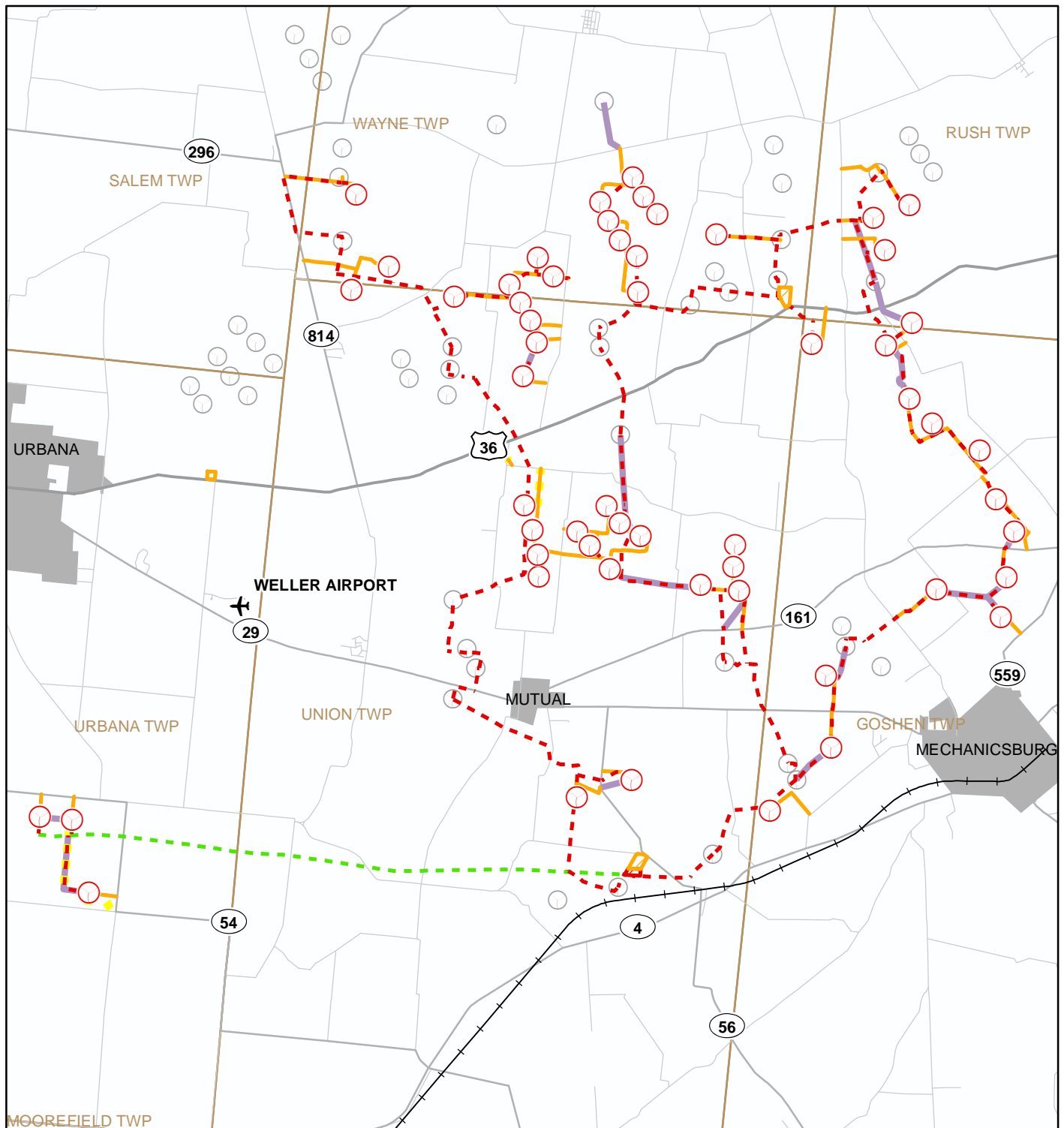
Construction Laydown Areas

Wind farm developers generally intend to deliver materials directly to each turbine construction site, to the extent practicable. However, the Applicant also plans to use up to three construction laydown areas for construction staging. These laydown yards would accommodate equipment and material storage, construction trailers, and construction worker parking. The potential sites for the temporary laydown areas are on Figure 05-4 of the Application.

¹³ edr Companies. May 2012. *Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility & Public Need for the Buckeye II Wind Farm* (Application), Volume 1.

PROJECT MAP

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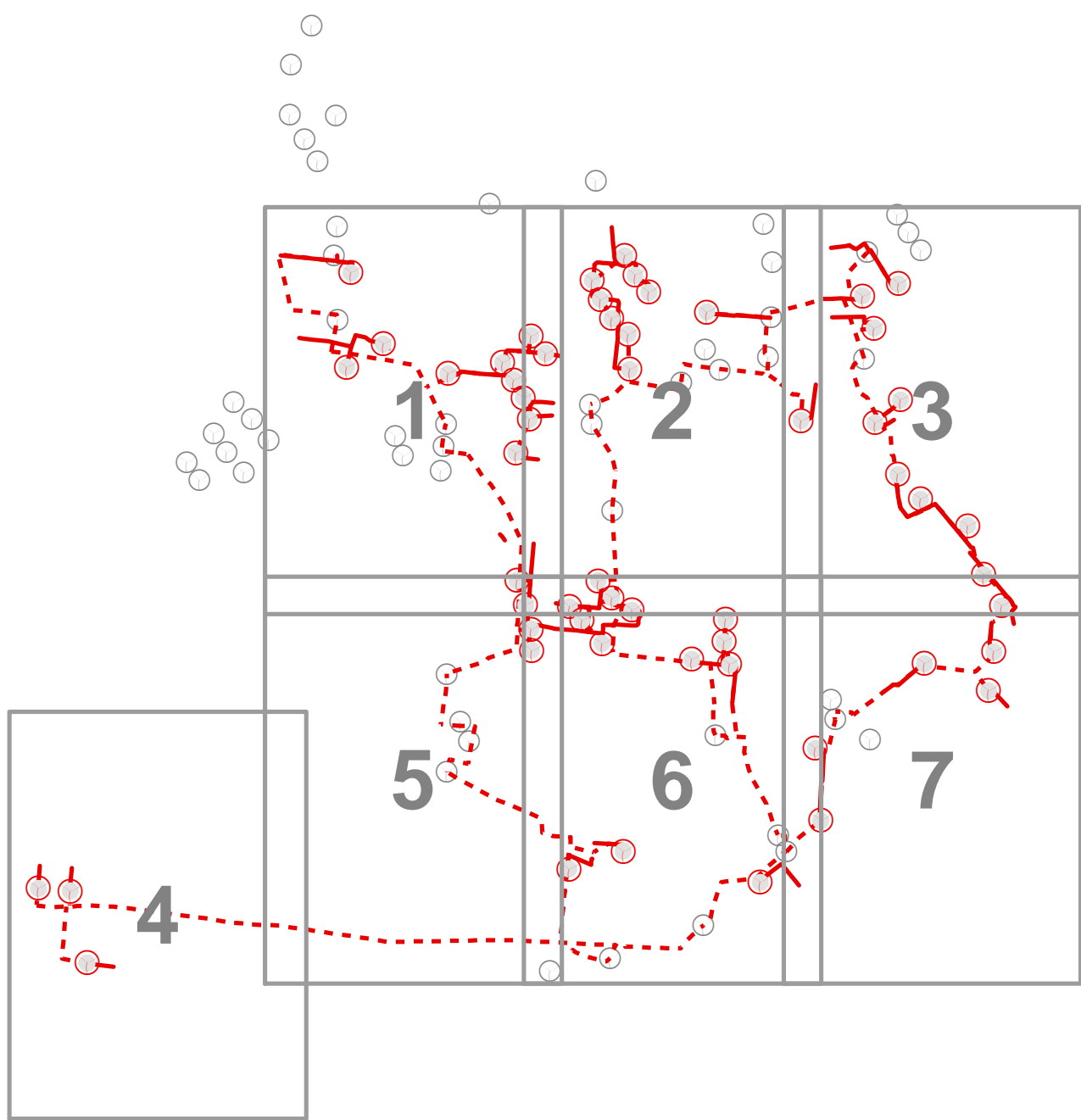
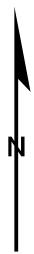


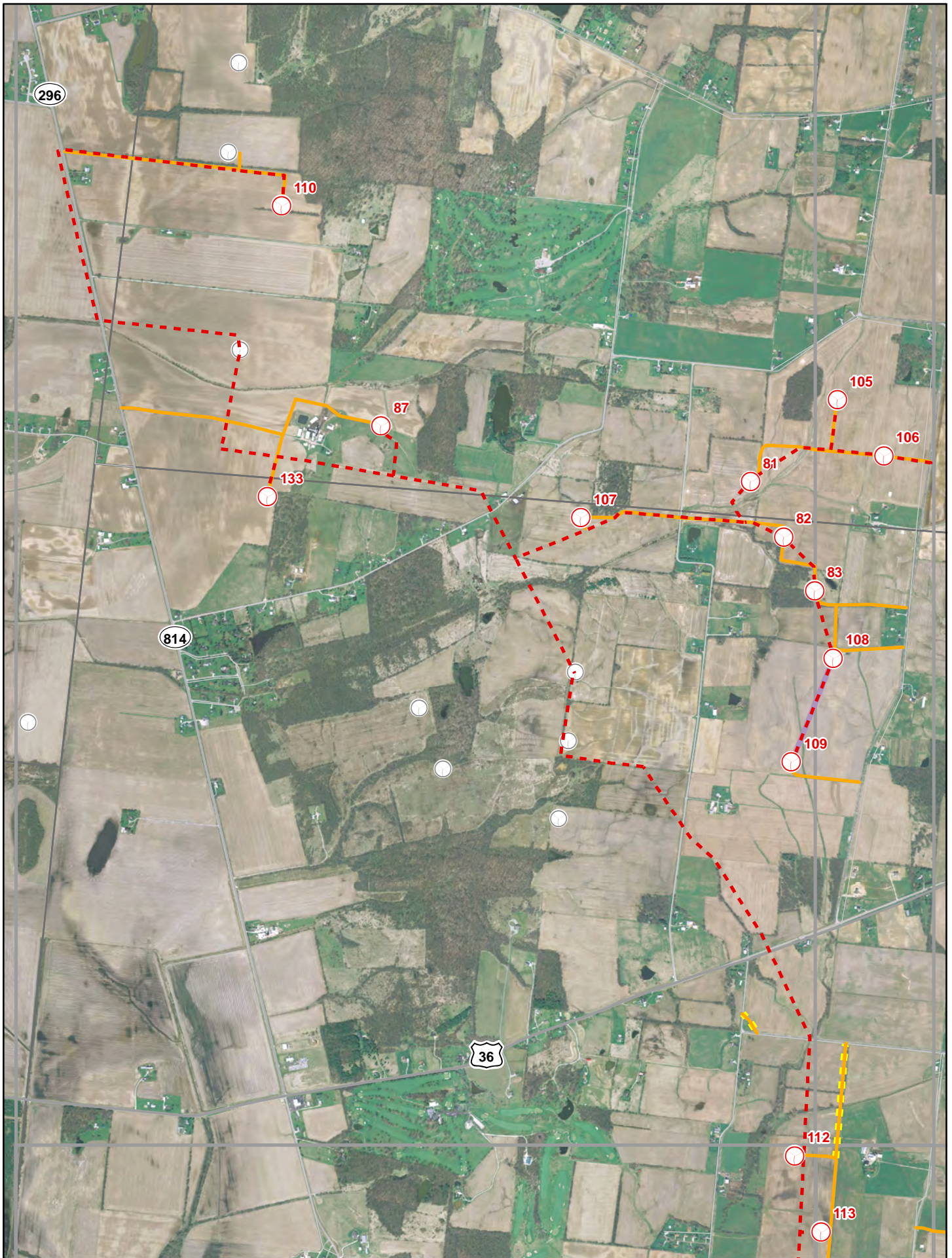
Overview Map

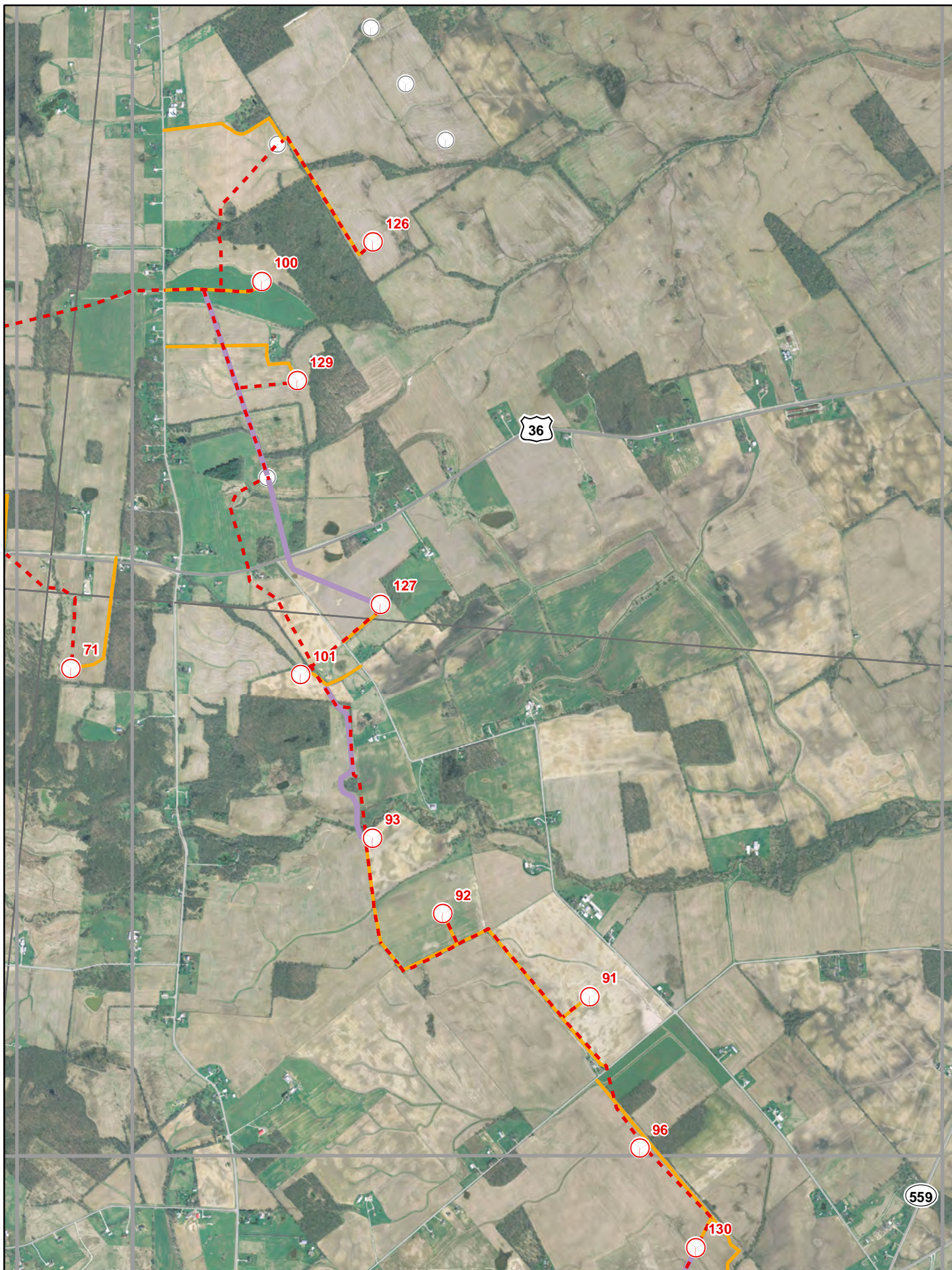
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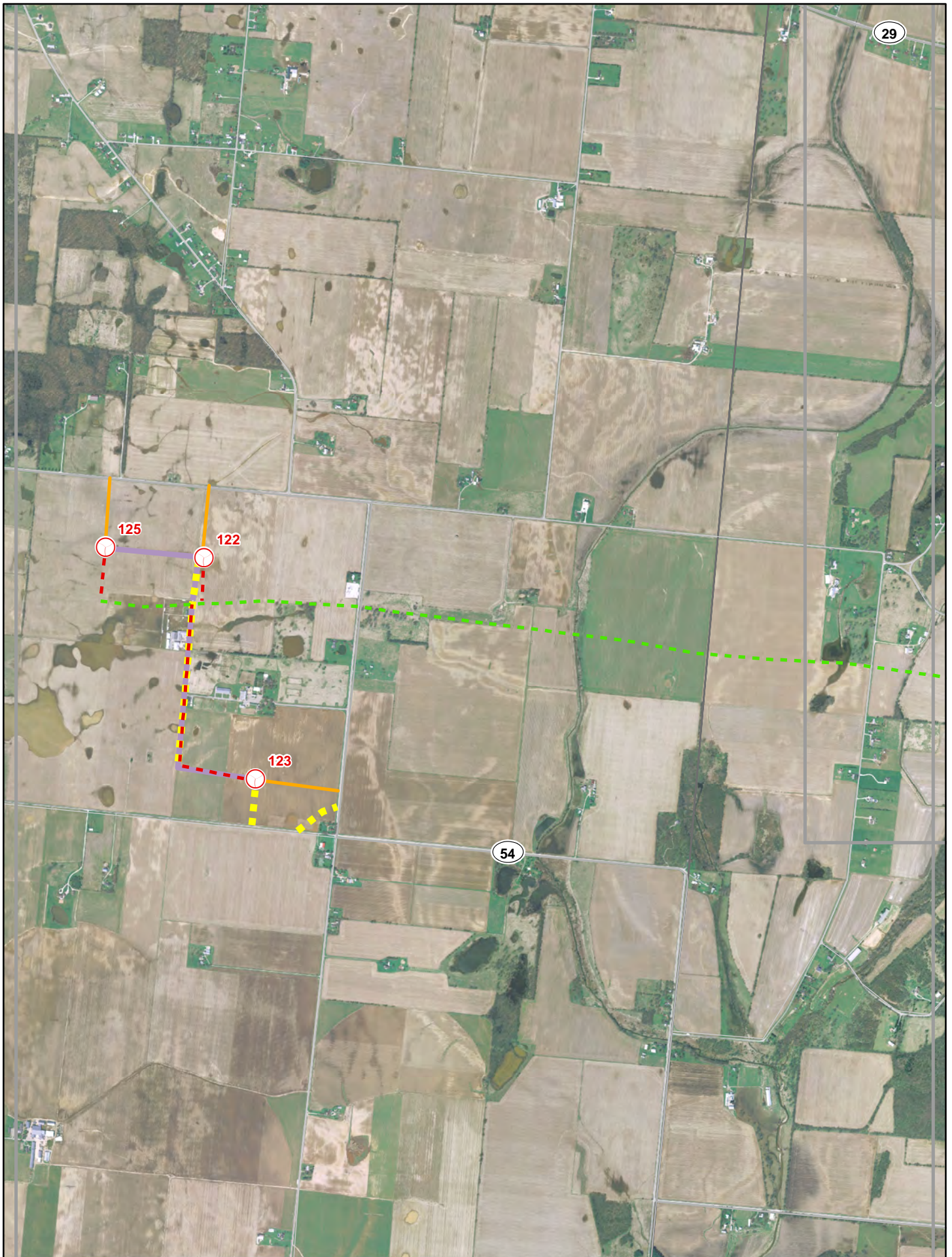
Buckeye II Wind Farm

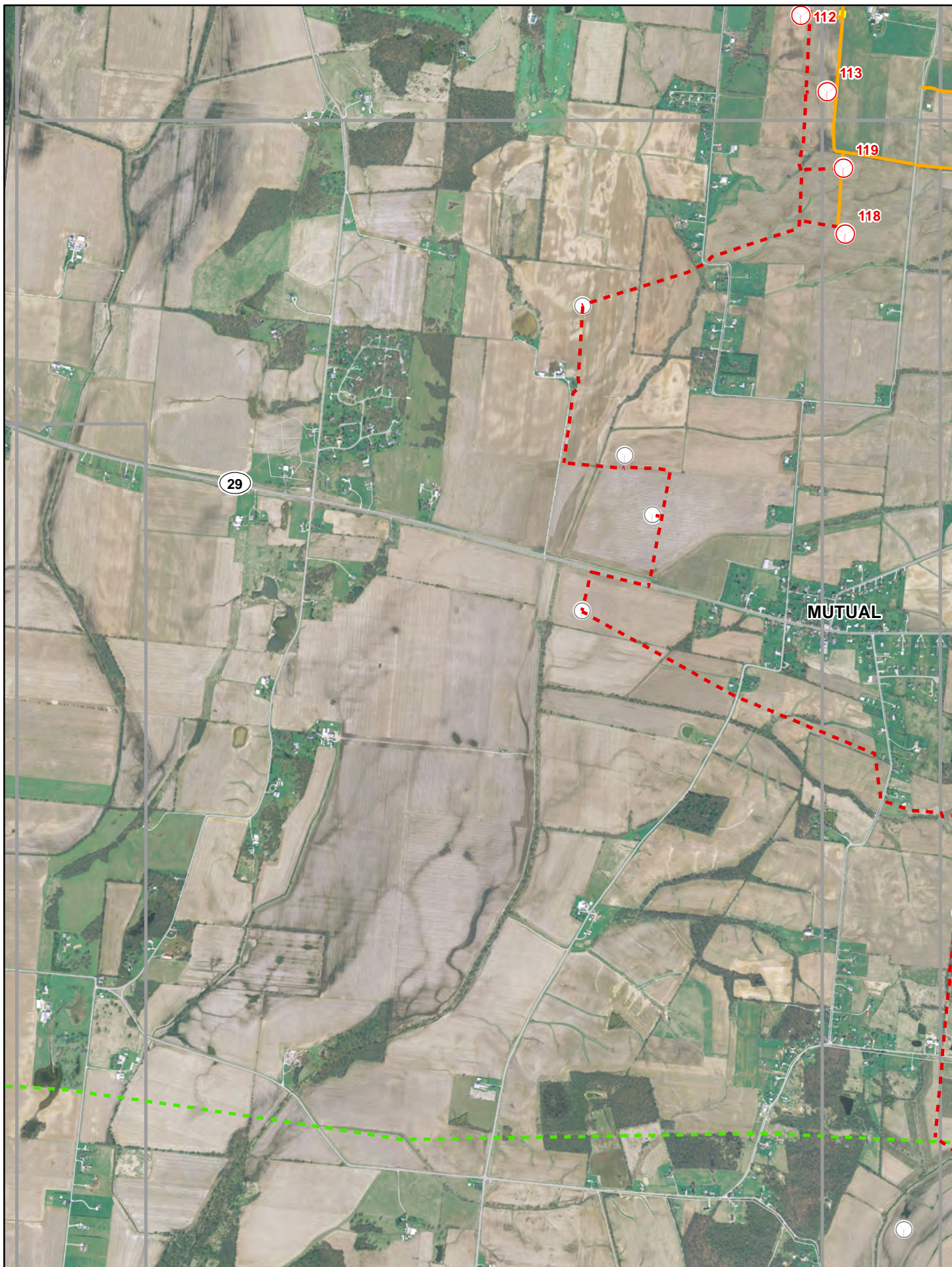
Maps are presented solely for the purpose of providing a visual representation of the project in the staff report, and are not intended to modify the project as presented by the Applicant in its certified application and supplemental materials.

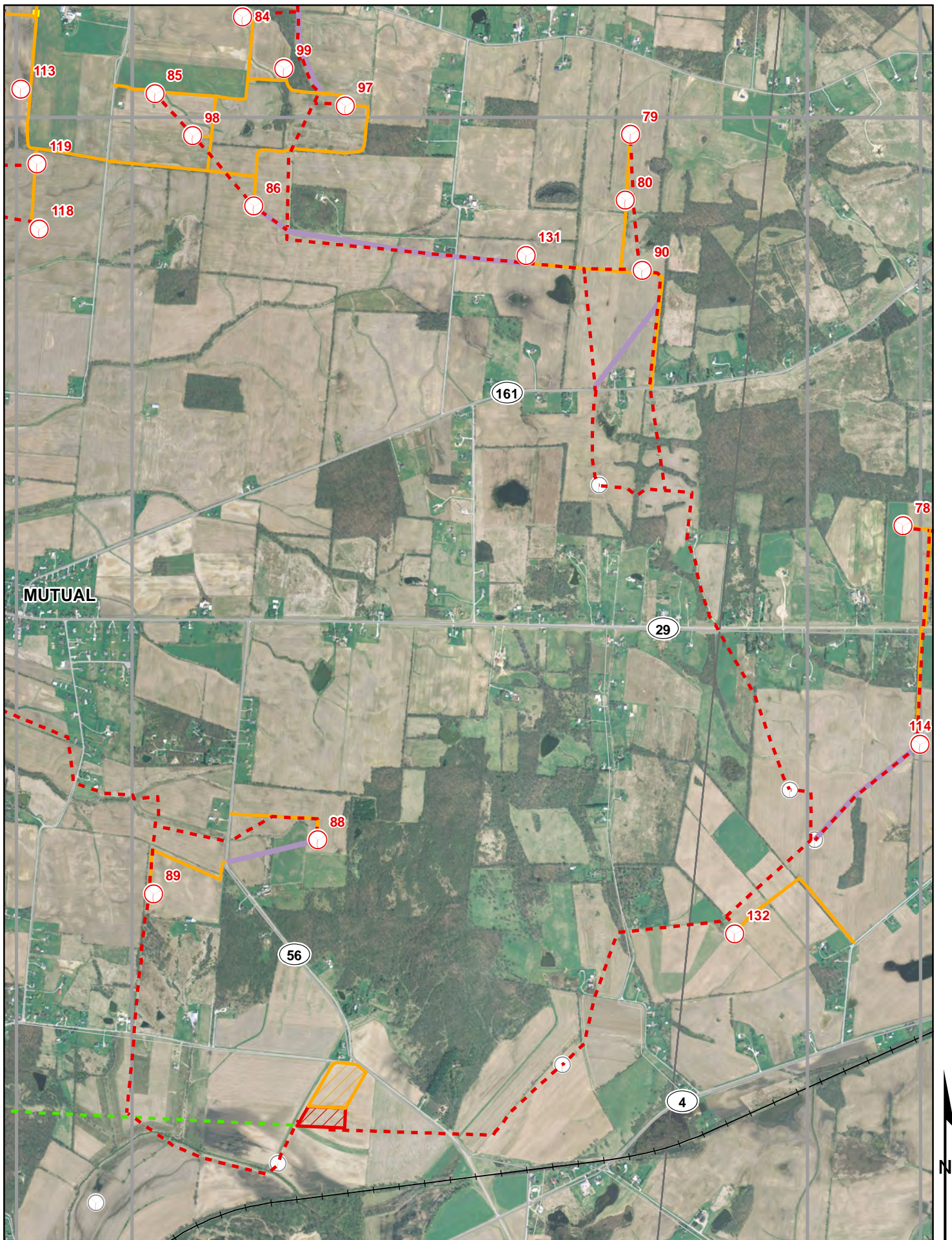














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III. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the matter of the application of Champaign Wind LLC, the following considerations and recommended findings are submitted pursuant to ORC Section 4906.07(C) and ORC Section 4906.10(A).

Considerations for ORC Section 4906.10(A)(1)

BASIS OF NEED

The basis of need as specified under ORC Section 4906.10(A)(1) is not applicable to this electric generating facility project.

Recommended Findings

Staff recommends that the Board find that 4906.10(A)(1) is not applicable to this electric generating facility project.

Considerations for ORC Section 4906.10(A)(2)

NATURE OF PROBABLE ENVIRONMENTAL IMPACT

Pursuant to ORC Section 4906.10(A)(2), the Board must determine the nature of the probable environmental impact of the proposed facility. Staff has found the following with regard to the nature of the probable environmental impact:

Socioeconomic Impacts

Demographics

The demographics of the project area are not expected to change significantly over the next 20 years. The 2012 estimated population density of Champaign County is 93 persons per square mile, compared to 282 persons per square mile statewide. The population of Champaign County is projected to increase by 11.3 percent over the next 20 years, while the population of townships within five miles of the project area is projected to increase by a total of 3.9 percent. The total population of the 14 townships within five miles is estimated to be 61,042 persons for 2012. The project is unlikely to limit future population growth or have a significant impact on the demographics of the region.

Land Use

Agriculture is the predominant land use within the project area, which consists primarily of croplands, farmsteads, meadows, and scattered woodlots. Agricultural land accounts for approximately 97 percent of all land that would be impacted by construction of the proposed facility. Construction of wind turbines, access roads, substations, and other ancillary structures would temporarily disturb approximately three percent (392.6 acres) of land within the project area, while less than one percent (68.1 acres) of this land would be permanently converted into built facilities.

Construction-related activities could lead to temporary reductions in farm productivity by directly damaging crops, compacting soil, breaking drainage tiles, and reducing available space for planting. However, the Applicant is committed to minimizing impacts to agricultural land by siting facility components along field edges, keeping agricultural tracts intact, and restoring temporarily-impacted farmland to its original condition. Furthermore, the Applicant intends to repair or replace all damaged subsurface drainage features, remove construction debris, and compensate farmers for lost crops. After construction, only the agricultural land associated with turbines and access roads would be removed from farm production.

With the exception of one abandoned building that is slated for demolition, the Applicant does not anticipate the removal or relocation of any existing structures during construction of the proposed facility. Operation of the facility would not interfere with surrounding agricultural uses.

Residents in the project area are likely to experience temporary noise and traffic impacts associated with project construction activities. Long-term operational impacts to residents are discussed later in this report.

Four recreational areas are within one mile of the project area: Woodland Golf Club, Urbana Country Club, Indian Springs Golf Club, and Goshen Memorial Park. Woodland Golf Club is a public, 18-hole golf course located on Swisher Road to the northwest of the project area. The nearest turbine location is approximately 0.3 miles (1,584 feet) from the course boundary. Urbana Country Club is located along U.S. Highway 36 just east of Urbana, to the west of the project area. The club consists of an 18-hole golf course, swimming pool, tennis courts, golf

shop, restaurant, and club house. The nearest wind turbine location is 0.5 miles (2,640 feet) from the edge of the course. Indian Springs Golf Club is a public, 18-hole golf course located along State Route 161 just north of Mechanicsburg, to the east of the project area. The closest turbine location to the club is 0.7 miles (3,696 feet). Goshen Memorial Park is located to the southeast of the project area within Mechanicsburg, along Parkview Road. Park amenities include baseball fields, tennis courts, a horseshoe pit, playground, picnic area, multipurpose building, and natural amphitheater. The nearest turbine location is 0.8 miles (4,224 feet) from the park.

Wind turbines would be visible from multiple vantage points at all recreational areas. While visual impacts would be reduced to varying degrees by topographical and vegetative screening, the size of the turbines limits the extent to which they can be obscured from view.¹⁴ Recreational areas may also be impacted by shadow flicker and wind farm noise, which are discussed later in this report. The wind farm would not alter the land use of any recreational land.

Regional land use plans call for conservation of farmland and economic diversity. The development of a wind farm in the region is consistent with those goals. Demand for temporary housing and retail services would increase during construction of the wind farm, but the project would not have a long-term impact on housing or commercial demand.¹⁵

Cultural and Archaeological Resources

The Applicant conducted a literature review for the area within a five-mile radius of the project. There are 32 historic properties listed in the National Register of Historic Places (NRHP), four historic districts, and no National Historic Landmarks located within the study area. The historic districts are located in the cities of Urbana and Mechanicsburg and not within the Area of Potential Effect.¹⁶ There are two individual properties within the project area determined eligible for listing in the NRHP. Within the five-mile study area, 791 previously-identified historic structures are recorded in the Ohio Historic Inventory. The Applicant asserts that each of the identified sites was considered and all facility components have been sited to avoid them. Additionally, the Applicant determined that the indirect visual impact from the project would not alter or affect the qualities or attributes that contribute to the historical or architectural significance of each identified landmark or NRHP-listed and NRHP-eligible structure.

In addition to the literature review, the Applicant conducted an architectural survey of the area. The survey includes 1,475 individual properties in rural areas and crossroad communities, as well as 44 blocks of Mechanicsburg and 283 blocks of Urbana. Based on the survey, the Applicant asserts that the agricultural heritage of the survey area is what makes the historic landscape unique, and that the historic farmsteads and farmhouses, one-room schoolhouses, churches, cemeteries, and crossroad communities are character-defining property types that contribute to the area's historic landscape. The Applicant concludes that the number and size of proposed turbines could affect the perception of the traditional rural historic landscape.

Avoiding or minimizing these types of impacts for wind generation projects is not practical in most cases. Therefore, Staff recommends a requirement for the Applicant to develop a mitigation plan that would promote the continued meaningfulness of the survey area's rural history, as outlined in the Recommended Conditions of Certificate.

¹⁴ Application, Volume 1, p. 151.

¹⁵ Application, Volume 1, pp. 142-144.

¹⁶ Area of Potential Effect refers to the geographic area or areas within which an undertaking may directly, or indirectly, cause changes in the character or use of historic properties, if any are present.

Of the 260 archaeological sites recorded in the Ohio Archaeological Inventory within the five-mile study area, five are within or adjacent to the lands leased for the project. There are 55 cemeteries in the Ohio Genealogical Society database within five miles of the project area, none of which are located on the lands leased by the Applicant for the project. No known archaeological sites or cemeteries would be disturbed as a result of the project.

In addition to the literature and database review, and the Phase I review conducted for the Buckeye I facility, the Applicant would conduct a targeted Phase I archaeological reconnaissance survey to analyze potential impacts to previously-undocumented archaeological resources within five miles of the project area. The targeted review would cover the area in the proposed project that was not covered in the Phase I review for the Buckeye I facility. Staff recommends a requirement for the Applicant to develop a cultural resources avoidance plan, as outlined in the Recommended Conditions of Certificate.

Aesthetics

The Applicant conducted a visual impact assessment of the area within five miles of the project. The assessment included cumulative impacts if both Buckeye I and Buckeye II are constructed. Turbines would be visible throughout most of the study area. In some areas, turbines would be at least partially screened by buildings and vegetation.

The visual impact varies depending on the distance between the viewer and the turbines, the number of turbines visible, the amount of screening, atmospheric conditions, and the presence of other vertical elements such as utility poles and communication towers. Visual impact also varies greatly for each viewer and depends on the value of the existing landscape to the viewer and personal attitudes toward wind power.¹⁷

Economics

The proposed facility would have an overall positive impact on the local economy because of the increase in construction spending, wages, purchasing of goods and services, annual lease payments to the local landowners, and local tax revenues.

During construction, approximately 598 full-time jobs would be created in the local economy, generating \$25.3 million in wages and salaries. The construction work force would employ 86 workers of the 598 total jobs over a 12-month period with a payroll of \$4.9 million. Another 391 jobs of the 598 total would be generated by indirect impacts from inter-industry activity, and the remaining 121 jobs would fall into induced impacts, which result from changes in local household spending in the community.

The operations and maintenance of the facility would generate a total work force of 38 new full-time jobs in the local economy, totaling \$1.8 million in wages and salaries. Once operational, seven full-time positions consisting of an operations manager, operations and maintenance technicians, parts/logistics personnel, and customer service representatives would be required. Another 15 jobs would be generated by indirect impacts and the remaining 16 positions of the total 38 would be created by induced impacts resulting from changes in household spending.

The proposed facility would have a significant impact on the local tax base, including local school districts and other taxing districts that service the area. The increase in local tax revenues would be between \$840,000 and \$1,260,000 annually.

¹⁷ edr Companies. March 2012. *Visual Impact Assessment, Buckeye II Wind Project*. Application, Volume 3, Exhibit Q, p. 27.

Any delays associated with the permitting stage, construction phase, or failing to meet federal deadlines for incentives could incur additional costs to the project. The Applicant submitted estimated capital and intangible costs, operational costs, and maintenance costs of the facility under seal.

All OPSB Staff recommendations for the requirements discussed in this section can be found under the **Socioeconomic Conditions** heading of the Recommended Conditions of Certificate.

Ecological Impacts

Surface Waters

The Applicant indicated that 38 streams are within 100 feet of buried collection lines, access roads, and/or crane paths. Of the 38 streams, the Ohio EPA has designated three as Warmwater Habitat, five as Exceptional Warmwater Habitat (EWH), and six as Coldwater Habitat (CWH). The remaining 27 streams were surveyed by the Applicant's consultant and were provisionally scored as lower-quality ephemeral and intermittent streams. Three of the provisionally scored streams were reported as having a perennial flow regime.

Project facilities would cross 31 streams. Based on responses to interrogatories dated September 26, 2012, the Applicant has committed to avoiding in-water work in any EWH or CWH streams. To avoid in-water work at these streams, the Applicant would install buried collection lines by horizontal directional drilling (HDD). The Application states that any buried collection lines crossing perennial streams would also be installed by HDD.

Access roads and crane paths would cross CWH and EWH streams by way of arched bridge structures or other methods that avoid work below the ordinary high water mark. There would be potential for in-water work for crossings of lower-quality ephemeral or intermittent streams, including open trenching for installation of buried collection lines. However, to minimize impacts, this work would be done when these streams segments are dry. Additional measures to reduce water quality impacts would be taken through the development of a Stormwater Pollution and Prevention Plan (SWPPP) to help control potential sedimentation, siltation, and run-off.

No wetlands, ponds, or lakes would be impacted by this project during construction or operation. Through information obtained from the ODNR and the Federal Emergency Management Authority, the Applicant has determined that flooding would be unlikely to impact the proposed turbine locations. Other than turbine 93, which is approximately 145 feet from the 100-year floodplain of Treacle Creek, no other turbines come within 1,000 feet of any 100-year floodplains.

Threatened and Endangered Species

The Applicant requested information from the ODNR and the USFWS regarding state- and federally-listed threatened and endangered plant and animal species. Additional information was provided through field assessments and review of published ecological information. The following table reflects the results of the information requests, field assessments, and document review.

BIRDS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
upland sandpiper	<i>Bartramia longicauga</i>	N/A	Threatened	Suitable habitat, not found during survey

peregrine falcon	<i>Falco peregrinus</i>	N/A	Threatened	Suitable habitat, found during survey
loggerhead shrike	<i>Lanius ludovicianus</i>	N/A	Endangered	Suitable habitat, not found during survey
bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA & MBTA ¹⁸	N/A	Migrating eagles seen, no established nests
golden eagle	<i>Aquila chrysaetos</i>	BGEPA & MBTA	N/A	Migrating eagles seen, no established nests
sandhill crane	<i>Grus canadensis</i>	N/A	Endangered	Observed during 2008 breeding bird surveys
Northern harrier	<i>Circus cyaneus</i>	N/A	Endangered	Observed during 2008 breeding bird surveys and 2007/ 2008 raptor surveys
boblink	<i>Dolichonyx oryzivorus</i>	N/A	Species of Concern	Observed during 2007/ 2008 raptor surveys
sharp-shinned hawk	<i>Accipiter striatus</i>	N/A	Species of Concern	Observed during 2007/ 2008 raptor surveys

REPTILES & AMPHIBIANS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Eastern massasauga rattlesnake	<i>Sistrurus catenatus</i>	Candidate	Endangered	Suitable habitat, survey needs to be completed

MAMMALS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	Suitable habitat, found during survey
big brown bat	<i>Eptesicus fuscus</i>	N/A	Species of Concern	Suitable habitat, found during survey
tri-colored bat	<i>Pipistrellus subflavus</i>	N/A	Species of Concern	Suitable habitat, found during survey
Northern long-eared bat	<i>Myotis septentrionalis</i>	N/A	Species of Concern	Suitable habitat, found during survey
little brown bat	<i>Myotis lucifugus</i>	N/A	Species of Concern	Suitable habitat, found during survey
red bat	<i>Lasiurus borealis</i>	N/A	Species of Concern	Suitable habitat, found during survey
hoary bat	<i>Lasiurus cinereus</i>	N/A	Species of Concern	Suitable habitat, found during survey
big-eared bat	<i>Corynorhinus rafinesquii</i>	N/A	Species of Concern	Suitable habitat, not found during survey
silver-haired bat	<i>Lasionycteris noctivagans</i>	N/A	Species of Concern	Suitable habitat, not found during survey
Eastern small-footed bat	<i>Myotis leibii</i>	N/A	Species of Concern	Suitable habitat, not found during survey
evening bat	<i>Nycticeius humeralis</i>	N/A	Species of Concern	Suitable habitat, not found during survey

¹⁸ bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act

badger	<i>Taxidea taxus</i>	N/A	Species of Concern	Suitable habitat, not found during survey
PLANTS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
rock serviceberry	<i>Amelanchier sanguinea</i>	N/A	Endangered	Suitable habitat, not found during survey
prairie thimbleweed	<i>Anemone cylindrica</i>	N/A	Threatened	Suitable habitat, not found during survey
southern hairy rock cress	<i>Arabis hirsuta</i> var. <i>adpressipilis</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey
prairie false indigo	<i>Baptisia lactea</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey
sparse-lobed grape fem	<i>Botrychium biternatum</i>	N/A	Threatened	Suitable habitat, not found during survey
limestone savory	<i>Calamintha arkansana</i>	N/A	Threatened	Suitable habitat, not found during survey
Bicknell's sedge	<i>Carex bicknellii</i>	N/A	Threatened	Suitable habitat, not found during survey
reflexed sedge	<i>Carex retroflexa</i>	N/A	Threatened	Suitable habitat, not found during survey
timid sedge	<i>Carex timida</i>	N/A	Endangered	Suitable habitat, not found during survey
tall larkspur	<i>Delphinium exaltatum</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey
hairy tick-trefoil	<i>Desmodium glabellum</i>	N/A	Endangered	Suitable habitat, not found during survey
bearded wheat grass	<i>Elymus trachycaulus</i>	N/A	Threatened	Suitable habitat, not found during survey
yellowish gentian	<i>Gentiana alba</i>	N/A	Threatened	Suitable habitat, not found during survey
ashy sunflower	<i>Helianthus mollis</i>	N/A	Threatened	Suitable habitat, not found during survey
butternut	<i>Juglans cinerea</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey
wild pea	<i>Lathyrus venosus</i>	N/A	Endangered	Suitable habitat, not found during survey
three-flowered melic	<i>Melica nitens</i>	N/A	Threatened	Suitable habitat, not found during survey
false garlic	<i>Nothoscordum bivalve</i>	N/A	Threatened	Suitable habitat, not found during survey
smooth rose	<i>Rosa blanda</i>	N/A	Endangered	Suitable habitat, not found during survey
prairie wedge grass	<i>Sphenopholis obtusata</i> var. <i>obtusata</i>	N/A	Threatened	Suitable habitat, not found during survey
lesser ladies'-tresses	<i>Spiranthes ovalis</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey
arbor vitae	<i>Thuja occidentalis</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey

hairy wingstem	<i>Verbesina helianthoides</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey
pigeon grape	<i>Vitis cinerea</i>	N/A	Potentially Threatened	Suitable habitat, not found during survey

FRESH WATER MUSSELS

Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
rayed bean	<i>Villosa fabalis</i>	Endangered	Endangered	Suitable habitat present
snuffbox	<i>Epioblasma triquetra</i>	Proposed Endangered	Endangered	Unlikely – Lack of suitable habitat, known range
clubshell	<i>Pleurobema clava</i>	Endangered	Endangered	Unlikely – Lack of suitable habitat, known range
rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	Candidate	Endangered	Unlikely – Lack of suitable habitat, known range

In 2007 to 2008, the Applicant coordinated this proposed project with the ODNR and USFWS prior to the development of ODNR's standardized wildlife monitoring protocols (On-shore Bird and Bat Pre and Post-Construction Monitoring Protocols for Commercial Wind Energy Facilities in Ohio, 2009). The initial survey did not detect the presence of any federally-listed species but did detect the presence of many state-listed species. However, a separate survey at an area in proximity to the project resulted in the capture of an Indiana bat, a state- and federally-endangered species. As a result, the Applicant coordinated an additional survey with the DOW and the USFWS, which also resulted in the capture of the Indiana bat.

Based on these coordinated efforts, the Applicant concluded that construction, operation, maintenance, and decommissioning of the project may result in incidental take of Indiana bats. As a precaution to avoid violation of the federal Endangered Species Act (ESA), the Applicant has applied for an Incidental Take Permit (ITP) through the USFWS. A prerequisite to the issuance of an ITP is the development of a Habitat Conservation Plan (HCP), which was developed by the Applicant. The HCP is a comprehensive plan for ecological preservation and considers all aspects of the Indiana bat's habitat, including surface water quality, vegetation, and other ecosystem components and also includes measures to minimize impacts and ensure long-term conservation of the endangered species.

Additionally, the USFWS has prepared a draft EIS in response to the Applicant's ITP application in accordance with the requirements of the National Environmental Policy Act (NEPA). In June 2012, the Applicant and the USFWS released a draft of the HCP and EIS, which were open to public review and comment through September 27, 2012. Comments will be addressed or incorporated into the final HCP and EIS, which are expected to be completed after this staff report is published. If approved, the ITP would be for a 30-year period and would authorize incidental take consistent with the Applicant's HCP and the ITP. To issue the ITP, the Service must find that the Buckeye Wind application for an ITP, including its HCP, satisfies the criteria of section 10(a)(1)(B) of the ESA and the USFWS's implementing regulations at 50 CFR parts 13 and 17.22. If the ITP is issued, the Applicant would receive assurances under the USFWS's No Surprise policy, as codified at 50 CFR 17.22(b)(5). OPSB Staff has reviewed the draft HCP and EIS, and finds the conservation measures and conditions within both documents with regards to protection of federally-listed species in the project area to be consistent with Staff's investigation and conclusions.

Bat mortalities have increased at wind facilities across the nation, with the greatest numbers found in the Midwest, Appalachian Mountains, and Northeast. Three species, the eastern red bat, hoary bat, and silver-haired bat, comprise the vast majority of species found at post-construction mortality searches. All three of these species, and others, were detected at the proposed project. Because these species generally fly higher than tree height, mist-netting does not provide a good assessment tool, but rather the acoustic monitoring provides indices of the bat activity levels. Results from these surveys indicate high activity level (23.9 calls per detector night) when compared to other preconstruction surveys within Ohio and across the nation. Swarming surveys and an evaluation of karst areas in proximity to the site also indicate additional bat activity near the project area. Mist-netting surveys were also performed within the project area. Approximately 298 bats were caught, representing seven bat species. These species included the state- and federally-endangered Indiana bat, and six state species of concern, including the little brown, northern myotis, big brown, tri-colored bat, hoary bat, and red bats. Reproductive status was confirmed by the capture of reproductive females for all seven species.

The primary threat to the Indiana bat would be during operation of the facility due to the risk of collision and barotrauma from coming in proximity to an operational wind turbine. As a tree-roosting species during the non-winter months, the Indiana bat could be negatively impacted by tree clearing associated with construction and maintenance of the project. These concerns are addressed through seasonal tree cutting dates (November 1st to March 31st) that the Applicant has committed to in their HCP.

Additionally, the DOW recommends that the Applicant conduct post-construction avian and bat monitoring in accordance with an ODNR-approved, standardized protocol during the first two years of operation. The DOW specifically requests that the Applicant include a sample of turbines that would be searched daily, following ODNR-approved protocols. Dependent upon the results from the first full year of monitoring, the DOW may revise their second-year monitoring recommendations to focus monitoring on the specific needs at this facility, noting that the state of Ohio does not have a take permit as suggested in the application.

The DOW requires that any consultant hired to perform any post-construction wildlife monitoring must possess the appropriate federal and state permits prior to conducting any monitoring. Additionally, the ODNR and OPSB Staff recommend that the Applicant enter into a Cooperative Agreement with the ODNR or obtain any suggested permit from ODNR to avoid liability for the impacts that Buckeye II wind turbines may have on wildlife species.

Breeding bird surveys were conducted in 2008 within the project area. Approximately 6,000 individuals of 97 species were observed. The state-endangered Northern harrier (*Circus cyaneus*), and 16 bobolinks (*Dolichonyx oryzivorus*), a state species of concern, were also observed. Raptor surveys were conducted in 2007 and 2008. In the 2007 survey, 421 raptors of eight different species were observed. In the 2008 survey, 1,476 raptors of 12 different species were observed. In 2007, the raptor passage rate was 6.4 birds per hour, and in 2008, it was 6.8 birds per hour. These rates are above the average passage rates found in other preconstruction surveys for wind projects in Ohio.

Raptors observed include the state-endangered Northern harrier, the state-threatened peregrine falcon, and the sharp-shinned hawk, a state species of concern. It was noted that many of the raptors were likely residents of the project area. Additionally, it is concerning to ODNR that many of the observations of these birds were within the rotor-swept areas. In the event that the facility causes a mortality of a state-endangered species, the DOW would recommend that the

company work with the DOW to develop and implement an effective avoidance, minimization, and mitigation strategy.

There are no known occurrences of the Eastern massasauga rattlesnake within the project area. However, a 20-acre wetland in the project area exhibits suitable habitat. The Applicant would avoid this area to eliminate impact to this potential habitat. The USFWS is concerned that there may still be a risk to this species during construction and recommends that a presence/absence survey be conducted at the site. The survey would be conducted by an USFWS- and ODNR-approved herpetologist. If Eastern massasaugas are not detected, then no further avoidance and minimization measures would be required. If the Eastern massasauga is detected, or if a survey is not conducted, then presence of this species would be assumed and the Applicant would need to implement USFWS- and ODNR-approved avoidance and minimization measures.

Vegetation

The Applicant states approximately 97 percent of the land that would be impacted is agricultural land. The other 3 percent includes 12.7 acres of forested land, with permanent loss of 2.9 acres, and 1.7 acres of scrub shrub habitat, with permanent loss of 0.4 acres. No significant impacts are expected to any specific plant species as a result of this project. The proposed layout shows a collection line running to turbine 84 that would impact more of the adjacent woodlot than necessary. The Applicant has indicated that it is working with the landowner to reroute the line in order to minimize impacts.

All OPSB Staff recommendations for the requirements discussed in this section can be found under the **Ecological Conditions** of the Recommended Conditions of Certificate.

Public Services, Facilities, and Safety

Setbacks

ORC Section 4906.20(B)(2) delineates how minimum setbacks for “economically significant wind farms” are to be determined. The Board incorporated these minimum setback requirements in rule (OAC Section 4906-17-08(C)(1)(c)), and indicated that such minimum setbacks would be applied to all wind projects under its jurisdiction.

The minimum distance from a turbine’s base to the property line of the wind farm facility must be at least 1.1 times the total height of the turbine as measured from its base to the tip of the blade at its highest point. Assuming a maximum turbine height of 492 feet as proposed in the application, this minimum property line setback equates to a distance of 541 feet.

The minimum distance from a wind turbine to the exterior of the nearest habitable residential structure located on an adjacent property at the time of the certification application must be no less than 750 feet in horizontal distance from the tip of the turbine’s blade at 90 degrees to the structure. Using maximum blade lengths assumed in the application (169 feet), this minimum setback calculates to 919 feet from the turbine base to the exterior of the nearest habitable residential structure.

Turbine 129 is located 613 feet to the southeast of a residential structure. However, this residence has been abandoned and is no longer habitable. According to the Applicant, it is scheduled to be demolished. Therefore, all turbine locations meet the minimum setback requirements.

Roads and Bridges

During the construction period, local, state, and county roads would experience a temporary increase in truck traffic due to deliveries of equipment and materials. The delivery of components is planned to enter the project area through State Routes 4, 29, and 161. A final routing plan will be developed through discussions with the Champaign County Engineer and performed in conjunction with the special hauling permit process for ODOT. The Applicant does not expect operation of the wind farm to noticeably increase traffic or impact other local services in the project area.

The Applicant indicates the delivery of wind farm equipment and material would impact local roads. Although the township and county roads appear to be in good condition, local, county, and state thoroughfares along regional delivery routes could be damaged by construction and material delivery equipment.

The Applicant expects some modifications to local roads would be needed, including the expansion of intersection turns to accommodate specialized turbine component delivery vehicles and conventional construction trucks. These modifications would incorporate the previous work for the Buckeye Wind Project as well as subsurface drilling and test borings to determine engineering design and construction methods.

Temporary turn-outs as well as reinforcement to bridges and/or culverts would be completed prior to the movement of heavy equipment. Gravel access roads would be constructed as needed prior to the delivery of heavy equipment. Once deliveries are completed, temporary roads and gravel accesses would be removed and the disturbed areas would be restored to previous condition unless the property owner or County Engineer has requested that certain roads remain in place.

The Applicant notes that, because of the overlap between the Buckeye II Wind Farm and adjacent Buckeye Wind Project, the Applicant will build upon previous work to create an evaluation of the impacts to roads and bridges for the Buckeye II Wind Farm. Additional areas for study and possible improvements include vertical clearance of utility lines and poles, poor pavement conditions, insufficient cover over drainage structures, and inadequate bridge capacity. Staff recommends that the Applicant be required to make all necessary improvements to roads used for the project, to repair all damage to roads, and to enter into a Road Use Agreement with the County Engineer, as detailed in the Recommended Conditions of Certificate.

Geology and Seismology

Karst areas are present in Champaign County. The Applicant has identified at least 25 known karst areas, with the majority of these located west of the project site in Salem Township and north of the project site in northern Wayne Township. In addition, the ODNR documented and visited 10 of the 14 potential karst features in a study area whose footprint stretched beyond the project area. Two of these potential karst features can be found within one mile of proposed wind turbine sites.

The purpose of this survey was to determine if the features had any openings that could be used by hibernating bats. The ODNR identified only one of the 14 features as being a “documented karst.” This particular karst feature is miles outside of the project area for both the Buckeye I & II Wind Farms. No openings were discovered within the project area. None of the known geologic features would prohibit the future development and operation of the project. The

Applicant will perform site-specific subsurface drilling at each wind turbine location to confirm that no karst features exist.

The Applicant has conducted a thorough review of the documented geological structure and seismic information for the project area. To date, no seismic activity has occurred within the project area. The closest recorded seismic activity occurred along the deep structural fault zone known as the “Bellefontaine Outlier Faults.” This fault zone is situated within the granitic basement rock and is located north of the project area. However, part of this fault zone extends south into the general vicinity of the project area. In 1843, in south central Champaign County, a tremor of 3.5 magnitude was recorded. The area of greatest seismic activity is centered in neighboring Auglaize and Shelby counties to the west of the project area.

The Applicant has reviewed the United States Department of Agriculture, Soil Conservation Service, Soil Survey for Champaign County, Ohio. Surface soils in the project area are comprised mostly of Celina, Fox, Miami, and Miamian silt loams and are derived from glacial till. These soils are all well drained and have a moderate to high capacity to transmit water. According to the soil survey, there are no limitations to the use of these soil types for building construction purposes within the project area. The soils within the project area are suitable for grading, backfilling, compaction, and drainage for each wind turbine location. Furthermore, prior to construction of the wind turbines, the Applicant will conduct subsurface drilling to provide site-specific information when the final selection of ground and road boring locations are made.

Public and Private Water Supplies

The project area lies outside of the water service area of the City of Urbana. Information gathered from the Ohio EPA, ODNR, and the Champaign County Department of Health indicates that there are hundreds of private wells within the project area.

Staff has concluded that private water wells near wind turbine locations have not been fully assessed for potential impacts resulting from construction. The design for the wind turbine foundation will be determined once the Applicant conducts subsurface drilling at wind turbine locations. The final design for the wind turbines will take into account the proximity to private water wells and depth to the water table. Construction and operation of the facility should not disrupt or adversely impact public or private water supplies.

The project area also has a number of areas designated as Source Water Protection Areas (SWPAs), as defined and approved by the Ohio EPA for the protection of drinking water sources. The Ohio EPA and the Department of Commerce, Bureau of Underground Storage Regulations have adopted regulations that restrict specific activities within these designated areas. Restricted activities include concentrated animal feeding operations, sanitary, industrial, or residual waste landfills, land application of biosolids, and voluntary brownfield cleanups. The closest SWPA to the project area is the public water supply wells located in Mechanicsburg. The Applicant has concluded that the proposed wind turbine facility will not have any effect on the groundwater or surface water protected by the SWPA.

Pipeline Protection

At this time, Staff has not found any gas pipelines within the project area. If gas pipelines are found in the project area prior to construction, Staff recommends that any turbines within the setback distance are relocated. Staff recommends a minimum setback distance from gas pipelines of at least 1.1 times the total height of the turbine structure as measured from its tower's base (excluding the subsurface foundation) to the tip of its highest blade.

Blade Shear

Blade shear is the phenomenon where a rotating wind turbine blade, or segment, separates from the nacelle and is thrown a distance from the tower. The Applicant asserts that past incidences of blade shear have generally been the results of human error. Staff has also found that past incidences can be attributed to design defects during manufacturing, poor maintenance, control system malfunction, or lightning strikes. All turbine models under consideration for this project are certified to international engineering standards. The turbines have the following safety features to address blade shear: two independent braking systems, a pitch control system, a lightning protection system, turbine shut down at excessive wind speeds and at excess blade vibration or stress, and the use of setbacks. The Applicant has incorporated a wind turbine layout with a minimum residential setback distance of approximately 1,000 feet, and a property line setback of 541 feet. Installing and utilizing these safety control mechanisms minimizes the potential for blade shear impacts.

High Winds

The turbines are designed to withstand high wind speeds. All turbines under consideration for the facility are designed to meet the standards of the International Electrotechnical Commission-61400 series. Of the proposed turbine models, the GE100, GE103, and Gamesa G97 represent the lowest tolerance for wind extremes. However, these turbines are designed to withstand at least an extreme 10-minute average wind speed of 84 mph, and 50-year return gust of 117 mph. The wind turbines proposed for the facility are rated to withstand wind speeds well in excess of those likely to occur in the project area. The Applicant has incorporated a wind turbine layout with a minimum residential setback of approximately 1,000 feet, and a property setback of 541 feet. Installing and utilizing the safety control mechanisms mentioned in the blade shear section would minimize the potential impacts from high winds.

Ice Throw

Ice throw is the phenomenon where accumulated ice on the wind turbine blades separates from the blade and falls or is thrown from the blade. The Applicant indicates that all turbines would have the following safety features to address ice throw: two independent braking systems, ice detection software, automatic turbine shut down at excessive vibration, and automatic turbine shut down at excessive wind speeds.

GE Energy is the manufacturer of a turbine model under consideration by the Applicant. This manufacturer has developed specific safety standards for ice throw and blade shear for all of their turbine models and has recommended the use of an ice detector and other measures if people or objects (e.g., occupied structures, roads) are within a distance of 150 percent of the sum of the hub height and rotor diameter. This recommendation is derived from an independent study¹⁹ supported by the German Wind Energy Institute (GWEI). GWEI is a UL (Underwriters Laboratory) international consulting company that provides research, wind energy measurements, wind turbine certifications, measuring methods, and testing services. The independent study performed by GWEI, and referenced above, recommended an empirical formula of 150 percent of the sum of the hub height and rotor diameter, in planning the location of wind turbines to address ice throw concerns. Based on this formula, it has been determined that turbines of the similar dimensions as the GE models would need to be located a distance of approximately 302 meters (991 feet) from any occupied structure or heavily travelled road.

¹⁹ Seifert, Westerhellweg, and Kroning. (2003). *Risk analysis of ice throw from wind turbines*. DEWI.

Staff's evaluation of the turbine locations, utilizing this study, determined that turbines 87 and 91 would need to be relocated or resized to meet this minimum setback distance.

Staff recommends that public access be restricted with appropriately-placed warning signs, that the Applicant instruct workers of potential hazards of ice conditions, and that the Applicant install ice detection software for the site and an ice detector/sensor alarm that triggers an automatic shutdown. Staff also recommends that the Applicant relocate and/or resize proposed turbines 87 and 91 to conform to a setback distance of 150 percent of the sum of the hub height and rotor diameter from roads and structures. Adhering to these safety measures would sufficiently address the issue of ice throw.

Construction Noise

Various activities associated with construction of the facility will have noticeable, but temporary, noise impacts. Noise impacts primarily would be associated with the operation of construction and delivery equipment, such as dozers, excavators, pumps, cranes, and trucks. The Applicant provided estimates of sound levels associated with operation of this construction equipment. Although not anticipated, the Applicant also indicated that pile driving and dynamiting activities may be necessary. Many of the construction activities would generate significant noise levels. However, the adverse impact of construction noise would be minimal because construction activities are temporary and intermittent, construction activities would primarily occur away from most residential structures, and most construction activities would be limited to normal daytime working hours

Operational Noise

Ohio statute does not provide standards for permissible noise impacts associated with wind turbine projects. A 2001 New York State Department of Environmental Conservation (NYSDEC) document²⁰ states that "in non-industrial settings the noise level should probably not exceed ambient noise by more than 6 dBA at the receptor. An increase of 6 dBA may cause complaints. There may be occasions where an increase in noise levels of greater than 6 dBA might be acceptable." The NYSDEC recommends that, while it may be acceptable in some non-industrial settings, an increase in ambient noise levels of greater than 6 dBA warrants further study of potential impacts. A threshold of 5 dBA over average nighttime ambient noise levels (L_{EQ})²¹ has been applied in recent wind farm certificates in Ohio.

The noise impact of the proposed wind farm is related to the existing ambient noise level of the project area. In order to characterize the existing ambient noise level, an acoustic survey of the project area was conducted by Hessler Associates, on behalf of the Applicant, between November 3 and 18, 2011. Ten survey locations were sampled. Based on this study, Hessler found that average ambient noise levels (L_{EQ}) across the Buckeye II project area ranged from 41 to 52 dBA during the day and from 35 to 45 dBA at night. The data provided by the Applicant equates to an average project area daytime L_{EQ} of 45 dBA and an average project area nighttime L_{EQ} of 39 dBA.

In order to determine the ambient noise level at which wind turbine noise would likely be most noticeable, Hessler compared turbine-generated noise levels and average ambient nighttime noise levels at various wind speeds. The results of this analysis showed that the greatest

²⁰ NYSDEC. (February 2, 2001). *Assessing and Mitigating Noise Impacts*. Albany, New York. Retrieved from the NYSDEC Web site: http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf, p. 14.

²¹ L_{EQ} refers to the equivalent continuous sound level, or average sound level, over a specific period of time.

differential between turbine-generated noise and average ambient nighttime noise was at a wind speed of 6 meters/second. The average ambient nighttime noise level at this wind speed was found to be the same as the average nighttime L_{EQ} , 39 dBA. In order to estimate the potential noise impact associated with the proposed facility, Hessler modeled the facility noise output using DataKustic GmbH's Cadna/A[®] noise modeling software. The Applicant used an operational sound output design goal of 44 dBA at all non-participating receptors. This design goal equates to the addition of 5 dBA to the average nighttime L_{EQ} for the project area, which is consistent with precedent from recent wind farm certificates. The sound profile of the Nordex N100 was used to model noise because it had the highest sound power level of the potential turbines.

Based on initial model output, when operating at full power mode, 16 of the turbines (72, 75, 81-83, 86, 91, 95, 105-108, 114, 117, 130, and 131) were predicted to exceed the 44 dBA modeling threshold at non-participating receptors. However, the Nordex N100 has four lower-noise operating modes. By using the sound profiles of the lower-noise operating modes for these 16 turbines, the model showed that all non-participating receptors would be exposed to noise levels less than 44 dBA when the 16 Nordex N100 turbines are operating at the lowest-noise operating mode. Among the other potential turbine models, the RePower and GE turbines have similar lower-noise operating modes. The Gamesa model does not have lower-noise operating modes, but has a lower sound power level in normal operating mode.

The Applicant also conducted an evaluation of cumulative noise impacts due to the operation of all of the Buckeye I and Buckeye II turbines. The Applicant's analysis showed that, even with cumulative noise impacts considered, no non-participating receptors would experience sound levels of greater than 44 dBA when the 16 Buckeye II turbines are operating at the lowest noise operating mode.

Based on Staff's review, the Applicant's proposed turbine layout, with turbines 72, 75, 81-83, 86, 91, 95, 105-108, 114, 117, 130, and 131 operating at the lowest-noise operating mode, is not likely to generate unacceptable levels of noise for non-participating residents. Staff is aware that this representation is based on model results, and actual sound output levels could be different when the wind farm is in operation. Therefore, Staff recommends that the certificate be conditioned upon the requirement that the Applicant adhere to the 44 dBA modeled noise impact limitation as presented in its application except when, during daytime operation, the Applicant can demonstrate that slightly higher noise levels do not exceed validly measured L_{EQ} at the receptor by more than 5 dBA. This requirement will apply also to any cumulative noise impact associated with both Buckeye I and Buckeye II. Additionally, Staff recommends that the Applicant have a complaint resolution process through which complaints related to facility noise can be resolved.

Shadow Flicker

Ohio statute does not provide standards for frequency or duration of shadow flicker from wind turbine projects. However, international studies and guidelines from Germany and Australia have suggested 30 hours of shadow flicker per year as the threshold of significant impact, or the point at which shadow flicker is commonly perceived as an annoyance. This 30-hour standard is used in at least four other states, including Michigan, New York, Minnesota, and New Hampshire, and has been the threshold applied in recent wind farm certificates in Ohio. Accordingly, Staff considers a threshold of 30 hours of shadow flicker per year to be a reasonable limitation.

Shadow flicker frequency is related to the wind turbine's rotor blade speed and the number of blades on the rotor. Shadow flicker at certain frequencies may potentially affect persons with epilepsy. For about three percent of epileptics, exposure to flashing lights at certain intensities or to certain visual patterns may trigger seizures. This condition is known as photosensitive epilepsy. The frequency or speed of flashing light that is most likely to cause seizures varies from person to person. Flashing lights most likely to trigger seizures are between the frequency of 5 to 30 flashes per second, or hertz (Hz).²² This project's maximum wind turbine rotor speed translates to a blade pass frequency of approximately 0.9 Hz²³ and therefore would not be likely to trigger seizures. On behalf of the Applicant, edr Companies used WindPRO to calculate how often and in which intervals a specific receptor could be affected by shadow flicker produced by one or more of its proposed wind turbines. The calculation of the potential shadow impact at a given receptor, defined as a one-meter square area located one meter above ground level, was evaluated with this model.

The position of the sun relative to the turbine rotor disk and the resulting shadow is calculated in time steps of one minute throughout a complete year. If the shadow of the rotor disk, which in the calculation is assumed solid, at any time casts a shadow on a receptor, then this step is registered as one minute of potential shadow impact. The model's calculations take into account the wind turbine location, elevation, and dimensions, and the receptor location and elevation. The GE 2.5-103 turbine was used in the model analysis because its dimensions would result in the greatest amount of shadow flicker among the models under consideration. The Applicant analyzed a base model of shadow flicker that takes into account wind speed/direction and monthly sunshine probabilities, and a more-constrained model that also considers shadow obstacles and receptor orientation. Both model runs showed that less than a dozen non-participating receptors would be exposed to more than 30 hours of shadow flicker per year by the facility.

The Applicant further studied the cumulative impact of shadow flicker of both Buckeye I and Buckeye II facilities. Based on this cumulative analysis, less than a dozen non-participating receptors would be exposed to more than 30 hours of shadow flicker per year by the facility.

The Applicant states that it will use shadow flicker minimization measures to ensure that non-participating receptors are not exposed to more than 30 hours per year of shadow flicker. Based on its model analysis and potential mitigation presented by the Applicant, this goal should be readily achievable.

However, Staff is aware that this representation is based on model results, and actual shadow flicker levels may be different when the wind farm is in operation. Therefore, Staff recommends that the certificate be conditioned upon the requirement that the Applicant operate the facility so that no more than 30 hours of shadow flicker per year are actually experienced at any non-participating sensitive receptor. This requirement will apply also to any cumulative shadow flicker associated with both Buckeye I and Buckeye II. Additionally, Staff recommends that the Applicant have a complaint resolution process through which complaints related to shadow flicker from the facility can be resolved.

²² Epilepsy Foundation of America. Retrieved Dec. 21, 2009, from Epilepsy Foundation Web site: <http://www.epilepsyfoundation.org/about/photosensitivity/>

²³ Gamesa G97 2.5 MW turbine (17.8 RPM = 0.297 Hz x 3 blades = 0.89 Hz)

Communications

The Applicant expects the wind farm to cause some degradation of off-air television signals. Specific impacts to TV reception could include noise generation in some channels within one-half mile of turbines, reduced picture quality, and signal loss. If facility operation results in impacts to existing off-air television coverage, the Applicant has committed to addressing and resolving each individual problem by offering cable television hookups or direct broadcast satellite reception systems, as well as investigating methods of improving the television reception system.²⁴ With this provision, all potential television reception impacts would be mitigated by the Applicant.

The Applicant states that the facility would not impact AM/FM radio. Potential problems with AM broadcast coverage can occur when stations with directive antennas are located within two miles of turbines or when stations with non-directive antennas are located within 0.5 miles.²⁵ All AM stations are located well outside the project area, with the closest station located approximately 8.4 miles from the nearest proposed turbine site. FM stations are not subject to degradation at distances greater than 2.5 miles.²⁶ One station (W279BB) is located approximately 2.47 miles from the nearest proposed turbine site. The area that would be impacted consists of approximately 14.8 acres of active farm fields. There would be no loss of coverage at any structure or roadway.²⁷

Comsearch, on behalf of the Applicant, identified 14 licensed microwave paths intersecting the project area. Comsearch calculated a Worst Case Fresnel Zone (WCFZ) for each of the microwave paths identified. The WCFZ represents the area or path in which a turbine or other structure might cause a deflection of microwave signals. None of the turbines conflict with the WCFZ of the licensed microwave paths in the project area.²⁸ However, the study was limited to the Comsearch database of licensed systems, using locations based on FCC coordinates rather than as-built facilities.²⁹ As a result, known microwave systems, including some that are critical to maintaining reliable electric service in the area, may not have been evaluated in the study. Staff recommends that the Applicant study potential impacts to all known microwave communication systems, using survey-quality data, as outlined in the Recommended Conditions of Certificate.

Mobile phone signals are typically not affected by physical structures because the beam of the radiated signal is wide and the wavelength of the signal is long enough to wrap around objects. In addition, the mobile phone network consists of multiple base stations that are designed to provide connections from multiple points if one path is blocked.³⁰ As such, local obstacles are not normally an issue for wireless telephone systems. Electromagnetic interference can occur as a result of the proximity of a base station or mobile device in relation to a wind turbine. Due to

²⁴ Application, Volume 1, p. 154.

²⁵ Comsearch. Nov. 18, 2011. *Wind Power GeoPlanner AM and FM Radio Report, Buckeye Phase II*. Application, Volume 3, Exhibit T, p. 4.

²⁶ Ibid.

²⁷ Ibid, Figure 4, p. 6.

²⁸ Comsearch. March 22, 2012. *Wind Power GeoPlanner Licensed Microwave Report, Buckeye II Wind Project*. Application, Volume 3, Exhibit T, p. 3.

²⁹ Ibid., p. 2.

³⁰ Comsearch. Nov. 21, 2011. *Wind Power GeoPlanner Mobile Phone Carrier Report, Buckeye Phase II*. Application, Volume 3, Exhibit T, p. 6.

the location of the turbines, electromagnetic interference is not expected to affect mobile telephone service.³¹

Wind turbines can interfere with civilian and military radar in some scenarios. Potential interference is highly site-specific and depends on local features, the type of radar, and wind farm characteristics. A notification letter was sent to the National Telecommunications and Information Administration (NTIA) on October 11, 2011. Upon receipt of notification, the NTIA provided plans for the proposed facility to the federal agencies represented in the Interdepartment Radio Advisory Committee. The Committee did not identify any concerns regarding blockage of communication systems.

No impacts to AM/FM radio, mobile phone, or radar systems are expected. The Applicant would mitigate TV reception impacts to the satisfaction of the affected receptor. Further study is recommended for potential impacts to microwave communication systems. Staff recommends that the Applicant be required to mitigate any impacts to communication systems, if they are observed during operation of the facility, as outlined in the Recommended Conditions of Certificate.

Decommissioning

Megawatt-scale wind turbine generators typically have a life expectancy of 20-25 years. The current trend has been to upgrade older turbines with more efficient ones while retaining existing tower structures. If not upgraded, turbines go into a period of non-operation, where no expectation of re-operation exists, and are generally decommissioned at such time.

Upon decommissioning, the site must be restored and reclaimed to the same general topography that existed prior to the beginning of the construction of the commercial facility, with topsoil replacement in or over the disturbed areas at a depth similar to that in existence prior to the disturbance. Areas disturbed by the construction of the facility and decommissioning activities must be graded, top soiled, and re-seeded according to Natural Resource Conservation Service technical guide recommendations and other agency recommendations.

The Applicant has proposed posting financial assurance, at the time of construction, in an amount of \$5,000 per turbine to ensure that funds are available to complete decommissioning. Additionally, after the first year of operation, an independent and registered engineer would estimate the total cost of decommissioning and the net decommissioning costs (total decommissioning costs minus salvage value). From this time forward, the Applicant would maintain financial assurance equal to the net decommissioning costs of the life of the project.

Staff recommends that it is only appropriate to offset the total decommissioning costs with the salvage value when no other person or entity holds a lien against the property. Furthermore, it is unclear whether \$5,000 per turbine would be a sufficient financial assurance for the first year of the project. As such, Staff has recommended several conditions to ensure sufficient funds for decommissioning would be available at the commencement of construction.

All OPSB Staff recommendations for the requirements discussed in this section can be found under the **Public Services, Facilities, and Safety Conditions** of the Recommended Conditions of Certificate.

³¹ Ibid, p. 8.

Recommended Findings

The Staff recommends that the Board find that the nature of the probable environmental impact has been determined for the proposed facility, and therefore complies with the requirements specified in ORC Section 4906.10(A)(2), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(3)

MINIMUM ADVERSE ENVIRONMENTAL IMPACT

Pursuant to ORC Section 4906.10(A)(3), the proposed facility must represent the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, along with other pertinent considerations.

Site Selection

The site for the Buckeye II Wind Farm was chosen because of the quality of the wind resource, the ability to interconnect to the electric grid, agricultural land use in the area, and proximity to major transportation routes. Locations of individual turbines were based on landowner participation and preferences, avoidance of sensitive ecological and cultural resources, limiting impacts to agriculture, noise and shadow flicker constraints, residential and property setbacks, and maximizing energy yield. The Applicant's site selection criteria minimizes the potential impact of the project while achieving the project's goal of generating renewable electricity.

Minimizing Impacts

The Applicant has sited and designed the Buckeye II Wind Farm to minimize potential impacts while meeting the need for the project. Agricultural land accounts for approximately 97 percent of all land that would be impacted by construction of the proposed facility. Less than one percent (68.1 acres) of this land would be permanently converted into built facilities. The Applicant is committed to minimizing impacts to agricultural land by siting facility components along field edges, keeping agricultural tracts intact, and restoring temporarily-impacted farmland to its original condition, and intends to repair or replace all damaged subsurface drainage features, remove construction debris, and compensate farmers for lost crops.

Regional land use plans call for conservation of farmland and economic diversity. The development of a wind farm in the region is consistent with those goals. Avoiding or minimizing visual impacts to historic structures for wind generation projects is not practical. Because the cultural impact is not related to each individual structure, but rather the character of the community, Staff recommends a requirement for a mitigation plan that would promote the continued meaningfulness of the survey area's rural history. Offsetting the direct impact is the best approach to meeting the minimum adverse environmental impact for this project. Impacts to archaeological resources are more practical to avoid and minimize. To ensure the project meets the minimum adverse environmental impact, Staff recommends a requirement for a Phase 1 archaeological survey and avoidance plan.

The proposed facility would have an overall positive impact on the local economy because of the increase in construction spending, wages, purchasing of goods and services, annual lease payments to the local landowners, and local tax revenues. The increase in local tax revenues would be between \$840,000 and \$1,260,000 annually.

The Applicant has committed to avoiding in-water work in any EWH or CWH streams. No wetlands, ponds, or lakes would be impacted by this project during construction or operation. The Applicant concluded that construction, operation, maintenance, and decommissioning of the project may result in incidental take of Indiana bats. The Applicant has applied for an Incidental Take Permit (ITP) through the USFWS and developed a Habitat Conservation Plan (HCP). The Applicant has also committed to seasonal tree cutting dates (November 1st to March 31st) as part of their HCP. A 20-acre wetland in the project area exhibits suitable habitat for the Eastern

massasauga rattlesnake. The Applicant would avoid this area to eliminate impact to this potential habitat. The USFWS is concerned that there may still be a risk to this species during construction and recommended that a presence/absence survey be conducted at the site. OPSB Staff recommends a requirement that the Applicant conduct a presence/absence survey of the wetland and the surrounding area. If the species is present, then the Applicant will be required to implement USFWS- and ODNR-approved avoidance and minimization measures.

All turbine locations meet the minimum setback requirements. The Applicant has incorporated a wind turbine layout with a minimum residential setback distance of 919 feet, and a property line setback of 541 feet. The Applicant has indicated that various safety control mechanisms will be utilized to minimize the potential for blade shear and ice throw impacts. During the construction period, local, state, and county roads would experience a temporary increase in truck traffic due to deliveries of equipment and materials. A final routing plan will be developed through discussions with the Champaign County Engineer and performed in conjunction with the special hauling permit process for ODOT.

The Applicant's proposed turbine layout, with turbines 72, 75, 81-83, 86, 91, 95, 105-108, 114, 117, 130, and 131 operating at the lowest-noise operating mode, represents the minimum adverse acoustical impact to non-participating residents. The proposed turbine layout, with the utilization of minimization measures for non-participating receptors modeled to receive more than 30 hours of exposure to shadow flicker, presents the minimum adverse shadow flicker impact.

No impacts to AM/FM radio, mobile phone, or radar systems are expected. The Applicant would mitigate TV reception impacts to the satisfaction of the affected receptor. Further study is recommended for potential impacts to microwave communication systems.

The Applicant's decommissioning plan does not represent the minimum adverse environmental impact. Because the project impacts such a large area, it is imperative that the Applicant secure a financial instrument that best reflects the ability to completely decommission the facility. When this financial instrument is secured is also important. Because the project will not create revenue until it is operational, it is necessary that the decommissioning funds be available at the start of construction. The additional decommissioning requirements outlined in the conditions will ensure that the project meets the minimum adverse environmental impact.

Conclusion

Staff concludes that the project, as proposed, would result in both temporary and permanent impacts to the project area and surrounding areas. Because of its low potential to impact land use, cultural resources, streams, wetlands, communications, non-participating residents, and Staff's recommended conditions to mitigate these impacts, Staff concludes that the project represents the minimal adverse environmental impact. With the recommended conditions, Staff concludes that minimum adverse environmental impacts would be realized.

Recommended Findings

The Staff recommends that the Board find that the proposed facility represents the minimum adverse environmental impact, and therefore complies with the requirements specified in ORC Section 4906.10(A)(3), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(4)

ELECTRIC GRID

Pursuant to ORC Section 4906.10(A)(4), the Board must determine that the proposed electric facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility will serve the interests of electric system economy and reliability.

The purpose of this section is to evaluate the impact of interconnecting the proposed Buckeye II Wind Farm into the existing regional electric transmission system. The Applicant plans to use a 34.5 kV collection system, consisting of both underground and overhead lines, to connect the wind turbines to a proposed interconnect transmission substation. The proposed substation, which would be located in the Dayton Power and Light (DPL) control area, would interconnect to the local and regional grid near the Givens to Mechanicsburg section of the Urbana-Mechanicsburg-Darby 138 kV transmission line.

PJM Interconnection

PJM, a regional transmission organization, is charged with managing the regional transmission system and the wholesale electricity market. In addition, PJM administers the interconnection process of new generation to the system. Generators wanting to interconnect to the bulk electric transmission system (BES) located in the PJM control area are required to submit an interconnection application for review of system impacts. The Applicant submitted the proposed project to PJM on March 18, 2006. PJM gave the application a queue number of R52.

PJM studied the point of interconnection to the electric utility grid via the Givens-Mechanicsburg section of the Urbana-Mechanicsburg-Darby 138 kV transmission line. The line is owned, operated, and maintained by DPL. The Applicant requested permission for a 200 MW injection.

PJM has completed the Feasibility Study³² and System Impact Study³³ for the proposed wind farm project, which includes local and regional transmission system impacts. These studies summarized the impacts of adding the proposed facility to the regional bulk power system and identified any transmission system upgrades caused by the project that would be required to maintain the reliability of the regional transmission system. The Applicant has not yet signed a Construction Service Agreement or an Interconnection Service Agreement with PJM for the proposed facility. Signature on the Interconnection Service Agreement will need to be obtained before PJM will allow the Applicant to interconnect the proposed facility to the BES.

Staff reviewed the System Impact Study report prepared by PJM. The study was evaluated for compliance with reliability criteria for PJM summer peak load conditions for summer 2012. A summer peak power flow model and short circuit model for 2012 was used to evaluate the reliability impacts. These studies revealed that some existing transmission lines would become overloaded with the addition of the new generating facility connected to the system under multiple contingency outage conditions.

³² PJM, Feasibility Study, Queue Number R52. Retrieved September 11, 2012, from <http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx>

³³ PJM, System Impact Study, Queue Number R52. Retrieved September 11, 2012, from <http://www.pjm.com/planning/generation-interconnection/generation-queue-active.aspx>

Transmission Planning Requirements

The North American Electric Reliability Corporation (NERC) is responsible for the development and enforcement of the federal government's approved reliability standards, which are applicable to all owners, operators, and users of the bulk power system. NERC requires planners of the BES to meet Reliability Standards³⁴ TPL-001-0.1 through TPL 004-0 under transmission outage conditions for categories A, B, C, and D contingencies. According to NERC, a contingency is an unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element. Below is a list of the NERC categories and their meanings:

- Category A (no contingencies, normal system conditions);
- Category B (single contingency outage, n-1), the planning authority and transmission planner shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand;
- Category C (multiple contingency outages, n-1-1), the planning authority shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand and may rely upon the controlled interruption of customers or curtailment of firm transmission service; and,
- Category D (extreme events resulting in multiple elements removed or cascading out of service), the planning authority shall demonstrate that the interconnected transmission system is evaluated for the risks and consequences of a number of each of the extreme contingencies that are listed in the standard.

Reliability Impacts

PJM analyzed the transmission grid with the proposed facility interconnected to the BES, for compliance with NERC reliability standard's TPL-001-0.1 through TPL 004-0. A 2012 summer peak power flow model was used to evaluate the regional reliability impacts. The regional studies revealed problems under the loss of two or more BES elements. The results of the PJM System Impact Study for the regional PJM footprint are as follows:

Generator Deliverability

Category A & Category B: No contingencies or loss of one BES element

- Studied for the capacity portion (40 MW)
- PJM Region: No problems identified

Multiple Contingencies

Category C and Category D: Loss of two or more BES elements

- An outage of the Darby-Eagle-Mechanicsburg 138 kV line and Darby-Delaware 138 kV line for a breaker failure at Darby 138 kV station causes the Johnson WP-NW Urbana 69 kV line to overload. Loading on the line increases from 77.2 percent to 100.1 percent. This overload can be alleviated by upgrading the line drop in Urbana and reconductoring the 1.82 mile Johnson WP-NW Urbana 69 kV line.

³⁴ North American Electric Reliability Corporation, Reliability Standards, Transmission Planning (TPL-001-0.1-TPL-004-0). Retrieved September 11, 2012, from <http://www.nerc.com/page.php?cid=2|20>

- An outage of the Darby-Eagle-Mechanicsburg 138 kV line and Darby-Delaware 138 kV line for a breaker failure at Darby 138 kV station causes the Urbana-Johnson WP 69 kV line to overload. Loading on the line increases from 82.7 percent to 107.1 percent. This overload can be alleviated by upgrading the line trap in Urbana and reconductoring the 2.4-mile Urbana-Johnson WP 69 kV line.

Short Circuit Analysis

The short circuit analysis study, which is part of the System Impact Study, evaluates the interrupting capabilities of circuit breakers located at the proposed plant site and other circuit breakers impacted by the proposed generation addition. The results showed that three circuit breakers must be replaced or upgraded. Due to the breakers' age of greater than 50 years and slow open time, it is not feasible to upgrade the breakers. In addition, a set of transformer fuses and holders at the Logan Substation would need to be replaced.

Stability Analysis

The stability analysis study, which is part of the System Impact Study, evaluates the ability of the power system to withstand disturbances (contingencies) and maintain stable operation of the bulk electric grid. The study was run at 2013 summer light load conditions, with the plant at maximum output. No stability problems were identified.

Previously Identified Overloads

PJM studied contingencies that this project may cause on earlier projects in the PJM Queue. No overloads were identified.

Previously Identified System Reinforcements

PJM studied overloads initially caused by prior Queue positions with additional contribution to overloading by this project. No overloads were identified.

Conclusion

The studies indicate that a small number of transmission system upgrades would be required with the addition of the proposed facility to the bulk power system in order to maintain transmission system reliability during multiple contingencies. In addition, the short circuit analysis indicated that three circuit breakers and a set of transformer fuses and holders need to be replaced. With the exception of the system issues above, the PJM System Impact Study identified no other problems.

With the upgrades identified in the PJM studies, the proposed facility is expected to provide reliable generation to the bulk electric transmission system. The proposed facility is consistent with plans for expansion of the regional power system, and will serve the interests of electric system economy and reliability. The facility will serve the public interest, convenience, and necessity by providing additional electrical generation to the regional transmission grid.

Recommended Findings

The Staff recommends that the Board find that the proposed facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility would serve the interests of electric system economy and reliability. Therefore, the facility complies with the requirements specified in ORC Section 4906.10(A)(4), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(5)

AIR, WATER, SOLID WASTE, AND AVIATION

Pursuant to ORC Section 4906.10(A)(5), the facility must comply with specific sections of the ORC regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Air

The operation of the wind farm would not produce air pollution; therefore, there are no applicable air quality limitations, NAAQS, prevention of significant deterioration increments, and no need for a Permit-to-Install or a Permit-to-Install and Operate an air pollution source. However, the Applicant may need to obtain the Ohio EPA General Permit for Unpaved Roadways and Parking Areas, with a maximum of 120,000 Vehicle Miles Traveled per Year (General Permit 5.1).

The Applicant plans to minimize fugitive dust generated during construction by using BMPs such as applying water or other dust suppressants to open soil surfaces to prevent emission.

Construction and operation of the facility, as described by the Applicant and in accordance with the conditions included in this staff report, would be in compliance with air emission regulations in ORC Chapter 3704, and the rules and laws adopted under this chapter.

Water

Neither construction nor operation of the proposed facility would require the use of significant amounts of water, so requirements under ORC 1501.33 and 1501.34 are not applicable to this project. The Applicant has indicated that the following permits would be applied for:

- The Ohio National Pollutant Discharge Elimination System (NPDES) construction storm water general permit, Ohio EPA Permit No. OHC000003
- The Ohio NPDES general permit for stormwater discharges associated with construction activity within the Big Darby Creek watershed, Ohio EPA Permit No. OHCD00002
- An individual permit or nationwide permit 2 under Section 404 of the Clean Water Act (if necessary as determined after final engineering)
- A Water Quality Certification from the Ohio EPA (if necessary as determine after final engineering)
- An Ohio Isolated Wetland Permit (if necessary as determined after final engineering)
- An Ohio Permit to Install on-site sewage treatment under OAC 3745-42 (if necessary)

In order to obtain the NPDES, the Notice of Intent (NOI) and associated fee would be filed at least 21 days prior to commencement of construction activities. Under the Construction Activities in the Big Darby Watershed General Permit, the Applicant anticipates that the NOI, an approvable SWPPP, and the associated fee would be filed at least 45 days prior to commencement of construction activities.

Approximately 68 acres of impervious surface would be generated as a result of the facility, including turbine foundations, access roads, the O&M facilities, and substations. The facility would not significantly alter flow patterns or erosion and, given the small increase in impervious surface within the leased land, no significant modifications in the direction, quality, or flow patterns of storm water run-off are anticipated.

The Applicant would mitigate effects to changes in the quality and quantity of aquatic discharges by the following means:

- Obtain an NPDES Construction Water General Permit from the Ohio EPA;
- Prepare a SWPPP that identifies potential sources of pollution and describes and ensures the implementation of BMPs;
- Prepare a Spill Prevention, Containment, and Countermeasure plan (SPCC) that will outline procedures to be implemented to prevent the release of hazardous substances into the environment.

With these measures, construction and operation of this facility would comply with requirements of ORC Chapter 6111, and the rules and laws adopted under this chapter.

Solid Waste

The Applicant has indicated that no waste removal is necessary or planned prior to construction. Waste generated during construction would consist of packing materials, plastic, wood, cardboard, and metal packing, construction scrap, and general refuse. Solid waste generated during operation would not be a significant amount. The solid waste would be disposed of in dumpsters located at laydown yards, and would be emptied by a private contractor. The O&M facilities would utilize local solid waste and disposal services. With these measures, the Applicant's solid waste disposal plans comply with solid waste disposal requirements in ORC Chapter 3734, and the rules and laws adopted under this chapter.

Aviation

A Determination of No Hazard has been issued by the FAA for all of the 56 turbine locations. Given the preliminary FAA determinations of no hazard to air navigation, neither construction nor operation of the proposed facility is expected to create any adverse impacts on these airports or the existing air travel network. In accordance with ORC Section 4561.32, Staff contacted the ODOT Office of Aviation during review of this application in order to coordinate review of potential impacts the facility might have on public use airports. The Applicant filed with the ODOT Office of Aviation and received notices of clearance for all turbines associated with this case. When creating the recommended conditions for the certificate, Staff implemented FAA and/or ODOT Office of Aviation recommendations where deemed justified through conversation and exchange with subject matter experts.

Specifically, all turbines will need to be marked and/or lit in accordance with FAA Advisory Circular 70/7460-1 K Change 2, Obstruction Marking and Lighting - Chapters 4, 12 & 13 (Turbines) within five days after the construction reaches its greatest height (7460-2, Part II). During construction, Staff recommends a requirement that the Applicant ensure that all structures that reach 200 feet in height are temporarily marked and lit until permanent lighting is installed. The Applicant should also be required to provide the flight service stations with notices to airman (NOTAM). These notices would include the latitude and longitude coordinates for all structures, including cranes, that exceed 200 feet in height from the ground.

During an investigation of this project, Staff confirmed the presence of CareFlight, which is located at the Grimes Field Airport. Because of the proximity of CareFlight to this project, Staff recommends a requirement that the Applicant develop a medical needs service plan, in coordination with CareFlight. This plan would incorporate measures that assure immediate shut down of any portion of the facility necessary to allow direct routes for emergency life flight services within the vicinity of the facility.

All OPSB Staff recommendations for the requirements discussed in this section can be found under the **Air, Water, Solid Waste, and Aviation Conditions** heading of the Recommended Conditions of Certificate.

Recommended Findings

The Staff finds that the proposed facility complies with the requirements specified in ORC Section 4906.10(A)(5), provided that any certificate issued by the Board for the certification of the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(6)

PUBLIC INTEREST, CONVENIENCE, AND NECESSITY

Pursuant to ORC Section 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity.

Public Interaction

An application for a certificate of environmental compatibility and public need must include a description of the Applicant's public interaction programs.³⁵ According to the application, Applicant staff was present and available to answer questions during two wind farm bus tours sponsored by the Champaign County Farm Bureau in 2007 and 2008. Additionally, the Applicant, in partnership with Green Energy Ohio, sponsored a community visit to the Blue Creek Wind Farm in northwest Ohio in September 2011. The Applicant has also employed local residents as project developers, who have participated in local informational meetings and hosted annual displays at the Champaign County Fair. The Applicant hosted its public information meeting at Triad High School in North Lewisburg on January 24th, 2012. The public meeting provided information on such topics as the Applicant, wind turbine technology and construction, avian and bat studies, and ecological studies. The Applicant also indicated that it maintains an informational website for the project and has established an office located in Bellefontaine, OH.³⁶

As of this date, Petitions for Leave to Intervene have been filed by the following: Union Neighbors United; Robert and Diane McConnell; Julia Johnson; the Ohio Farm Bureau Federation; and Pioneer Rural Electric Cooperative. The Administrative Law Judge (ALJ) issued an entry that granted the intervention of these parties with the exception of Pioneer Rural Electric Cooperative, whose request to intervene remains outstanding. In addition, Notices of Intervention have been filed by the Board of Commissioners of Champaign County, as well as the Board of Trustees of Goshen Township, Union Township, and Urbana Township.

The ALJ issued an entry on August 2, 2012, that scheduled both the local public hearing and the evidentiary hearing for this proceeding. The public hearing, at which the Board will accept written or oral testimony from any person, is scheduled for October 25, 2012, at 6:00 PM, Triad High School Auditoria, 8099 Brush Lake Road, North Lewisburg, Ohio, 43060. The evidentiary hearing, scheduled for November 8, 2012, will be held at the offices of the PUCO, 180 East Broad Street, Hearing Room 11-C, Columbus, Ohio, 43215-3793.

Liability Insurance

A certificate application must also include a description of any insurance programs for providing liability compensation for damages to the public during construction or operation of the proposed facility.³⁷ According to the Applicant, it will maintain through the term of the facility at its sole cost an insurance policy that will, at a minimum, insure against claims of \$1 million per occurrence and \$2 million in the aggregate. Such policy shall be intended to cover any potential personal injury, death, and property damage associated with the operation of the proposed facility.³⁸ Participating landowners are listed as additional insured on the lessee's policy. In addition, the Applicant expects to maintain, throughout the construction and operation phases,

³⁵ OAC 4906-17-08(E)(1)

³⁶ Application, Volume 1, p. 151.

³⁷ OAC 4906-17-08(E)(2)

³⁸ Application, Volume 1, p. 153.

Umbrella Coverage that will, at a minimum, insure against claims of \$10 million per occurrence and \$10 million in the aggregate.³⁹ The Applicant has not entered into the insurance agreements at this stage, instead indicating that such agreements are typically entered into after a turbine supply agreement and general construction contract are executed. The Applicant indicates that it maintains similar insurance levels for its wind facilities in other jurisdictions.⁴⁰

The Applicant further indicated its intention to work with the Champaign County Engineer to develop a road use agreement or similar document. A road bond, or similar surety, will be established through the Engineer's Office to provide adequate funds to repair any damage to public roads, according to the Applicant.⁴¹

Landowner Lease Agreements

In 2008, the Applicant began entering into leases for the Buckeye II project. In addition, in 2011 the Applicant acquired leases within the project area from Invenergy Wind North America.⁴² The Applicant has indicated that construction of the facility would require leases of private lands from approximately 100 landowners, collectively comprising approximately 13,500 acres.⁴³ Currently site control is almost completed, with the Applicant working on final negotiations for the remaining 2 percent of the land needed for the project.⁴⁴

According to the Applicant, the leased project land is currently used primarily for agricultural purposes. Aside from temporary construction impacts, the Applicant expects minor land use impacts associated with the project. The Applicant estimates approximately 68 acres being permanently converted to hosting facility components, representing less than 1 percent of the total leased project land.⁴⁵

The Applicant has indicated that it is using a standardized lease form for this project. The Applicant intends to convert the existing agreements obtained from Invenergy Wind North American to this standard lease as well.⁴⁶ The standard lease includes a 25-year term, with an option to extend for two additional 10-year terms.

Annual lease payments will be provided to local landowners participating in the project. The Applicant expects such payments to enhance the ability of those in the agricultural industry to continue farming.⁴⁷ A consultant engaged by the Applicant has estimated the total lease payments at approximately \$975,000 per year.⁴⁸

Alternative Energy Portfolio Standard

The alternative energy portfolio standard (AEPS) contained within Section 4928.64, Revised Code, requires a portion of the electricity sold to retail customers in Ohio to come from renewable energy resources. This requirement, which began in 2009, includes annually increasing renewable benchmarks through 2024. Renewable energy resources, as defined by statute, include wind generating technologies. At least 50 percent of the annual renewable energy

³⁹ Application, Volume 1, p. 153.

⁴⁰ Applicant Response to Staff Interrogatories. August 29, 2012.

⁴¹ Application, Volume 1, p. 153.

⁴² Applicant Response to Staff Interrogatories. August 29, 2012.

⁴³ Application, Volume 1, p. 4.

⁴⁴ Applicant Response to Staff Interrogatories. August 29, 2012.

⁴⁵ Application, Volume 1, p. 5.

⁴⁶ Applicant Response to Staff Interrogatories. August 29, 2012.

⁴⁷ Application, Volume 1, p. 141.

⁴⁸ Application, Volume 2, Exhibit G, p. 14.

requirement must be satisfied with resources located within the state of Ohio. Electric distribution utilities or electric service companies have several options for demonstrating compliance with the AEPS, including entering into a renewable power supply agreement or through the use of renewable energy credits (RECs).

To be eligible for use towards a renewable benchmark, RECs must originate from a facility certified by the PUCO as an eligible renewable energy generating facility. The proposed facility would likely qualify as an in-state renewable energy resource under the AEPS and therefore it could help affected entities comply with their statutory requirements under the AEPS. However, to date the Applicant has not signed a power purchase agreement for the electricity or any RECs that may be generated by the facility.⁴⁹

State and Local Tax

On June 17, 2010, then Governor Strickland signed Senate Bill 232, which adjusted the tax structure for qualified energy projects in Ohio. Subject to certain requirements, qualifying wind energy projects under construction before January 1, 2012, and placed into service before January 1, 2012, are exempt from real and personal property taxation. Owners and lessees of such projects are instead required to make annual payments in lieu of taxes (PILOT) of up to \$9,000/MW of installed capacity. This provision was later extended to qualified energy projects under construction before January 1, 2014, and placed into service before January 1, 2015.⁵⁰

If the Applicant pays the maximum PILOT of \$9,000/MW, the annual payment amount would be approximately \$1,045,800.⁵¹ The Applicant indicates that, based on its review of 2010 data, the estimated average percentage distribution of the annual payments would include 25.9 percent for Champaign County, 10.3 percent for the affected townships, and 63.8 percent for local schools.⁵²

Recommended Findings

Staff recommends that the Board find that the proposed facility would serve the public interest, convenience, and necessity, and therefore complies with the requirements specified in ORC Section 4906.10(A)(6), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

⁴⁹ Applicant Response to Staff Interrogatories. August 29, 2012.

⁵⁰ Biennium Operating Appropriations Bill. 129th General Assembly. House Bill 153. Enacted on June 29, 2011.

⁵¹ Applicant Response to Staff Interrogatories. August 29, 2012.

⁵² Application, Volume 1, p. 140.

Considerations for ORC Section 4906.10(A)(7)

AGRICULTURAL DISTRICTS

Pursuant to ORC Section 4906.10(A)(7), the Board must determine the facility's impact on the agricultural viability of any land in an existing agricultural district within the project area of the proposed utility facility. The agricultural district program was established under ORC Chapter 929. Agricultural district land is exempt from sewer, water, or electrical service tax assessments. Agricultural land can be classified as an agricultural district through an application and approval process that is administered through local county auditors' offices. Eligible land must be devoted exclusively to agricultural production or be qualified for compensation under a land conservation program for the preceding three calendar years. Furthermore, eligible land must be at least ten acres or produce a minimum average gross annual income of \$2,500.

Within the project area, a total of 15.46 acres of permanent impacts would occur to agricultural district land. The impacts to the agricultural district land would not affect the agricultural district designation of any of the properties within the project area.

Construction-related activities such as vehicle traffic and materials storage could lead to temporary reductions in farm productivity caused by direct crop damage, soil compaction, broken drainage tiles, and reduction of space available for planting. However, the Applicant has discussed and approved the siting of facility components with landowners in order to minimize impacts, and also intends to take steps in order to address such potential impacts to farmland, including: repairing all drainage tiles damaged during construction, removing construction debris, compensating farmers for lost crops, and restoring temporarily impacted land to its original use. After construction, only the agricultural land associated with turbines and access roads would be removed from farm production.

Recommended Findings

The Staff recommends that the Board find that the impact of the proposed facility on the viability of existing agricultural land in an agricultural district has been determined, and therefore complies with the requirements specified in ORC Section 4906.10(A)(7), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(8)

WATER CONSERVATION PRACTICE

Pursuant to ORC Section 4906.10(A)(8), the proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives.

Wind-powered electric generating facilities do not utilize water in the process of electricity production. Therefore, water consumption associated with the proposed electric generation equipment does not warrant specific conservation efforts. A potable water supply would be provided to the O&M building for project and personal needs of the employees using the facility, but the amount of water consumed for these purposes would be minimal.

Recommended Findings

The Staff recommends that the Board find that the requirements specified in ORC Section 4906.10(A)(8) are not applicable to this project.

IV. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by Champaign Wind LLC and the record compiled to date in this proceeding, Staff recommends that a number of conditions become part of any certificate issued for the proposed facility. These recommended conditions may be modified as a result of public or other input received subsequent to issuance of this report.

GENERAL CONDITIONS

Staff recommends the following conditions to ensure conformance with the proposed plans and procedures as outlined in the case record to date, and to ensure compliance with all conditions listed in this staff report:

- (1) The facility shall be installed as presented in the application, and as modified and/or clarified by the Applicant's supplemental filings and further clarified by recommendations in this *Staff Report of Investigation*.
- (2) The Applicant shall utilize the equipment and construction practices as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (3) The Applicant shall implement the mitigation measures as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (4) The Applicant shall conduct a preconstruction conference prior to the start of any construction activities. Staff, the Applicant, and representatives of the prime contractor and all subcontractors for the project shall attend the preconstruction conference. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for Staff review. The Applicant may stage separate preconstruction meetings for grading versus clearing work.
- (5) At least 30 days prior to the preconstruction conference, the Applicant shall have in place a complaint resolution procedure to address potential public grievances resulting from project construction and operation. The resolution procedure must provide that the Applicant will work to mitigate or resolve any issues with those who submit either a formal or informal complaint and that the Applicant will immediately forward all complaints to Staff. The Applicant shall provide the complaint resolution procedure to Staff, for review and confirmation that it complies with this condition, prior to the preconstruction conference.
- (6) At least 30 days before the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design, including the wind turbines, collection lines, substation, temporary and permanent access roads, any crane routes, construction staging areas, and any other associated facilities and access points, so that Staff can determine that the final project design is in compliance with the terms of the certificate. The final project layout shall be provided in hard copy and as geographically-referenced electronic data. The final design shall include all conditions of the certificate and references at the locations where the Applicant and/or its contractors must adhere to a specific condition in order to comply with the certificate.

- (7) If any changes are made to the project layout after the submission of final engineering drawings, all changes shall be provided to Staff in hard copy and as geographically-referenced electronic data. All changes outside the environmental survey areas and any changes within environmentally-sensitive areas will be subject to Staff review and acceptance, to ensure compliance with all conditions of the certificate, prior to construction in those areas.
- (8) Within 60 days after the commencement of commercial operation, the Applicant shall submit to Staff a copy of the as-built specifications for the entire facility. If the Applicant demonstrates that good cause prevents it from submitting a copy of the as-built specifications for the entire facility within 60 days after commencement of commercial operation, it may request an extension of time for the filing of such as-built specifications. The Applicant shall use reasonable efforts to provide as-built drawings in both hard copy and as geographically-referenced electronic data.
- (9) Any wind turbine site proposed by the Applicant but not built as part of this project shall be available for Board review in a future case.
- (10) If construction has commenced at a turbine location and it is determined that the location is not a viable turbine site, that site shall be restored to its original condition within 30 days.
- (11) At least 60 days before the preconstruction conference, the Applicant shall file a letter with the Board that identifies which of the turbine models listed in the application has been selected. If the Applicant selects the GE 2.5-103 turbine model, then the Applicant shall submit a complete copy of the manufacturer's safety manual or similar document to Staff for review.
- (12) The certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate.
- (13) As the information becomes known, the Applicant shall provide to Staff the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.
- (14) The Applicant shall not commence any construction of the facility until it has a signed Interconnection Service Agreement with PJM, which includes construction, operation, and maintenance of system upgrades necessary to reliably and safely integrate the proposed generating facility into the regional transmission system. The Applicant shall provide a letter stating that the Agreement has been signed or a copy of the signed Interconnection Service Agreement to Staff.

SOCIOECONOMIC CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Socioeconomic Impacts** section of the Nature of Probable Environmental Impact:

- (15) Prior to commencement of any construction, the Applicant shall prepare a Phase I cultural resources survey program for archaeological work within the construction disturbance area, in consultation with Staff and the OHPO. If the resulting survey work discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion in the

National Register of Historic Places, then the Applicant shall submit an amendment, modification, or mitigation plan to the Board.

- (16) Prior to commencement of any construction, the Applicant shall develop a cultural resource avoidance plan in consultation with Staff and the OHPO, detailing procedures for flagging and avoiding all potentially NRHP-eligible archaeological sites in the project area. The avoidance plan shall also contain measures to be taken should previously-unidentified archaeological deposits or artifacts be discovered during construction of the project.
- (17) Prior to commencement of construction, the Applicant shall develop a historic preservation mitigation plan in consultation with Staff and the OHPO, detailing procedures for promoting the continued meaningfulness of the survey area's rural history.
- (18) No commercial signage or advertisements shall be located on any turbine, tower, or related infrastructure. If vandalism should occur, the Applicant shall remove or abate the damage within 30 days of discovery or as extended by Staff for good cause shown, to preserve the aesthetics of the project. Any abatement other than the restoration to pre-vandalism condition is subject to review by Staff to ensure compliance with this condition.

ECOLOGICAL CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Ecological Impacts** section of the Nature of Probable Environmental Impact:

- (19) The Applicant shall have a construction and maintenance access plan based on final plans for the access roads, transmission line, and types of equipment to be used. Prior to commencement of construction, the Applicant shall submit the plan to Staff, for review and confirmation that it complies with this condition. The plan shall consider the location of streams, wetlands, wooded areas, and sensitive plant species, as identified by the ODNR, Division of Wildlife (ODNR-DOW), and explain how impacts to all sensitive resources will be avoided or minimized during construction, operation, and maintenance. The plan shall provide specific details on all wetlands, streams, and/or ditches to be crossed by the transmission line, including those where construction or maintenance vehicles and/or facility components such as access roads cannot avoid crossing the waterbody. In such cases, specific discussion of the proposed crossing methodology for each wetland and stream crossing (such as culverts), and post-construction site restoration, must be included. The plan shall include the measures to be used for restoring the area around all temporary access points, and a description of any long-term stabilization required along permanent access routes. For each phase of construction, the Applicant shall delineate each phase prior to any construction and the Applicant shall participate in a preconstruction conference with Staff prior to each phase of construction.
- (20) The Applicant shall have a vegetation management plan. Prior to commencement of construction, the Applicant shall submit this plan to Staff, for review and confirmation that it complies with this condition. The plan must identify all areas of proposed vegetation clearing for the project, specifying the extent of the clearing, and describing how such clearing work will be done so as to minimize removal of woody vegetation. The plan must also describe how trees and shrubs around structures, along access routes, in the transmission line corridor, at construction staging areas, during maintenance operations, and in proximity to any other project facilities will be protected from damage. Priority should be given to protecting mature trees throughout the project area, and all woody

vegetation in wetlands and riparian areas, both during construction and during subsequent operation and maintenance of all facilities; low-growing trees and shrubs in particular should be protected wherever possible within the proposed right-of-way. The vegetation management plan should also explore various options for disposing of downed trees, brush, and other vegetation during initial clearing for the project, and recommend methods that minimize the movement of heavy equipment and other vehicles within the right-of-way that would otherwise be required for removing all trees and other woody debris off site.

- (21) The Applicant shall have a streamside vegetation restoration plan that minimizes impacts associated with the clearing of riparian vegetation. At least 30 days prior to the commencement of clearing activities, the Applicant shall submit such plan to Staff for review and confirmation that it complies with this condition.
- (22) For both construction and future right-of-way maintenance, the Applicant shall limit, to the greatest extent possible, the use of herbicides in proximity to surface waters, including wetlands along the right-of-way. Individual treatment of tall-growing woody plant species is preferred, while general, widespread use of herbicides during initial clearing or future right-of-way maintenance should only be used where no other options exist, and with prior approval from the Ohio EPA. Prior to commencement of construction, the Applicant shall submit a plan to Staff for review and confirmation that it complies with this condition, describing the planned herbicide use for all areas in or near any surface waters during initial project construction and/or future right-of-way maintenance.
- (23) The Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas, as mutually agreed upon between the Applicant and Staff, and as shown on the Applicant's final approved construction plan. Sensitive areas include but are not limited to areas of vegetation clearing, designated wetlands and streams, and locations of threatened or endangered species or their identified habitat. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction.
- (24) The Applicant shall contact Staff, ODNR, and the USFWS within 24 hours if state or federal threatened or endangered species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and ODNR in coordination with the USFWS. Nothing in this condition shall preclude agencies having jurisdiction over the facility with respect to threatened or endangered species from exercising their legal authority over the facility consistent with law.
- (25) The Applicant shall adhere to seasonal tree cutting dates of November 1st through March 31st for removal of trees, if avoidance measures cannot be achieved.
- (26) The Applicant shall implement all conservation measures and conditions outlined in the final HCP and USFWS' Incidental Take Permit, including the Avian and Bat Protection Plan found in the USFWS' draft EIS, which is subject to inclusion as an environmental commitment in the USFWS' Record of Decision (ROD).
- (27) The Applicant shall not work in the types of streams listed below during fish spawning restricted periods (April 15 to June 30), unless a waiver is sought from and issued by the

ODNR and approved by Staff releasing the Applicant from a portion of, or the entire restriction period.

- (a) Class 3 primary headwater streams (watershed < one mi²)
 - (b) Exceptional Warmwater Habitat
 - (c) Coldwater Habitat
 - (d) Warmwater Habitat
 - (e) Streams supporting threatened or endangered species
- (28) Sixty days prior to the first turbine becoming operational, the Applicant shall submit a post-construction avian and bat monitoring plan for DOW and Staff review and confirmation that it complies with this condition. The Applicant's plan shall be consistent with ODNR-approved, standardized protocol, as outlined in ODNR's *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. This includes having a sample of turbines that are searched daily. The post-construction monitoring shall begin within two weeks of operation of the first turbine and be conducted for a minimum of two seasons (April 1 to November 15), which may be split between calendar years. If monitoring is initiated after April 1 and before November 15, then portions of the first season of monitoring shall extend into the second calendar year (e.g., start monitoring on July 1, 2011 and continue to November 15, 2011; resume monitoring April 1, 2012 and continue to June 30, 2012). The second monitoring season may be waived at the discretion of ODNR and OPSB Staff. The monitoring start date and reporting deadlines will be provided in the DOW approval letter and the OPSB concurrence letter. If it is determined that significant mortality, as defined in ODNR's approved, standardized protocols, has occurred to birds and/or bats, or a state-listed species is killed, then the DOW and OPSB Staff will require the Applicant to develop and implement a mitigation plan. If required, the Applicant shall submit a mitigation plan to the DOW and OPSB Staff for review and approval within 30 days from the date reflected on ODNR letterhead, in coordination with OPSB Staff, in which the DOW is requiring the Applicant to mitigate for significant mortality to birds and/or bats. Mitigation initiation timeframes shall be outlined in the DOW approval letter and the OPSB concurrence letter.
- (29) The Applicant shall conduct a presence/absence survey for the presence of the Eastern massasauga rattlesnake at the 20-acre wetland. The survey would be conducted by an USFWS- and ODNR-approved herpetologist. If Eastern massasauga rattlesnakes are not detected, then no further avoidance and minimization measures would be required. If Eastern massasaugas are detected, or if a survey is not conducted, then presence of this species would be assumed and the Applicant would need to implement USFWS- and ODNR-approved avoidance and minimization measures for protection of this species.

PUBLIC SERVICES, FACILITIES, AND SAFETY CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Public Services, Facilities, and Safety** section of the Nature of Probable Environmental Impact:

- (30) The Applicant shall restrict public access to the facility with appropriately-placed warning signs or other necessary measures.

- (31) Prior to commencement of construction activities that require transportation permits, the Applicant shall obtain all such permits. The Applicant shall coordinate with the appropriate authority regarding any temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility. Coordination shall include, but not be limited to, the county engineer, Ohio Department of Transportation, local law enforcement, and health and safety officials. This coordination shall be detailed as part of a final traffic plan submitted to Staff prior to the preconstruction conference for review and confirmation that it complies with this condition.
- (32) The Applicant shall provide the final delivery route plan and the results of any traffic studies to Staff and the County Engineer(s) 30 days prior to the preconstruction conference. The Applicant shall complete a study on the final equipment delivery route to determine what improvements will be needed in order to transport equipment to the wind turbine construction sites. The Applicant shall make all improvements outlined in the final delivery route plan prior to equipment and wind turbine delivery. The Applicant's delivery route plan and subsequent road modifications shall include, but not be limited to, the following:
- (a) Perform a survey of the final delivery routes to determine the exact locations of vertical constraints where the roadway profile will exceed the allowable bump and dip specifications and outline steps to remedy vertical constraints.
 - (b) Identify locations along the final delivery routes where overhead utility lines may not be high enough for over-height permit loads and coordinate with the appropriate utility company if lines must be raised.
 - (c) Identify roads and bridges that are not able to support the projected loads from delivery of the wind turbines and other facility components and make all necessary upgrades.
 - (d) Identify locations where wide turns would require modifications to the roadway and/or surrounding areas and make all necessary alterations. Any alterations for wide turns shall be removed and the area restored to its preconstruction condition unless otherwise specified by the County Engineer(s).
- (33) The Applicant shall repair damage to government-maintained (public) roads and bridges caused by construction activity. Any damaged public roads and bridges shall be repaired promptly to their preconstruction state by the Applicant under the guidance of the appropriate regulatory agency. Any temporary improvements shall be removed unless the County Engineer(s) request that they remain. The Applicant shall provide financial assurance to the counties that it will restore the public roads it uses to their preconstruction condition. The Applicant shall also enter into a Road Use Agreement with the County Engineer(s) prior to construction and subject to Staff review and confirmation that it complies with this condition. The Road Use Agreement shall contain provisions for the following:
- (a) A preconstruction survey of the conditions of the roads.
 - (b) A post-construction survey of the condition of the roads.
 - (c) An objective standard of repair that obligates the Applicant to restore the roads to the same or better condition as they were prior to construction.

- (d) A timetable for posting of the construction road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.
- (34) The facility owner and/or operator shall repair damage to government-maintained (public) roads and bridges caused by decommissioning activity. Any damaged public roads and bridges shall be repaired promptly to their pre-decommissioning state by the facility owner and/or operator under the guidance of the appropriate regulatory agency. The Applicant shall provide financial assurance to the counties that it will restore the public roads and bridges it uses to their pre-decommissioning condition. These terms shall be defined in a Road Use Agreement between the Applicant and the County Engineer(s) prior to construction. The Road Use Agreement shall be subject to Staff review and confirmation that it complies with this condition, and shall contain provisions for the following:
 - (a) A pre-decommissioning survey of the condition of public roads and bridges conducted within a reasonable time prior to decommissioning activities.
 - (b) A post-decommissioning survey of the condition of public roads and bridges conducted within a reasonable time after decommissioning activities.
 - (c) An objective standard of repair that obligates the facility owner and/or operator to restore the public roads and bridges to the same or better condition as they were prior to decommissioning.
 - (d) A timetable for posting of the decommissioning road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.
- (35) General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving operations and blasting if required, shall be limited to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Rule 4906-5-08(C)(3), O.A.C, of upcoming construction activities including potential for nighttime construction activities.
- (36) The Applicant shall complete a full detailed geotechnical exploration and evaluation at each turbine site to confirm that there are no issues to preclude development of the wind farm. The geotechnical exploration and evaluation shall include borings at each turbine location to provide subsurface soil properties, static water level, rock quality description (RQD), percent recovery, and depth and description of the bedrock contact and recommendations needed for the final design and construction of each wind turbine foundation, as well as the final location of the transformer substation and interconnection substation. The Applicant must fill all boreholes, and borehole abandonment must comply with state and local regulations. The Applicant shall provide copies of all geotechnical boring logs to Staff and to the ODNR Division of Geological Survey prior to construction.
- (37) Should site-specific conditions warrant blasting, the Applicant shall submit a blasting plan, at least 60 days prior to blasting, to OPSB Staff for review and confirmation that it complies with this condition. The Applicant shall submit the following information as part of its blasting plan:
 - (a) The name, address, and telephone number of the drilling and blasting company.

- (b) A detailed blasting plan for dry and/or wet holes for a typical shot. The blasting plan shall address blasting times, blasting signs, warnings, access control, control of adverse effects, and blast records.
 - (c) A plan for liability protection and complaint resolution.
- (38) Prior to the use of explosives, the Applicant or explosive contractor shall obtain all required local, state, and federal licenses/permits. The Applicant shall submit a copy of the license or permit to Staff within seven days of obtaining it from the local authority.
 - (39) The blasting contractor shall utilize two blasting seismographs that measure ground vibration and air blast for each blast. One seismograph shall be placed at the nearest dwelling and the other placed at the discretion of the blasting contractor.
 - (40) At least 30 days prior to the initiation of blasting operations, the Applicant must notify, in writing, all residents or owners of dwellings or other structures within 1,000 feet of the blasting site. The Applicant or explosive contractor shall offer and conduct a pre-blast survey of each dwelling or structure within 1,000 feet of each blasting site, unless waived by the resident or property owner. The survey must be completed and submitted to Staff at least ten (10) days before blasting begins.
 - (41) The Applicant shall comply with the turbine manufacturer's most current safety manual and shall maintain a copy of that safety manual in the O&M building of the facility.
 - (42) At least 30 days before the preconstruction conference, the Applicant shall submit to Staff for review and confirmation that it complies with this condition, a proposed emergency and safety plan to be used during construction, to be developed in consultation with the fire department(s) having jurisdiction over the area.
 - (43) Before the first turbine is operational, the Applicant shall submit to Staff for review and confirmation that it complies with this condition, a fire protection and medical emergency plan to be used during operation of the facility, which shall be developed in consultation with the first responders having jurisdiction over the area.
 - (44) The Applicant shall instruct workers on the potential hazards of ice conditions on wind turbines.
 - (45) The Applicant shall install and utilize an ice warning system that may include an ice detector installed on the roof of the nacelle, ice detection software, warranted by the manufacturer to detect ice, for the wind turbine controller, or an ice sensor alarm that triggers an automatic shutdown.
 - (46) The Applicant shall relocate and/or resize turbines 87 and 91 to conform to a setback distance that equals 150 percent of the sum of the hub height and rotor diameter from occupied structures, including businesses.
 - (47) The Applicant shall adhere to a setback distance of at least 1.1 times the total height of the turbine structure, as measured from its tower's base (excluding the subsurface foundation) to the tip of its highest blade, from any natural gas pipeline in the ground at the time of commencement of construction.
 - (48) Within six months of commencement of operation of the facility, the Applicant shall register the as-built locations of all underground collection lines with the Ohio Utilities

Protection Service. The Applicant shall also register with the Ohio Oil and Gas Producers Underground Protection Service, if it operates in the project area. Confirmation of registration(s) shall be provided to Staff.

- (49) The facility shall be operated so that the facility noise contribution does not result in noise levels at the exterior of any currently existing non-participating sensitive receptor that exceed the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA. During daytime operation only (7:00 a.m. to 10:00 p.m.), the facility may operate at the greater of: (a) the project area ambient nighttime L_{EQ} (39 dBA) plus five dBA; or, (b) the validly measured ambient L_{EQ} plus five dBA at the location of the sensitive receptor. After commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project-related noise complaints through its complaint resolution process.
- (50) The facility shall be operated so that the facility shadow flicker contribution does not result in shadow flicker levels that exceed 30 hours per year for any non-participating sensitive receptor. The Applicant shall complete a shadow flicker analysis for all inhabited non-participating sensitive receptors that have already been modeled to be in excess of 30 hours per year of shadow flicker. The analysis shall show how modeled shadow flicker impacts have been reduced to 30 or fewer hours per year for each such receptor. The analysis shall be provided to Staff at least 30 days prior to the preconstruction conference, for review and confirmation that it complies with this condition. This analysis may incorporate shadow flicker reductions for trees, vegetation, buildings, obstructions, turbine line of sight, operational hours, wind direction, sunshine probabilities, and other mitigation confirmed by Staff to be in compliance with this condition. After commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project-related shadow flicker complaints through its complaint resolution process.
- (51) The Applicant shall develop a complaint resolution process that shall include procedures for responding to complaints about excessive noise during construction, and excessive noise and excessive shadow flicker caused by operation of the facility. The complaint resolution process shall include procedures by which complaints can be made by the public, how complaints will be tracked by the Applicant, steps that will be taken to interact with the complainant and respond to the complaint, steps that will be taken to verify the merits of the complaint, and steps that will be taken to mitigate valid complaints. Mitigation, if required, shall consist of either reducing the impact so that the project contribution does not exceed the requirements of the certificate, or other means of mitigation reviewed by Staff for confirmation that it complies with this condition.
- (52) At least 30 days prior to construction, the Applicant shall perform a study of the potential impacts of the project to any known microwave path or system. The Applicant shall contact all electric service providers that operate within the project area for a description of specific microwave paths to be included in the study. A copy of this study shall be provided to the electric service providers for review, and to Staff for review and confirmation that it complies with this condition. The assessment shall conform to the following requirements:
 - (a) An independent and registered surveyor, licensed to survey within the state of Ohio, shall determine the exact locations and worst-case Fresnel zone dimensions of all known microwave paths or systems operating within the project area, including all paths and systems identified by the electric service providers that operate within the

project area. In addition, the surveyor shall determine the center point of all turbines within 1,000 feet of the worst-case Fresnel zone of each system, using the same survey equipment.

- (b) Provide the distance (feet) between the surveyed center point of each turbine identified within section (a) above and the surveyed worst-case Fresnel zone of each microwave system path.
 - (c) Separately provide the distance (feet) between the nearest rotor blade tip of each surveyed turbine identified within section (a) above and the surveyed worst-case Fresnel zone of each microwave system path.
 - (d) Provide a map of the surveyed microwave paths and turbines at a legible scale.
 - (e) Describe the specific, expected impacts of the project on all microwave paths and systems considered in the study.
- (53) All known microwave paths and communication systems, as identified in the communication studies performed for this project or required by the Board, shall be subject to avoidance or mitigation. The Applicant shall complete avoidance or mitigation measures prior to commencement of construction for impacts that can be predicted in sufficient detail to implement appropriate and reasonable avoidance and mitigation measures. After construction, the Applicant shall mitigate all observed impacts of the project to microwave paths and systems within seven days or within a longer time period acceptable to Staff. Avoidance and mitigation shall consist of measures acceptable to Staff, the Applicant, and the affected path owner, operator, or licensee(s).
- (54) If any turbine is determined to cause NEXRAD interference, the Applicant shall propose a technical or administrative work plan, protecting proprietary interests in wind speed data, which provides for the release of real-time meteorological data to the National Weather Service office in Wilmington, Ohio. If an uncontrollable event should render this data temporarily unavailable, the Applicant shall exert reasonable effort to restore connectivity in a timely manner.
- (55) The Applicant, facility owner, and/or facility operator shall comply with the following conditions regarding decommissioning:
- (a) The Applicant, facility owner, and/or facility operator shall provide the final decommissioning plan to Staff and the County Engineer(s) for review and confirmation of compliance with this condition, at least 30 days prior to the preconstruction conference. The plan shall:
 - (i) Indicate the intended future use of the land following reclamation.
 - (ii) Describe the following: engineering techniques and major equipment to be used in decommissioning and reclamation; a surface water drainage plan and any proposed impacts that would occur to surface and ground water resources and wetlands; and a plan for backfilling, soil stabilization, compacting, and grading.
 - (iii) Provide a detailed timetable for the accomplishment of each major step in the decommissioning plan, including the steps to be taken to comply with applicable

air, water, and solid waste laws and regulations and any applicable health and safety standards in effect as of the date of submittal.

- (b) The facility owner and/or facility operator shall file a revised decommissioning plan to the Staff and the County Engineer(s) every five (5) years from the commencement of construction. The revised plan shall reflect advancements in engineering techniques and reclamation equipment and standards. The revised plan shall be applied to each five-year decommissioning cost estimate. Prior to implementation, the decommissioning plan and any revisions shall be reviewed by Staff to confirm compliance with this condition.
- (c) The facility owner and/or facility operator shall, at its expense, complete decommissioning of the facility, or individual wind turbines, within 12 months after the end of the useful life of the facility or individual wind turbines. If no electricity is generated for a continuous period of 12 months, or if the Board deems the facility or turbine to be in a state of disrepair warranting decommissioning, the wind energy facility or individual wind turbines will be presumed to have reached the end of its useful life. The Board may extend the useful life period for the wind energy facility or individual turbines for good cause as shown by the facility owner and/or facility operator. The Board may also require decommissioning of individual wind turbines due to health, safety, wildlife impact, or other concerns that prevent the turbine from operating within the terms of the Certificate.
- (d) Decommissioning shall include the removal and transportation of the wind turbines off site. Decommissioning shall also include the removal of buildings, cabling, electrical components, access roads, and any other associated facilities, unless otherwise mutually agreed upon by the facility owner and/or facility operator and the landowner. All physical material pertaining to the facility and associated equipment shall be removed to a depth of at least 36 inches beneath the soil surface and transported off site. The disturbed area shall be restored to the same physical condition that existed before erection of the facility. Damaged field tile systems shall be repaired to the satisfaction of the property owner.
- (e) During decommissioning, all recyclable materials, salvaged and non-salvaged, shall be recycled to the furthest extent practicable. All other non-recyclable waste materials shall be disposed of in accordance with state and federal law.
- (f) The facility owner and/or facility operator shall not remove any improvements made to the electrical infrastructure if doing so would disrupt the electric grid, unless otherwise approved by the applicable regional transmission organization and interconnection utility.
- (g) Subject to confirmation of compliance with this condition by Staff, and seven days prior to the preconstruction conference, an independent, registered Professional Engineer, licensed to practice engineering in the state of Ohio, shall be retained by the Applicant, facility owner, and/or facility operator to estimate the total cost of decommissioning in current dollars, without regard to salvage value of the equipment. Said estimate shall include: (1) an identification and analysis of the activities necessary to implement the most recent approved decommissioning plan including, but not limited to, physical construction and demolition costs assuming good industry practice and based on ODOT's *Procedure for Budget Estimating and RS Means* material and

labor cost indices or any other publication or guidelines approved by OPSB Staff; (2) the cost to perform each of the activities; (3) an amount to cover contingency costs, not to exceed 10 percent of the above calculated reclamation cost. Said estimate will be converted to a per-turbine basis (the “Decommissioning Costs”), calculated as the total cost of decommissioning of all facilities as estimated by the Professional Engineer divided by the number of turbines in the most recent facility engineering drawings. This estimate shall be conducted every five years by the facility owner and/or facility operator.

- (h) The Applicant, facility owner and/or facility operator shall post and maintain for decommissioning, at its election, funds, a surety bond, or similar financial assurance in an amount equal to the per-turbine Decommissioning Costs multiplied by the sum of the number of turbines constructed and under construction. The funds, surety bond, or financial assurance need not be posted separately for each turbine so long as the total amount reflects the aggregate of the Decommissioning Costs for all turbines constructed or under construction. For purposes of this condition, a turbine is considered to be under construction at the commencement of excavation for the turbine foundation. The form of financial assurance or surety bond shall be a financial instrument mutually agreed upon by the Board and the Applicant, the facility owner, and/or the facility operator. The financial assurance shall ensure the faithful performance of all requirements and reclamation conditions of the most recently filed and approved decommissioning and reclamation plan. At least 30 days prior to the preconstruction conference, the Applicant, the facility owner, and/or the facility operator shall provide an estimated timeline for the posting of decommissioning funds based on the construction schedule for each turbine. Prior to commencement of construction, the Applicant, the facility owner, and/or the facility operator shall provide a statement from the holder of the financial assurance demonstrating that adequate funds have been posted for the scheduled construction. Once the financial assurance is provided, the Applicant, facility owner and/or facility operator shall maintain such funds or assurance throughout the remainder of the applicable term and shall adjust the amount of the assurance, if necessary, to offset any increase or decrease in the Decommissioning Costs.
- (i) The decommissioning funds, surety bond, or financial assurance shall be released by the holder of the funds, bond, or financial assurance when the facility owner and/or facility operator has demonstrated, and the Board concurs, that decommissioning has been satisfactorily completed, or upon written approval of the Board, in order to implement the decommissioning plan.

AIR, WATER, SOLID WASTE, AND AVIATION CONDITIONS

Staff recommends the following conditions to address the requirements discussed in Air, Water, Solid Waste, and Aviation:

- (56) Prior to the commencement of construction activities that require permits or authorizations by federal or state laws and regulations, the Applicant shall obtain and comply with such permits or authorizations. The Applicant shall provide copies of permits and authorizations, including all supporting documentation, to Staff within seven days of issuance or receipt by the Applicant. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference.

- (57) At least seven days before the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, a copy of all NPDES permits including its approved SWPPP, approved SPCC procedures, and its erosion and sediment control plan. Any soil issues must be addressed through proper design and adherence to the Ohio EPA BMPs related to erosion and sedimentation control.
- (58) The Applicant shall employ the following erosion and sedimentation control measures, construction methods, and BMPs when working near environmentally-sensitive areas and/or when in close proximity to any watercourses, in accordance with the Ohio NPDES permit(s) and SWPPP obtained for the project:
- (a) During construction of the facility, seed all disturbed soil, except within actively cultivated agricultural fields, within seven days of final grading with a seed mixture acceptable to the appropriate County Cooperative Extension Service. Denuded areas, including spoils piles, shall be seeded and stabilized within seven days, if they will be undisturbed for more than 21 days. Re-seeding shall be done within seven days of emergence of seedlings as necessary until sufficient vegetation in all areas has been established.
 - (b) Inspect and repair all erosion control measures after each rainfall event of one-half of an inch or greater over a 24-hour period, and maintain controls until permanent vegetative cover has been established on disturbed areas.
 - (c) Delineate all watercourses, including wetlands, by fencing, flagging, or other prominent means.
 - (d) Avoid entry of construction equipment into watercourses, including wetlands, except at specific locations where construction has been approved.
 - (e) Prohibit storage, stockpiling, and/or disposal of equipment and materials in these sensitive areas.
 - (f) Locate structures outside of identified watercourses, including wetlands, except at specific locations where construction has been approved.
 - (g) Divert all storm water runoff away from fill slopes and other exposed surfaces to the greatest extent possible, and direct instead to appropriate catchment structures, sediment ponds, etc., using diversion berms, temporary ditches, check dams, or similar measures.
- (59) The Applicant shall remove all temporary gravel and other construction staging area and access road materials after completion of construction activities, as weather permits, unless otherwise directed by the landowner. Impacted areas shall be restored to preconstruction conditions in compliance with the NPDES permit(s) obtained for the project and the approved SWPPP created for this project.
- (60) The Applicant shall not dispose of gravel or any other construction material during or following construction of the facility by spreading such material on agricultural land. All construction debris and all contaminated soil shall be promptly removed and properly disposed of in accordance with Ohio EPA regulations.

- (61) The Applicant shall comply with fugitive dust rules by the use of water spray or other appropriate dust suppressant measures whenever necessary.
- (62) The Applicant shall comply with any drinking water source protection plan for any part of the facility that is located within drinking water source protection areas of the local villages and cities.
- (63) The Applicant shall provide a copy of any floodplain permit required for construction of this project, or a copy of correspondence with the floodplain administrator showing that no permit is required, to Staff within seven days of issuance or receipt by the Applicant.
- (64) Thirty days prior to commencement of construction, the Applicant must notify, in writing, any owner of an airport located within 20 miles of the project boundary, whether public or private, whose operations, operating thresholds/minimums, landing/approach procedures and/or vectors are expected to be altered by the siting, operation, maintenance, or decommissioning of the facility.
- (65) The Applicant must meet all recommended and prescribed FAA and ODOT Office of Aviation requirements to construct an object that may affect navigable airspace. This includes submitting coordinates and heights for all towers exceeding 199 feet at ground level for ODOT Office of Aviation and FAA review prior to construction, and the non-penetration of any FAA *Part 77* surfaces.
- (66) All applicable structures, including construction equipment, shall be lit in accordance with FAA circular 70/7460-1 K Change 2, *Obstruction Marking and Lighting*; or as otherwise prescribed by the FAA. This includes all cranes and construction equipment. During construction, the Applicant shall ensure that all structures that reach 200 feet in height, at ground level, are temporarily marked and lit until permanent lighting is installed.
- (67) The Applicant shall provide the flight service stations within proximity with notices to airman (NOTAM). These notices shall include the latitude and longitude coordinates for all structures, including cranes and construction equipment, that exceed 200 feet in height at ground level.
- (68) The Applicant shall file all 7460-2 forms with the FAA at least 42 days prior to construction and to Staff for confirmation of compliance with this condition.
- (69) Within 30 days of construction completion, the Applicant shall file the as-built transmission structure coordinates and heights (AGL) with the Ohio Office of Aviation and Federal Aviation Administration.
- (70) The Applicant shall submit to Staff, for review and confirmation that it complies with this condition, a medical needs service plan for construction, testing, and operation of this facility, in coordination with the local emergency life flight service, CareFlight. This plan shall incorporate measures that assure immediate shut downs of any portion of the facility necessary to allow direct routes for emergency life flight services within the vicinity of the facility.

APPENDIX

1. DOCKETING RECORD

CASE NUMBER: 12-0160-EL-BGN

DESCRIPTION: Buckeye II Wind Farm

FILINGS AS OF: 10/10/2012

10/10/2012	Response (Supplemental) to Champaign Wind's First Request for Documents electronically filed by Mr. Jack A. Van Kley on behalf of McConnell, Diane Ms.
10/10/2012	Response (Supplemental) to Champaign Wind's First Request for Documents electronically filed by Mr. Jack A Van Kley on behalf of McConnell, Robert Mr.
10/10/2012	Response to Champaign Wind's Second Request for Documents electronically filed by Mr. Jack A. Van Kley on behalf of McConnell, Diane Ms.
10/10/2012	Response to Champaign Wind's Second Request for Documents electronically filed by Mr. Jack A. Van Kley on behalf of McConnell, Robert Mr.
10/10/2012	Response to Champaign Wind's Second Request for Documents electronically filed by Mr. Jack A. Van Kley on behalf of Johnson, Julia Ms.
10/10/2012	Response of Intervenor UNU to Champaign Wind's Second Request for Production of Documents electronically filed by Mr. Jack A. Van Kley on behalf of Union Neighbors United.
10/09/2012	Motion to Quash the Subpoenas Duces Tecum of Union Neighbors United, Inc., Julia Johnson, Robert McConnell, and Diane McConnell and memorandum in Support electronically filed by Mrs. Gretchen L. Petrucci on behalf of EDP Renewables North America LLC.
10/04/2012	Notice of Filing Applicant's Responses to Intervenor's Union Neighbors United, Robert McConnell, Diane McConnell, and Julia Johnson's First Set of Interrogatories electronically filed by Ms. Miranda R Leppla on behalf of Champaign Wind LLC.
10/04/2012	Service Notice
10/04/2012	Administrative Law Judge Entry revising response time to all future motions and discovery requests. - electronically filed by Sandra Coffey on behalf of Jonathan Tauber, Attorney Examiner, Public Utilities Commission of Ohio.
10/01/2012	Petition for leave to intervene and memorandum in support by City of Urbana, Ohio filed by G.S.Weithman.
10/01/2012	Notice of Filing Correspondence Submitted to Staff Regarding Vestas V100 Turbine Model electronically filed by Ms. Miranda R Leppla on behalf of Champaign Wind LLC
09/28/2012	Notice of Filing Applicant's Second Set of Interrogatories and Requests for Production of Documents to Union Neighbors United, Inc., Bob McConnell, Diane McConnell, and Julia Johnson by Champaign Wind LLC electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC
09/28/2012	Motion and Memorandum in Support of Intervenor's Union Neighbors United, Inc., Julie Johnson, and Robert and Diane McConnell for issuance of a subpoena duces tecum to EDP Renewables North America, LLC.
09/28/2012	Motion and Memorandum in Support of Intervenor's Union Neighbors United, Inc., Julie Johnson, and Robert and Diane McConnell for issuance of a subpoena duces tecum to Gamesa Wind US, LLC, filed by J. A. Van Kley.
09/28/2012	Motion and Memorandum in Support of Intervenor's Union Neighbors United, Inc., Julie Johnson, and Robert and Diane McConnell for Issuance of a subpoena duces tecum to Invenergy LLC, filed by J. A. Van Kley.
09/28/2012	Motion and Memorandum in Support of Intervenor's Union Neighbors United, Inc., Julie Johnson, and Robert and Diane McConnell for issuance of a subpoena duces tecum to the General Electric Company LLC, filed by J. A. Van Kley.
09/27/2012	Notice of the submittal of Landowner/affected tenant name and address of each property owner and affected tenant to whom a letter regarding Case No. 12-0160-EL-BGN was sent out within the meaning of this rule. filed by Michael J. Settineri on behalf of Champaign Wind LLC.

09/27/2012	Petition for leave to Intervene by City of Urbana, Ohio filed by G.S. Weithman. (FAX)
09/27/2012	Notice of Filing Applicant's September 26, 2012 Responses to Staff's Data Requests electronically filed by Ms. Miranda R Leppla on behalf of Champaign Wind LLC
09/27/2012	Correspondence by Champaign Wind LLC regarding pending motions for subpoena requested by Union Neighbors United, Julia Johnson, Diane McConnell and Robert McConnell electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC
09/24/2012	Motion to Issue Subpoena to Invenergy electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
09/24/2012	Motion to Issue Subpoena to Gamesa electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
09/24/2012	Motion of Intervenors union Neighbors United Inc., Julie Johnson and Robert and Diane McConnell for issuance of a Subpoena Duces Tecum to Gabriel Alonso in his capacity as Chief Executive Officer of EDP renewables North America LLC and Memorandum in Support electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
09/18/2012	Notice of Filing Applicant's September 18, 2012 Responses to Staff's August 28, 2012 Data Requests electronically filed by Ms. Miranda R. Leppla on behalf of Champaign Wind LLC.
09/17/2012	Petition for Leave to Intervene electronically filed by Mr. Philip B Sineneng on behalf of Pioneer Rural Electric Cooperative, Inc.
09/13/2012	Notice of Service of Document Requests on Applicant Champaign Wind LLC electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
09/13/2012	Notice of Service of Interrogatories on Applicant Champaign Wind LLC electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United.
09/13/2012	Proof of publication, Champaign County filed by M. Settineri.
09/11/2012	Responses and objections of McConnell, Diane Ms. to Champaign Wind's First Set of Interrogatories and Requests for Documents electronically filed by Mr. Jack A Van Kley.
09/11/2012	Responses and objections of McConnell, Robert Mr. to Champaign Wind's First Set of Interrogatories and Requests for Documents electronically filed by Mr. Jack A Van Kley.
09/11/2012	Response of Johnson, Julia Ms. to Champaign Wind's Interrogatories and Requests for Documents electronically filed by Mr. Jack A Van Kley.
09/11/2012	Responses and objections of Union Neighbors United, Inc. to Champaign Wind LLC's First Set of Interrogatories and Request for Production of Documents electronically filed by Mr. Jack A Van Kley.
09/06/2012	Letter stating that information of August 31, 2012, inadvertently filed does not represent a definitive or final recommendation by the OPSB Staff to the Board.
08/31/2012	Spreadsheet documenting sound levels recorded on June 20 and 21, 2012 within the proposed Project area electronically filed by Mr. Nicholas E. Doss on behalf of The Ohio Power Siting Board.
08/29/2012	Interrogatories and Data Requests filed by Staff.
08/22/2012	Notice of Filing Applicant's First Set of Interrogatories and Requests for Production of Documents to UNU, Bob McConnell, Diane McConnell, and Julia Johnson electronically filed by Ms. Miranda R Leppla on behalf of Champaign Wind LLC
08/20/2012	Notice of Intervention of Board of Trustees of Goshen Township, Champaign County, Ohio electronically filed by Jane A. Napier on behalf of Goshen Township Board of Trustees.
08/17/2012	Notice of Filing Champaign Wind LLC's August 15, 2012 Responses to Staff's Data Requests electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind, LLC.
08/16/2012	Notice of Intervention of Board of Trustees of Union Township, Champaign County, Ohio electronically filed by Jane A. Napier on behalf of Union Township Board of Trustees.
08/16/2012	Notice of Intervention of Board of Trustees of Urbana Township, Champaign County, Ohio electronically filed by Jane A. Napier on behalf of Urbana Township Board of Trustees.
08/16/2012	Notice of Intervention of Board of Commissioners of Champaign County, Ohio electronically filed by Jane A. Napier on behalf of Champaign County Board of Commissioners.
08/03/2012	Service Notice

08/02/2012	Attorney Examiner Entry by Administrative Law Judge granting motions to intervene, granting waivers, granting protective orders, and establishing a procedural schedule. - electronically filed by Ms. Sandra M. Coffey on behalf of Mandy Willey, Attorney Examiner, Public Utilities Commission of Ohio.
07/20/2012	Correspondence on Application Fee electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
07/20/2012	Certificate of Service of Application electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
07/13/2012	Letter of correspondence from Chairman Todd Snitchler regarding "completeness".
07/02/2012	Reply in Support of Amended Motion to Intervene electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
06/29/2012	Amended Motion for Protective Order and memorandum in support electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
06/25/2012	Response of Champaign Wind LLC to Amended Petition to Intervene by Union Neighbors United, Inc., Robert McConnell, Diane McConnell, and Julia Johnson electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
06/08/2012	Motion to Intervene of the Ohio Farm Bureau Federation and Memorandum in Support filed by Chad A. Endsley on behalf of Ohio Farm Bureau Federation.
06/08/2012	Petition Amended Petition for Leave to Intervene of Union Neighbors United, Robert and Diane McConnell, and Julia F. Johnson electronically filed by Mr. Christopher A Walker on behalf of Champaign Wind LLC
06/06/2012	Reply of Champaign Wind LLC to Memorandum in Opposition to Motion for Protective Order electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/31/2012	Reply brief of Champaign Wind LLC to the memorandum in opposition by Union Neighbors United, Inc., Robert McConnell, Diane McConnell, and Julia Johnson to Champaign Wind's motion for waiver.
05/30/2012	Memorandum by Union Neighbors United, Inc. in Response to Applicant's Motion for Protective Order electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
05/24/2012	Opposition to Applicant's Motion for Waiver electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and Johnson, Julia Ms. and McConnell, Robert Mr. and McConnell, Diane Ms.
05/17/2012	Memorandum regarding applicant's waiver requests, filed by Mr. Nicholas E. Doss on behalf of Mr. Klaus Lambeck.
05/16/2012	Notice of service filed by M.R.Leppla on behalf of Champaign Wind LLC.
05/15/2012	Motion for protective order and memorandum in support M. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Confidential document target for financial data and safety information filed by M. Settineri on behalf of Champaign Wind LLC
05/15/2012	Exhibit T: Communication Studies (cont'd), Vol III, Part 43 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit S: Aeronautical Studies (cont'd); Exhibit T: Communication Studies, Vol III, Part 42 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit S: Aeronautical Studies (cont'd), Vol III, Part 41 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit S: Aeronautical Studies (cont'd), Vol III, Part 40 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit S: Aeronautical Studies (cont'd), Vol III, Part 39 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Vestas Health Safety & Environment Manual (cont'd); Exhibit S: Aeronautical Studies , Vol III, Part 38 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Vestas Health Safety & Environment Manual (cont'd), Vol III, Part 37 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.

05/15/2012	Exhibit R: Turbine Safety Manuals, Vestas Health Safety & Environment Manual (cont'd), Vol III, Part 36 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, GE Energy Safety Manual (cont'd); Vestas Health Safety & Environment Manual, Vol III, Part 35 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, GE Energy Safety Manual (cont'd), Vol III, Part 34 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, GE Energy Safety Manual (cont'd), Vol III, Part 33 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd); GE Energy Safety Manual, Vol III, Part 32 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd), Vol III, Part 31 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd), Vol III, Part 30 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd), Vol III, Part 29 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd), Vol III, Part 28 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd), Vol III, Part 27 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Repower MM100 Safety Manual (cont'd); Nordex Safety Manual, Vol III, Part 25 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Nordex Safety Manual (cont'd), Vol III, Part 26 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Repower MM100 Safety Manual (cont'd), Vol III, Part 24 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Repower MM100 Safety Manual (cont'd), Vol III, Part 23B electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Repower MM100 Safety Manual (cont'd), Vol III, Part 23A electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Repower MM100 Safety Manual (cont'd), Vol III, Part 22 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Vestas Manual (cont'd); Repower MM100 Safety Manual, Vol III, Part 21 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit R: Turbine Safety Manuals, Vestas Manual (cont'd), Vol III, Part 20 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Appendix E. Typical Overhead Line/Substation Photos and Details (cont'd); Exhibit R: Turbine Safety Manuals, Vestas Manual, Vol III, Part 19 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Figures 17-18; Appendix E. Typical Overhead Line/Substation Photos and Details, Vol III, Part 18 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Figures 24 & 16, Vol III, Part 17 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Figures 14-15, Vol III, Part 16 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Figures 12 & 23, Vol III, Part 15A electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Figures 11 & 22, Vol III, Part 15B electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Figures 9-11, Vol III, Part 14 electronically filed by Mr. Michael

	J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Appendix C. Photo Log and Field Notes (cont'd); Appendix D. Digital Simulations, Vol III, Part 13 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Appendix C. Photo Log and Field Notes (cont'd), Vol III, Part 12 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Appendix C. Photo Log and Field Notes (cont'd), Vol III, Part 11 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Appendix C. Photo Log and Field Notes (cont'd), Vol III, Part 10 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment, Appendix C. Photo Log and Field Notes (cont'd), Vol 3, Part 9 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment (cont'd); Appendix A. Visual Simulation Process; Appendix B. Large Scale Vegetative Viewshed Maps and Visually Sensitive Site Table; Appendix C. Photo Log and Field Notes, Vol III, Part 8 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit Q: Visual Impact Assessment (cont'd), Vol III, Part 7 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit P: Shadow Flicker Report, Attachments E (cont'd)-G; Exhibit Q: Visual Impact Assessment, Vol III, Part 6 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit O: Environmental Sound Survey and Noise Impact Assessment (cont'd); Exhibit P: Shadow Flicker Report, Figures and Attachments A-E , Vol III, Part 5A electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit P: Shadow Flicker Report, Attachment E (cont'd), Vol III, Part 5B electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit O: Environmental Sound Survey and Noise Impact Assessment (cont'd), Vol III, Part 4 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit M: Turbine Information (cont'd); Exhibit N: Typical Construction Photos and Details; Exhibit O: Environmental Sound Survey and Noise Impact Assessment, Vol 3, Part 3 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit M: Turbine Information (cont'd), Vol III, Part 2 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC
05/15/2012	Exhibit L: Cultural Resources Report (cont'd); Exhibit M: Turbine Information, Vol III, Part 1B electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit L: Cultural Resources Report, Vol III, Part 1A electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit J: Bird and Bat Survey Report (cont'd); Appendix A. Acoustic Survey Results; Appendix B. Raptor Survey Results; Appendix C. Breeding Bird Survey Results; Exhibit K: Bat Mist-Netting Report, Vol 2, Part 9 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit I: Bird and Bat Migration Survey Report (cont'd); Appendix A. Radar Survey Results; Appendix B. Bat Survey Results; Appendix C. Raptor Survey Results; Exhibit J: Bird and Bat Survey Report, Vol II, Part 8 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit H: Appendix C. ORAM Data Sheets; Appendix D. Stream Data Sheets; Exhibit I: Bird and Bat Migration Survey Report; , Vol II, Part 7 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit H: Appendix A. Photographs (cont'd); Appendix B. Wetland Delineation Data Sheets; Appendix C. ORAM Data Sheets, Vol II, Part 6 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit H: Appendix A. Photographs (cont'd), Vol II, Part 5B electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit H Tables & Exhibits (cont'd); Exhibit H: Appendix A. Photographs, Vol II, Part 5A electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.

05/15/2012	Exhibit H Tables & Exhibits (cont'd), Vol 2, Part 4 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Exhibit G: Economic Impact Assessment (cont'd); Exhibit H: Surface Waters, Ecological Communities, and Threatened & Endangered Species; Exhibit H Tables & Exhibits, Vol II, Part 3 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Figures 15-19: Exhibits for Conceptual Improvements; Photos 19-37; Exhibit F and Figures: Groundwater, Hydrology & Geotechnical Improvements; Attachment A: Photographs; Attachment B: Generalized Earthwork Records; Attachment C: Generalized Geotechnical Exploration Work Plan; Appendix A: Property Owner Well Surveys; Exhibit G: Economic Impact Assessment, Vol II, Part 2 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Ex. E: Route Evacuation Study (cont'd); Appendix 1. Route Location Map; Appendix 2. Phase 1 Route Evacuation Study; Figures 1-9: Exhibits for Conceptual Improvements; Photos 1-18; Figures 10-14: Exhibits for Conceptual Improvements, Vol 2, Part 1B electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Ex. A: Motion for Waivers; Ex. B: Wind Resources Map; Ex. C: System Impact Study; Ex. D: Feasibility Study; Ex. E: Route Evacuation Study, Vol II, Part 1A electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Figure 08-3. Agricultural Resource, Vol 1, Part 6 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Figure 08-1. Ecological Features (cont'd); Figure 08-2. Land Use, Vol 1, Part 5 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Figure 05-3. Existing Features (cont'd); Figure 05-4. Site Layout; Figure 08-1. Ecological Features, Vol I, Part 4 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Figure 05-1. Geography and Topography (cont'd); Figure 05-2. Aerial Photography; Figure 05-3. Existing Features, Vol I, Part 3 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Figure 04-1. Constraints Map; Figure 05-1. Geography and Topography, Vol I, Part 2 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/15/2012	Application for a Certificate of Environmental Compatibility and Public Need for Buckeye II Wind Farm, Vol I, Part 1 electronically filed by Mr. Michael J. Settineri on behalf of Champaign Wind LLC.
05/09/2012	Motion for waivers and memorandum in support filed by M. Howard Petricoff on behalf of Champaign Wind LLC.
03/27/2012	Reply in Support of Motion to Intervene electronically filed by Mr. Jack A Van Kley on behalf of Union Neighbors United and McConnell, Robert Mr. and McConnell, Diane Ms. and Johnson, Julia Ms.
03/20/2012	Champaign Wind LLC's memorandum contra to petition for leave to intervene of Union Neighbors United, Inc., Robert McConnell, Diane McConnell and Julia Johnson filed by M. Settineri.
03/05/2012	Petition for leave to Intervene and memorandum in support of Union Neighbors United Inc., Robert McConnell, Diane McConnell, and Julia Johnson filed by J. A. Van Kley.
02/06/2012	Proof of Publication for Champaign County-Public Information Meeting electronically filed by Mr. Stephen M. Howard on behalf of Champaign Wind LLC.
01/06/2012	In the matter of the Buckeye II Wind Farm, pre-application notification for Champaign Wind LLC, a wholly owned subsidiary of EverPower Wind Holdings, Inc.

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Summary: Staff Report Filed electronically filed by Mr. Donald E. Rostofer on behalf of OPSB
Staff