Department of Energy
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DOE/EA-1800

FINDING OF NO SIGNIFICANT IMPACT

MONARCH WARREN COUNTY WIND TURBINE PROJECT
LENOX TOWNSHIP, WARREN COUNTY, IL

AGENCY: U.S. Department of Energy (DOE), Golden Field Office

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: The U.S. Department of Energy (DOE) provided Federal funding appropriated under the American Reinvestment and Recovery Act of 2009 to the Illinois Department of Commerce and Economic Opportunity (DCEO) under the State Energy Program (SEP). DCEO proposes to provide approximately $5 million of its SEP funds to Monarch Wind Power (MWP) for the Monarch Warren County Wind Turbine Project (MWTP). DOE's Proposed Action is to authorize the expenditure of Federal funding under State Energy Program to design, permit, and construct a 12-turbine, 19.2 megawatt wind energy facility south of Monmouth, Illinois. Each wind turbine would have a hub height of approximately 328 feet and a rotor diameter of roughly 271 feet, with a total overall wind turbine height of 464 feet. The project would include approximately 2.3 miles of access roads, an electrical substation, and 2.5 miles of underground electrical transmission cables to connect the project to an existing distribution line that intersects the site. The proposed project would be located on approximately 600 acres of land leased in Lenox Township, Warren County, Illinois.

Before DOE decides whether to authorize the expenditure of Federal funds for the MWTP, DOE must first examine the potential environmental impacts of DOE's Proposed Action in compliance with the *National Environmental Policy Act* (42 U.S.C. 4321 et seq.; NEPA). DOE has authorized DCEO to use a percentage of the Federal funding for preliminary activities related to the project, which include preparation of this EA, conducting analysis, and agency consultation. Such activities are associated with the proposed project and would not significantly impact the environment nor represent an irreversible or irretrievable commitment by DOE in advance of completing the EA. In addition to the design, permitting, and construction of the MWTP, the EA also examined the potential environmental impacts associated the operation and decommissioning of the turbine as connected actions to the Proposed Action.

Based on the information and analysis contained in the Final EA, DOE has determined that its Proposed Action does not constitute a major Federal action that would significantly affect the quality of the human or natural environment within the meaning of NEPA. Therefore, an environmental impact statement is not required and DOE is issuing this FONSI. All discussion, analysis, and findings related to the potential impacts of construction, operation, and eventual decommissioning of the MWTP, including the applicant-committed measures, are contained in the *Final Environmental Assessment for Monarch Warren County Wind Turbine Project, Lenox Township, Warren County, Illinois*; Final EA). The Final EA is hereby incorporated by reference.

DOE prepared this FONSI in accordance with NEPA, the Council on Environmental Quality regulations for implementing NEPA as amended (40 CFR Parts 1500 to 1508), and DOE NEPA regulations (10 CFR Part 1021).

ENVIRONMENTAL IMPACTS: The Final EA examined the potential environmental impacts of the Proposed Action and a No-Action Alternative. Under the No-Action Alternative, DOE would not authorize the use SEP funds for the MWTP, which DOE assumes, for purposes of the EA, would not proceed without SEP funding. This approach provides a basis of comparison for the potential impacts of the proposed project.

MWP proposes to construct and operate the MWTP on previously disturbed agricultural land in Warren County. The project would include approximately 2.3 miles of access roads, an electrical substation, and 2.5 miles of underground

electrical transmission cables to connect the project to an existing distribution line that intersects the site. The turbines and associated infrastructure would be owned by MWP, and the proposed project would be located on approximately 600 acres of land leased from Warren County and private landowners in Lenox Township, Warren County, Illinois. The proposed project would provide 64,551 megawatt-hours of renewable energy per year that is currently obtained from primarily fossil fuel sources.

Based on the information presented within the EA, DOE concludes that the MWTP would not impact the following resources: wild and scenic rivers, groundwater, surface water, waste management, and intentional destructive acts. Therefore, these resource areas were dismissed from a more detailed analysis in the EA. DOE discusses all resource areas in the EA, but only carries through for detailed discussion impacts on land use, visual resources, noise, cultural resources, geology and soils, biological resources, human health and safety, transportation, socioeconomics and environmental justice, air quality and climate change, and utilities and energy. The discussion below summarizes impacts for select resource areas that are generally of particular concern for wind turbine projects.

The implementation of the MWTP would permanently commit 7 acres of land and temporarily disturb an additional 9 acres associated with installation of the tower foundations, substation, and underground cables on property owned by Warren County and property leased from several local residents. The proposed locations of turbines, the substation, and associated infrastructure are currently used for agricultural production. The MWTP would not result in any direct or indirect land use impacts or any irretrievable commitment of land beyond the life of the project (Section 3.2.2.1 of the Final EA).

In the long term, the proposed project would introduce a strong vertical element into the landscape, as the surrounding area is predominantly level. The construction of 12 wind turbines would introduce structures substantially taller than any currently found within the immediate vicinity into the viewshed. A visual resources analysis, including photo simulations depicting the turbines from various locations within the immediate vicinity and at distances up to 3 miles from the proposed turbine locations, was performed to assess effects on visual resources. While the turbines were prominently visible from several of these locations, adverse impacts to the quality of visual resources in the area are anticipated to be minimal. Potential shadow flicker was also evaluated, and the analysis indicated that shadow flicker is not expected to exceed 22 hours per year for any potential receptor (Section 3.2.2.2 of the Final EA).

Noise would be generated by construction equipment during the MWTP's short-term construction phase. However, construction noise is not expected to substantially increase existing ambient noise levels due to the proximity of a granary and a nearby railroad. MWP conducted a noise analysis for the proposed project to determine expected impacts during the operation of the project. Based on the data, the predicted turbine sound levels are projected to be within the Illinois Pollution Control Board (IPCB) standards for nighttime noise levels, and could exceed the ICPB standard for the 1,000 hertz octave band by approximately 2.2 decibels at the turbine's maximum operable speed. Ambient noise levels already exceed the IPCB standards at this location, and the increase would be approximately 1 decibel, below the threshold of perception for most people (Section 3.2.2.3 of the Final EA).

An examination of potential historic properties within the cumulative visual APE identified three properties that may be eligible for listing on the National Register of Historic Places. However, to an observer on the public right-of-way facing these structures, the turbine would not be visible at two locations and scarcely visible at the third. Additionally, although the former Warren County Alms House cemetery is located on the northeastern corner of the project site, the removal of 105 deceased individuals was carefully monitored by State and county officials, and it is unlikely that unmarked graves would be encountered during installation of the substation. In response to a request from Illinois Historic Preservation Agency (IHPA), MWP has committed to having an archaeologist present during the excavation at the northeast portion of the lease area to ensure that any human remains (if discovered) are appropriately managed in accordance with the *Human Skeletal Remains Protection Act* (20 ILCS 3440; 17 IAC 4170). IHPA determined that no historic properties would be adversely affected by the MWTP (Section 3.2.2.4 of the Final EA). In accordance with Section 106 of the *National Historic Preservation Act* (16 U.S.C. *470 et seq.;* NHPA) and based on analysis conducted by the recipient, DOE determined that the MWTP would not have an adverse effect on historic properties or cultural resources.

Soil disturbance associated with the installation of turbine foundations, roads, and underground cables would be limited and contained entirely within the 16 acres that would be affected by construction activities. Nine (9) of the 16 acres would be returned to agricultural use after construction. No adverse impacts to geology and soils would result from the proposed project (Section 3.2.2.5 of the final EA).

A primary area of environmental concern for the operation of wind turbines is the potential to injure or kill birds and bats. In compliance with Section 7 of the *Endangered Species Act,* DOE prepared a Biological Assessment to examine potential impacts of the project on the Federally-listed endangered Indiana bat. The U.S. Fish and Wildlife Service issued a Biological Opinion for the MWTP on June 27, 2011. Based on recent studies conducted at two large wind farms in Midwest agricultural locations, the USFWS estimated that one Indiana bat would be taken every five years, or a total of six bats over the lifetime of the project. The estimated total amount of take (six Indiana bats) only represents 0.01% of the estimated 2009 winter population within hibernacula in the State of Illinois. Loss of this small number of bats would not be sufficient to adversely impact any hibernating populations to which these individuals belong nor is it anticipated to have an adverse impact on the Blackball Mine Critical Habitat hibernaculum. In an effort to obtain a significant reduction in bat fatalities and the estimated take of no more than six Indiana bats, the proposed project at would operate using a raised cut-in speed of 5.0 m/s, during the fall migration period and would implement spring and fall fatality monitoring during specified operation years. A complete list of the reasonable and prudent measures (conservation measures) agreed to by the project proponent for the MWTP is contained in the Final EA and Appendices (Section 3.2.2.6 of the Final EA; Appendix F, Attachment F-2).

Appropriate safety training, precautions, and best management practices would be applied during construction, operation, and decommissioning of the turbine in an effort to reduce or eliminate health and safety issues. No residences are located within the fall zone of the turbine (1.1 times the total turbine height). Based on the extreme rarity of tower collapse or blade throw and the fact that persons would not be located within the fall zone for extended periods of time, the risk to public safety due to such occurrences would be minimal. Similarly, no adverse effects resulting from lightning strikes, fire, or electromagnetic fields were identified (Section 3.2.2.7 of the Final EA).

The EA identified short-term increases to traffic during construction and transportation of turbine components to the site. Potential disruption of traffic was found to be minor and temporary (Section 3.2.2.8 of the Final EA).

The EA estimated that the MWTP would create 89 jobs and result in the retention of 25 jobs (total direct and indirect). MWP would hire 4 to 5 professional employees in addition to one to two local operations staff. County revenues would be $350,000 initially plus approximately $250,000 per year for the life of the project. No impacts to property values were identified (Section 3.2.2.9 of the Final EA).

Potential effects on air quality due to construction were examined and found to be minor and temporary (Section 3.2.2.10 of the Final EA).

The MWTP's potential effects on communications, radar, and navigation systems was examined, and no effects were identified (Section 3.2.2.11 of the EA).

PUBLIC PARTICIPATION IN THE EA PROCESS: In accordance with applicable regulations and policies, DOE sent a scoping notice on September 14, 2010, to Federal, State, and local agencies; tribal governments; elected officials; businesses; organizations; residents; and special interest groups, providing 15 days to comment on the scope or the EA. DOE received a request to extend the comment period, and DOE extended the scoping period until October 8, 2010. DOE published the Scoping Notice online at the DOE Golden Field Office Reading Room website. Seven responses were received regarding a variety of issues including turbine ice buildup and shedding; prime farmland; surface water/runoff; electromagnetic field effects; soil chemistry impacts; soil compaction; aerial application of pesticides; lightning strikes; driver distraction due to wind turbine presence; rescue helicopter operations; blasting; acoustics; property values; radio/television interference; interference with radar and global positioning systems; and shadow flicker. These concerns were specifically addressed in Section 1.5.1 of the Draft and Final EA and integrated into the analyses conducted in support of the EA.

DOE published the Draft EA online at the DOE Golden Field Office Public Reading Room website at http://www.eere.energy.gov/golden/NEPA_DEA.aspx and DOE's NEPA Website http://nepa.energy.gov/draft_environmental_assessments.htm for a 30-day review period, which ended March 29, 2011. Postcards announcing the availability of the Draft EA were mailed to identified stakeholders, and the Notice of Availability was published in the *Monmouth Daily Review Atlas* on March 1, 2011. DOE received eight comments documents on the Draft EA . Comments were received regarding the project selection, the cost of decommissioning, the definition of "project vicinity," the impacts to the aerial application of pesticides and surface water flow, and the accuracy of the visual simulations. Edits were made to the EA and associated appendices to address these comments.

Additional concerns were raised regarding noise, transportation, cultural resources, and socioeconomics which warranted discussion but no change in the EA analysis. All comments received are contained in Appendix E and summarized in more detail in section 1.5.3.2 of the Final EA.

DETERMINATION: Based on the information in the Final EA (DOE/EA – 1800), DOE determined that the Proposed Action would not constitute a major Federal action significantly affecting the quality of the human environment in the context of NEPA. Therefore, preparation of an environmental impact statement is not required and DOE is issuing this FONSI.

MWP has committed to obtain and comply with all Federal, State, and local permits and applicable regulations required for construction, operation, and eventual decommissioning of the MWTP. Additionally, as part of the Section 7 Consultation, certain reasonable and prudent measures were agreed to by MWP in order to reduce impacts of the proposed project. Necessary permits and project proponent-committed practices are identified in Sections 2.4 and 2.5 of the Final EA.

The environmental protection measures committed to by MWP and identified in the EA and FONSI shall be incorporated and enforceable through DOE's funding award documents to the State of Illinois through DCEO. DCEO will be required to ensure compliance with the requirement that MWP implement the project proponent-committed practices, BMPs, and mitigation measures identified in the EA and FONSI.

The Final EA is available at the DOE Golden Field Office Reading Room website, http://www.eere.energy.gov/golden/Reading_Room.aspx, and the DOE NEPA website, http://nepa.energy.gov/DOE_NEPA_documents.htm.

For questions about this FONSI, please contact:

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