THE OHIO STATE UNIVERSITY EXTENSION

FACT SHEET

Community Development

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Renewable Energy Policy Series: Rules for Siting a Utility Scale Wind Farm in Ohio

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Renewable Energy Development in Ohio

Renewable energy drivers such as increasing energy demand, environmental concerns, and a desire to minimize dependency on foreign oil resources are influencing the development of policy and market investment of renewable energy technologies. An assessment of renewable energy conducted by Battelle estimates that "innovation, development, and investment in the renewable energy sector is unlikely to wane given climate change pressures and the substantial projected increases in global energy demand (Battelle, 2010)." In 2008, Ohio passed Senate Bill 221, which included Alternative Energy Portfolio Standards (AEPS) for the state's investor-owned utilities. This new law requires that 25% of electricity sold by these utilities must be obtained from alternative energy resources by the year 2025. In 2010, the Ohio General Assembly passed Senate Bill 232, which lessened the state tax burden on renewable and advanced energy projects. As a result of these policy drivers, wind energy developers are now considering Ohio communities to be a viable location for large-scale wind projects.

This fact sheet summarizes the application process and certification requirements for siting approval and setbacks of large-scale wind farms in Ohio. It is intended for use by community residents and elected leaders to help raise their level of awareness of the permitting process in order to make informed decisions when approached by wind developers. Also, it is intended to identify the commonly raised concerns among impacted communities, and ways in which the permitting process addresses these concerns.

Wind Development and Community Concerns

Wind energy has become a feasible resource to electricity production that satisfies the AEPS requirements for renewable energy development in Ohio. The example of the 305-megawatt Blue Creek Wind Farm recently developed in Van Wert County, supports this point. Some potential benefits to wind power include an investment in jobs (construction and permanent), manufacturing opportunities, lease payments for landowners, no water or air pollution, and an increase to the tax base of local communities.

Large-scale wind projects can also foster com-

munity concern and opposition. Increasing conflicts between local communities and wind energy development will continue as wind technology deployment expands into new regions of the United States. Widely recognized community-level opposition and barriers to wind development include visual aesthetics, structural failure, ice throw[1], noise, shadow flicker[2], property values, and impact on wildlife (E. Lantz and L. Flowers, 2010). In Ohio, The Ohio Power Siting Board (OPSB) is the governing body that considers concerns of wind farm development during the application review process. Prior to approval, the application process requires an in-depth impact analysis by the wind developer. This fact sheet will focus on the structure and role of the OPSB as well as the siting requirements for wind projects that relate to the most commonly expressed community concerns associated with wind development.

The Ohio Power Siting Board

In 1981 House Bill 694 created the Ohio Power Siting Board as a separate entity housed within the Public Utilities Commission of Ohio. The OPSB is responsible for reviewing and approving plans for the construction of new major energy facilities in Ohio. The OPSB is comprised of eleven members including the following:

- Public Utilities Commission of Ohio, Chair
- Ohio Environmental Protection Agency, Director
- Ohio Department of Agriculture, Director
- Ohio Department of Development, Director
- Ohio Department of Health, Director
- Ohio Department of Natural Resources, Director
- Public engineer appointed by the governor
- Four legislative members (non-voting)

Before a company can build a new major utility facility[3] in Ohio, the OPSB assures that it benefits Ohio's citizens, promotes the state's economic interests, and protects the state's environment and land use. With the passage of House Bill 562, the OPSB was tasked with drafting certification requirements for the siting of "economically significant wind farms[4]," that is, facilities capable of generating between five and fifty megawatts of electricity. The rules were approved on May 7, 2009.

Rules Governing Economically Significant Wind Farms

The OPSB requires developers of economically significant wind farms to apply for and obtain a Certificate of Environmental Compatibility and Public Need prior to project development. Rules governing the development of these wind farms are similar to existing siting rules for other types of electrical generation facilities in Ohio. The Ohio Administrative Code Chapter 4906-17 outlines a detailed list of the application filing requirements for wind-powered electric generation facilities[5] in Ohio.

According to rules adopted by the OPSB, an application must include a complete project description of the proposed wind farm, including the type and number of wind turbines to be used as well as identification of the footprint, height, and blade length of each turbine. The developer must also submit a comprehensive description of the impact on land areas during construction and required land for ongoing operation of the project. Evaluations must be conducted to identify the potential impacts of noise, ice throw, blade shear[6], and shadow flicker on nearby properties. Plans must be submitted to describe how the developer intends to address and minimize the potential impacts.

The application process to obtain a Certificate of Environmental Compatibility and Public Need requires that the developer take a comprehensive approach to analyzing community impact from a number of viewpoints, including most commonly expressed community concerns and measures to address them. For more detail on community concerns and measures required during the application process, reference Table A: Reporting Requirements for Certificate of Environmental Compatibility at the end of this fact sheet.

Setback Requirements

Setbacks are a critical component to the design of a wind farm. Concerns of local residents such as noise, shadow flicker, and ice throw can be minimized or eliminated by effectively managing turbine siting and setbacks from nearby residential dwellings. The OPSB application process requires developers to identify the

setback distance from nearby residences and property lines for each proposed turbine. As a minimum requirement, each turbine must be setback from the nearest property line a distance equal to one and one tenth times the height of the turbine. In calculating the turbine height, the structure should be measured from its base to the tip of its highest blade. In addition, Ohio's statutory minimum residential setback is 750 feet plus the total blade length from the exterior of the nearest, habitable, residential structure (Ohio Revised Code, 2008). It is important to recognize the OPSB has the authority to increase the required setback distance from a residential dwelling based on other factors of the review process. For example, analysis of the potential noise impact on residential properties resulted in an average residential setback of 1,600 feet for wind turbines located in the Blue Creek Wind Farm in Van Wert, Ohio (Litchfield, 2012).

Local Input and Feedback

Prior to formally submitting an application to build a new facility, the developer is required to conduct a public informational meeting. The purpose of this meeting is to inform community stakeholders about the developer's plans to file an application with the OPSB. This process also serves as a platform for the developer to gather public input and understand the local concerns. The developer can use information gathered during the public informational meeting to help draft the project application.

Once the company submits a formal application, the OPSB reviews the plan, gathers input from other agencies, and then makes a recommendation to the board. Following an OPSB recommendation, formal public hearings are held to gather local input and concerns. These hearings allow citizens, interest groups, and governmental entities to contest components of the application through formal testimony. The applicant must consider the comments and respond back to the OPSB in writing. The OPSB then reflects on the testimony and responses prior to making a final decision.

After a case is officially filed with the OPSB, Board members are by law prohibited from discussing the substance of the case until a decision is reached. However, during this time the OPSB encourages concerned citizens to submit their input in the form of written comments (Ohio Power Siting Board, 2008).

Conclusion

Advancements in wind technology combined with state and federal policies have positioned Ohio as a realistic option for utility scale wind development. It is essential that community leaders and residents are cognizant of the permitting process and who has jurisdiction over approving wind projects in Ohio. The process of permitting and siting a wind farm is very detailed and sometimes controversial. As a requirement of the OPSB certification process, developers must consider a number of issues in determining the location of turbines and overall design of a wind project. During the review, the OPSB encourages local residents to contribute to the siting process by participating in public informational meetings, offering public testimony, and submitting written comments. The design and development of a utility scale wind project can be a lengthy process that often spans three to five years. During this time, fostering local awareness through hosting educational programming, facilitating local input, communicating with developers, and providing feedback to residents can lead to a better understanding of the project, which is a critical component to help minimize community conflict.

Footnotes

[1]**Ice throw:** Ice accumulation may occur on wind turbine rotor blades when appropriate conditions of temperature and humidity exist. Ice throw (shed) is a condition in which ice fragments detach from the rotor blades and are thrown from the wind turbine.

[2]**Shadow flicker:** Shadow flicker occurs when wind turbine blades rotate between the viewer and the sun, causing an intermittent shadow.

[3]**Major utility facility:** A major utility facility is an electric-generating plant of fifty megawatts or more, an electric transmission line of 125 kilovolts or more, or a gas or natural gas transmission which is more than nine inches in outside diameter and is designed for or capable of transporting gas at pres-

sures in excess of 125 pounds per square inch (Ohio Revised Code, 2004).

[4]**Economically significant wind farm:** An economically significant wind farm consists of wind turbines and associated facilities with a single interconnection to the electrical grid. It is designed for or capable of operation at an aggregate capacity between five and fifty megawatts (Ohio Power Siting Board, 2008).

[5]**Wind-powered electric generation facility (or wind-energy facility):** By definition, a wind-energy facility consists of all the turbines, collection lines, any associated substations, and all other associated equipment used to make the facility operable (Ohio Administrative Code, 2009).

[6]**Blade shear:** This term refers to a noise effect caused by multiple horizontal layers within the blade rotational diameter with different wind speeds or directions.

Additional Resources

Bowen-Ellzey, N. (2011). *Wind Energy Development as an Economic Development Strategy for Rural Areas.* Retrieved August 10, 2011, from Ohioline: http://ohioline.osu.edu/cd-fact/pdf/11-cmd-849.pdf

Romich, Eric and Chris Bruynis. (2012). *Renewable Energy Policy Series: The Effect of Renewable Energy Projects on Current Agricultural Use Value (CAUV)*. Retrieved July 12, 2012 from Ohioline: http://ohioline.osu.edu/cd-fact/pdf/4003.pdf

Romich, Eric. (2010). *Renewable Energy Policy Series: Ohio SB 221*. Retrieved July 12, 2012 from Ohioline: http://ohioline.osu.edu/cd-fact/pdf/4001.pdf

Romich, Eric. (2011). *Renewable Energy Policy Series: Ohio SB 232—Leveling the Playing Field*. Retrieved July 12, 2012 from Ohioline: http://ohioline.osu.edu/cd-fact/pdf/4002.pdf

Bibliography

Battelle. (2010, June). *Assessment of Renewable Energy, Alternative Energy and Clean Technology Manufacturing Opportunities for Western Pennsylvania, Eastern Ohio and Northern West Virginia*. Retrieved March 2012, from Renewable Manufacturing Gateway: http://www.renewmfg.org/Files/Admin/Battelle%20Study%20Executive%20Summary.pdf

E. Lantz and L. Flowers. (2010). *Scoping and Framing Social Opposition to U.S. Wind Projects* (Poster). NREL Report No. PO-7A2-47969. Retrieved June 26, 2012, from National Renewable Energy Laboratory Publications: http://www.nrel.gov/docs/fy10osti/47969.pdf

Litchfield, D. (2012, June 28). Interview. "Blue Creek Wind Farm Setback Requirements." By E. Romich.

Ohio Administrative Code. (2009, May 7). *Chapter 4906-17 Application Filing Requirements for Wind-Powered Electric Generation Facilities*. Retrieved March 2012, from Law Writer Ohio Laws and Rules: http://codes.ohio.gov/oac/4906-17

Ohio Power Siting Board. (2008, May). *About the Ohio Power Siting Board*. Retrieved March 2012, from Ohio Power Siting Board: http://www.opsb.ohio.gov/opsb/index.cfm/About

Ohio Revised Code. (2008, June). *4906.20 Certificate Required to Construct Certain Wind Farms*. Retrieved March 2012, from Law Writer Ohio Laws and Rules: http://codes.ohio.gov/orc/4906.20

Ohio Revised Code. (2004, April). *4906 Power Siting*. Retrieved March 2012, from Law Writer Ohio Laws and Rules: http://codes.ohio.gov/orc/4906

Table A: Reporting Requirements for Certificate of Environmental Compatibility and Public Need	
Impact Type	**Key Issues Addressed in the OPSB Application**
Health and Safety	**Demographic:** The applicant shall provide demographic information and ten-year projected population estimates for communities within five miles of the proposed project area. **Noise:** For each turbine, the applicant shall evaluate the operational noise levels (day and nighttime conditions) expected at the closest property boundary. **Ice Throw:** The applicant shall evaluate and describe the potential impact from ice throw at the nearest property boundary, including its plans to minimize potential impacts if warranted. **Blade Shear:** The applicant shall evaluate and describe the potential impact from blade shear at the nearest property boundary, including its plans to minimize potential impacts if warranted. **Shadow Flicker:** The applicant shall evaluate and describe the potential impact from shadow flicker at adjacent residential structures and primary roads, including its plans to minimize potential impacts if warranted.
Ecological Impact	**Project Area:** Provide a map of 1:24,000 scale containing a half-mile radius from the proposed facility, showing the proposed project area, undeveloped or abandoned land, recreational areas, parks, wildlife areas, nature preserves, and other conservation areas. **Vegetation Survey:** Conduct and provide the results of a survey of the vegetation within the facility boundary and within a quarter-mile distance from the facility boundary. **Animal Survey:** Conduct and provide the results of a survey of the animal life within the facility boundary and within a quarter-mile distance from the facility boundary. **Identify Major Species:** Provide a list of major species from the animal and plant life survey located in the project area.
Economics, Land Use, and Community Development	**Land Uses:** Provide a map of 1:24,000 scale indicating general land uses. **Payroll Impact:** Estimate the annual total and present worth of construction and operation payroll. **Job Creation:** Estimate the construction and operation employment along with the anticipated number of employees hired from the region. **Tax Revenue:** Estimate the increase in county, township, city, and school district tax revenue accruing from the facility. **Public Services and Facilities:** Describe the probable impact of the construction and operation on public services and facilities. **Regional Development:** Describe the impact of the proposed facility on regional development, including housing, commercial/industrial development, and transportation system development.

Table A: Reporting Requirements for Certificate of Environmental Compatibility and Public Need	
Impact Type	**Key Issues Addressed in the OPSB Application**
Cultural Impact	**Landmarks:** Identify any registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance within five miles of the proposed facility. Estimate the impact of the proposed facility on the preservation and continued meaningfulness of these landmarks and describe plans to mitigate any adverse impact. **Recreational Areas:** Estimate the impact of the proposed facility on recreational areas within one mile of the proposed project area in terms of their proximity to population centers, uniqueness, topography, vegetation, hydrology, and wildlife. Describe plans to avoid, minimize, or mitigate any adverse impact. **Visual Impact:** Describe measures that will be taken to minimize any adverse visual impacts created by the facility, including but not limited to project area location, lighting, and facility coloration.
Public Responsibility	**Public Information Programs:** Describe the applicant's program for public interaction for the siting, construction, and operation of the proposed facility. **Technology Interference:** Evaluate and describe the potential for the facility to interfere with military radar systems, radio, and TV reception. **Roads:** Evaluate and describe the anticipated impact to roads and bridges associated with construction vehicles and equipment delivery. Describe measures that will be taken to repair roads and bridges to at least the condition present prior to the project. **Decommissioning:** Describe the plan for decommissioning and removing the proposed wind turbines (facility), including financial arrangements designed to ensure that the necessary financial resources are available.
Agricultural District Impact	**Agricultural District:** Identify all agricultural land and all agricultural district land located within the proposed project area boundaries. **Impact on Agricultural Land:** For all agricultural land identified, provide an evaluation of the impact of the construction and maintenance of the proposed facility on the viability as agricultural land. The evaluation shall include impacts to cultivated lands, permanent pasture land, managed woodlots, orchards, nurseries, livestock and poultry confinement areas, and agriculturally related structures. Changes in land use and changes in methods of operation made necessary by the proposed facility shall be evaluated.
Source: Ohio Administrative Code, 2009 Note: This table is a summary of requirements as they relate to key controversial issues with wind development. For more details on application filing requirements, pleases reference the Ohio Administrative Code Chapter 4906-17.	