BEFORE

THE OHIO POWER SITING BOARD

In the Matter of the Application by Hardin Wind Energy, LLC, for a Certificate of Environmental Compatibility and Public Need for the Hardin Wind Farm.	))))	Case No. 09-479-EL-BGN

OPINION, ORDER, AND CERTIFICATE

The Ohio Power Siting Board (Board), coming now to consider the above-entitled matter, having appointed administrative law judges (ALJ) to conduct the hearings, having reviewed the exhibits introduced into evidence in this matter, and being otherwise fully advised, hereby issues its opinion, order, and certificate in this case as *required by Chapter 4906 Revised Code.*

APPEARANCES:

Bricker & Eckler LLP, by Sally W. Bloomfield and Matthew W. Warnock, 100 South Third Street, Columbus, Ohio 43215-4291, on behalf of Hardin Wind Energy, LLC.

Richard Cordray, Ohio Attorney General, by Duane W. Luckey, Section Chief, and Werner L. Margard, III, and John H. Hones, Assistant Attorney General, 180 East Broad Street, Columbus, Ohio 43215, and Lauren C. Angell and Sam Peterson, 30 East Broad Street, Columbus, Ohio 43215, on behalf of the staff of the Board.

Larry Gearhardt, Chief Legal Counsel, 280 North High Street, P.O. Box 182383, Columbus, Ohio 43218, on behalf of the Ohio Farm Bureau Federation.

OPINION:

I. SUMMARY OF THE PROCEEDINGS

All proceedings before the Board are conducted according to the provisions of Chapter 4906, Revised Code, and Chapter 4906, Ohio Administrative Code (O.A.C.).

On June 5, 2009, Hardin Wind Energy LLC, (Hardin or applicant) filed its preapplication notice of the instant application. On June 23, 2009, Hardin filed proof that legal notice was published for an informational public meeting concerning the application to be held on June 23, 2009, in Kenton, Ohio.

On July 10, 2009, Hardin filed its application for a certificate of environmental compatibility and public need to construct a 300 megawatt (MW) wind-powered electric generation facility in Hardin County, Ohio, pursuant to Chapter 4906-17, O.A.C.

On June 5, 2009, Hardin filed a motion for waiver of several of the Board's rules, including a request to waive the requirement that an application be filed not less than one year prior to the commencement of construction of the facility set forth in Section 4906.06, Revised Code. On July 17, 2009, the ALJ granted the motion for waivers. In addition, on January 12, 2010, the ALJ granted the motion to intervene in this matter filed by the Ohio Farm Bureau Federation (OFBF).

On September 18, 2009, as supplemented on October 6, 2009, and November 12, 2009, Hardin filed an amended application. Subsequently, by letter dated October 9, 2009, the Board notified Hardin that its application, as amended, had been certified as complete pursuant to Rule 4906-1, *et seq.*, O.A.C. Hardin also served copies of the application upon local government officials and filed proof of service of the application on October 9, 2009.

By entry issued October 13, 2009, the ALJ scheduled both a local public hearing for January 5, 2010, at the Hardin County Courthouse, in Kenton, Ohio, and an evidentiary hearing for January 12, 2010, at the offices of the Public Utilities Commission of Ohio in Columbus, Ohio. The October 13, 2009, entry also directed Hardin to publish notice of the hearings in accordance with Rule 4906-5-08, O.A.C. On January 4, 2010, Hardin filed its proof that the required publications of the hearing notice occurred in the *Kenton Times* and the *Ada Herald*. On December 21, 2009, pursuant to Section 4906.07(C), Revised Code, staff filed a report of its investigation of the Hardin application (Staff Report) (Staff Ex. 1).

The local public hearing in this proceeding was held on January 5, 2010, in Kenton, Ohio, at which 14 witnesses testified regarding the project. The adjudicatory hearing was held on January 12, 2010, at the offices of the Public Utilities Commission of Ohio. Two witnesses testified at the adjudicatory hearing, and Hardin, OFBF, and staff submitted a Stipulation (Joint Ex. 1) resolving all outstanding issues in this case. The Stipulation was not opposed by any party.

II. PROPOSED FACILITY

Hardin proposes to construct a 300 MW wind farm comprised of up to 200 wind turbines with a nameplate capacity of 1.5 MW to 1.6 MW each. If Hardin chooses the 1.6 MW model, 15 turbines would be removed from the project, but the locations of the remaining turbines would not change. The wind farm also includes a two-acre transformer substation and a six-acre interconnection substation. An electric collection system would be installed to transfer power from the wind turbines to the transformer

substation with connection to the transmission grid. The 34.5 kilovolt (kV) system would consist of 98 miles of underground cable buried to a depth of four feet. Approximately 30 miles of new or improved access roads would be needed to support the facility, (Staff Ex. 1 at 2-3).

Hardin expects that the turbines would be operating 85 percent of the year and would have an overall net capacity factor of 26 to 30 percent. Based upon these assumptions, the annual energy production for the wind farm would be approximately 710,000 megawatt hours (MWh). (Staff Ex. 1 at 2.)

The project area is located in Hardin County and encompasses portions of Cessna, Marion, Lynn, McDonald, Roundhead, and Taylor Creek townships. The entire project area includes approximately 36,000 acres of agricultural land, of which Hardin has leased about 20,000 acres for the facility. (Staff Ex. 1 at 2.)

III. CERTIFICATE CRITERIA

Pursuant to Section 4906.10(A), Revised Code, 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) 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 generating facility, such facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility system and the facility will serve the interests of electric system economy and reliability.

(5) The facility will comply with Chapters 3704, 3734, and 6111, Revised Code, and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32, Revised Code.

(6) The facility will serve the public interest, convenience, and necessity.

(7) The impact of the facility on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929, Revised Code, that is located within the site and alternate site of the proposed major facility.

(8) The facility incorporates maximum feasible water conservation practices as determined by the Board, considering available technology and the nature and economics of various alternatives.

The record in this case addresses all of the above-required criteria. In addition, pursuant to Section 4906.20, Revised Code, the Board's authority applies to economically significant wind farms and provides that such entities must be certified by the Board prior to commencing construction of a facility. In accordance with Chapter 4906, Revised Code, the Board promulgated rules which are set forth in Chapter 4906-17, O.A.C., prescribing regulations regarding wind-powered electric generation facilities and associated facilities.

IV. SUMMARY OF THE EVIDENCE

A. Local Public Hearing

At the local public hearing held on January 5, 2010, 12 witnesses testified in support of Hardin's application. Another witness, Michael Smith, the Hardin County Engineer, testified neither in support of, nor against the application. Mr. Smith requested that Hardin's certificate be conditioned upon its compliance with load capacity regulations and that decommissioning be treated in the same manner. (Public Hearing Tr. at 7-11.) Yet another witness, Ed Rogers, voiced concerns over decibel levels of sound emitted from the proposed facility. Mr. Rogers also testified that he is concerned about potential microwave interference and interference with television reception stemming from the proposed facility. He additionally testified in favor of Hardin setting aside funds for decommissioning. (Public Hearing Tr. at 48-53.)

B. Basis of Need - Section 4906.10(A)(1), Revised Code

Staff submits that the basis of need criterion specified under Section 4906.10(A)(1), Revised Code, is not applicable to this electric generating project (Staff Ex. 1 at 8).

C. Nature of Probable Environmental Impact - Section 4906.10(A)(2), Revised Code

Staff reviewed Hardin's environmental information contained in the application. In addition, staff made site visits to the project area and had discussions with employees, representatives of the applicant, and other public agencies. (Staff Ex. 1 at 9.) The Staff Report notes the following, regarding the nature of the probable environmental impact:

(1) A two-phase construction process beginning in mid-2010 is anticipated. The first phase includes up to 156 of the 200 turbines. The second phase includes up to 47 turbines. Hardin has addressed safety with respect to turbines and the project. The turbines would have a supervisory control and data acquisition system, locked tower doors, and towers without external ladders. The substation would have a locked security fence, operation and maintenance personnel, a lightning protection system, and would comply with Occupation Safety and Health Administration requirements.

(2) The project area is sparsely populated and is expected to grow at a slow rate. The project is not expected to limit future population growth. Fourteen residences are located within 100 feet, and 208 residences are located within 1,000 feet of access roads, collection lines, or the substation. No residences are located within 1,000 feet of any proposed turbine locations.

(3) The project would consist of turbines with blades that extend up to 135 feet from the turbine base; therefore, pursuant to Chapter 4906-17, O.A.C, the turbine base can be no closer than 885 feet from a residence on an adjacent property. Hardin designed the turbine layout using a 1,000-foot setback from all residences. Pursuant to Chapter 4906-17, O.A.C., the minimum property line setback is established at 1.1 times the height of the turbine from the turbine base to the blade tip. The height of the turbine under consideration for this facility is 398 feet, which, pursuant to Chapter 4906-17, O.A.C., yields a minimum property line setback of 438 feet. Hardin designed the turbine layout using a 1.5 multiplier for the property line setback, yielding a setback of 597 feet.

(4) Ice fragments typically land within 328 feet of the wind turbine tower and the risk from ice throw is negligible beyond 754 feet, which is within the applicant's residential setback of 1,000 feet.

(5) The maximum blade throw distance for a wind turbine with the same hub height as proposed for this project and larger rotor diameter is 500 feet, which is within Hardin's 1,000 foot setback.

(6) The extreme ten-minute average wind speed for the project area is 19.2 meters per second (m/s), or 43 miles per hour (mph). The 50-year return gust speed for the area is 26.9 m/s or 60 mph. The GE 1.5xle turbines have been designed to withstand these conditions.

(7) No turbines or access roads will be located within the Federal Emergency Management Authority 100-year floodplain. No impacts to public or private water supplies are expected.

(8) Hardin identified five recreational use areas within five miles of the project area: Indian Lake State Park, three municipal parks, and the Colonial Golfers Club. Turbines would be visible from these recreational areas.

(9) The project area contains or intersects 53 agricultural district parcels, 22 of which would be directly impacted by the placement of a turbine, collection line, or access road.

(10) Roughly 95 percent (34,171 acres) of the project area is agricultural fields. The disturbance area for agricultural lands totals 955 acres, of which 777 acres will be temporarily disturbed during construction. The remaining 178 acres of disturbed agricultural land will be removed from agricultural production during operation of the wind farm for access roads, turbines, and other related facilities. The electric collection system will not interfere with agricultural activities.

(11) Residential land use accounts for three percent of the project area. All other nonagricultural land uses combined total 1.5 percent of the project area.

(12) The turbines are 398 feet tall from base to tip and will have an aesthetic impact on this area.

(13) The project is not expected to conflict with known local or regional development projects or land use plans.

(14) There will be an increase in the traffic on highways, and state and local roads during construction, but the operation of the wind farm is not expected to noticeably increase local traffic.

(15) No significant geotechnical constraints at the project site have been identified.

(16) Recorded ambient noise levels (L_{EQ}) ranged from 30.7 to 43.4 decibels (dBA) and the ambient noise levels during the quietest 10 percent of the time ranged from 27.5 to 36.8 dBA.

(17) At residences within one mile of the project area, the operational sound output would be within the range of 20 to 47 dBA.

(18) Construction noise will be temporary and restricted to daylight hours.

(19) Four cultural resources near the project are listed on the National Register of Historic Places (NRHP). The NRHP sites include two historic districts located in the city of Kenton, about five miles to the east of the project area, and a depot structure located in the village of Ada, 4.7 miles north of the project area. The nearest NRHP site is the Zimmerman Kame, which is approximately 2.7 miles west of the project area. Impacts to the NRHP sites will be minimal due to distance from the project area, and because the direct line of sight and noise associated with the turbines will be interrupted by changes in terrain, buildings, and other infrastructure.

(20) The Ohio Historic Inventory (OHI) revealed 19 residential properties and farm complexes within one mile of the project area, none of which are listed on the NRHP. Six historical bridges are listed in the OHI within one mile. Intact bridge structures were identified at four of the historic bridge locations, while the other two had some structural block work remaining, but no decking.

(21) Forty previously documented archaeological sites were identified within one mile of the project area. These sites are comprised of burials, camps, and scattered artifacts. No known archaeological sites were identified at the site-specific turbine locations. A phase one archaeology investigation and an historic architecture report are being performed for this project.

(22) No structures or inhabited dwellings will need to be removed.

(23) Construction activity is expected to impact local roads and bridges. The pavement condition of the state, county, and township roads along the regional delivery route could be impacted by construction and material delivery equipment. Truck loads heavier than the state legal limit may impact existing state, county, and township bridges.

(24) The large turning radius required for the transport of turbine components would impact the features around most intersections, and some temporary alterations to the intersections may be required.

(25) Post-construction and operational impacts to roads and bridges should be limited.

(26) Hardin's shadow flicker simulation resulted in 26 nonparticipating receptors and 29 receptors overall that were anticipated to experience 30 hours or greater per year of shadow flicker. The maximum predicted shadow flicker impact at any receptor was approximately 57 hours per year.

(27) The low volume of air emissions during construction are not expected to cause significant adverse impacts within or beyond the site boundary. No significant air emissions will result from operation of the proposed facility.

(28) Forty-three wetlands, which are considered freshwater emergent, deciduous forest, and farmed wetlands, were identified within the survey corridor of the project area. Thirty-one of the wetlands are considered isolated, while 12 are considered connected to traditionally navigable waters. Vernal pools were observed in three forested wetlands (AWAR016, AWAR021, and AWAR023). The United States (U.S.) Army Corps of Engineers (USACE) has not verified the resources as either "waters of the U.S.," isolated wetlands, or nonjurisdictional features. Fifteen of the wetlands will be located near proposed access roads or turbine locations. To avoid impacts to wetlands, Hardin plans to locate access roads, buried utility lines, and turbines away from wetlands, wherever practical. Horizontal directional drilling (HDD) will be used for installing collection lines and best management practices (BMPs) will be incorporated into construction activities.

(29) A total of 59 streams were observed within the survey corridor during field investigations. Many of these watercourses are tributaries to the Scioto River, with a few draining to the Great Miami River. Eleven streams have a perennial flow regime, while 32 have intermittent and eight ephemeral flow regimes, respectively. The proposed facility would directly impact 16 streams for a total of 568.6 linear feet (0.099 acres) from culverts for new access roads and temporary gravel roads. These streams may require culvert crossings or bridge rehabilitations below the ordinary high water mark. Potential temporary impacts include the loss of riparian habitat, erosion, and downstream sedimentation. Collection lines will be installed using HDD technology at stream crossings to avoid direct impacts to these resources.

(30) Potential access roads have been located so as to avoid direct impacts to streams and wetlands. Existing stream crossing sites (e.g., farm lane culverts) will be used where avoidance is not possible. All temporary stream crossings would be removed following construction, though permanent crossings would remain at some locations for future access.

(31) Approximately 1,160 acres of land cover vegetation community-types would be temporarily converted by this project, including cultivated crops; hay/pasture; developed, open space; deciduous forest; herbaceous; and developed, low density. Approximately 120 acres of these land cover vegetative-types would be permanently converted. Vegetation would be cleared within a 200-foot radius or less around most turbine sites, and a 30-foot wide corridor would be cleared for portions of the electric collection system right-of-way. Only limited tree removal is expected. A total of 1.7 acres of deciduous forested area will be cleared to accommodate various project components. None of the trees proposed for removal exhibit suitable summer roosting or rearing habitat for Indiana bats (*Myotis sodalis*). An environmental specialist will be present on site at all times during construction, including during tree removal, in order to evaluate trees proposed for removal and ensure that summer roosting or rearing habitat trees for the Indiana bat are avoided. If such trees are encountered, Hardin will relocate facilities rather than cut the trees. The potential impacts of tree removal include the loss of food and habitat for wildlife, increased potential for erosion and sedimentation, and aesthetic impacts. In addition, impacts of tree

clearing near streams may include an increase in water temperature and a decrease in dissolved oxygen.

(32) During review of information from the U.S. Fish and Wildlife Service (USFWS), Ohio Ecological Field Office, and the ODNR, Division of Natural Areas and Preserves (DNAP) regarding state and federally listed plant and animal species on October 20, 2008, and during field assessments of the study area, the applicant identified state listed species. The results of the data requests and field assessments are as follows:

a. Plants: USFWS determined that this project does not lie within the known range of any federally listed plant species. ODNR-DNAP did not find plant records in the Natural Heritage Database within one mile of the project area. However, Hardin identified the presence of the state threatened short-fringed sedge (*Carex crinita var. brevicrinis*), the state endangered spike-rush (*Eleocharis sp.*), and knotroot bristle grass (*Setaria parviflora*), which was recently added to the ODNR-DNAP Rare Native Ohio Plants 2008-2009 Status List. The *Carex* and *Eleocharis* species were only found in wetlands and, therefore, would not be impacted. However, the *Setaria* species could be impacted due to the presence of suitable habitat within the survey corridor of the project area. A survey within the survey corridor will be conducted prior to construction to determine the presence of this species, and all populations of this species will be marked for avoidance.

b. Birds: USFWS indicated that this project lies within the known range of the bald eagle (*Haliaeetus leucocephalus*), a state endangered and federal species of concern. Due to the project type, location, and lack of nests within one mile of the project, no impacts to this species would be expected. ODNR-DNAP did not find listed avian species records in the ODNR Natural Heritage Database within a mile of the project. In 2008 and 2009, field surveys on avian species were conducted, and Hardin identified, through limited sightings, the presence of two state endangered species, the northern harrier (*Circus*

cyaneus) and sandhill crane (*Grus canadensis*). The short-eared owl (*Asio flammeus*), a state species of concern, was also observed during field investigation. Also, final findings of the avian surveys have been provided to ODNR and USFWS, and staff will coordinate review of the surveys prior to construction.

c. Reptiles and Amphibians: USFWS indicated that this project lies within the known range of the state endangered and federally threatened copperbelly watersnake (*Nerodia erythrogaster neglecta*) and the eastern massasauga rattlesnake (*Sistrurus catenatus*), a state endangered and federal candidate species; however, no impacts to these species are expected.

d. Mammals: USFWS indicated that this project lies within the known range of the state and federally endangered Indiana bat (*Myotis sodalis*). No suitable summer roosting or rearing habitat would be removed as a result of the project, and no known or suspected hibernacula are located within 10 miles of the project. Based on this information, USFWS has determined that "take" would not occur on construction phase one pursuant to the Endangered Species Act Section 9 provisions. However, a positive capture record of a male Indiana bat occurred within five miles of the construction area for phase two. This indicates an increased likelihood that Indiana bats may occur within the project boundaries, and could be at risk from the project. To assess the level of take of the species, the applicant consulted with ODNR, Division of Wildlife (DOW) and the USFWS to develop an adequate preconstruction survey, which was conducted during 2008 and 2009 to assess the presence of Indiana bats. Based on the results of the surveys, USFWS might conclude that the potential for "incidental take" exists due to the presence of the species within the surrounding area. This action would result in Hardin initiating formal consultation under provisions Section 7 or Section 10 of the Endangered Species Act with USFWS for the construction for phase two. USFWS would provide a

Biological Opinion (BO) as a result of this action. The conditions set forth in the BO would be a recommended condition of the construction for phase two.

e. Aquatic Species: USFWS has indicated that this project lies within the known range of the state and federally endangered clubshell mussel (*Pleurobema clava*) and the rayed bean mussel (*Villosa fabalis*), a state endangered and federal candidate species. ODNR-DOW has determined that this project is within the known range of the state endangered purple lilliput (*Toxolasma lividus*) and the state threatened pondhorn (*Uniomerus tetralasmus*) mussel species. Hardin has performed a cursory review at proposed culvert locations for threatened or endangered (T/E) freshwater mussel species, and no T/E species were observed during field investigations. It is not known at this time if T/E and/or common species of freshwater mussels exist or would be impacted by this project. Hardin plans to perform a presence/absence survey of the stream locations where culverts and collection system cables cross to evaluate the potential of impacts to all mussel species, including T/E and common species. If observed, mussels would either be relocated or components of the facilities would be moved to stream segments void of mussels to avoid impacts.

f. The project area is largely comprised of agricultural land and, therefore, provides limited unique and/or high quality wildlife habitat. However, segments of the project do contain habitats likely to support common reptilian, amphibian, avian, mammalian, and aquatic species, which would likely be impacted during the construction, operation, and maintenance of the proposed facility. Faunal impacts would include the loss of habitat, increased habitat fragmentation, increased disturbance, and temporary and permanent displacement. Operational impacts are expected to include bird and bat mortalities through direct strikes. Mortality to bats may also occur from barotrauma.

(33) There are 17 fully-operational television stations within 40 miles of the project, which may be impacted by noise generation at low channels in the very-high frequency (VHF) range within one-half mile of turbines, and reduced picture quality; however, the transition to digital signal has reduced the likelihood of these effects.

(34) The closest AM station antenna is approximately 17.70 miles from the planned center of the project area. The distance to the nearest wind turbine is greater than two miles. As such, no degradation of AM broadcast coverage due to the presence of the wind turbines is anticipated.

(35) Sixty-one FM stations exist within a 30-mile radius of the project area center point, and no impact to these stations is expected.

(36) Hardin identified eight microwave paths in the vicinity of the project area. Based upon the calculated worst-case scenario and subsequent analysis, Turbines 38 and 180 have the potential to interfere with microwave transmission.

(37) Wireless telephone network communications should be unaffected by wind turbine presence and operation.

(38) No concerns regarding blockage of communication systems were identified by the National Telecommunications and Information Administration (NTIA). However, the need to coordinate with the Federal Aviation Administration (FAA) by filing FAA Form 7460-1, Notice of Proposed Construction or Alteration was prescribed. The turbine layout and proposed turbine coordinates have changed since the May 19, 2009, NTIA submittal and as such, the applicant will have to resubmit them to the NTIA for review.

(39) The proposed facility will be decommissioned once it is no longer operational. Hardin has proposed the posting of a bond or equivalent financial security prior to any construction activities to ensure that funds are available to complete decommissioning. The overall capital costs of the project are expected to be between $1,800 and $2,200 per kilowatt (kW) of installed capacity, or $540 million to $660 million for the proposed 300 MW project, to be incurred within one to two years of the start of construction. The capital costs would include development costs, wind farm design, project planning, equipment procurement, and construction. The applicant estimates that annual operation and management costs for the wind farm would range from $7 million to $10 million.

(40) The construction payroll is expected to range between $173 million and $211 million. The project will require an average of 150 construction workers over a nine to 12-month period, with peak construction employing 200 to 250 construction workers. The operations staff would consist of a site manager, an administrative assistant, and one technician for every 10 wind turbines.

In its report, staff recommends that the Board find that the nature of the probable environmental impact has been determined for the proposed facility and that the application complies with the requirements specified in Section 4906.10(A)(2), Revised Code. (Staff Ex. 1 at 9-18.)

D. Minimum Adverse Environmental Impact - Sections 4906.10(A)(3), Revised Code

Due to the specific requirements of a wind-powered electric generating facility, by entry issued September 19, 2009, the ALJ granted Hardin a waiver from providing a comprehensive site selection study. As an alternative, Hardin generally addressed the factors deemed necessary for a viable wind project. (Staff Ex. 1 at 19.) In its review, staff found the following:

(1) Ecological Impacts

Staff reviewed the ecological impacts of the project by assessing the potential effects on wetlands, streams, tree removal, wildlife, and geology (Staff Ex. 1 at 19-22). Staff notes that, although Hardin has identified numerous wetlands in close proximity to proposed construction activities, Hardin will locate associated access roads, collection lines, and turbines away from all wetlands in order to avoid direct impacts to wetlands. In addition, HDD and BMPs will be utilized during construction to minimize direct impacts on wetlands and streams. (Staff Ex. 1 at 19-20.)

Since this project is largely comprised of agricultural land, staff found that there is limited unique or high quality wildlife habitat. However, segments of the project do contain habitats likely to support common reptilian, amphibian, mammalian, and aquatic species and they could be both directly and indirectly impacted during construction and operation of the facility. To assess the potential for the project to impact avian species, Hardin conducted extensive bird and bat preconstruction surveys in coordination with ODNR and USFWS. (Staff Ex. 1 at 20-21.)

With respect to geology, staff states that, due to the presence of glacial till in the project area and the possibility of karst formations, geotechnical investigations will be performed to ensure structural capability to support the turbines. While the project is

being constructed near a seismic zone located 30 miles from the project area, the region experiences infrequent earthquakes with approximately 40 earthquakes being recorded in the area since 1875. Hardin will evaluate data from the seismographic monitor to ensure that the designs of the wind turbine foundations take into account potential risks from seismic events. (Staff Ex. 1 at 21-22.)

(2) Socioeconomic Impacts

Staff also investigated the socioeconomic impacts of the proposed project as measured by the project's potential effects on existing land use, cultural and archaeological resources, public services, public and private water supplies, roads and bridges, construction noise, operational noise, aesthetics, shadow flicker, communication interference, local and long range radar interference, ice throw, blade shear, high winds, turbine safety, decommissioning, and economics (Staff Ex. 1 at 22-31).

Staff notes that the project is not expected to have any significant impact to existing land use within the project area because the facility is located in an agricultural area and all agricultural activities could continue upon completion of the facility. Moreover, staff notes that, for this project, the property line setback from the base of the turbine to the property line of the wind farm property equates to a distance of 597 feet, which exceeds the statutory minimum requirement of 438 feet. Furthermore, the minimum setback from a turbine to the exterior of the nearest habitable residential structure located on an adjacent property is 1,000 feet, which also exceeds that statutory minimum requirement. (Staff Ex. 1 at 22.)

Staff agrees that the proposed placement of the turbines, access roads, and collection lines seems to avoid previously recorded cultural resources. However, staff agrees with the applicant that further survey work is needed prior to the commencement of construction. In addition, staff states that a shovel testing program should be developed for further archaeological testing at the turbines, substation, laydown areas, access roads, and collection lines. Staff recommends that, in order to evaluate the minimum adverse impact of the project on the surrounding area, an architectural survey program should be designed and implemented. (Staff Ex. 1 at 22-23.)

The Staff Report reflects that, while traffic management may be necessary during construction, Hardin represents that nearby roads should be adequate to handle the increase in traffic due to construction and does not anticipate the need for road closures or detours. In addition, Hardin will obtain the necessary permits prior to construction. Moreover, Hardin will develop a fire protection and medical emergency response plan in consultation with the fire department in the project area. (Staff Ex. 1 at 25.)

With respect to roads and bridges, staff states that Hardin, in consultation with the Hardin County Engineer, will prepare an analysis to determine whether the existing pavement on county and township roads has the capacity to support any permit loads or loads heavier than state legal loads. Temporary alteration of the intersections where wide turns are required for trucks that are delivering equipment may be necessary; however, after construction, these alterations will be removed. Hardin will perform a survey of the delivery routes to determine the locations of bumps, crests, and dips that would interfere with the transport of the turbines and either find a new route or modify the roadway to eliminate the interference. (Staff Ex. 1 at 24.)

Considering the construction noise level, staff opines that, while Hardin intends to use BMPs to abate such noise, many of the construction activities will generate significant noise levels. Staff, however, believes that the adverse impact of construction noise will be minimal given the transient nature of the activities, the distance of the activities from structures, and the limitation of most construction traffic to normal daytime working hours. As for the noise level once the facility is operational, Hardin retained Acentech, Inc. to conduct noise studies. Staff notes that certain conditions will affect the noise level, including ground absorption, wind shear, and temperature inversions. In addition, to determine the ambient noise levels of the project area, Hardin conducted baseline sound measurements. Hardin has proposed to establish a hotline to receive and formally document all noise complaints and to undertake appropriate mitigation efforts if excessive noise levels are experienced. (Staff Ex. 1 at 25-26.)

The Staff Report found that the project will have a significant long-term impact on the aesthetics of the area, particularly for nearby residents. All of the turbines in the project area are outside of the minimum statutory residential setback of 885 feet and the minimum statutory property line setback of 438 feet. The aesthetic impact will be reduced because Hardin has increased the property line setback to 1,000 feet. (Staff Ex. 1 at 26.)

Hardin used Tetra Tech to conduct a shadow flicker analysis. Tetra Tech used WindPRO to calculate how often and in which intervals a specific receptor should be affected by shadows generated by one or more receptors. Staff and Hardin used 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. While staff notes that there are no state or federal standards for the frequency or duration of shadow flicker from wind turbines, in determining that 30 hours is the appropriate level of measurement, staff referred to international studies and guidelines from Germany and Australia, as well as the standards used in Michigan, New York, Minnesota, and New Hampshire. Hardin simulated shadow flicker from the proposed turbines out to 1,500

meters and, with this worst-case scenario, identified 29 receptors that would exceed 30 hours of flicker per year. Staff also recognized that there is a potential that flashing lights may cause epileptic seizures in some individuals; however, the project's nominal rotor speed is such that it is not likely to trigger seizures. (Staff Ex. 1 at 26-27.)

In reviewing communication interfaces affected by the project, staff notes that there are 17 fully-operational television stations providing programming to the area. Based on the location of the project and the television stations, Hardin does not believe there would be many communities where a total loss of coverage would occur; however, Hardin has proposed mitigation measures for this potential impact. Staff also points out that no degradation of service is anticipated for AM or FM radio stations, or wireless telecommunications providers serving the area. Furthermore, Hardin has proposed that the location of two turbines be shifted slightly to avoid interference with microwave telecommunications systems. Finally, while wind turbines can interfere with civilian and military radar, according to staff, in most cases the U.S. Department of Defense has found that the interference is either not present, not significant, or can be readily mitigated. (Staff Ex. 1 at 28-29.)

In addressing ice throw and blade shear from the turbines, as well as the effects of high winds, staff found that the applicant's plan to install such safety control mechanisms, including two independent braking systems, ice detection software for the wind turbine controller, automatic turbine shutdown at excessive wind speed, an ice sensor alarm that triggers an automatic shutdown, a lightning protection system, a turbine shutdown at excessive wind speed when excess blade vibration or stress occurs, and a pitch system alarm, address these issues. In addition, staff notes that the minimal residential setback distance of 1,000 feet and restricting access to authorized personnel help to address these issues. Finally, staff recommends that, with regard to the ice throw issue, public access be restricted with the placement of warning signs and that Hardin should instruct workers of the potential hazards of ice conditions. (Staff Ex. 1 at 29-30.)

In reviewing decommissioning of the turbines, staff points out that megawatt-scale turbines typically have a life expectancy of 20 to 25 years. Upon decommissioning, the site must be restored and reclaimed to the same general topography that existed prior to the beginning of construction of the facility. Staff explains that Hardin has proposed the posting of a bond or equivalent financial security prior to the commencement of construction to ensure that funds are available for decommissioning. (Staff Ex. 1 at 30-31.)

Staff notes that there are both direct and indirect benefits to the region during construction and operation of the project, including revenue generated from construction spending, permanent employment, local and state taxes, and revenue to the participating landowners (Staff Ex. 1 at 31).

In looking at the overall socioeconomic impacts of the project, staff recommends that the Board find that the proposed site represents the minimum adverse environmental impact, provided the certificate issued includes staff's recommendations. (Staff Ex. 1 at 31.)

E. Electric Grid - Section 4906.10(A)(4), Revised Code

Staff explains that Hardin plans to use a 34.5 kV electric collection system to connect the wind turbines to a proposed transmission substation. The proposed substation would be located in the American Electric Power (AEP) zone of the PJM Interconnection (PJM) control area, and would interconnect the wind farm to the local and regional transmission grid via a new three breaker ring on the East Lima-Marysville 345 kV circuit. (Staff Ex. 1 at 32.)

PJM completed a feasibility study and system impact study for the proposed wind farm project, which includes local and regional transmission system impacts and stability and short circuit analysis. These studies looked at 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 studies indicated that there would be no upgrades required on the local AEP system and no new reliability problems on the regional level with capacity deliverability, multiple contingencies, short circuits, stability, and reactive power requirements. A few issues were recognized on previously identified overloads. Because the proposed project would add to these previously identified overloads, a portion of the costs to resolve these problems will be allocated to the project. Moreover, two issues were found on the delivery of the energy portion, but these issues are not reliability upgrades and Hardin may choose to complete these upgrades at its discretion. (Staff Ex. 1 at 32-35.)

In its report, 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. Staff believes that the proposed facility complies with the requirements specified in Section 4906.10(A)(4), Revised Code, provided the certificate issued includes staff's recommendations. (Staff Ex. 1 at 35.)

F. Air, Water, Solid Waste, and Aviation - Section 4906.10(A)(5), Revised Code

Although there are no air monitoring stations in Hardin County, staff states that the air monitoring stations in surrounding counties show that the regional air quality meets the standards established to protect human health and welfare. Furthermore, staff points out that the Environmental Protection Agency (EPA) lists Hardin county as in attainment or unclassified with the National Ambient Air Quality Standards (NAAQS). Since the operation of the wind turbine facility will not produce air pollution, there are no applicable air quality limitations, NAAQS, prevention of significant deterioration increments, or the need for permits to install and operate an air pollution source. Fugitive dust rules adopted pursuant to Chapter 3704, Revised Code, may be applicable; however, Hardin asserts that fugitive dust will be controlled by watering roads on an as-needed basis. (Staff Ex. 1 at 36.)

Hardin has represented that it will apply for the necessary permits and plans relating to water in the project area. In addition, Hardin intends to obtain an approved Storm Water Pollution Prevention Plan (SWPPP) to mitigate any potential impacts from construction activities to surface water. According to the Staff Report, no changes in the water flow patterns are anticipated by Hardin, and Hardin claims that no wetlands will be impacted by the project. (Staff Ex. 1 at 36-37.)

Further, Hardin states that, once operational, the turbines would generate only a minimal amount of solid waste, except during major repairs. Nonetheless, a spill prevention, containment, and countermeasure plan will be implemented to prevent the release of hazardous substances into the environment during construction. (Staff Ex. 1 at 37.)

With regard to aviation, there are four commercial-service airports within 70 miles and three airports within 10 miles of the proposed facility. According to the Staff Report, although turbine locations have been submitted to the FAA for review, those locations do not match the current project layout, and the applicant will resubmit the correct turbine locations to the FAA and the ODOT, Office of Aviation (ODOT-OA), for review and approval prior to construction. (Staff Ex. 1 at 37-38.)

Consequently, staff recommends that the Board find that the proposed facilities will comply with the requirements specified in Section 4906.10(A)(5), Revised Code.

G. Public Interest, Convenience, and Necessity - Section 4906.10(A)(6), Revised Code

According to the Staff Report, Hardin will carry liability insurance on the wind facilities and activities on the premises during the life of the project. In addition, Hardin will carry an umbrella insurance policy designed to provide protection against catastrophic losses and to provide excess limits when the limits of other policies are exhausted. (Staff Ex. 1 at 40.)

Hardin will install the turbines and associated facilities on 20,000 acres of leased privately-owned land and land owned by a school system. The lease agreements typically have a 40-year term, but can be terminated at any time by Hardin upon 90-days notice to the landowner. Under the terms of the lease agreements, the landowners retain the right to fully develop the leased land for any purpose other than wind energy purposes, provided that they do not interfere with or disturb the wind flowing over and across the premises or with the wind facilities themselves. In exchange for the exclusive right to convert, collect, and transmit wind-generated electricity, Hardin will pay landowners an annual lease payment of $10,000 per turbine to landowners who host a turbine and, for landowners who do not host a turbine, compensation on a per-acre basis for participation in the wind farm. Further, Hardin will compensate landowners for crop or soil damage caused during construction. (Staff Ex. 1 at 40-41.)

According to Hardin, the current methodology used to calculate property tax on production equipment would result in an annual tax burden to the applicant in excess of $41,000 per MW of installed capacity. Hardin will investigate federal grant options available under the American Recovery and Reinvestment Act of 2009 for qualified energy facilities placed into service before the end of 2010. (Staff Ex. 1 at 44.)

Staff recommends that the Board find that the proposed facility will serve the public interest, convenience, and necessity (Staff Ex. 1 at 29).

H. Agricultural Districts - Section 4906.10(A)(7), Revised Code

According to the Hardin County Auditor's record, 53 agricultural district parcels are located within the project area, and the proposed facilities will directly impact 22 of those parcels. However, staff notes that these impacts will not affect the agricultural district status of these parcels. Furthermore, while construction activities could lead to temporary reductions in farm productivity, Hardin has discussed with landowners and received approval of the locations of turbines, roads, and cabling, and will take steps to address potential impacts to farmland. Therefore, 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 that the project complies with the requirements specified in Section 4906.10(A)(7), Revised Code, provided the certificate issued includes staff's recommendations. (Staff Ex. 1 at 45.)

I. Water Conservation Practice - Section 4906.10(8), Revised Code

In the Staff Report, staff determined that water conservation practice, as specified under Section 4906.10(A)(8), Revised Code, is not directly applicable to this project. Staff found that, during operation of the facility, the wind-powered generators will not use water and the only potable water that will be used will be a minimal amount for the facility's operations and maintenance building employees. Therefore, staff recommends that the Board find that the proposed facility will incorporate maximum feasible water conservation practices and will comply with the requirements specified in Section 4906.10(A)(8), Revised Code, provided the certificate issued includes staff's recommendations. (Staff Ex. 1 at 46.)

V. STIPULATION'S RECOMMENDED CONDITIONS

As part of the Staff Report, staff recommended that any certificate issued by the Board for the construction of the proposed gas wind farm include 59 specific conditions (Staff Ex. 1 at 47-57). However, the parties to the Stipulation agree and recommend that the Board issue a certificate for the wind farm, subject to 60 conditions (Joint Ex. 1 at 2-14). The following is a summary of the conditions agreed to by the stipulating parties and is not intended to replace or supersede the Stipulation:

(1) Hardin shall install the facility at the proposed site as presented in the amended application filed on September 18, 2009, as modified or clarified by subsequent filings.

(2) Hardin shall utilize the equipment and construction practices as described in the amended application, as modified or clarified in subsequent filings.

(3) Hardin shall implement the mitigative measures in the amended application, as modified or clarified in subsequent filings.

(4) When Hardin submits documents for staff review and approval, staff shall notify Hardin of its approval decision within 10 business days of receipt, unless staff notices the applicant within three business days of Hardin's submission that staff requires additional time. This time constraint shall not apply to reviews conducted by staff of the Ohio EPA or staff of the ODNR when Hardin submits documents or permit applications to their agencies.

(5) Hardin shall conduct a preconstruction conference prior to the start of each construction phase, which staff shall attend, to discuss how environmental concerns will be satisfactorily addressed.

(6) Hardin shall properly install and maintain erosion and sedimentation control measures at the project site in accordance with the Ohio National Pollutant Discharge Elimination System (NPDES) permit(s) obtained for the project, the approved SWPPP created for this project, and with the following requirements:

(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. Reseeding shall be done within seven days of emergence of seedlings as necessary until sufficient vegetation in all areas has been established.

(a) 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.

(a) Obtain NPDES permits for storm water discharges during construction of the facility. A copy of each permit or authorization, including terms and conditions, shall be provided to staff within seven days of receipt.

(7) Hardin shall comply with the Ohio NPDES permit(s) obtained for the project, the approved SWPPP created for this project, and shall employ the following construction methods when engaging in construction activities in proximity to any watercourses:

(a) All watercourses, including wetlands, shall be delineated by fencing, flagging, or other prominent means.

(b) All construction equipment shall avoid watercourses, including wetlands, except at specific locations where construction has been approved.

(c) Storage, stockpiling, and/or disposal of equipment and materials in these sensitive areas shall be prohibited.

(d) Structures shall be located outside of identified watercourses, including wetlands, except at specific locations where construction has been approved.

(e) All storm water runoff is to be diverted away from fill slopes and other exposed surfaces to the greatest extent possible.

(8) Hardin shall employ BMPs when working near environmentally sensitive areas, including the installation of silt fencing or a similarly effective tool prior to initiating construction near streams and wetlands. The installation shall be done in accordance with the Ohio NPDES permit(s) obtained for the project, the approved SWPPP created for this project, and with generally accepted construction methods and shall be inspected regularly.

(9) Hardin shall have an environmental specialist on site during construction activities, including vegetation clearing, being performed in a sensitive area, such as a designated wetland, stream, river, or in the vicinity of identified mussels (common or federal or state listed threatened and endangered), and threatened and endangered species or their identified habitat.

(10) Prior to construction, Hardin shall conduct a presence/absence mussel survey within streams that will be impacted HDD, and findings from this survey shall be submitted to staff and ODNR in coordination with USFWS for review, comment, and establishment of mitigation measures. For common mussel species, the applicant may either relocate the facility, or include a plant for this potential relocation of mussels. As part of this plan, the applicant shall provide survey/relocation methods, details on the survey area(s) and relocation site(s), and shall establish post-relocation monitoring protocols. All surveys/relocations shall be conducted by an ODNR-approved malacologist. The post-relocation monitoring shall occur for two consecutive years at the recipient relocation site(s) to determine survivorship. A survivorship report shall be submitted to staff and ODNR by December 31 of each consecutive year for review. If federal or state listed threatened and endangered mussels are found during the survey, Hardin must avoid the identified species location by relocating facility components, subject to staff and ODNR review and approval. If staff and ODNR, in coordination with USFWS, determine that a significant adverse impact has occurred to threatened or endangered mussels, additional mitigation measures will be prescribed to the applicant by staff and ODNR.

(11) Hardin shall not work in the following types of streams during fish spawning restricted periods (April 15 to June 30), unless a waiver is issued by ODNR and approved by staff, releasing the applicant from a portion of, or the entire restriction period: Class 3 primary headwater streams (watershed ≤ one mi^2); exceptional warm water habitat; cold water habitat; warm water habitat; and streams potentially supporting threatened and endangered species.

(12) Hardin shall adhere to all avoidance, minimization, and mitigation measures established by staff and ODNR, in coordination with the USFWS, as a result of review of the Hardin Wind Farm, Hardin County, Ohio Wildlife Baseline Report prepared by Western EcoSystems Technology, Inc., dated December 16, 2009, and sent to ODNR and USFWS on December 16, 2009.

(13) Prior to construction, Hardin shall develop a post-construction avian and bat mortality survey plan for staff and ODNR, to be implemented and adhered to at the commencement of operation of the facility.

(14) Hardin shall initiate formal consultation with the USFWS under provisions of Section 7 or Section 10 of the Endangered Species Act prior to construction of phase two. If required as a result of the formal consultation process, the applicant shall obtain all applicable permits and approvals prior to beginning phase two of construction. A copy of the USFWS BO shall be provided to staff prior to construction of phase two of this project, and all conditions set forth therein shall be adhered to during construction and after construction of phase two of this project. If provisions under Section 10 of the Endangered Species Act are invoked as a result of the formal consultation process, the applicant shall develop a Habitat Conservation Plan (HCP) and obtain the associated Incidental Take Permit (ITP) from the USFWS regarding the potential take of Indiana bats for construction phase two. All avoidance, minimization, and mitigation measures to protect the Indiana bat that are identified in an HCP and ITP shall be implemented as described in said documents for construction phase two.

(15) Hardin shall perform a plant survey within the study area prior to construction to determine the presence of the state listed *Setaria parviflora*. The results of this survey shall be provided to staff and ODNR prior to start of construction. All populations found shall be marked for avoidance.

(16) Hardin shall adhere to seasonal cutting dates of October 1 through March 31 for removal of suitable Indiana bat habitat trees, unless otherwise preapproved in writing by staff and ODNR in consultation with USFWS.

(17) Staff, ODNR, and USFWS shall be contacted within 24 hours if threatened or endangered species are encountered during construction activities. Activities that could adversely impact the identified plants or animals will be halted until an appropriate course of action has been agreed upon by the Hardin and staff.

(18) Hardin shall assure compliance with fugitive dust rules by the use of water spray or other appropriate dust suppressant measures whenever necessary.

(19) Hardin shall coordinate with the appropriate authority regarding any vehicular lane closures due to construction.

(20) Hardin shall conform to any drinking water source protection plan, if it exists, for turbines located within the drinking water source protection areas of the villages of Alger or McGuffey.

(21) Hardin shall become a member of the Ohio Utilities Protection Service prior to commencement of operation of the facility, and notification of membership shall be provided to staff.

(22) Hardin shall complete a full geotechnical investigation to confirm that there are no issues to preclude development of the wind farm. The geotechnical investigation shall include borings at each turbine location to provide subsurface soil properties 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. All boreholes must be filled, and borehole abandonment must comply with state and local regulations. The applicant shall provide copies of all geotechnical boring logs to staff and to ODNR Division of Geological Survey.

(23) At least 30 days before construction, Hardin shall submit to staff, for review and approval, the final turbine foundation design for each turbine location.

(24) Hardin shall provide the final delivery route plan and the results of any traffic studies to staff and to the Hardin County Engineer 30 days prior to the preconstruction conference. Hardin 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. Hardin shall make improvements to the final delivery route as outlined in the study and/or as mutually agreed upon by the applicant and the Hardin County Engineer. Hardin's study and delivery route plan shall consider, 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 technical bump and dip specifications.

(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 are required to be raised.

(c) Identify upgrades to any roads and bridges that are not able to support the projected loads from delivery of the wind turbines and other facility components.

(d) Describe the restoration of locations where wide turns may impact the road facilities and surrounding areas, and where any roads or bridges are damaged, to their original condition.

(25) Hardin or its designee shall obtain all required Hardin County transportation permits and all necessary permits from ODOT. Any temporary or permanent road closures necessary for construction and operation of the proposed facility shall be coordinated with the appropriate entities.

(26) Any damage to roads, ditches, and/or bridges caused by construction activity shall be repaired to its preconstruction state by Hardin or its designee, in compliance with all requirements of the Hardin County Engineer. The requirements shall be outlined in a written agreement between Hardin and the Hardin County Engineer. If the requirements be agreed upon, Hardin shall post a surety bond or other form of financial assurance mutually agreed upon by Hardin and staff to cover any damages to interstate roads and all state, county, and township roads and bridges that may occur while transporting wind turbines and other facility components to and from the wind farm site and during all construction activities.

(27) Prior to construction, Hardin shall prepare a phase one cultural resources survey program for archaeological work at turbine locations, access roads, construction staging areas, and collection lines acceptable to staff. If the resulting survey work discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion on the NRHP, then the applicant shall submit an amendment, modification, or mitigation plan for staff's approval, and any mitigation effort shall be developed in coordination with the Ohio Historic Preservation Office, with input from the Hardin County Historical Society, and submitted to staff for review and approval.

(28) Prior to the commencement of construction, Hardin shall conduct an architectural survey of the project area, and shall submit to staff a work program that outlines areas to be studied, with the focus starting in and around the villages of Alger, McGuffey, and Foraker, and the locations of the numerous schoolhouses identified in the application. If the architectural survey discloses a find of cultural or architectural significance, or a structure that could be eligible for inclusion on the NRHP, then Hardin shall submit an amendment, modification, or mitigation plan to staff. Any such mitigation effort shall be developed in coordination with the Ohio Historic Preservation Office, with input from the Hardin County Historical Society, and submitted to staff for review and approval.

(29) Hardin shall avoid or minimize any damage to field drainage systems resulting from construction, maintenance, and operation of the facility. Damaged field tile systems shall be repaired to at least original conditions at Hardin's expense. Excavated topsoil shall be segregated and restored upon backfilling, and compacted soils shall be plowed or otherwise decompacted, if necessary, to restore them to original conditions.

(30) Hardin shall remove all temporary gravel and other construction staging area and access road materials after completing construction, but no later than 60 days after the start of commercial operation, unless otherwise directed by the participating landowner, and shall substantially restore the impacted areas to preconstruction conditions, in compliance with the Ohio NPDES permit(s) obtained for the project and the approved SWPPP created for this project.

(31) Hardin 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.

(32) No commercial signage or advertisements shall be located on any turbine, tower, or related infrastructure. If vandalism should occur, Hardin shall remove or abate the damage immediately to preserve the aesthetics of the project.

(33) At least 30 days prior to the preconstruction conference, Hardin shall model shadow flicker within 1,000 meters, in the same manner as presented in the application and subsequent filings, for staff review and approval.

(34) Any turbine forecasted prior to construction to create in excess of 30 hours per year of shadow flicker at a nonparticipating receptor within 1,000 meters shall be subject to mitigation prior to construction, consisting of either reducing the turbine's forecasted impact to 30 hours per year, or other measures acceptable to staff, Hardin, and the affected receptors.

(35) During operation, and as part of a complaint resolution process, Hardin shall perform on-site investigations of all reported complaints regarding shadow flicker and shall implement mitigation measures to reduce shadow flicker nuisances at residences where significant shadow flicker impacts are found to occur. Mitigation shall include providing wind shades or planting trees, depending on the specific situation, or other measures acceptable to staff, Hardin, and the affected receptors.

(36) Any turbine forecasted prior to construction to exceed designated sound levels at any nonparticipating residence under any operating conditions shall be subject to further study of potential impact and possible mitigation, consisting of measures acceptable to staff, Hardin, and the affected receptors. Each project area is unique with respect to noise. The model of turbine selected for the project has a unique set of noise characteristics. Therefore, the agreed-upon noise condition applies exclusively to Hardin.

(37) Within 14 months following the start date of commercial operation, Hardin shall provide staff with a report documenting the results of a post-construction noise monitoring study. If the post-construction noise study shows that the project is not in compliance with designated noise limits, Hardin shall meet the designated standards, or work with staff to determine appropriate mitigations.

(38) General construction activities shall be limited to daylight hours. Impact pile driving and blasting operations, if needed, shall be limited to the

hours between 8:00 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 daylight hours when necessary.

(39) At least 30 days prior to the preconstruction conference and subject to staff review and approval, Hardin shall create and implement a complaint resolution procedure in order to address potential operational concerns experienced by the public. Hardin shall work to mitigate and resolve any issues with those who file a complaint. Any complaint submitted must be immediately forwarded to staff.

(40) Hardin must meet all recommended and prescribed FAA and ODOT-OA requirements to construct an object that may affect navigable airspace, including submitting all final turbine locations for ODOT-OA and FAA review prior to construction, and the nonpenetration of any FAA Part 77 surfaces.

(41) Ninety days prior to any construction, Hardin must notify, in writing, any airport owner, whether public or private, whose operations, operating thresholds/minimums, landing/approach procedures and/or vectors are altered, or are expected to be altered by the siting, operation, maintenance, or decommissioning of a wind generation facility.

(42) All applicable structures must be lit in accordance with FAA circular 70/7460-1 K Change 2, Obstruction Marking and Lighting; Chapters 4, 12, and 13 (Turbines); or as otherwise prescribed by the FAA.

(43) Hardin must meet all recommended and prescribed FAA and federal agency requirements to construct an object that may affect local and/or long range radar, and mitigate any effects or degradation caused by wind turbine operation, up to and including removal of afflicting turbines.

(44) Hardin shall provide all real-time meteorological data observed by instruments on the facility's meteorological towers to the National Weather Service offices in Cleveland and Wilmington, Ohio, to offset any possible Next-Generation Radar weather radar interference the wind farm may cause, if interference is predicted.

(45) Prior to construction, Hardin shall submit the final layout and turbine locations to the NTIA for review and approval.

(46) Hardin must meet all recommended and prescribed Federal Communications Commission and other federal agency requirements to construct an object that may affect communications and, subject to staff

approval, mitigate any effects or degradation caused by wind turbine operation. For any residence that is shown to experience a total loss of television reception due to the facility operation, the applicant shall provide, at its own expense, cable or direct broadcast satellite television service.

(47) Hardin must conduct an in-depth vertical Fresnel-Zone analysis to determine if turbines 38 and 180 will cause microwave interference. Pursuant to staff review and approval, Hardin shall shift the location of, or eliminate, turbines 38 and 180, based on the results of the aforementioned study.

(48) Hardin shall comply with the turbine manufacturer's safety manual and shall maintain a copy of the safety manual in the operations and maintenance building of the facility.

(49) Hardin shall restrict public access to the site with appropriately placed warning signs or other necessary measures.

(50) Hardin shall instruct workers on potential hazards of ice conditions on wind turbines.

(51) Hardin shall comply with the following conditions regarding decommissioning:

(a) Prior to any decommissioning activities that involve the disturbance of one or more acres, if applicable, Hardin shall obtain and comply with an NPDES permit authorizing such activities.

(b) Pursuant to Rule 4906-17-08 (E)(6), O.A.C., Hardin shall provide a decommissioning program to staff and the Hardin County Engineer for review and for staff approval, at least 30 days prior to the preconstruction conference. In this plan, the applicant shall:

i. Identify lands in the application that a reconnaissance inspection suggests may be prime farmlands, a soil survey shall be made or obtained according to standards established by the Secretary of the U.S. Department of Agriculture and/or Ohio Department of Agriculture in order to confirm the exact location of the prime farmlands, if any. The results of this study shall be submitted to staff

for review and approval. Any confirmed prime farmlands should be reclaimed to such standards after site decommissioning.

ii. Indicate the future use that is proposed to be made of the land following reclamation.

iii. Describe the engineering techniques proposed to be used in decommissioning and reclamation and a description of the major equipment; a plan for the control of surface water drainage and of water accumulation; and a plan, where appropriate, for backfilling, soil stabilization, compacting and grading. This plan shall be subject to review and approval by staff.

iv. Describe how Hardin will implement BMPs to control impacts to surface or ground water resources. If necessary, applicant will obtain permits from the Ohio EPA and/or the U.S. Army Corps of Engineers.

v. Provide a detailed timetable for the accomplishment of each major step in the decommissioning plan; the steps to be taken to comply with applicable air and water quality laws and regulations and any applicable health and safety standards; and a description of the degree to which the decommissioning plan is consistent with the local physical, environmental, and climatological conditions. This timetable shall be subject to staff review and approval.

(c) At the end of the project's life, the wind turbines may either be "re-powered" with new nacelles, towers, and/or blades; or, the facility shall be decommissioned at the expense of the facility owner or operator. In the event that the facility or individual wind turbines are decommissioned, such decommissioning shall be completed 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 staff deems the facility or turbine

to be in a state of disrepair warranting decommissioning, the facility or individual wind turbine will be decommissioned.

(d) Decommissioning shall include the removal of all physical material pertaining to the facility to a depth of at least 36 inches beneath the soil surface and restoration of the disturbed area to a condition reasonably similar to the same physical condition that existed before erection of the facility. For nonriparian areas that were forested prior to construction, restoration shall include returning such land to a condition where trees can be planted; provided, however, that in no event shall applicant be obligated to plant trees on the property, except in riparian areas or subject to landowner agreement. The foundation for each wind turbine shall be removed to the depth of 36 inches or to the top of the foundation spread footing, whichever depth is greater. Decommissioning shall include the restoration of roads and bridges to substantially the same physical condition that existed before decommissioning; the removal and transportation of the wind turbines off-site; and removal of buildings, cabling, electrical components, access roads, and any other associated facilities. Disturbed earth shall be regraded, reseeded, and restored to substantially the same physical condition that existed immediately before erection of the facility. Damaged field tile systems shall be repaired to at least original conditions. The participating landowner may request that Hardin not decommission access roads.

(e) If the owner of the facility does not complete decommissioning within the period prescribed in these conditions, the Board may require forfeiture of financial securities. The entry into a participating landowner agreement constitutes agreement and consent of the parties to the agreement, their respective heirs, successors and assigns, that the Board may take action that may be necessary to implement the decommissioning plan, including the exercise by the Board, staff, and contractors, of the right of ingress and egress for the purpose of decommissioning the facility.

(f) The escrow agent shall release the decommissioning funds when the facility owner 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.

(g) During decommissioning, all recyclable materials salvaged and nonsalvaged shall be recycled to the furthest extent possible. All other nonrecyclable waste materials shall be disposed of in accordance with state and federal law.

(h) Hardin shall leave intact any improvements made to the electrical infrastructure, pending approval by the concerned utility.

(i) Subject to approval by staff, and within five years after the start date of commercial operation, an independent and registered Professional Engineer, licensed to practice engineering in the state of Ohio, shall be retained by the facility owner to estimate the total cost of decommissioning in current dollars (decommissioning costs), without regard to salvage value of the equipment, and the cost of decommissioning net salvage value of the equipment (net decommissioning costs). Said estimate shall include: an analysis of the physical activities necessary to implement the approved reclamation plan, with physical construction and demolition costs based on ODOT's Procedure for Budget Estimating and RS Means material and labor cost indices; the number of units required to perform each of the activities; and an amount to cover contingency costs, not to exceed 10 percent of the above-calculated reclamation cost. Said estimate should be on a per-turbine basis and shall be submitted for staff review and approval, after five years of facility operation, and every fifth year thereafter. Hardin shall post and maintain decommissioning funds in an amount equal to the following schedule: from years one through five, $5,000 per constructed wind turbine; and from year six through the end of the life of the project, the greater of $10,000 per constructed wind turbine, 15 percent of the decommissioning costs, or 120 percent of the net decommissioning costs.

The form of financial assurance will be a financial instrument mutually agreed upon by staff and the applicant and conditioned on the faithful performance of all requirements and conditions of the application's approved decommissioning and reclamation plan. Once the financial assurance is provided, the applicant shall maintain such funds throughout

the remainder of the applicable term and shall adjust the amount of the assurance, if necessary, to offset any increase in the decommissioning costs at the end of the applicable term. The value of salvaged steel and copper, at the end of the five-year term and for any other revisions of this report thereafter, shall be calculated based on the five-year annual average for the years preceding the anniversary of such reports.

(52) Prior to the commencement of construction, Hardin shall obtain and comply with all applicable permits and authorizations as required by federal and state laws and regulations for any activities where such permit or authorization is required, including, if applicable, the Ohio NPDES permit(s) for construction activities and for 401 Certificates. Copies of permits and authorizations, including all supporting documentation, within seven days of receipt, shall be provided to staff by the applicant.

(53) Hardin shall not commence 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. Hardin shall provide either a letter stating that the agreement has been signed or a copy of the signed Interconnection Service Agreement to staff.

(54) At least seven days before the preconstruction conference, Hardin shall submit to staff a copy of its approved SWPPP, approved Spill Prevention Containment and Countermeasure (SPCC) procedures, and its erosion and sediment control plan for review and approval. Any soil issues must be addressed through proper design and adherence to the Ohio EPA's BMPs related to erosion and sedimentation control.

(55) At least 30 days before the preconstruction conference, Hardin shall submit to staff, for review, a fire protection and medical emergency plan, to be developed in consultation with the fire department having jurisdiction over the area.

(56) 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 will be subject to staff review and approval prior to construction.

(57) At least 30 days before construction, Hardin shall submit to staff, for review and approval, the following documents:

(a) One set of engineering drawings of the final project design, including all turbine locations, collection lines, access roads,

permanent meteorological towers, substations, 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 plan shall include both temporary and permanent access routes, as well as the measures to be used for restoring the area around all temporary sections, and a description of any long-term stabilization required along permanent access routes. The plan shall consider the location of streams, wetlands, wooded areas, and sensitive plant species as identified by the Ohio EPA and/or ODNR-DNAP, and explain how impacts to all sensitive resources will be avoided or minimized during construction, operation, and maintenance.

(b) A stream crossing plan including details on specific streams to be crossed, either by construction vehicles and/or facility components (i.e., access roads, electric collection lines), as well as specific discussion of proposed crossing methodology for each stream crossing and post-construction site restoration. The stream crossing plan shall be based on final plans for the access roads and electric collection system.

(c) A detailed frac-out contingency plan for stream and wetland crossings that are expected to be completed via HDD. Such contingency plan can be incorporated within the required stream crossing plan.

(d) A tree clearing plan describing how trees and shrubs around turbines, along access routes, in electric collection line corridors, at construction staging areas, and in proximity to any other project facilities, will be protected from damage during construction, and, where clearing cannot be avoided, how such clearing work will be done so as to minimize removal of woody vegetation. Priority should be given to protecting mature trees throughout the project area, as well as all woody vegetation in wetlands and riparian areas, both during construction and during subsequent operation and maintenance of all facilities.

(58) Within six months after completion of construction, Hardin shall submit to staff a copy of the as-built specifications for the entire facility to the extent they have been completed. Hardin may request of staff additional

time to complete the as-built drawings if they have not been completed within the six-month period.

(59) The certificate shall become invalid if Hardin has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate.

(60) Hardin shall provide to staff the following information as it becomes known: the date on which construction will begin; the date on which construction was completed; and the date on which the facility began commercial operation.

VI. CONCLUSION

According to the Stipulation, the parties recommend that, based upon the record and the information and data contained therein, the Board should issue a certificate for construction, operation, and maintenance of the facility, as described in the application filed with the Board on July 10, 2009, the amended application filed September 18, 2009, and supplemental filings thereto, subject to the provisions of the Stipulation. Although not binding upon the Board, stipulations are given careful scrutiny and consideration, particularly where no party is objecting to the stipulation. The Board believes that approval of the Stipulation will promote the public interest, benefit the local economy, and create new, in-state renewable energy supply. Based upon the record in this proceeding, the Board finds that all of the criteria established in accordance with Chapter 4906, Revised Code, are satisfied for the construction, operation, and maintenance of the facility as described in the application filed with the Board on July 10, 2009, as amended on September 18, 2009, and supplemented by later filings, subject to the conditions set forth in the Stipulation. Accordingly, based upon all of the above, the Board approves and adopts the Stipulation and hereby issues a certificate to Hardin pursuant to Chapter 4906 Revised Code, for the construction, operation, and maintenance of the facility as proposed in its application filed in this case on July 10, 2009, as amended on September 18, 2009, and subsequently supplemented, and subject to the conditions set forth in Section V of this opinion, order, and certificate.

FINDINGS OF FACT AND CONCLUSIONS OF LAW:

(1) Hardin is a corporation and a person under Section 4906.01(A), Revised Code.

(2) The proposed Hardin wind-powered electric generation facility project is a major utility facility under Section 4906.01(B)(1), Revised Code.

(3) On June 5, 2009, Hardin filed its preapplication notice and on June 23, 2009, Hardin filed proof that legal notice was published for the informational public meeting held on June 23, 2009, in Kenton, Ohio.

(4) On July 10, 2009, Hardin filed an application for a certificate to site a wind-powered electric generation facility in Hardin County, Ohio.

(5) By entry issued July 17, 2009, the ALJ granted Hardin's request for waiver of the one-year notice period required by Section 4906.06, Revised Code.

(6) On January 12, 2010, the ALJ granted the motion to intervene filed by OFBF.

(7) On September 18, 2009, as supplemented on October 6, 2009, and November 12, 2009, Hardin filed an amended application.

(8) On October 9, 2009, the Board notified Hardin that its application, as amended, had been found to be complete pursuant to Rule 4906-1, *et seq.*, O.A.C.

(9) Hardin served copies of the application upon local government officials and filed proof of service of the application on October 9, 2009.

(10) On December 21, 2009, staff filed a report of the investigation of Hardin's application.

(11) A local public hearing was held on January 5, 2010, in Kenton, Ohio.

(12) On January 12, 2010, the ALJ granted the motion to intervene filed by OFBF.

(13) The adjudicatory hearing was held on January 12, 2010.

(14) On January 4, 2010, Hardin filed its proofs of publication of the hearing notice.

(15) At the hearing held on January 12, 2010, Hardin, staff, and OFBF submitted a Stipulation.

(16) Adequate data on the Hardin wind-powered electric generation facility has been provided to make the applicable determinations required by Chapter 4906, Revised Code, and the record evidence in this matter provides sufficient factual data to enable the Board to make an informed decision.

(17) Hardin's application, as amended and supplemented, complies with the requirements of Chapter 4906-17, O.A.C.

(18) The record establishes that the basis of need, under Section 4906.10(A)(1), Revised Code, is not applicable.

(19) The record establishes that the nature of the probable environmental impact of the facility has been determined and it complies with the requirements in Section 4906.10(A)(2), Revised Code, subject to the conditions set forth in the Stipulation.

(20) The record establishes that the proposed 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 under Section 4906.10(A)(3), Revised Code, subject to the conditions set forth in the Stipulation.

(21) The record establishes that the facility is consistent with regional plans for expansion of the electric power grid and will serve the interests of electric system economy and reliability, under Section 4906.10(A)(4), Revised Code, subject to the conditions set forth in the Stipulation.

(22) The record establishes, as required by Section 4906.10(A)(5), Revised Code, that the facility will comply with Chapters 3704, 3734, and 6111, Revised Code, and Sections 1501.33 and 1501.34, Revised Code, and all rules and standards adopted under these chapters and under Section 4561.32, Revised Code.

(23) The record establishes that the facility will serve the public interest, convenience, and necessity, as required under Section 4906.10(A)(6), Revised Code.

(24) The record establishes that the facility will not impact the viability of any land in an existing agricultural district, under Section 4906.10(A)(7), Revised Code.

(25) The record establishes that the facility will comply with water conservation practice under Section 4906.10(A)(8), Revised Code.

(26) Based on the record, the Board shall issue a Certificate of Environmental Compatibility and Public Need pursuant to Chapter 4906 Revised Code, for construction, operation, and maintenance of the Hardin wind-powered electric generation facility, subject to the conditions set forth in the Stipulation.

ORDER:

It is, therefore,

ORDERED, That the Stipulation be approved and adopted. It is, further,

ORDERED, That a certificate be issued to Hardin pursuant to Chapter 4906 Revised Code, for the construction, operation, and maintenance of the wind-powered electric generation facility, subject to the conditions set forth in the Stipulation. It is, further,

ORDERED, That the certificate contain the conditions set forth above in Section V of this opinion, order, and certificate. It is, further,

ORDERED, That a copy of this opinion, order, and certificate be served upon each party of record and any other interested person.

THE OHIO POWER SITING BOARD

Alan R. Schriber, Chairman of the
Public Utilities Commission of Ohio

Lisa Patt-McDaniel, Board Member
and Director of the Ohio Department
of Development

Sean Logan, Board Member
and Director of the Ohio Department
of Natural Resources

Alvin Jackson M.D., Board Member
and Director of the Ohio Department
of Health

Christopher Korleski, Board Member
and Director of the Ohio
Environmental Protection Agency

Robert Boggs, Board Member
and Director of the Ohio Department
of Agriculture

Board Member
and Public Member

GAP/RH/dah

Entered in the Journal
MAR 2 2 2010

Reneé J. Jenkins
Secretary