IN THE SUPREME COURT OF OHIO

In the Matter of the Application of Firelands Wind, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Wind-Powered Electric Generation Facility in Huron and Erie Counties, Ohio	))))))	Case No. 2022-0055 On Appeal from the Ohio Power Siting Board, Case No. 18-1607-EL-BGN

MERIT BRIEF OF APPELLANTS PATRICIA DIDION, JANE FOX, MARVIN HAY, THERESA HAY, PATRICIA OLSEN, SHEILA POFFENBAUGH, WALT POFFENBAUGH, CHRISTINA POPA, JOHN POPA, LORI RIEDY, CHARLES ROGERS, KENN ROSPERT, DENNIS SCHREINER, SHARON SCHREINER,DONNA SEAMAN, WILLIAM SEAMAN, DEBORAH WEISENAUER, KENNETH WEISENAUER, GERARD WENSINK, AND BLACK SWAMP BIRD OBSERVATORY

Jack A. Van Kley (0016961)
(Counsel of Record)
Van Kley & Walker, LLC
132 Northwoods Blvd., Suite C-1
Columbus, OH 43235
Tel: (614) 431-8900
Fax: (614) 431-8905
jvankley@vankleywalker.com
Attorney for Appellants Didion, et al.

Christine M.T. Pirik (0029759)
(Counsel of Record)
Terrence O'Donnell (0074213)
William Vorys (0093479)
Jonathan R. Secrest (0075445)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, OH 43215
Tel: (614) 591-5461
Fax: (844) 670-6009
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
wvorys@dickinsonwright.com
jsecrest@dickinsonwright.com
Attorneys for Firelands Wind, LLC

Werner L. Margard III (0024858)
(Counsel of Record)
Robert A. Eubanks (0073386)
Assistant Attorneys General
Public Utilities Section
30 E. Broad Street, 26th Floor
Columbus, OH 43215
Tel: (614) 466-4397
Fax: (614) 644-8764
Werner.margard@OhioAGO.gov
Robert.eubanks@OhioAGO.gov
Attorneys for Ohio Power Siting Board

TABLE OF CONTENTS

Volume II:

TABLE OF AUTHORITIES

COURT DECISIONS

Ohio

STATUTES

ADMINISTRATIVE MATERIALS

OTHER AUTHORITIES

STATEMENT OF FACTS

A. Parties And Course of Proceedings Below

On January 31, 2019, Firelands Wind, LLC ("Firelands") submitted its Application to the the Ohio Power Siting Board ("OPSB" or "board") for a certificate to construct and operate the Emerson Creek Wind Project ("Project") on 32,000 acres of a 41,000-acre project area ("Project Area") in Erie County and Huron County, Ohio. (ICN 4, Applic., pp. 1, 2, 6)[1] Firelands requested authorization to construct up to 87 wind turbines. (*Id*., p. 2) The turbines would be mammoth in size, with the potential turbine models ranging up to 655 feet in height. (*Id*., p. 8)

The Appellants in this case include 19 local residents ("Residents") who will be neighbors of the Project if constructed. The Residents filed a petition to intervene on May 17, 2019. (ICN 33) The board granted them intervention on June 25, 2019. (ICN 36) The board denied intervention to another 15 nearby local residents opposing the Project, on the grounds that their homes and land did not abut the Project Area. (*Id*.) All propositions of law in this brief are brought on the Residents' behalf.

The Black Swamp Bird Observatory ("BSBO") filed a petition to intervene on February 6, 2020. (ICN 73) BSBO is a public interest organization of 17,000 members headquartered in Oak Harbor, Ohio not far from the Project Area (ICN 154, Shieldcastle Testimony, p. 1, lines 15-16, p. 32, line 23 to p. 33, line 2) The Petition to Intervene noted that BSBO was formed in 1992 by a group of biologists studying bird migration in this area. (ICN 73, Petition to Intervene, p. 4)

---

[1] The following abbreviations are used for citations: (1) references to the transcript of verbal testimony at the hearing are cited to the witness' last name, the abbreviation "Tr.," transcript volume, page number, and line numbers; (2) "Exh." means exhibit; (3) "A." refers to an answer in written direct testimony; (4) "Applic." is a reference to the Application; (5) references to prefiled written testimony are cited to the witness' last name prior to the word "Testimony"; and (6) the page numbers of the Opinion match the Bates numbers in the Appendix.

The Petition further identified BSBO's missions as the promotion of the research, protection, and recreational enjoyment of bird life, with an emphasis on researching bird migration and advising private and governmental landowners in better managing their land for migratory bird species. (*Id*., pp. 4-5) BSBO sought to intervene due to its great concern about the Project's potential adverse impacts on birds traveling through the Project Area. (*Id*., p. 5) The board granted intervention to BSBO on March 5, 2020. (ICN 90) Propositions of Law 5, 6, and 7 are brought on BSBO's behalf.

BSBO is staffed by highly acclaimed biologists, including its Research Director, Mark Shieldcastle, who testified at the hearing in this case. (ICN 154, Shieldcastle Testimony, p. 1, line 15) At the time of the hearing in this case, Mr. Shieldcastle had been a wildlife biologist for 43 years, including 33 years as an official in the Ohio Division of Wildlife, where he conducted field surveys of wildlife and supervised Ohio's bald eagle recovery program. (*Id*., p. 2, lines 8-19, Exh. A (resume), pp. 1-2; Shieldcastle, Tr. VII 977:14-19) He has authored and published numerous scientific papers on bird surveys and other bird-related topics and has banded or supervised banding of almost a million birds over 42 years. (*Id*., Exh. A, pp. 2-3, 5-12)

The Project's prospective damage to the community resulted in widespread local citizen opposition to the Project, as demonstrated by public comments and petitions against the Project filed in the docket in this case. On May 9, 2019, a public comment with 332 petition signatures of local residents opposing the Project were filed on the docket. (Public comment of May 9, 2019, with copies of petitions attached) In the public informational meeting held by Firelands on April 3, 2019, 134 of the approximately 200 people in attendance signed a petition opposing the Project, or about 67% of the persons in attendance. (Public comment of Walter Poffenbaugh, March 23, 2020 at 10:31:29 am, with copies of the petitions attached) On the same day, another

set of petitions signed by 285 local residents opposing the Project was filed on the docket. (Public comment of Walter Poffenbaugh, March 23, 2020 at 10:31:29 am, with the petitions attached) Although there may be some overlap of signatories among the various petitions, the number of people joining these petitions is undeniably large.

Firelands held two public information sessions as required by the Board. A review of the comment cards submitted at both public informational meetings show a total of 186 cards submitted. (Public comment of April 5, 2019; public comment of April 9, 2019) Out of the 186 comment cards, 135 (74%) were opposed to the Project, and 47 (26%) supported the Project. Only four cards expressed an undecided view of the Project.

The Board's Opinion mentions that 25 of the 45 witnesses at the public hearing were opposed to the Project. (Opinion, p. 9, ¶ 45) However, this metric does not representatively poll the local public views on the Project due to the use of virtual technology during the COVID lockdown to conduct the hearing instead of entertaining in person testimony. As stated in a public comment from Dennis Schreiner docketed on April 30, 2020:

> A significant portion of the rural population struggles with video conferencing and teleconferencing. Some lack computer life skills, others do not have hardware or software to video conference due to low band width on the part of their Internet Service Providers. Some do not have affordable internet capability due to location. Land lines in some rural locations are still analog technology – a tremendous amount of noise exist on some of these lines.

For these reasons, the Residents' counsel objected to holding the public hearing virtually in this case at the time the Board decided to use that technology. Mr. Schreiner further noted that other public hearings on energy projects in north central Ohio have been attended by over 300 people. This is a marked contrast to the substantially lower attendance at the Emerson Creek Wind public hearing. Had the public meeting been held in person, the opposition at this event to the Project undoubtedly would have mirrored what the filed petitions reflected about the public's

judgment about the Project. In balance, the local opposition to this Project is overwhelming. The next section of this Statement of Facts, along with information provided in the Argument, reveal why public opposition to this Project is so extensive.

Firelands, the board's Staff ("Staff"), and some intervenors filed a Joint Stipulation and Recommendation on September 11, 2020, asking the board to issue the certificate with a number of conditions proposed to govern the Project's construction and operation. (ICN 124) The board then conducted an evidentiary hearing on October 5-9 and 13-16, 2020. Subsequently, the parties filed post-hearing briefs and reply briefs summarizing the evidence.

OPSB issued its Opinion, Order and Certificate ("Opinion") granting the certificate on June 24, 2021. (ICN 182) The Opinion authorizes Firelands to construct and operate the Project in accordance with the promises made in the Application, as well as Conditions (1) through (44) in the Stipulation. (Opinion, pp. 10-11, ¶¶ 49-50; ICN 124, pp. 2-9)

The Residents and BSBO (collectively, "Appellants") filed an application for rehearing with OPSB on July 23, 2021. (ICN 183) On August 20, 2021, the board granted the application for rehearing to give the board more time to consider the issues pursuant to Ohio Admin.Code 4906-2-32(E). (ICN 188) On November 18, 2021, OPSB denied the application for rehearing without changing the substance of its Opinion. (ICN 190) The Appellants brought this appeal on January 14, 2022.

B. Description Of Adverse Project Impacts

1. Karst Formations And Threats To Water Supply

The northwestern portion of the Project Area is located within the Bellevue-Castalia Karst Plain, one of four main karst districts in Ohio. (ICN 148, Sasowksy Testimony, p. 7, lines 20-23) Karst is a topography formed from the dissolution of soluble rocks such as limestone,

dolomite, and gypsum, creating underground sinkholes, caves, and water drainage channels. (*Id*., p. 3, line 18 - p. 4, line 4.) These openings can create relatively large and laterally extensive routes for water to move through the rock. (*Id*., lines 4-6) As discussed below, the local water supply depends on the natural function of the regional karst geology.

Karst pathways allow for very rapid and focused movement of water. (*Id*., p. 4, lines 9-11) In some places within the karst geology of the Project Area, groundwater moves at a rate of as much as 3,500-8,600 feet per day. (ICN 4, Applic., p. 77; ICN 8, Applic. Exh. E, p. 4)

The continued groundwater movement through karst openings is essential for recharging wells developed in a karst area. (ICN 148, Sasowsky Testimony, p. 16, line 13 to p. 17, p. 2) Firelands found that "many residents in the vicinity of the Project Area rely upon private wells for their potable water," including the supply of water for drinking, livestock and agriculture. (ICN 4, Applic., p. 75) The majority of residences are supplied by individual private wells. (ICN 148, Sasowsky Testimony, p. 16, lines 15-17) The availability of suitable water for drinking, agriculture, and other purposes is critical in this rural area. (*Id*., lines 14-15)

The principal source of groundwater in the Project Area is a carbonate limestone bedrock aquifer. (ICN 4, Applic., p. 75; ICN 8, Applic. Exh. E, p. 4) Some of the groundwater utilized by the area's residents can be found at shallow depths; a survey of residents in the Project Area found that well water was found as close as eight feet from the ground surface. (ICN 4, Applic., p. 75; ICN 8, Applic. Exh. E, p. 6) The well owned by Residents Dennis and Sharon Schreiner has a water level of only six feet below ground surface. (ICN 147, Schreiner Testimony, p. 1, lines 25-26) In addition, a number of EPA-designated source water protection areas ("SWPAs") for public water systems are located inside the Project Area. (ICN 4, Applic., p. 75; ICN 8, Applic. Exh. E, pp. 4-5) SWPAs are important groundwater recharge areas that the Ohio

Environmental Protection Agency ("Ohio EPA") has identified as needing special regulatory status to protect drinking water resources from contamination. (*Id.*)

Concerned about their water supplies, the Residents hired Dr. Ira Sasowsky to investigate the potential impacts from Firelands' plans to build its wind project on karst. Dr. Sasowsky is a geoscientist and Professor of Geosciences at the University of Akron who holds bachelor, masters, and doctorate degrees in geology. (ICN 148, Sasowsky Testimony, p. 1, lines 19-28)

Dr. Sasowsky has extensive experience with karst in northwest Ohio and elsewhere. His career has specialized in research on karst development, including examining and working in karst terrains for about 40 years. (*Id*., p. 5, lines 15-16) Dr. Sasowsky has had field experience in karst areas in more than 25 U.S. states, South America, the Caribbean, and Europe. (*Id*., lines 20-21) He has edited 11 scientific books on karst, authored numerous technical reports, and published close to 50 scientific articles in scientific journals. (*Id*., p. 6, lines 1-5)

Dr. Sasowsky's karst expertise has led to research contracts with environmental agencies of the federal and state governments. In one study, the U.S. Department of Agriculture commissioned him to examine methods and make recommendations for managing storm water in karst terrains. (*Id*., p. 6, lines 17-20) In another study, Ohio EPA with the assistance of U.S. Environmental Protection Agency funding, hired him for research on a source water protection plan for the Bellevue - Castalia Karst Plain, which overlaps a portion of the Project Area. (*Id*., lines 14-17) His investigations in this karst plain have included field mapping, dye tracing, well video, statistical analysis of drilling records, geophysical investigations, and geochemical modeling. (*Id*., lines 8-10)

Dr. Sasowski testified that even in certain areas of northwest Ohio that did not appear to be karst due to the absence of known sinkholes or caves on the land surface, the bedrock can

have openings that permit rapid movement of water. (*Id*., lines 12-14, p. 12, line 13 to p. 13, line 4, p. 14, lines 16-18) Generally, when there is carbonate bedrock present below, or adjacent, one should assume the presence of karst unless demonstrated otherwise. (*Id*., p. 10, lines 8-10)

Dr. Sasowsky observed that underground karst formations may collapse and create large sinkholes at the land surface. (*Id*., p. 12, lines 2-3) The massive weight of wind turbines makes them susceptible to subsidence or collapse in karst areas. (*Id*., p. 13, line 16 to p. 14, line 13) Firelands acknowledges that karst areas may have sinkholes, solution cavities, and cave systems. (ICN 4, Applic., p. 82; ICN 8, Applic. Exh. E, p. 8) Recognizing the threat of subsidence or collapse, Firelands' geotechnical consultant Hull & Associates advised Firelands to pump grout into karst openings to provide a more stable foundation at wind turbine sites. (ICN 4, Applic., p. 82; ICN 141, Williams Testimony, p. 7, lines 2-10) Grout is a bentonite or cement mixture that is pumped into the ground to fill holes. (Williams, Tr. VI 765:8-10) ()

Wind turbine foundations typically are 8 ½ to 12 feet deep and 60 to 70 feet wide. (Williams, Tr. VI 747:6-21) The excavations for these foundations can be 80-100 feet deep. (*Id*., lines 9-10) Firelands' survey of residents in the Project Area found that well water was found as shallow as eight feet from the ground surface. (ICN 4, Applic., p. 75; ICN 8, Applic. Exh. E, p. 6) It is undisputed, therefore, that turbine foundations for the Project will extend into groundwater.

Dr. Sasowsky warned that installing concrete turbine foundations and injecting grout into karst openings may block the flow of groundwater to the neighbors' water supply wells. (ICN 148, Sasowsky Testimony, p. 16, line 22 to p. 17, line 1, p. 23, lines 6-7) The aquifers are replenished by precipitation percolating into a recharge zone and making its way to the aquifers. (Sasowsky, Tr. VIII 1098:4-10) "[I]f pathways are closed off, then it could have the potential to

affect groundwater." (*Id*., 1097:11-16) Even Firelands' witness Alfred Williams testified that the "purpose of grouting is to reduce the movement of water in soluble bedrock. (ICN 141, Williams Testimony, p. 7, lines 5-6, 28-30) Grouting karst cavities to stabilize turbine foundations may increase karst collapses elsewhere in the area. The grout can block the natural drainage of surface water into the cavities, thereby rerouting the water flow elsewhere where it could erode sediments in the subsurface and induce surface collapses. (ICN 148, Sasowsky Testimony, p. 23, lines 7-9)

In addition to grouting, Project-related blasting and excavation poses another risk to groundwater resources. Bedrock in the Project Area can be found at depths as shallow as two feet, or even two inches, below the surface. (ICN 141, Williams Testimony, Attachment AW-2, p. 6, § 4.2; Williams Tr. VI 767:19-2). Therefore, Firelands may need to excavate or blast the shallow bedrock to install turbine foundations. (ICN 4, Applic., p. 66) In doing so, Firelands may construct its turbine foundations in karst openings and karst pathways. Blasting can collapse and pollute nearby water supply wells, as well as disrupt recharge pathways to the wells. (ICN 148, Sasowsky Testimony, p. 23, lines 15-20) Furthermore, site dewatering may be necessary during construction if excavations extend below the water table. (ICN 8, Applic. Exh. E, p. 8; Pedder, Tr. I 53:17 – 54:6) By dewatering the foundation excavations, Firelands also could pump water out of the aquifer that is needed in a nearby well.

Turbine construction activities can also direct pollutants into karst openings, which offer quick pathways for contaminated water, such as from turbine construction activity, to flow from fields, ditches, and constructed areas into the groundwater. (ICN 148, Sasowsky Testimony, p. 14, lines 16-22, p. 15, lines 9-13) Firelands' Application confirms this. An article in Exhibit E of the Application explains:

> The many passageways formed in karst terrain allow for high connectivity between the land surface and the water table. These passageways permit water to bypass soil and rock layers that filter out contaminants. Consequently, when compounds such as fertilizers, pesticides, and water enter sinkholes, they are rapidly transported to the water table and quickly pollute water wells, streams, and rivers.

(ICN 8, Applic. Exh. E, "Karst of the Fireside Quadrangle and Portions of the Flat Rock and Clyde Quadrangles, Ohio," by Douglas J. Aden, *et al*., p. 1 (pdf p. 95))

The rapid and far-reaching movement of contaminated water through karst openings is a well-known problem in the Bellevue Castalia Karst Plain area. (ICN 148, Sasowsky Testimony, p. 15, line 1) In one case, contaminated water deposited by the City of Bellevue into wells and sinkholes traveled 30 miles to pollute drinking water supplies just north of the Project Area. (*Id*., lines 1-7, p. 19, lines 16-19)

Due to the hazards of siting wind turbines on karst, OPSB denied Firelands authorization to construct eight turbine sites located in the Bellevue-Castalia Karst Plain and elsewhere in the Project Area. (Opinion, pp. 34-35, ¶ 83) However, Firelands witness Alfred Williams testified that 20 turbine sites are located in the Bellevue-Castalia Karst Plain. (ICN 141, Williams Testimony, Attachment AW-2, pp. 5-6 (pdf pgs. 23-24); Williams, Tr. VI, 755:13-23) The board allowed construction to proceed on the other proposed turbine sites in the karst plain, as well as in areas outside of the karst plain, if post-certification geotechnical testing is performed. (Opinion, p. 35, ¶¶ 83, 85) The board is allowing Firelands to grout karst openings for the foundations of these turbines if the Staff okays it. (*Id*.)

Karst also may be present in the rest of the Project Area. (ICN 148, Sasowsky Testimony, p. 7, line 21 to p. 9, line 16) The portion of the Project Area outside of the mapped karst plain displays features indicative of karst. (*Id*., p. 9, lines 9-13) In fact, Firelands has already

discovered karst in a soil boring at one of its proposed turbine sites outside of the karst plain. (Williams, Tr. VI 759:12-22)

A hydrogeological investigation is essential to understanding whether turbine construction in a karst area will impact groundwater supplies. (ICN 148, Sasowsky Testimony, p. 16, lines 19-21, p. 17, lines 20-21, p. 20, lines 1-7, p. 21, lines 9-14) To obtain accurate results, such a study must be performed by a hydrogeologist with karst experience. (*Id*., p. 20, lines 7-9) Firelands' Application contains no such study, and the board's Opinion does not require such a study to be performed. (ICN 141, Williams Testimony, Attachment AW-2, p. 10; Sasowsky, Tr. VIII 1088:4-14; ICN 124, Stipulation, p. 3, Condition 7)

2. <u>Turbine Noise</u>

Wind turbines generate a variety of sources of loud unpleasant sound, including mechanical sounds from the turbine hub and "swishing" and "whooshing" sounds from the blades moving through the air. (Duncan, Tr. IV 504:16 to 505:20) The Staff Report acknowledges that "[a]nnoyance can lead to stress and stress can lead to adverse health effects." (ICN 89, Staff Report, p. 51)

An accurate calculation of the ambient (background) sound level is important to finding out how much environmental sound is consistently present to mask or obscure potential noise from a new facility, since background noise masks or obscures noise from wind turbines.. (Duncan, Tr. IV 509:20-25; ICN 4, Applic., p. 63) The adverse impact of new noise from a wind turbine is a function of how much, if at all, the turbine noise exceeds the pre-existing background sound level. (*Id*.) "[I]n non-industrial settings, the ambient noise level at any given receptor should probably not be exceeded by more than 5 dBA, and an increase of 5 dBA may cause complaints." (ICN 89, Staff Report, p. 51) For that reason, OPSB's rules require an applicant to

measure ambient sound in the project area and prohibit new wind projects from raising that sound level by five A-weighted decibels ("dBA") or more. Ohio Admin.Code 4906-4-09(F)(2).

Firelands conducted ambient sound measurements at nine monitor stations in the Project Area. (Duncan, Tr. IV 511:5-6) Firelands placed three monitor stations in non-representative areas subjected to loud noise from seasonal heavy farm equipment, a rail line, and Interstate 80 and other highways. (ICN 9, Applic. Exh. G, p. 6-7, 14) Two of these three monitors were located more than a mile outside the Project Area. (*Id*., pp. 6-7, 14) The testing results at these three non-representative sites were then averaged with the lower sound levels present in most of the Project Area to calculate a skewed project-wide average level of 44.1 dBA. (ICN 78, Response to Sixth Data Request, Attachment 7 (pdf pg. 89))

After applying an additional five dBA to this background noise level as contemplated by Ohio Admin.Code 4906-4-09(F)(2), Firelands and the Staff concluded that 49.1 dBA of Project noise would be permissible. (ICN 89, Staff Report, p. 50; ICN 9, Applic. Exh. G, p. 4) The Opinion clarified that a noise increase to any level below 49 dBA (effectively 48.9 dBA) is allowed, because Ohio Admin.Code 4906-4-09(F)(2) prohibits noise increases of five dBA or higher. (Opinion, p. 36, ¶ 87) This would result in an increase of 8.7 dBA to 14.3 dBA at certain monitored locations within the Project area. By comparison, a 10 dBA increase doubles the sound perceived by the listener and a 20 dBA increase magnifies the sound pressure by a factor of 10. (Duncan, Tr. IV 507:11-19; ICN 9, Applic. Exh. G, p. 49)

3. Shadow Flicker

Wind turbine blades revolving between the sun and a home or yard will cast alternating light and shadows on the home or yard. (ICN 9, Applic. Exh. H, pp. 1-2; Pedder, Tr. I 56:21-24) This shadow flicker can pass through windows and cast flashing shadows on neighbors in their

yards. (Pedder, Tr. I 57:3-8) To reduce this annoyance, Ohio Admin.Code 4906-4-09(H)(1) prohibits a wind facility from casting more than 30 hours of shadow flicker on a nonparticipating property per year. The Project as designed will expose the occupants of at least 50 buildings to shadow flicker in excess of 30 hours per year, with some residents being subjected to nearly 100 hours of shadow flicker per year. (ICN 4, Applic., p. 92; ICN 53, Response to First Interrogatories, Attachment C, pdf pp. 165-167; Pedder, Tr. I 61:15 – 62:3)

4. <u>Migratory Bird Mortalities</u>

The Project Area is situated in a region endowed with some of the greatest bird migration in North America. (ICN 154, Shieldcastle Testimony, p. 31, lines 21-22) The Project Area lies just south of one of the greatest bird concentration areas in the western hemisphere, designated by the National Audubon Society as a Globally Important Area. (*Id*., p. 14, lines 9-11) To reach this area, the birds must traverse the airspace of Seneca, Erie, and Huron Counties, including the Project Area, on their way from the tropics of South America to the north woods of Canada. (*Id*., lines 11-13)

As these northbound birds approach Lake Erie in spring, the lake's large expanse of water poses a daunting barrier. (*Id*., p. 33, lines 18-19) Before crossing Lake Erie, small songbirds need to rest and feed to build their energy reserves. (*Id*., lines 19-20) As a result, large concentrations of these small birds converge on the remaining patches of wooded habitat along Lake Erie's shore in spring. (*Id*., lines 20-22) The wooded beachfront at Magee Marsh Wildlife Area provides prime habitat for migratory birds. (*Id*., p. 33, line 23 to p. 34, line 1)

The famous Magee Marsh Boardwalk nestled along the Lake Erie coast is widely recognized as one of the continent's best birdwatching areas. (*Id*., p. 32, lines 10-11) In November 2014, USA Today readers voted Magee Marsh the best birdwatching spot in the

country. (*Id*., p. 35, lines 2-3) People come from every state in the United States and dozens of foreign countries to this region to witness the spectacle of bird migration. (*Id*., p. 32, lines 3-5) The popularity of this birdwatching location led BSBO to launch a bird festival known as The Biggest Week In American Birding, which has become the largest birdwatching festival in the country. (*Id*., p. 32, lines 5-6; *id*., p. 34, lines 15-18) This festival attracts nearly 100,000 people annually to enjoy these birds, with a conservative estimate of over 40 million dollars in economic benefit to the region (the actual estimated range of benefit is $40 million to $90 million). (*Id*., p. 32, lines 6-9) This includes income from the visitors' lodging, food, travel, and other expenditures. (*Id*., lines 9-10)

Unfortunately, wind turbines kill birds. (Good, Tr. II 178:3-9) The majority of the birds killed by rotating wind turbine blades while flying through wind projects are nocturnal migrants. (*Id*.) Among those birds, passerines are the most abundant bird fatalities at wind energy facilities outside California, often comprising more than 80% of bird fatalities. (ICN 11, Applic. Exh. S-3, p. 37, pdf p. 143) The vast majority of most passerine species migrate at night. (ICN 154, Shieldcastle Testimony, p. 6, lines 15-16; Good, Tr. II 173:16-19) A passerine is a small bird generally referred to as a songbird. (*Id.*, Tr. II 161:24-25) Passerines include a wide variety of about 300 species in the eastern United States. (*Id*., Tr. II 161:25 to 162:4; Shieldcastle, Tr. VII 942:23 to 943:4)

The protection of these birds is vital to the natural environment and human recreation, as well as to the economy of the State of Ohio and local communities.

Nighttime radar surveys of nocturnal migrants are the only way to quantify the number of birds flying at night. (Shieldcastle, Tr. VII 1004:13-24) The U.S. Fish and Wildlife Service ("USFWS") routinely uses radar to measure nocturnal bird movements along the Great Lakes.

(Shieldcastle, Tr. VII 954:17 to 955:7, 1004:17-18, 1005:1 to 1006:2, 1011:8-25)

Instead of conducting radar surveys to count the birds flying through the Project Area at night during migration, Firelands counted only birds seen during the day. (ICN 69, Applic. Exhs. T1, T2, T3) However, the avian experts for both sides recognized that the Project Area has little habitat for attracting passerines to feed and rest. (Good, Tr. II 174:18 to 175:5, 207:8-17; Shieldcastle, Tr. VII 1008:16 to 1009:15) Due to the poor habitat in the Project Area for passerines, most migrating passerines keep flying until they reach the nearby ideal habitat along Lake Erie. (Shieldcastle, Tr. VII 1008: 16 to 1009:15.) Thus, counting migrants stopped in the Project Area did not identify the species of migrants flying through at night or quantify their numbers. The vast majority of nocturnally migrating birds cannot be counted during daylight in the Project Area, because they simply are not there. (*Id.*, Tr. VII 1034:15-25) Thus, looking for birds stopped during daylight does not representatively survey the birds that moved through during darkness. (Shieldcastle, Tr. VII 963:17 to 964:6)

5. <u>Economic Losses</u>

Ohio Admin.Code 4906-4-06(E)(4) requires applicants to "provide an estimate of the economic impact of the proposed facility on local commercial and industrial activities." Firelands economic impact study (ICN 8, Applic. Exhibit F) is a "rose-colored glasses" exercise that considers the Project's economic benefits, but not its adverse economic impacts. (ICN 8) For example, Firelands did not determine whether and to what extent the Project will cause losses to local eco-tourism, losses to local farmers, or displacement of electricity sales from the Davis-Besse power station and other energy providers. (Tauzer Tr. V 642:14 to 645:7) Firelands did not determine whether any local commercial or industrial businesses would suffer economic losses

from the Project's presence. (ICN 4, Applic., p. 38 (discussing only the positive impacts on local commercial and industrial activities))

6. Eagle Mortalities

Thirty years of statewide research by the Ohio Division of Wildlife shows that nesting bald eagles in the inland (non-Lake Erie) areas of Ohio utilize a radius of 2.5 miles around the nest as their primary areas for feeding and other uses. (ICN 154, Shieldcastle Testimony, p. 26, lines 3-13) Flying bald eagles are vulnerable to turbine blade strikes. (*Id*., p. 27, lines 17-19)

Bald eagles are populous in the Project Area. Firelands' surveys confirmed the widespread presence of eagle nests throughout and near the Project Area. (ICN 128, Farmer Testimony, pp. 6-12) Resident Krista Beck, a wildlife biologist formerly employed by the Ohio Division of Wildlife and Erie MetroParks, found 11 eagle nests inside and within two miles of the Project Area in 2020. (ICN 146, Beck Testimony, pp. 2, 4-5, Answers 6, 10, 11) Between December 2019 and June 2020, Ms. Beck and other area residents documented 141 bald eagle sightings inside and within two miles of the Project Area. (*Id*., pp. 3-4, Answers 8, 9, Exhs. A, B; Beck, Tr. II 887:22 to 888:2)

As currently configured, at least 52 of the Project's 87 turbine sites are situated within 2.5 miles of an existing bald eagle nest. (*Id*, pp. 5-8, Answer 12, Exh. D) Each of five eagle nests are within 2.5 miles of 8 to 16 turbine sites. (*Id*.) Some turbine sites threaten multiple eagle nests. (*Id*.) All 11 eagle nests are within 2.5 miles of turbine sites. (*Id*.)

In February 2020, the USFWS informed Firelands that its computer modeling predicted that the Project will kill an average of 2.5 bald eagles annually. (Local Residents' Exh. 16, 1st and 2nd pages (introduced into evidence at Tr. II 305:23 to 306:4, docketed on Oct. 20, 2020)) The USFWS cautioned that "we (the FWS) expect the eagle population in this area to increase,

including the number and density of eagle nests." (*Id*., second page) The Residents' sightings of eagles and eagle nests have confirmed the accuracy of this prediction.

ARGUMENT

Standards for Certification Of Major Utility Facilities

No person may construct a major utility facility without first obtaining a certificate for the facility. R.C. 4906.04. The Project is a "major utility facility" as defined by R.C. 4906.01(B)(1)(a), because it is designed to generate in excess of 50 megawatts (MW) of electricity. (ICN 4, Applic. p. 1) In order for the board to issue a certificate for a major utility facility, OPSB must hold a hearing on the application. R.C. 4906.07. The board must render a decision on the record either granting or denying the certificate based on the application as filed, or granting it on such terms, conditions, or modifications as the board considers appropriate. R.C. 4906.10(A). The board may not grant a certificate unless it finds and determines the following:

(a) "The nature of the probable environmental impact" (R.C. 4906.10(A)(2);

(b) "That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations" (R.C. 4906.10(A)(3);

(c) "That the facility will serve the public interest, convenience and necessity" R.C. 4906.10(A)(6).

R.C. 4906.10(A)(3) prohibits OPSB from issuing a certificate, unless "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." (Emphasis added.) The dictionary meaning of "minimum" is "the least quantity

assignable, admissible, or possible." The Merriam-Webster Dictionary, "Minimum," https://www.merriam-webster.com/dictionary/minimum (accessed April 8, 2022). As explained below, Firelands has not demonstrated that its Project achieves the minimum adverse environmental impact with respect to the many harms that the Project will cause. Firelands also has not provided the information required by the board's rules that is necessary for the board to determine the nature of the Project's probable environmental impact. Finally, the company has not demonstrated that the Project will serve the public interest, convenience, and necessity, a fact to which the Project's unpopularity attests.

Standards Applicable To Judicial Review Of OPSB Orders

R.C. 4903.13, which applies to OPSB via R.C. 4906.12, provides that this Court will reverse, vacate, or modify an OPSB order that is unlawful or unreasonable. The board's factual determination is unreasonable if it is manifestly against the weight of the evidence or so clearly unsupported by the record as to show misapprehension, mistake, or willful disregard of duty. *Chester Twp. v. Power Siting Comm.*, 49 Ohio St.2d 231, 361 N.E.2d 436 (1977). Furthermore, an order must show, "in sufficient detail, the facts in the record upon which the order is based, and the reasoning followed * * * in reaching its conclusion." *Indus. Energy Users-Ohio v. Pub. Util. Comm.*, 117 Ohio St.3d 486, 2008-Ohio-990, 885 N.E.2d 195, ¶30 (referring to its review of a PUCO order under the same statute). A "legion of cases" establishes that the board "abuses its discretion if it renders an opinion on an issue without record support." *Id*.

The Court has complete and independent power of review as to all questions of law in appeals from the board. *In re Application of Middletown Coke Co.*, 127 Ohio St.3d 348, 351, 2010-Ohio-5725, 939 N.E.2d 1210, ¶ 14. Administrative regulations issued pursuant to statutory authority have the force and effect of law, so an administrative agency such as OPSB is required

to follow its own rules. *State ex rel. Cuyahoga Cty. Hosp. v. Ohio Bureau of Workers' Comp.*, 27 Ohio St.3d 25, 27–28, 500 N.E.2d 1370, 1372–73 (1986); *Parfitt v. Columbus Corr. Facility*, 62 Ohio St.2d 434, 436, 437, 406 N.E.2d 528, 530 (1980); *Clark v. Ohio Dep't of Mental Retardation and Developmental Disabilities*, 55 Ohio App.3d 40, 42, 562 N.E.2d 497, 500 (6th Dist. 1988). A citizen is entitled to enforce such an agency's rule against the agency if the citizen is a member of the class which the rule was intended to benefit. *Parfitt*, 62 Ohio St.2d at 436.

Ohio Admin.Code Chapter 4906-4 is an integral component of the process set up by R.C. 4906.06 and R.C. 4906.07 to provide members of the public with the information they need to provide the board with informed input on a project that could impact them. R.C. 4906.06(A)(2) requires the Application to contain "[a] summary of any studies that have been made by or for the applicant of the environmental impact of the facility." The application must include the information required by Ohio Admin.Code Chapter 4906-4 in order to determine whether the criteria of R.C. 4906.10(A) have been met. Ohio Admin.Code 4906-2-04(B). Signifying the importance of public participation in certification decisions, the applicant is further required to publish public notices notifying the public about the application and where to find a copy of the application for review. R.C. 4906.06(C); Ohio Admin.Code 4906-3-07 & 4906-3-09. Section 4906.07(A) instructs OPSB to schedule the hearing only after receiving a complete application "complying with section 4906.06 of the Revised Code." Thereafter, the board conducts a hearing to obtain evidence from the parties and the public, including intervenors. R.C. 4906.07(A).

In this case, the evidentiary record lacks much of the information required by Ohio Admin.Code Chapter 4906-4. OPSB may not issue a certificate without this information. The missing information is necessary for the Appellants to participate meaningfully in the hearing process. This information is also needed for OPSB to make sound decisions under the R.C.

4906.10(A) criteria, namely, whether to approve the Project, and if so, how it should be designed to minimize its impacts on the Appellants. The Appellants are prejudiced by OPSB's failure to comply with these rules, and they have standing to seek OPSB's compliance with them.

PROPOSITION OF LAW NO. 1:

The Ohio Power Siting Board Acted Unlawfully and Unreasonably By Issuing A Certificate Allowing Wind Turbines To Be Sited In A Known Karst Plain Where They May Diminish And Pollute The Area's Groundwater Supplies In Contravention Of R.C. 4906.10(A)(3).

As explained in the Statement of Facts, the construction of turbines on karst can destabilize the land surface elsewhere, increase flooding, contaminate the community's vital water supplies, and cut off the flow of groundwater to neighboring wells. Groundwater supplies are a critical resource for the community in and around the Project Area. (Sasowsky, Tr. VIII 1097:17-23)

For those reasons, OPSB denied eight of the Firelands turbine sites (T24, T25, T26, T42, T43, T73, T74, and T75), reasoning:

> According to Firelands' geotechnical expert witness, these sites have been identified as locations where either (1) potential solution cavities within bedrock were encountered during drilling activities, (2) available geologic maps and literature document mapped karst features, or (3) boring logs, geological maps, and literature demonstrate a moderate to high probability of karst development (Fireland Ex. 38 at 6-8). We reject the contention that these sites may be further reviewed using additional testing to determine whether they can be considered for installation using grouting techniques. Nevertheless, we disfavor the use of grouting on a widespread basis, particularly in areas where karst activity is prevalent. Here, much of the proposed project lies outside of areas where karst is expected to be encountered at a moderate to high level. We find that construction in these areas is reasonable.

(Opinion, pp. 34-35, ¶ 83) (Emphasis added.) The board determined that wind turbines must not be built at these sites, because they are located in areas with a moderate to high probability of karst. The board explained that it is not opposed to grouting per se as a means for filling subsurface openings to support turbine foundations, but "we disfavor the use of grouting on a

widespread basis, particularly in areas where karst activity is prevalent" due to grouting's damaging impacts on water management including groundwater migration and contamination. (*Id*., p. 35, ¶ 84) The board reiterated that grouting is not an appropriate remedial construction technique "where karst is anticipated at a level that is moderate or higher, as described above." (*Id*.)

OPSB's decision not to approve grouting in areas with a moderate to high probability of karst development is justified by the great risk to groundwater from plugging karst openings. As explained in the Statement of Facts, plugging karst openings can cut off the flow of groundwater to drinking water wells in a region whose primary source of water is groundwater. Moreover, as learned from the City of Bellevue disaster, introducing contaminants into karst openings in an area of widespread karst can rapidly pollute groundwater supplies.

For the same reasons, the board also must prohibit turbine construction at other turbine sites located in the portion of the Bellevue-Castalia Karst Plain, which is an area with a moderate to high probability of karst development. This karst plain is mapped out as the light green area of the "Site Vicinity Karst Map" in Figure 9 of Firelands' April 2020 Geotechnical Report. (ICN 141, Williams Testimony, Attachment AW-2, pdf p. 69) This report describes the green area of Figure 9 as follows:

> Based on the available geologic maps and studies, [wind turbine] foundation sites in the northwestern portion of the project site are located within an area where carbonate rocks (limestone) are present and may be susceptible to karst features such as voids and other solution cavities. Karst features typically occur in limestone, dolomite, or dolomitic limestone bedrock, as well as evaporite deposits such as gypsum. Figure 9 within Appendix A depicts the project boundaries in conjunction with mapped karst zones near the project site.

(*Id*., Attachment AW-2, pp. 5-6 (pdf pgs. 23-24). (Emphasis added.) Firelands' expert Alfred Williams further explained the content of Figure 9:

> Q. Now, what is depicted by the different shades of green color in Figure 9?
>
> A. Those are sinkholes or karst, I guess land features that have been identified by the ODNR. Some are field-verified sites. And some are not field-verified. They may be suspected karst features at the ground surface.
>
> Q. And the area in which karst has been documented to occur is shown by the light green color on Figure 9?
>
> A. Correct.

(Williams, Tr. VI, 755:13-23) Thus, the light green area of Figure 9 establishes the documented extent of the karst plain within the Project Area.

Firelands' Application confirms that this area is highly susceptible to karst development, stating that "the extreme northwestern portion" of the Project Area is located within the Bellevue-Castalia Karst Plain, which is characterized by numerous sinkholes, large solution features, springs, and caves. (ICN 4, Applic., p. 80) Dr. Sasowsky, referring to this karst plain, testified that "karst is clearly a concern within all of the mapped limestone area." (ICN 148, Sasowsky Testimony, p. 9, A. 13, line 14) Consequently, consistent with Paragraphs 83-84 of its Opinion, the board should have prohibited turbine development in the entire portion of the karst plain within the Project Area to protect its water supplies. It did not do so.

Each of the turbine sites proposed in the karst plain is marked with an "X" surrounded by a green circle on Figure 9. Mr. Williams testified that 20 proposed turbine sites are located in this karst plain, although counting them shows there to be at least 25 sites there. (Williams, Tr. VI 758:16-21; ICN 141, Williams Testimony, Attachment AW-2, Fig. 9, pdf pg. 69)

Given the board's determination that turbines should not be sited in areas of moderate or high karst risk (Opinion, pp. 34-35, ¶ 83), the board should not have approved any of the turbine sites in the karst plain. Allowing turbines to be sited in the karst plain is inconsistent with the statutory mandate that the Project represent the minimum adverse environmental impact. R.C.

4906.10(A)(3). Therefore, the Court should remand the certificate to the board with instructions to eliminate all turbines sites in this karst plain.

PROPOSITION OF LAW NO. 2:

The Ohio Power Siting Board Acted Unlawfully And Unreasonably By Issuing A Certificate To A Wind Energy Utility Without Receiving The Information Required By Rule And R.C. 4906.10(A)(2) & (3) Concerning The Project's Potential Impacts On Groundwater Supplies.

Ohio Admin.Code 4906-4-08(A)(4)(a) provides:

(4) Water impacts. The applicant shall provide information regarding water impacts

(a) Provide an evaluation of the impact to public and private water supplies due to construction and operation of the proposed facility.

This section requires Firelands to conduct a groundwater impact study prior to certification in order to identify threats to the community's water supplies. Although Firelands did some limited work to find out whether the ground will support the turbine foundations, Firelands performed no study to determine whether plugging karst formations with turbine foundations and grout will endanger the area's aquifers.

As explained above, the construction of turbines on karst can destabilize the land surface elsewhere, increase flooding, contaminate the community's vital water supplies, and cut off the flow of groundwater to neighboring wells. This is especially the case if grout is used to fill karst openings to stabilize the foundations.

Although karst is especially prominent in the Bellevue-Castalia Karst Plain, karst also may be present in the rest of the Project Area. (ICN 148, Sasowsky Testimony, p. 7, line 21 to p. 9, line 16) The portion of the Project Area outside of the mapped karst plain displays features indicative of karst. (*Id*., p. 9, lines 9-13) In fact, Firelands discovered karst in a soil boring at one

of its proposed turbine sites outside of the mapped karst plain. (Williams, Tr. VI 759:12-22) Thus, even in areas not currently mapped as karst, it is imperative that steps be taken to characterize the presence of karst in order to prevent environmental impacts. (ICN 148, Sasowsky Testimony, p. 9, lines 14-19)

Thus, the hydrogeologic study required by Ohio Admin.Code 4906-4-08(A)(4)(a) is important in order to understand the movement of water at each site. (*Id*., p. 15, lines 13-14) This can be accomplished in a number of ways, but almost always requires more than simple visual inspection. (*Id*., p. lines 14-15) Dye tracing is a common approach to identifying flow directions and recharge zones. (*Id*., lines 15-16) This has been carried out in some parts of Ohio by ODNR and other entities. (*Id*., lines 16-17)

Before authorizing any turbines inside or outside the karst plain in the Project Area, the board should have required Firelands to conduct a thorough hydrogeological field investigation of each proposed turbine site to identify karst features and to evaluate the turbines' potential impacts on the quantity and quality of the community's groundwater supplies. This investigation should be performed by a hydrogeologist with meaningful experience with karst.

Dr. Sasowsky testified that a hydrogeological investigation needs to result in an understanding of the source of water for each neighborhood well. (*Id*., p. 16, lines 19-20) This includes identifying the aquifer, as well as the recharge zone for the well which is extracting the water. (*Id*., p. 17, lines 20-21) Firelands must identify the aquifers present, the groundwater flow directions, the karst features, ground support characteristics, the recharge and discharge areas, the water users, and the capture zone for the users' water extraction. (*Id*., p. 20, lines 1-7, p. 21, lines 9-14) This information could then guide the design and construction of the Facility to avoid

the disruption of recharge to the wells. (*Id*., p. 16, lines 20-21) It is essential that this investigation be conducted by a hydrogeologist with karst experience. (*Id*., p. 20, lines 7-9)

However, the board's opinion only vaguely requires Firelands' engineering drawings to "account for karst topography." (ICN 124, Stipulation, p. 3, Condition 7) The board's Opinion allows Firelands to grout its turbine foundations if the Staff okays it. (Opinion, p. 35, ¶ 85) The Opinion and Condition 7 do not require the "evaluation of the impact to public and private water supplies due to construction and operation of the proposed facility" mandated by Ohio Admin.Code 4906-4-08(A)(4)(a).

Similarly, Firelands states only that it has performed and will perform more geotechnical studies of the geology for its turbine sites, pretending that the geotechnical studies are hydrogeological studies. But a geotechnical study has a different purpose than a hydraulic study. Geotechnical surveys determine whether the land will support a heavy wind turbine. Hydrogeological studies determine whether the intrusion of a turbine foundation or grout on karst openings will pollute or dewater someone's water supply well. Firelands has not conducted any field work to identify the Project Area's hydrogeology. (Sasowsky, Tr. VIII 1088:4-14) Firelands has not even figured out "where people's water is coming from." (Sasowsky, Tr. VIII 1088:11-14)

Firelands has persistently resisted any requirement for conducting a hydrogeological study to protect neighboring wells. Its own consultant on the geotechnical borings admits:

> It is imperative to note that the short-term groundwater level observations performed as part of this study are not an accurate evaluation of groundwater levels at the project site, and <u>this report should not be interpreted as a comprehensive groundwater study.… If a detailed groundwater study is desired, a groundwater hydrologist should be retained to provide these services</u>.

(ICN 141, Williams Testimony, Attachment AW-2, p. 10) (Emphasis added.)

Stipulation Condition 7 would require Firelands to identify the "professional engineer(s), structural engineers(s), or engineering firm(s)" who review and approve the project designs on the engineering drawings that "account for karst topography." (ICN 124, Stipulation, p. 3, ¶ 7) Notably missing is any reference to a hydrogeologist. This condition provides only for a geotechnical study, not the hydrogeologic study required by Ohio Admin.Code 4906-4-08(A)(4)(a). Nor does the Application provide for any hydrogeological field work, since it limits its commitment for field work to just the geotechnical investigation designed to make sure the turbine foundations are steady. (ICN 4, Applic., pp. 84-85) The board has merely directed Firelands to perform the evaluation necessary to make sure its turbines do not collapse, not to figure out whether they will impair the neighbors' water supplies.

Ohio Admin.Code 4906-4-08(A)(4)(a) requires Firelands to evaluate the impact of its Project on public and private water supplies due to the construction and operation of the wind project before a certificate is issued, so that the board can find out whether the Project the turbine foundations will damage neighboring water supply wells and to determine whether the Project meets the statutory criteria in R.C. 4906.10(A)(2) and (3). The board's Opinion authorizing turbine construction without such a study is contrary to that rule. Because Firelands has not complied with Ohio Admin.Code 4906-4-08(A)(4)(a), its certificate should be vacated.

In summary, the certificate should prohibit the siting of turbines in the known karst area depicted by the light green color on Figure 9 (pdf p. 69) in Appendix A of Attachment AW-2 of Alfred Williams' direct testimony. That area is not suitable for turbine construction, as explained in Proposition of Law No. 1. In areas where turbines are permitted, Firelands should be required to conduct a competent hydrogeological field investigation under the supervision of an experienced hydrogeologist to evaluate groundwater presence and movement. Following

adjudication, the certificate should prohibit turbine construction at any site at which karst features are detected.

PROPOSITION OF LAW NO. 3:

The Ohio Power Siting Board's Decision To Issue A Certificate To A Wind Energy Utility Authorizing Noise That Will Cause Stress, Annoyance, And Health Damage Among The Utility's Neighbors Is Unreasonable And Violates The Board's Duty Under R.C. 4906.10(A)(3) To Approve Only Utilities That Represent The Minimum Adverse Impact.

The board erred in finding that Firelands' ambient sound study was reasonable and that the Project's operational noise will comply with R.C. 4906.10(A)(3). (Opinion, p. 36, ¶ 87) The board has been tasked with protecting the health and comfort of the neighborhood in and near the Project Area by keeping the turbines far enough from non-participating homes and land to prevent the neighbors from hearing annoying and harmful levels of turbine noise.

The board's wind turbine noise rule, Ohio Admin.Code 4906-4-09(F)(2), provides as follows:

> The facility shall be operated so that the facility noise contribution does not result in noise levels at any non-participating sensitive receptor within one mile of the project boundary that exceed the project area ambient nighttime average sound level (Leq) by five A-weighted decibels (dBA).

(Emphasis added.)

Addressing the subject of wind turbine noise, the Staff Report acknowledges that "[a]nnoyance can lead to stress and stress can lead to adverse health effects." (ICN 89, Staff Report, p. 51) Therefore, "in non-industrial settings, the ambient noise level at any given receptor should probably not be exceeded by more than 5 dBA, and an increase of 5 dBA may cause complaints." (*Id.*) That is why Ohio Admin.Code 4906-4-09(F)(2) prohibits noise increases of five dBA or greater. (Bellamy, Tr. III 462:16-25; ICN 89, Staff Report, p. 51)

Ohio Admin.Code 4906-4-08(A)(3)(e) requires an applicant to "[s]ubmit a preconstruction background noise study of the project area that includes measurements taken under both day and nighttime conditions" to find out what level of ambient sound already exists in a project area. An accurate calculation of the ambient (background) sound level of a project area is important to find out how much environmental sound is consistently present and available in a community to mask or obscure potential noise from a new facility. (Duncan, Tr. IV 509:20-25; ICN 4, Applic., p. 63) The audibility and potential adverse impact of new noise from a wind turbine is a function of how much, if at all, the turbine noise exceeds the pre-existing background sound level. (*Id.*) Consequently, the comfort and livability of the surrounding community relies on an accurate assessment of the existing ambient sound level.

The measured ambient sound level is compared to the turbines' noise levels predicted by computer modeling to occur at nearby residences. This means that a developer can site turbines closer to neighboring houses and yards by designing its ambient sound study to produce a higher sound level and then adding five dBA, thus fitting more turbines into smaller spaces. That is what Firelands did in this case.

Ohio Admin.Code 4906-4-09(F)(2) provides that turbine noise at non-participating sensitive receptors must not exceed "the project area ambient nighttime average sound level (Leq)" by five dBA. (Emphasis added.) To calculate the project area ambient nighttime average sound level, an applicant must "[s]ubmit a preconstruction background noise study of the project area." OAC 4906-4-08(A)(3)(e) (Emphasis added.) Accordingly, an applicant must measure the ambient sound level inside a project area, not outside of it.

Firelands conducted ambient sound measurements at nine monitor stations in the Project Area. (Duncan, Tr. IV 511:5-6) But as discussed below, Firelands' noise consultant skewed his

background noise measurements by including three non-representative noisy sites. This resulted in a non-representative average background noise calculation of 44.1 dBA. (ICN 78, Response to Sixth Data Request, Attachment 7 (pdf pg. 89)) After applying an additional five dBA to this background noise level pursuant to Ohio Adm.Code 4906-4-09(F)(2), Firelands and the Staff concluded that 49.1 dBA of Project noise would be permissible. (ICN 89, Staff Report, p. 50; ICN 9, Applic. Exh. G, p. 4) The Opinion clarified that a noise increase to any level below 49 dBA (effectively 48.9 dBA) is allowed, because Ohio Admin.Code 4906-4-09(F)(2) prohibits noise increases of five dBA or higher. (Opinion, p. 36, ¶ 87) As explained below, this would result in an increase of 8.7 dBA-14.3 dBA -- effectively a doubling of perceived sound -- at other monitored locations within the Project Area.

Firelands' map of its ambient sound monitoring sites shows that two of its noisiest monitoring sites were not even located in the Project Area. (ICN 9, Applic. Exh. G, p. 6) Monitors 1 and 6 were located about 1.2 miles and about 1.4 miles respectively from the nearest proposed turbine location. (*Id*., pp. 6-7, 14) Monitor 1 was placed at a location at which "I-80 was clearly audible." (*Id*., p. 7) Monitor 6 was sited near two state highways and a rail line. (*Id*., p. 14) State Highway 4 was only 154 feet away. (*Id*.) Firelands chose these locations because their noisiness would skew the ambient average of the Project Area.

Firelands' choice of monitoring locations had its desired effect, as illustrated by the results of the background noise testing. The average nighttime Leq for Monitor 1 was 50.1 dBA, the third highest ambient nighttime sound level among the nine testing sites. (ICN 78, Response to Sixth Data Request, Attachment 7 (pdf pg. 89)) Not surprisingly, the noise at this site was driven by "the consistent source of traffic noise from I-80." (ICN 9, Applic. Exh. G, p. 23) The average nighttime Leq for Monitor 6 was 51.6 dBA, the second highest ambient nighttime sound

level, due to "passing traffic on OH-4" and "occasional sound from train passbys on the nearby rail line." (*Id*., p. 33; ICN 78, Response to Sixth Data Request, Attachment 7 (pdf pg. 89)) Since Monitors 1 and 6 do not measure the ambient sound of the Project Area, but rather non-representative, noisy locations more than a mile outside of the Project Area, the measurements from those monitors should have been excluded from calculations of the project area ambient nighttime average sound level in order to comply with the mandates in OAC 4906-4-08(A)(3)(e) and OAC 4906-4-09(F)(2) to measure inside the Project Area.

In addition, the results from Monitor 9 were influenced by seasonal nighttime farming operations. (ICN 9, Applic. Exh. G, p. 39) This site was monitored from September 13-27, 2018. (*Id*., p. 5) Firelands noted that "notable agricultural activity" "accounted for sound levels rarely dipping below 50 dBA during the second week." (*Id*.) "[F]requent passing traffic on US- 224 and occasional train passbys" added to the din. *Id*. The result at that location was a nighttime Leq level of 51.9. (ICN 78, Response to Sixth Data Request, Attachment 7 (pdf pg. 89))

The average nighttime Leq levels at these three sites exceeded 50 dBA -- a level higher than that of a bulldozer or an accelerating tractor trailer at a distance of 1469 feet. (ICN 9, Applic. Exh. G, p. 46) By averaging measurements from these three abnormally noisy locations - two of which are not even in the Project Area - with normal sites, Firelands was able to calculate a high, non-representative ambient level of 44.1 dBA.

Firelands' ploy for including noisy sites in a Project-wide average, if allowed by the board, would have serious adverse impacts on the community. Because a 48.9 dBA nighttime limit would apply to the entire Project Area, this limit would apply even where the ambient nighttime level is substantially quieter than the three noisy sites included in the Project-wide average. Thus, for example, the nighttime ambient Leq levels at Monitors 5, 7, and 8 were 40.2

dBA, 34.6 dBA, and 36.3 dBA, respectively. (ICN 78, Response to Sixth Data Request, Attachment 7 (pdf pg. 89)) With a standard of 48.9 dBA, Firelands is allowed to impose noise increases at Monitors 5, 7, and 8 by 8.7 dBA, 14.3 dBA, and 12.6 dBA, respectively. By comparison, a 10 dBA increase doubles the sound perceived by the listener and a 20 dBA increase magnifies the sound pressure by a factor of 10. (Duncan, Tr. IV 507:11-19; ICN 9, Applic. Exh. G, p. 49) This means that many residences in the Project Area will be exposed to far more than a five dBA increase above the ambient sound level, contrary to the intent of Ohio Admin.Code 4906-4-09(F)(2). Thus, the non-representative noise levels at monitoring sites 1, 6, and 9 should have been excluded from the project area ambient nighttime average sound level.

Instead, the board accepted the 48.9 dBA standard for the entire Project Area by averaging the sound levels for all nine monitoring stations throughout and outside of the Project Area based on the premise in Ohio Admin.Code 4906-4-09(F)(2) that turbine noise must not exceed "the project area ambient nighttime average sound level (Leq)" by five dBA. (Emphasis added.) However, the cited language from the board's rule does not preclude OPSB from excluding non-representative measurements from the average, nor does it prevent OPSB from imposing additional noise limits where averaging does not protect the public. For example, the certificate could have prohibited Firelands' turbines from increasing the noise level by five dBA or higher above the ambient sound level as measured only at each nonparticipating residence. These options would eliminate the harm resulting from averaging non-representative sound levels at noisy sites with normal sound levels elsewhere in the Project Area.

If Ohio Admin.Code 4906-4-09(F)(2) is interpreted to prohibit OPSB from utilizing these other options, then the rule is unconstitutional as applied in this case. Under Ohio law, a rule is unconstitutional if it has no rational basis and is unreasonable. *City of Cleveland v. City of*

Shaker Heights, 30 Ohio St. 3d 49, 53, 507 N.E.2d 323, 327 (1987); *Sterling Drug, Inc. v. Wickham*, 63 Ohio St.2d 16, 19, 406 N.E.2d 1363, 1366 (1980). In an appeal of an administrative order, the appellant may establish a rule on which the order is based to be without rational basis and unreasonable and thus invalid as applied to the particular set of facts or circumstances in that case. *Stouffer Corp. v. Board of Liquor Control* (1956), 165 Ohio St. 96, 100-101, 133 N.E.2d 325-28, 327 (1956). Also see *Zangerle v. Evatt*, 139 Ohio St. 563, 571–72, 41 N.E.2d 369, 373 (1942) ("The function of a court is to decide whether such rules are reasonable as applied to the facts of a particular justiciable case."). Whether a rule is reasonable is a question of law. *Stouffer*, 165 Ohio St. at 99. In this case, if Ohio Admin.Code 4906-4-09(F)(2) is interpreted to require project-wide averaging that raises the community's noise level as much as 15.5 dBA, then this rule has no rational basis and is unconstitutional. In that event, the Residents request that the Court find the rule to be unconstitutional as applied in this case and instruct OPSB on remand not to average the nine ambient measurements pursuant to this rule.

Firelands' emphasis on monitoring noisy sites has skewed the project-wide ambient average so badly that it would allow noise increases up to 14.3 dBA in the quietest area of the Project Area. As discussed above, a 10 dBA increase doubles the sound perceived by the listener and a five dBA increase may result in complaints. For this reason, the Project does not represent the minimum adverse environmental impact under R.C. 4906.10(A)(3). To remedy this problem, the Residents request the Court to remand the certificate with instructions to recalculate the nighttime ambient sound level in the Project Area without using monitoring stations outside of the Project Area and without using the non-representative sound data from Monitors 1, 6, and 9. In the alternative, the Residents request that the Court instruct OPSB on remand to set a different

noise limit to prevent noise increases at each neighboring residence of five dBA or higher based on the ambient sound level at that home instead of a project-wide average.

PROPOSITION OF LAW NO. 4:

The Ohio Power Siting Board Acted Unlawfully And Unreasonably By Issuing A Certificate To A Wind Energy Utility That Does Not Comply With The Shadow Flicker Standard In The Board's Rule And That Does Not Comply With R.C. 4906.10(A)(2) & (3).

To mitigate the impact of shadow flicker, Ohio Admin.Code 4906-4-09(H)(1) prohibits a wind facility from casting more than 30 hours of shadow flicker on a nonparticipating receptor per year. A "non-participating receptor" is a property whose owner has not signed an agreement waiving this standard. Ohio Admin.Code 4906-4-08(H)(1).

The shadow flicker models in Firelands' application fail to comply with the 30-hour per year standard. Firelands' first flicker model showed that shadow flicker from the Project will exceed the standard at 55 occupied buildings. (ICN 4, Applic., p. 92; Pedder, Tr. I 61:15 to 62:3) Firelands' last submission of flicker modeling showed that shadow flicker from the Project alone will exceed the standard at 49 nonparticipating houses and one business. (ICN 53, Response to First Interrogatories, Attachment C, pdf pp. 165-167) Flicker exposures for these neighbors range up to almost 100 hours per year. (*Id*., pdf p. 167 (receptor 1179)) An additional 16 receptors will be exposed to more than 30 hours per year from a combination of this Project and other wind projects. (*Id.*, Attachment D, pdf pp. 169-170) Consequently, the Project as described in the Application does not comply with the Board's standard. (Bellamy, Tr. III 463:11-17)

OPSB acknowledged Firelands' studies concluding that the Project will violate the board's shadow flicker limitations. (Opinion, p. 36, ¶ 88) However, the board speculated that perhaps a different Project design not yet formulated may be able to comply with the shadow

flicker. (*Id.*) Thus, the board adopted Condition 34 instructing Firelands to submit a compliant design to the Staff after certification. (*Id.*; ICN 124, Stipulation, p. 8, ¶ 34)

Condition 34 violates the Residents' rights to participate in the review process and divests the board of its non-delegable duty under R.C. 4906.10(A) to make the required findings and determinations in R.C. 4906.10(A)(2) and (3). Revised Code 4906.10(A) prohibits the board from issuing a certificate unless "it finds and determines" compliance with the criteria in that statutory subsection. Without a demonstration in the record that the Project satisfies the board's rule-based shadow flicker standard, the board has no basis to determine whether the siting criteria set forth in R.C. 4906.10(A)(2) and (3) have been satisfied. Condition 34 would delegate all shadow flicker compliance to the post-certificate judgments of the Staff without further evaluation by the board, the public, or the courts.

PROPOSITION OF LAW NO. 5:

The Ohio Power Siting Board Acted Unlawfully And Unreasonably By Issuing A Certificate To A Wind Energy Utility Without Receiving The Information Required By R.C. 4906.10(A)(2) About The Nature Of The Project's Probable Environmental Impact On Migrating Birds.

OPSB erred in finding that Firelands adequately evaluated the Project's potential impacts on birds. (Opinion, pp. 54-55) Although the board emphasizes that Firelands has performed wildlife surveys in the Project Area, OPSB overlooked the fact that Firelands' surveys excluded the most important data for assessment of bird mortality in the Project Area.

As discussed below, Firelands declined to conduct the necessary radar study to find out how many passerines (songbirds) will die upon colliding with rotating turbine blades while flying at night through the Project Area during the spring and fall migrations to and from one of the greatest bird congregation areas in North America. Even though most migrating passerines fly at night, Firelands did not conduct a study to detect them at night as they flew through the

Project Area. Instead, Firelands looked only for migrating birds that were resting or feeding in the Project Area during daylight, even though few birds would stop there due to its lack of suitable habitat for feeding and resting. The board erred by allowing Firelands to forego the most important data necessary to determine the nature of the Project's probable environmental impact on birds pursuant to R.C. 4906.10(A)(2).

A. The Project Area Is Located In An Important Migratory Pathway That Must Be Kept Free Of Dangerous Obstacles, Such As Wind Turbines, To Avoid Bird Mortalities.

A letter from the U.S. Fish and Wildlife Service to Firelands' predecessor on this Project emphasizes the developer's obligation to avoid the siting of wind projects in important avian migratory pathways:

> The Service supports the development of wind power as an alternative energy source, however, wind farms can have negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Selection of the best sites for turbine placement is enhanced by ruling out sites with known, high concentrations of birds and/or bats passing within the rotor-swept area of the turbines or where the effects of habitat fragmentation will be detrimental. In support of wind power generation as a wildlife-friendly, renewable source of power, development sites with comparatively low bird, bat and other wildlife values, would be preferable and would have relatively lower impacts on wildlife.

(ICN 9, Applic. Exh. K-11, Letter from Mary Knapp to Matt Krivos of Apr. 27, 2011, pp. 1-2, pdf pp. 915-916) (Emphasis added.) Unfortunately, Firelands ignored this advice.

As discussed in the Statement of Facts, the Project Area lies directly south of one of the greatest bird concentration areas in the western hemisphere, designated by the National Audubon Society as a Globally Important Area. (*Id*., p. 14, lines 9-11) The migratory airspace used by birds to reach Magee Marsh and Lake Erie is critical habitat that must be protected for the safety of these birds.

Firelands unwisely plans to site its Project in this migration pathway. And because Firelands has refused altogether to conduct nighttime bird surveys when migration is occurring, Firelands has no reliable data upon which to base any estimates of avian mortality for this Project.

B. Firelands Did Not Conduct The Survey Necessary To Quantify Passerine Migration At Night, When Most Of The Passerines Are Flying Over The Project Area.

Firelands' expert witness on birds acknowledged that the majority of avian casualties from turbines are nocturnal migrants. (Good, Tr. II 178:3-9) Firelands' Application acknowledges that passerines have been the most abundant bird fatality at wind energy facilities outside California, often comprising more than 80% of bird fatalities. (ICN 11, Applic. Exh. S-3, p. 37; Good, Tr. II 161:24-25)

Yet Firelands has not performed a single field survey of passerines and other birds flying over the Project Area at night. (Good, Tr. II 173:19-22) Passerines include a wide variety of about 300 species in the eastern United States. (Good, Tr. II 161:25 to 162:4; Shieldcastle, Tr. VII 942:23 to 943:4) Some of the passerines expected to fly at night through the area are endangered species. (ICN 154, Shieldcastle Testimony, p. 28, lines 15-18 & p. 29, lines 1-4) Without counting the birds flying through the Project Area at night, it is not possible to accurately evaluate the risk from the birds' collision with the Project's wind turbines.

Nighttime radar surveys of nocturnal migrants are the only way to obtain that data. (Shieldcastle, Tr. VII 1004:13-24) In fact, the USFWS routinely uses radar to measure nocturnal bird movements along the Great Lakes. (Shieldcastle, Tr. VII 954:17 to 955:7, 1004:17-18, 1005:1 to 1006:2, 1011:8-25) The board should have insisted that Firelands do the same.

Firelands included three studies in the Application that were labeled as "Passerine

Migration Studies." (ICN 69, Applic. Exhs. T1, T2, T3) However, these studies were meaningless for evaluating turbine risk to migrating passerines, because none of them looked for passerines flying through the Project Area at night. (ICN 154, Shieldcastle Testimony, p. 8, line 23 to p. 9, line 1, p. 9, lines 17-19, 22, p.10, lines 6-7) Firelands' expert and BSBO's expert agreed that the vast majority of most passerine species migrate at night. (*Id*., p. 6, lines 15-16; Good, Tr. II 173:16-19) Therefore, to address nocturnal migration risk, studies must be conducted at night when the birds are actively moving through the air. (ICN 154, Shieldcastle Testimony, p. 7, lines 8-9) Radar is the only method for doing so, and the USFWS uses radar for that purpose. (*Id*., p. 8, line 23 to p. 9, line 1; Shieldcastle, Tr. VII 944:2-15, 1005:4 to 1006:2, 1010:12-23)

Firelands reasoned that its daylight bird counts demonstrate that the Project Area is not heavily used as "stopover habitat" by migrating passerines. The avian experts for both sides recognized that the Project Area has little habitat for attracting passerines to feed and rest. (Good, Tr. II 174:18 to 175:5, 207:8-17; Shieldcastle, Tr. VII 1008:16 to 1009:15) Due to the marginal habitat in the Project Area for passerines, most migrating passerines keep flying until they reach the nearby ideal habitat along Lake Erie. (Shieldcastle, Tr. VII 1008: 16 to 1009:15.) Thus, counting migrants stopped in the Project Area did not identify the species of migrants flying through at night or quantify their numbers. The vast majority of nocturnally migrating birds cannot be counted during daylight in the Project Area, because they simply are not there. (*Id*., Tr. VII 1034:15-25) Thus, looking for birds stopped during daylight does not representatively survey the birds that moved through during darkness. (Shieldcastle, Tr. VII 963:17 – 964:6)

Firelands' daytime bird studies concluded that Firelands' turbines would pose little risk to migrating birds. This conclusion was the preordained outcome of these daytime bird counts, since Firelands failed to look for passerines as they flew through the Project Area at night.

Therefore, Firelands has omitted to survey the category of birds most at risk from colliding with wind turbines – passerines -- during migration at night when they are the most vulnerable to being struck by turbines. Without this information, the board cannot fulfill its duty under R.C. 4906.10(A)(2) to determine "[t]he nature of the probable environmental impact" from the Project. OPSB should not have issued a certificate for this Project without requiring Firelands to first conduct nighttime radar monitoring to evaluate the turbines' threat to migrating birds in this important migratory area. BSBO and the Residents request the Court to vacate and remand the certificate with instructions to obtain this important information prior to deciding whether to reissue the certificate.

PROPOSITION OF LAW NO. 6:

The Ohio Power Siting Board Acted Unlawfully And Unreasonably By Issuing A Certificate To A Wind Energy Utility Without Evaluating The Project's Negative Economic Impacts As Required By Rule And R.C. 4906.10(A)(6).

Ohio Admin.Code 4906-4-06(E)(4) requires applicants to "provide an estimate of the economic impact of the proposed facility on local commercial and industrial activities." This information is important in determining whether the Project "will serve the public interest, convenience, and necessity" as required by R.C. 4906.10(A)(6). The board erred in concluding that these requirements were met, because it required Firelands to provide evidence of only the Project's positive economic benefits without requiring any analysis of the Project's negative economic impacts on local commercial and industrial activities. (Opinion, p. 28, ¶ 65)

Application Exhibit F contains Firelands' projections of the economic benefits of the Project. Exhibit F sets forth the results of computer-based economic modeling performed by a consultant trained as a biologist and environmental scientist, not as an economist. (ICN 130, Tauzer Testimony, p. 2, lines 14-16) Firelands made no attempt to identify or quantify any economic losses to the public from this Project. Neither the Application nor the record reveals any such analysis, even though the record contains several categories of prospective damage.

For example, even though it is well-documented that wind turbines kill birds (see Proposition of Law 5 above), the Application contains no economic analysis of potential losses to local businesses that depend on birdwatching tourism. (Tauzer, Tr. V 641:5-20) There is a direct connection between habitat conservation and the economic impact of birding tourism. (ICN 154, Shieldcastle Testimony, p. 35, lines 4-5) Birdwatching is a multimillion dollar recreational activity near the Project Area. (*Id*., p. 32, lines 3-5) People come from every state in the United States and dozens of foreign countries to witness the spectacle of bird migration. (*Id.*) BSBO's bird festival alone attracts nearly 100,000 people annually to enjoy these birds, with a conservative estimate of over 40 million dollars in economic benefit to the region (the actual estimated range of benefit is $40 million to $90 million). (*Id*., p. 32, lines 6-9) This includes income from the lodging, food, travel, and life expenditures while visiting. (*Id*., lines 9-10) Yet Firelands has done no economic analysis of potential economic losses that may occur due to the impact of wind turbines on birds.

Firelands also did not analyze or quantify the farmers' losses resulting from turbines killing bats that otherwise would eat insects that destroy the farmers' crops. (Tauzer, Tr. V 640:3-21) Rotating turbine blades strike and kill bats that are attracted to turbines and forage within and close to the turbine's rotor-swept zone. (ICN 149, Smallwood Testimony, p. 18, lines

10-15) The Project will kill 14,620 bats per year (*Id*., p. 36, lines 15-18 & Table 2), totaling 365,500 dead bats over 25 years.

Bats are an important component of the environment. They eat insect pests that otherwise would consume the farmers' crops. (*Id*., Exh. B, pp. 1-2) A single bat can eat an amount of insects equivalent to a teenage boy's consumption of 200 quarter pound hamburgers. (*Id.*) They also consume mosquitos. **(**Leftwich, Tr. III 321:25 -322:1) Bats save the farmers of Huron and Erie Counties from about $22.2 million in losses every year. (ICN 149, Smallwood Testimony, p. 17, lines 13-15) Nevertheless, Firelands did not determine the amount of losses its Project will cost the farmers of the area.

Firelands did not determine whether its electricity production would displace and reduce the electricity sales of the nearby Davis-Besse Nuclear Plant or any other energy providers, nor did it quantify the direct and indirect losses of any such energy suppliers in terms of lost jobs, lost tax revenues, and the ripple effects on the local economy from the loss of revenue from the loss of jobs. (Tauzer Tr. V 642:14 – 645:7)

Ms. Tauzer testified that Application Exhibit F takes into account "a small degree of negative impacts to the sectors." (Tauzer, Tr. V 646:11-17)) However, the evidentiary record does not contain any such analysis. Ms. Tauzer admitted that negative economic impacts were not evaluated. In short, Firelands did nothing to determine whether any local commercial or industrial businesses would suffer economic losses from the Project's presence. (ICN 4, Applic., p. 38 (discussing only the positive impacts on local commercial and industrial activities))

A one-sided economic analysis does not comply with the mandate in OAC 4906-4-06(E)(4) to "provide an estimate of the economic impact of the proposed facility on local commercial and industrial activities." Nor does the board have support for its finding that the

Project "will serve the public interest, convenience, and necessity" as required by R.C. 4906.10(A)(6). The Court should vacate the certificate due to Firelands' failure to conduct a complete economic analysis as required by R.C. 4906.10(A)(6) and OAC 4906-4-06(E)(4).

PROPOSITION OF LAW NO. 7:

The Ohio Power Siting Board Acted Unlawfully And Unreasonably By Issuing A Certificate To A Wind Energy Utility That Does Not Represent The Minimum Adverse Impact Under R.C. 4906.10(A)(3) Due To Its Potential For Killing Resident Bald Eagles, And Without Receiving The Information Required By Rule And R.C. 4906.10(A)(3) For Minimizing The Project's Adverse Impacts On Bald Eagles.

A. The Project Does Not Represent The Minimum Adverse Impact Under R.C. 4906.10(A)(3), Because The Project Will Kill Bald Eagles.

Firelands was well aware of the widespread presence and nesting of bald eagles in and around the Project Area before filing its Application on January 31, 2019. Firelands' Application recounts that its 2018 eagle surveys found seven occupied and two unoccupied bald eagle nests inside and within two miles of the northern and southern halves of the Project Area as configured at that time. (ICN 4, Applic., pp. 121-122) Previous eagle and raptor surveys in 2009, 2010, 2011, 2012, 2013, 2015, 2016, and 2017 documented the widespread presence of eagle nests throughout and near the Project Area. (ICN 128, Farmer Testimony, pp. 6-12)

Recent eagle surveys have confirmed the continued bald eagle use of areas in and near the Project Area. Resident Krista Beck, a wildlife biologist formerly employed by the Ohio Division of Wildlife and Erie MetroParks, found 11 eagle nests inside and within two miles of the Project Area in 2020. (ICN 146, Beck Testimony, pp. 2, 4-5, Answers 6, 10, 11)

Thirty years of statewide research by the Ohio Division of Wildlife shows that nesting bald eagles in the inland (non-Lake Erie) areas of Ohio utilize a radius of 2.5 miles around the nest as their primary areas for feeding and other uses. (ICN 154, Shieldcastle Testimony, p. 26, lines 3-13) Mr. Shieldcastle is especially qualified to testify about this data, since he headed up

the Division's bald eagle recovery project for 25 years and supervised these surveys. (Shieldcastle, Tr. VII 977:8-19; Beck, Tr. VII 885:25 to 886:3) Mr. Shieldcastle's work on this project included work in the Project Area. (Shieldcastle, Tr. VII 935:22 – 936:2, 9-14)

Bald eagle usage of the Project Area is pervasive, as proven by numerous eagle sightings inside and within two miles of the project boundary documented by the Residents between December 2019 and June 2020 by Krista Beck and other area residents. (ICN 146, Beck Testimony, pp. 3-4, Answers 8, 9, Exhs. A, B; Beck, Tr. II 887:22 to 888:2) Ms. Beck's direct testimony reveals widespread eagle use throughout the entire Project Area. Ms. Beck alone recorded approximately 70 of these eagle sightings in and near just the northern part of the Project Area. (*Id.*, p. 3, Answer 8) Other residents recorded another 71 eagle sightings during that period. (*Id*., pp. 3-4, Answer 9)

Even at the time of its Application, Firelands recognized the danger of siting turbines near eagle nests. Firelands acknowledged that, with respect to an eagle nest found in the southern part of the Project Area, "[a]voiding siting turbines near the documented nest and point 41 may be appropriate to minimize risk." (ICN 4, Applic., p. 131) A turbine's fatal strike of a bald eagle near Bowling Green, Ohio in 2020 illustrates the risk of collisions with turbines that are within the activity center of territorial pairs. (ICN 154, Shieldcastle Testimony, p. 27, lines 17-19)

An "initial" model run by Margaret Rheude of USFWS estimated that, based on the minutes of eagle sightings provided by Firelands prior to February 27, 2020, an average of 2.5 bald eagles will die annually while colliding with Firelands' turbines. (Local Residents' Exh. 16, 1st and 2nd pages (introduced into evidence at Tr. II 305:23 to 306:4, docketed on Oct. 20, 2020) Ms. Rheude observed that "resident eagles fly through the proposed turbine fields" and that "large numbers" of bald eagles migrate along Lake Erie less than 10 miles from the Project Area.

(*Id.*, second page) Ms. Rheude noted that "we (the FWS) expect the eagle population in this area to increase, including the number and density of eagle nests." (*Id*., second page) True to her prediction, a comparison of eagle nest locations on a map in Ms. Rheude's email reveals that she had not yet learned at that time about four additional eagle nests found by the Residents. (*Id*., fourth page (compare to eagle nest map in ICN 146, Beck Testimony, Exh. C)) Consequently, it is reasonable to expect that the expected eagle deaths will exceed 2.5 deaths per year.

The USFWS' Eagle Conservation Plan ("ECP") guidance provides additional evidence that Firelands' project is not suitable for approval due to the presence of bald eagles in the Project Area. (ICN 154, Shieldcastle Testimony, Exh. D ("ECP Guidance")) The guidance refers to wind projects with the highest risk of eagle mortalities as Category 1 projects. (*Id*., p. 25) A Category 1 project is defined as a project with "[h]igh risk to eagles, potential to avoid or mitigate impacts is low." (*Id*.) According to the ECP Guidance, "[c]onstruction of projects at sites in category 1 is not recommended because the project would likely not meet the regulatory requirements for permit issuance and may place the project developer or operator at risk of violating the BGEPA [the Bald and Golden Eagle Protection Act]." (*Id*.) The ECP recommends that any project meeting a Category 1 status must modify or abandon the project if it cannot reduce its status to at least Category 2. (*Id*.)

According to the ECP Guidance, "[a] project <u>is in this category</u> [1] if it … has an <u>important eagle-use area</u> … within the project footprint." *Id*. (Emphasis added.) An "important eagle-use area" is defined as "<u>an eagle nest</u>, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding or sheltering and/or foraging area eagles." (*Id*., p. 35) (Emphasis added.) Thus, the

guidance automatically classifies a project with an eagle nest inside its footprint as a Category 1 project. (*Id*.) Firelands admits that an active bald eagle nest is within the Project Area. (ICN 128, Farmer Testimony, Attachment CF-2 (referring to Nest # 23)) Krista Beck found an eagle nest in the Project Area and another one on the boundary line. (ICN 146, Beck Testimony, p. 5, Answer 10) So the Emerson Creek Wind Project is a Category 1 project under the ECP Guidance.

As currently configured, the Emerson Creek Wind Project has placed at least 52 of its 87 prospective turbine sites within 2.5 miles of an existing bald eagle nest. (*Id*., pp. 5-8, Answer 12, Exh. D) As explained above, bald eagles in the inland areas of Ohio routinely travel from their nests for a radius of 2.5 miles for foraging and other purposes. Five of the eagle nests are each within 2.5 miles of 8 to 16 turbine sites. (*Id*.) Some turbine sites threaten multiple eagle nests. (*Id*.) All 11 eagle nests are threatened by turbine sites within 2.5 miles. (*Id*.)

For purposes of the USFWS's Category 1 designation, an "important eagle-use area" also includes a "foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding or sheltering and/or foraging area eagles." (ECP Guidance, p. 35) Bald eagle usage of the Project Area for these purposes is pervasive, as proven by 141 sightings inside and within two miles of the project boundary documented between December 2019 and June 2020 by Krista Beck and other area residents. (ICN 146, Beck Testimony, pp. 3-4, Answers 8, 9, Exhs. A, B; Beck, Tr. II 887:22 to 888:2) Exhibits A and B of Ms. Beck's direct testimony reveal widespread eagle use throughout the entire Project Area. Ms. Beck alone recorded approximately of these eagle 70 sightings in and near just the northern part of the Project Area. (*Id*., p. 3, Answer 8) Other residents recorded another 71 eagle sightings during that period. (*Id*., pp. 3-4, Answer 9) The eagles' use of the

Project Area, like the presence of eagle nests there, make Firelands' venture a Category 1 project under the ECP Guidance.

In sum, OPSB should not have approved the Project, because (1) bald eagles in this area utilize a radius of 2.5 miles around the nest as their primary areas for feeding and other uses in which they can be struck by rotating turbine blades during flight, (2) 11 bald eagle nests are inside or within two miles of the Project Area, (3) numerous turbine sites are located within 2.5 miles of an eagle nest, (4) feeding and other activities by eagles in the Project Area is pervasive, and (5) the USFWS has already estimated that an average of 2.5 bald eagle deaths will occur per year without even knowing about four of the eagle nests found by the Residents. Consequently, this Project does not represent the minimum adverse impact under R.C. 4906.10(A)(3), and OPSB should not have approved it.

B. The Board's Decision Should Have Established A Minimum Setback Of 2.5 Miles From Bald Eagle Nests To Minimize The Project's Adverse Impacts On Bald Eagles Pursuant To Ohio Admin.Code 4906-4-08(B)(3)(b) & (3) And R.C. 4906.10(A)(3).

An applicant must identify the "procedures to be utilized to avoid, minimize, and mitigate both the short- and long-term impacts of operation and maintenance" to birds, bats, and other ecological resources as required by Ohio Admin.Code 4906-4-08(B)(3)(b). These mitigation procedures are necessary to comply with R.C. 4906.10(A)(3).

OPSB did not require any mitigation to address the Project's threat to bald eagles. Instead of adjudicating proper measures to mitigate this threat, the board just directs Firelands to work with the USFWS to resolve the problem. Accordingly, Condition 31 of the Stipulation requires Firelands to submit an ECP and Eagle Take Permit to the USFWS. (ICN 124, Stipulation, p. 7) However, Condition 31 falls well short of what is necessary to spare the area's bald eagles from collisions with wind turbines.

Allowing Firelands to prepare its own ECP is an illusory mechanism for protecting eagles. Firelands' witness Farmer admitted that the USFWS does not even approve ECPs. (ICN 128, Farmer Testimony, p. 15, Answer 7.d) USFWS only uses ECPs to inform its analysis of Eagle Take Applications. (*Id*.) Condition 31 is an attempt to disguise the its weakness by stating that the ECP will be developed "in coordination" with USFWS instead of being subject to USFWS approval. (ICN 124, Stipulation, p. 7, Cond. 31) The condition also requires Firelands to apply for an Eagle Take Permit, but such a permit can take "several years" for USFWS to issue. (ICN 128, Farmer Testimony, p. 15, Answer 7.d)

More importantly, an ECP and Eagle Take Permit do not actually prevent eagles from being killed. By definition, a "take" permit is issued to give the applicant permission to kill or otherwise harm a vulnerable species. This does not enable the Project to represent the minimum adverse environmental impact under R.C. 4906.10(A)(3).

Firelands knows that eagle nests in the Project Area should be avoided. Firelands' consultant WEST recommended that "[t]he presence of an active bald eagle nest within the Project may warrant management consideration such as avoiding siting turbines in close proximity to the nest to reduce potential collision risk." (ICN 11, Applic. Exhibit S-1, p. 15, pdf p. 24) But the board has not directed Firelands to maintain any distance between its turbine sites and eagle nests or eagle use areas.

OPSB has its own duty under R.C. 4906.10(A)(3) and Ohio Admin.Code 4906-4-08(B)(3)(b) to protect the bald eagle population in the Project Area, rather than just abdicate its authority to USFWS under Condition 31. OPSB needs to protect the eagles by incorporating a condition into the certificate that establishes a 2.5-mile buffer between Firelands' turbines and the bald eagle nests.

Accordingly, and as discussed in Section A above, the Appellants request that the Court vacate the certificate based on the fact that the Project Area, with its thriving bald eagle population, is an unsuitable location for eagle-killing turbines. If the Court does not grant that remedy, the Appellants request that the Court vacate and remand the certificate with instructions to incorporate a 2.5-mile setback into the certificate and/or to include meaningful terms for eagle protection into the certificate.

CONCLUSION

The board has issued the certificate for the Project without complying with its rules or the criteria in R.C. 4906.10(A)(2), (3), and (6). For these reasons, Appellants request that the Court vacate the board's Opinion and remand for further proceedings.

Respectfully submitted,

/s/ Jack A. Van Kley
Jack A. Van Kley (0016961)
Counsel of Record
Van Kley & Walker, LLC
132 Northwoods Blvd., Suite C-1
Columbus, Ohio 43235
(614) 431-8900 (telephone)
(614) 431-8905 (facsimile)
Email: jvankley@vankleywalker.com

CERTIFICATE OF SERVICE

I hereby certify that, on April 15, 2022, a copy of the foregoing Merit Brief was served upon the following counsel of record by electronic mail:

Christine M.T. Pirik
Terrence O'Donnell
William Vorys
Jonathan R. Secrest
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, OH 43215
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
wvorys@dickinsonwright.com
jsecrest@dickinsonwright.com

Attorneys for Firelands Wind, LLC

Werner L. Margard III
Robert A. Eubanks
Assistant Attorneys General
Public Utilities Section
30 E. Broad Street, 26th Floor
Columbus, OH 43215
Tel: (614) 466-4397
Fax: (614) 644-8764
Werner.margard@OhioAGO.gov
Robert.eubanks@OhioAGO.gov

Attorneys for Ohio Power Siting Board

/s Jack A. Van Kley
Jack A. Van Kley
Counsel for Appellants

IN THE SUPREME COURT OF OHIO

In the Matter of the Application of Firelands Wind, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Wind-Powered Electric Generation Facility in Huron and Erie Counties, Ohio	))))))	Case No. 2022-0055 On Appeal from the Ohio Power Siting Board, Case No. 18-1607-EL-BGN

APPENDIX TO MERIT BRIEF OF APPELLANTS PATRICIA DIDION, JANE FOX, MARVIN HAY, THERESA HAY, PATRICIA OLSEN, SHEILA POFFENBAUGH, WALT POFFENBAUGH, CHRISTINA POPA, JOHN POPA, LORI RIEDY, CHARLES ROGERS, KENN ROSPERT, DENNIS SCHREINER, SHARON SCHREINER, DONNA SEAMAN, WILLIAM SEAMAN, DEBORAH WEISENAUER, KENNETH WEISENAUER, GERARD WENSINK, AND BLACK SWAMP BIRD OBSERVATORY

VOLUME I

Jack A. Van Kley (0016961)
(Counsel of Record)
Van Kley & Walker, LLC
132 Northwoods Blvd., Suite C-1
Columbus, OH 43235
Tel: (614) 431-8900
Fax: (614) 431-8905
jvankley@vankleywalker.com
Attorney for Appellants Didion, et al.

Christine M.T. Pirik (0029759)
(Counsel of Record)
Terrence O'Donnell (0074213)
William Vorys (0093479)
Jonathan R. Secrest (0075445)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, OH 43215
Tel: (614) 591-5461
Fax: (844) 670-6009
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
wvorys@dickinsonwright.com
jsecrest@dickinsonwright.com
Attorneys for Firelands Wind, LLC

Werner L. Margard III (0024858)
(Counsel of Record)
Robert A. Eubanks (0073386)
Assistant Attorneys General
Public Utilities Section
30 E. Broad Street, 26th Floor
Columbus, OH 43215
Tel: (614) 466-4397
Fax: (614) 644-8764
Werner.margard@OhioAGO.gov
Robert.eubanks@OhioAGO.gov
Attorneys for Ohio Power Siting Board

APPENDIX TABLE OF CONTENTS

Volume I:

Volume II:

THE OHIO POWER SITING BOARD

IN THE MATTER OF THE APPLICATION OF FIRELANDS WIND, LLC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED TO CONSTRUCT A WIND-POWERED ELECTRIC GENERATION FACILITY IN HURON AND ERIE COUNTIES, OHIO.	**CASE NO. 18-1607-EL-BGN**

OPINION, ORDER AND CERTIFICATE

Entered in the Journal on June 24, 2021

I. SUMMARY

{¶ 1} The Ohio Power Siting Board approves and adopts the stipulation and recommendation, as modified herein, between Firelands Wind, LLC, Staff, and other parties and directs that a certificate be issued to Firelands Wind, LLC for construction of a new 297.66 megawatt wind-powered electric generation facility.

II. INTRODUCTION

{¶ 2} This Opinion, Order, and Certificate considers an application from Firelands Wind, LLC (Firelands or Applicant) to construct a wind farm consisting of up to 71 turbines in Erie County and Huron County. As described by Firelands, the wind-energy facility will involve 1,000 parcels covering 32,000 acres of leased land, with the permanent operating footprint of the facility occupying approximately 84.5 acres of built facilities. In addition to the turbines, the facility will include access roads, buried collection line, an operations and maintenance (O&M) building, a laydown yard, meteorological towers, and a substation that will be located in Oxford Township, Erie County. (Firelands Ex. 1 at 4, 7.) The Ohio Power Siting Board (Board) finds that a certificate for construction should be issued to Firelands in order to construct the facility.

III. PROCEDURAL BACKGROUND

{¶ 3} All proceedings before the Board are conducted according to the provisions of R.C. Chapter 4906 and Ohio Adm.Code Chapter 4906.

{¶ 4} Firelands is a corporation and person under R.C. 4906.01(A).

{¶ 5} R.C. 4906.04 provides that no person shall construct a major utility facility in the state without obtaining a certificate for the facility from the Board.

{¶ 6} The proposed electric generation facility is a major utility facility, as defined in R.C. 4906.01(B).

{¶ 7} On October 26, 2018, Firelands, a wholly owned subsidiary of Apex Clean Energy Holdings, Inc., filed a pre-application notification letter with the Board regarding its proposed 298.2 megawatt (MW) wind-powered electric generating facility in Huron, Erie, and Seneca counties, Ohio.

{¶ 8} On November 15, 2018, Applicant held a public information meeting at the Bronson-Norwalk Conservation League, in Norwalk, Ohio to discuss the proposed project with interested persons and property owners. Previously, on November 6, 2018, Firelands filed an affidavit of publication demonstrating its compliance with the notice requirements of Ohio Adm.Code 4906-3-03.

{¶ 9} On January 31, 2019, Firelands filed its application with the Board for a certificate of environmental compatibility and public need to construct and operate a wind-powered electric generation facility in Huron and Erie counties, Ohio (Project). Applicant explained that the information presented in the pre-application notification letter was revised to reflect that the project would be located in Huron and Erie counties only and that no facilities are now proposed for Seneca County. Specifically, Firelands stated that the project will be located within approximately 32,000 acres of leased land in Groton and Oxford townships in Erie County, and Lyme, Norwich, Richmond, Ridgefield, and Sherman townships in Huron County. Further, the application indicated that the project consists of up to 87 turbine generators, each with a nameplate capacity rating of 4.2 to 4.5 MW, which results in the project generating up to 297.66 MW, rather than the 298.2 MW listed in the pre-application notification letter.

{¶ 10} On March 7, 2019, the Board ordered the Applicant to hold another public information meeting in accordance with Ohio Adm.Code 4906-3-03(B) based on "substantial changes" that were made to the application after the informational meeting on November 15, 2018. The noted changes included: (1) the elimination of turbines in Seneca County; (2) the alteration of associated facilities so as to maintain a nearly equivalent generating capacity; and, (3) the greater detail regarding the number of acres under lease and the specific townships affected.

{¶ 11} On March 13, 2019, Applicant scheduled the Board-ordered second public information meeting for April 3, 2019.

{¶ 12} On April 3, 2019, Applicant held the second public information meeting at the VFW in Bellevue, Ohio.

{¶ 13} On March 18, 2019, Applicant filed a "Supplement to Application – Visual Impact Assessment" (VIA). The filing was described as being in accordance with the original Application narrative, wherein Applicant stated that the VIA would be filed as a supplement to the Application. The supplemental filing consisted of 242 pages.

{¶ 14} On March 29, 2019, Applicant and the Board's Executive Director (Staff) filed separate pleadings wherein they each requested an extension of the Application completeness deadline set forth in Ohio Adm.Code 4906-3-06(A), due to the timing of the scheduled second public information meeting. By Entry of March 29, 2019, the Administrative Law Judge (ALJ) granted the extension of the completeness deadline, setting the new deadline as April 17, 2019.

{¶ 15} On April 11, 2019, Applicant filed its Second Supplement to Application - Summary of Second Public Information Meeting.

{¶ 16} On April 17, 2019, Staff issued correspondence confirming that the application was complete in compliance with Ohio Adm. Code Chapters 4906-01, et seq.

{¶ 17} On June 25, 2019, the ALJ granted a motion to intervene filed on May 17, 2019, by residents who lived or owned property in proximity to the project area (Residents[1]).

{¶ 18} Additional notices of intervention were filed by Huron County (September 23, 2019), Norwich Township (October 4, 2019), Richmond Township (October 4, 2019), and Erie County (October 16, 2019).

{¶ 19} On July 10, 2019, Applicant filed a "Third Supplement to Application – Updated Wind Turbine Models and Map." The purpose of this 199 page filing was purportedly threefold: (1) to update the list of turbine models that may be used for this project to include the latest uprated versions of the Nordex and Vestas turbine models, which were included in the Application; (2) to provide an updated map that reflects a small portion of the project boundary that was inadvertently excluded from the maps included in the Application; and, (3) to provide updated maps reflecting the locations for several associated collection lines and private access roads.

{¶ 20} On September 12, 2019, Applicant filed a "Fourth Supplement to Application – Updated Wind Turbine Models and Maps" (Fourth Supplement). Applicant stated that the purpose of this 871-page filing is to update the list of turbine models that may be used for this project and to include an additional hub height for the proposed Vestas turbine model.

{¶ 21} On September 12, 2019, Applicant also filed its certificate of service of its accepted and complete application, in accordance with the requirements of Ohio Adm.Code 4906-3-07. Applicant also submitted the application fee to the Board, pursuant to Ohio Adm.Code 4906-3-12.

---

1 Numerous local residents joined as parties throughout the case. Prior to the hearings in the case, some of the local residents either declined to participate or formally withdrew from the case. Ultimately, attorney Jack Van Kley began serving as counsel to many, but not all, of the local resident intervenors pursuant to his notice of appearance on January 24, 2020. As no local residents participated in the case other than through attorney Van Kley, "Residents" shall refer to all participating local residents.

{¶ 22} On September 27, 2019, Staff filed a motion to modify the completeness determination that was originally issued on April 17, 2019. Staff requested that Applicant's Fourth Supplement filed on September 12, 2019, be deemed as an amendment to a pending accepted, complete application pursuant to Ohio Admin. Code 4906-3-11(A). Accordingly, Staff requested that the Board find that Applicant must comply with Ohio Adm.Code 4906-3-06 for the filing of an amendment, and that a further Staff determination of completeness should be extended for 60 days from the filing of the Fourth Supplement.

{¶ 23} On September 27, 2019, Applicant filed to withdraw its Fourth Supplement that was filed on September 12, 2019.

{¶ 24} On October 4, 2019, Applicant filed a "Revised Fourth Supplement to Application – Updated Wind Turbine Models and Map" (Revised Fourth Supplement). The purpose of the 212-page filing was to replace the filing of September 12, 2019. The filing: updated changes to the proposed turbine model specifications, sound analysis, shadow flicker analysis, and setback analysis.

{¶ 25} On October 11, 2019, Staff filed an amended motion to modify the completeness determination regarding the application. This filing updated Staff's motion from September 27, 2019, in response to the additional Applicant filings of September 27, 2019, and October 4, 2019. Staff requested that Applicant's filing on October 4, 2019, be treated as an application amendment, and that a further determination of completeness be extended until December 3, 2019.

{¶ 26} On October 15, 2019, Applicant filed a "Second Certificate of Service of Accepted, Complete Application on Local Public Officials and Libraries." (Second Certificate) This filing described the service of the application of January 31, 2019, as supplemented on March 18, 2019, April 11, 2019, July 10, 2019, and October 4, 2019.

{¶ 27} On October 24, 2019, the ALJ granted Staff's amended motion of October 11, 2019, and extended the time for Staff's further determination of completeness until December 3, 2019.

{¶ 28} On December 3, 2019, Staff issued correspondence notifying Applicant that its application, as supplemented, had been found to be sufficiently complete pursuant to Ohio Adm.Code Chapter 4906-1, et seq.

{¶ 29} On December 23, 2019, the ALJ issued an Entry establishing the effective date of the application as December 23, 1019, and adopting a procedural schedule for the case, including dates for a local public hearing and adjudicatory hearing on March 17, 2020 and April 14, 2020, respectively.

{¶ 30} On January 24, 2020, attorney Jack Van Kley filed a notice of appearance on behalf of 22 members who were participating as Residents in the case. On February 21, 2020, former counsel for Residents filed a notice of withdrawal of counsel.

{¶ 31} On February 6, 2020, petitions for leave to intervene and memoranda in support of petitions were filed separately by (1) the Black Swamp Bird Observatory (BSBO) and, (2) Tom Yingling and Kevin Erf (collectively "Local Farmers").

{¶ 32} On March 2, 2020, Staff filed its Report of Investigation.

{¶ 33} By Entries dated October 24, 2019, December 23, 2019, and March 5, 2020, Huron County, Norwich Township, Richmond Township, Erie County, City of Willard, Local Farmers, and BSBO were granted intervention.

{¶ 34} On March 9, 2020, the governor signed Executive Order 2020-01D (Executive Order), declaring a state of emergency in Ohio to protect the well-being of Ohioans from the dangerous effects of COVID-19. As described in the Executive Order, state agencies were required to implement procedures consistent with recommendations from the Ohio

Department of Health (ODOH) to prevent or alleviate the public health threat associated with COVID-19.

{¶ 35} In response to the Executive Order, and the guidance from ODOH, the March 18, 2020 local public hearing, and the April 14, 2020 adjudicatory hearing were postponed by an ALJ Entry issued on March 11, 2020.

{¶ 36} On July 13, 2020, the ALJ issued an Entry adopting a new procedural schedule for the case, including dates for the local public hearing and adjudicatory hearing, both of which were to be conducted using remote hearing technology due to the COVID-19 continued state of emergency. The revised schedule provided for a virtual local public hearing on August 20, 2020, and a virtual adjudicatory hearing beginning on October 5, 2020.

{¶ 37} On July 23, 2020, Firelands filed its proof of service and publication regarding the rescheduled date, time, and virtual hearing arrangements of the local public and adjudicatory hearings, including proof of notice of the public hearing and adjudicatory hearing to affected property owners and elected officials, in substantial compliance with Ohio Adm.Code 4906-3-09(A)(2).

{¶ 38} The local public hearing was held as scheduled using remote hearing technology on August 20, 2020.

{¶ 39} On September 11, 2020, the Joint Stipulation and Recommendation (Joint Stipulation) was filed, as signed by Firelands, Staff, City of Willard, Huron County, Norwich Township, Richmond Township, and Local Farmers. Residents, BSBO, and Erie County did not sign the Joint Stipulation.

{¶ 40} In accordance with the procedural Entry on July 13, 2020, the parties filed direct testimony on September 11 and September 21, 2020.

{¶ 41} The adjudicatory hearing was held as scheduled using remote hearing technology between October 5-16, 2020. At the close of the hearing, a briefing schedule was set.

{¶ 42} In accordance with the established briefing schedule, initial and reply briefs were timely filed by Firelands, Staff, Local Farmers, Residents, and BSBO.

IV. PROJECT DESCRIPTION

{¶ 43} The project will be located on approximately 1,000 parcels or 32,000 acres of leased land located in (a) Groton and Oxford townships in Erie County, and (b) Lyme Norwich, Richmond, Ridgefield, and Sherman townships in Huron County, Ohio. The permanent operating footprint of the project will be approximately 84.5 acres of built facilities, including construction of up to 71 turbines. The total generating capacity will not exceed 297.66 MW, with estimated annual energy production of between 847,000 to 952,000 megawatt hours (MWh). The buried collection line associated with the project will be approximately 36 to 48 inches below the surface and will be a total length of between 105 and 194 circuit miles depending on the number of turbines constructed. The purpose of the project is to deliver energy production to the transmission grid operated by PJM for sale at wholesale or under a power purchase agreement (PPA). Firelands has a PPA contract in place with AEP Energy Partners, which is seeking to meet demand from a new Google data center located in New Albany, Ohio. (Firelands Ex. 31 at 6.)

V. SUMMARY OF EVIDENCE

{¶ 44} The Board will review the evidence presented with regard to each of the eight criteria by which we are required to evaluate these applications. Any evidence not specifically addressed herein has nevertheless been considered and weighed by the Board in reaching its final determination.

A. Public Input

{¶ 45} Since Firelands filed the application, the Board held a public hearing and received numerous comments. The Board held its public hearing using virtual technology on August 20, 2020. The ALJs heard testimony from 45 witnesses. Witnesses spoke both in support of and in opposition, although a slight majority (25 witnesses) were in opposition to the project. Among those opposing the project, primary concerns related to the project's (1) effect on bird and bat mortality, (2) impacts to safety, surface water, and ground water resulting from installing turbines and related project construction on land that is impacted by karst geology, (3) safety and aesthetics of the proposed turbines, (4) negative economic impacts from the project, (5) impact on agriculture land use, (6) impact on the electric reliability system resulting from increased intermittent electricity generation, and (7) impact on flight operations around the project area. All of the witness testimony was insightful as to the concerns of local residents who will be impacted by the project. For example, witness Pat Ruffing, who resides less than one-half mile from a proposed turbine, described his family's strong opposition to the project, citing (1) safety concerns relating to locating turbines in populated areas, (2) decreased property values, (3) karst impacts associated with turbine safety and groundwater contamination, (4) negative viewshed impacts, (5) noise and shadow flicker impacts, (6) bird impacts, and (7) concerns regarding the reliability of wind energy (Aug 20, 2020 Tr. at 89-92). Similarly, witnesses Greg Smith, Nathan Miller, and Kathleen Hite joined others in passionately describing the project's negative impact on the local eagle population (Aug. 20, 2020 Tr. at 185-188, 199-206). And witness Stephanie Miller added specific detail concerning the project's impact on public safety in regard to emergency air response times (Aug. 20, 2020 Tr. at 207-211). As highlighted in the testimony of these select witnesses, members of the community were both alarmed by the project's impact and frustrated by the process that considers the certification of the project in spite of their reasons for opposition.

{¶ 46} Among those in favor of the project, testimony focused primarily on (1) the project's favorable income potential through tax payments to schools and local

governments, (2) benefits to leaseholders, (3) new job creation, (4) maintaining current agricultural land use, and (5) the benefits of renewable energy.

{¶ 47} In addition to the public hearing, since Firelands' application was filed, over 650 comments were submitted to the Docket for the Board's review. Comments were relatively evenly divided between those in favor of the application and those against it. Arguments for and against were generally consistent with those raised by those who testified during the public hearing. All the comments are available online in the Board's docketing system under this case number.

B. Staff Report

{¶ 48} Pursuant to R.C. 4906.07(C), Staff completed an investigation into the application, which included recommended findings regarding each of the enumerated factors in R.C. 4906.10(A). Staff's findings will be considered in our evaluation of each required criterion. In addition to making various findings throughout its report, Staff additionally recommended that 42 conditions be made part of any certificate issued by the Board for the proposed facility (Staff Ex. 1 at 75-82). With some notable differences, many of the recommended conditions found within the Staff Report are adopted and re-enumerated in the Joint Stipulation. The conditions are discussed below.

VI. STIPULATION AND CONDITIONS

{¶ 49} On September 11, 2020, the Joint Stipulation was docketed. The Joint Stipulation was signed by Firelands, Staff, city of Willard, Huron County, Norwich Township, Richmond Township, and Local Farmers (Signatory Parties), and contained 44 recommended conditions. Residents, BSBO, and Erie County were not signatories.

{¶ 50} The following is a summary of the conditions agreed to by the parties and is not intended to replace or supersede the actual Joint Stipulation. The parties stipulate that:

(1) Applicant shall install the facility, utilize equipment and construction practices, and implement mitigation measures as

described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in the Staff Report.

(2) Applicant shall comply with the requirements established by the Ohio Adm.Code 4906-4-09, regulations associated with wind farms.

(3) Applicant shall docket a detailed construction project schedule within seven days of the date of journalization of the certificate.

(4) Applicant shall comply with the requirements established in Ohio Adm.Code 4906-3-13 and 4906-3-14.

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

(6) Applicant shall coordinate with local building code enforcement officials with regard to the construction of any new structures, or modification of any existing structures, not directly related to the operation of the generation facility.

(7) At least 30 days prior to the preconstruction conference, Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design, including the

facility, construction staging areas, and any other associated facilities and access points, so that Staff can determine that the final project design is in compliance with the terms of the certificate. The final project layout shall be provided in hard copy and as geographically referenced electronic data. The final design shall incorporate all conditions of the certificate and references at the locations where Applicant and/or its contractors must adhere to a specific condition in order to comply with the certificate. The detailed engineering drawings of the final project design and foundation design shall account for karst topography and include the identity of the registered professional engineer(s), structural engineer(s), or engineering firm(s), licensed to practice engineering in the state of Ohio who reviewed and approved the designs.

(8) At least 30 days prior to the preconstruction conference, Applicant shall submit to Staff, for review and acceptance, mapping in the form of PDF and geographically referenced data (such as shapefiles or KMZ files) based on final engineering drawings to confirm that the final design would be sited as certified. Mapping shall include the limits of disturbance, permanent and temporary infrastructure locations, areas of vegetation removal and vegetative restoration as applicable, and specifically call out any adjustments made from the siting detailed in the application.

(9) Applicant shall provide the final delivery route plan and the results of any traffic studies to Staff, the Ohio Department of Transportation, the Huron and Erie county engineer offices, and township officials 30 days prior to the preconstruction conference.

(10) At least seven days prior to the start of construction, the Applicant shall notify via mail affected property owners and tenants including those individuals who were provided notice of the public informational meeting, residences located within 1 mile of the project area, parties to this case, county commissioners, township trustees, emergency responders, airports, schools, and libraries, as well as anyone who has requested updates regarding the project. This notice will provide information about the project, including contact information, a timeline for construction and restoration activities, and a copy of the complaint resolution plan. The Applicant shall file this notice on the public docket.

(11) At least seven days prior to the start of facility operations, the Applicant shall notify via mail affected property owners and tenants including those individuals who were provided notice of the public informational meeting, residences located within 1 mile of the project area, parties to this case, county commissioners, township trustees, emergency responders, airports, schools, and libraries, as well as anyone who has requested updates regarding the project. This notice will provide information about the project including contact information, a timeline for the start of operations, and a copy of the complaint resolution plan. The Applicant shall file this notice on the public docket.

(12) Applicant shall not commence any construction of the facility until it has executed an Interconnection Service Agreement and an Interconnection Construction Service Agreement with PJM Interconnection, which includes construction, operation, and maintenance of system upgrades necessary to integrate the proposed generating facility into the regional transmission system

reliably and safely. The Applicant shall docket in the case record a letter stating that the Agreement has been signed or a copy of the executed Interconnection Service Agreement and Interconnection Construction Service Agreement.

(13) The facility shall be operated in such a way as to assure that no more than 297.7 MW would at any time be injected into the Bulk Power System.

(14) Applicant shall continue to adhere to the Programmatic Agreement signed between the Applicant and the Ohio Historic Preservation Office to minimize impacts to cultural resources in the project area, including avoiding site 33HU0043 with collection lines and access roads. Site 33HU0043 should be clearly delineated on construction drawings to ensure no inadvertent disturbance occurs during construction.

(15) Applicant shall coordinate the timing and location of temporary closures of any multi-use trails during construction in the project area with the owner of the trails or appropriate entities prior to construction.

(16) Applicant shall avoid all impacts to category 3 wetlands through facility design, horizontal directional drilling, or other methods.

(17) Prior to construction, Applicant shall provide a copy of any floodplain permit required for construction of the project, or a copy of correspondence with the floodplain administrator showing that no permit is required.

(18) Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas.

Sensitive areas may include, but are not limited to, wetlands and streams, and locations of threatened or endangered species. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction. The environmental specialist shall have authority to stop construction to assure that unforeseen environmental impacts do not progress and recommend procedures to resolve the impact. A map shall be provided to Staff showing sensitive areas which would be impacted during construction with information on when the environmental specialist would be present.

(19) Applicant shall contact Staff, the Ohio Department of Natural Resources ("ODNR"), and the U.S. Fish and Wildlife Service ("USFWS") within 24 hours if state or federal listed species are encountered during construction, operation, or monitoring activities. Activities that could adversely impact the identified plants or animals shall be immediately halted until an appropriate course of action has been agreed upon by Applicant, Staff, and the appropriate agencies. If Applicant encounters any listed plant or animal species prior to construction, Applicant will notify Staff of the location and how impacts would be avoided during construction.

(20) Applicant shall comply with all operational measures detailed in the technical assistance letter for avoidance of Indiana and northern long-eared bat take issued by the USFWS. The technical assistance letter includes feathering of turbines during periods of risk to these species. Summertime feathering measures identified in the technical assistance letter for the Indiana bat, including

feathering within specified distances of documented roost trees, shall also be applied to the northern long-eared bat. Applicant shall comply with the operational measures detailed within the technical assistance letter for the life of the project or until an incidental take permit has been obtained for the project.

(21) Turbines shall be feathered below manufacturer's cut-in speed during the summer season from May 16 through July 31, as a measure to minimize bat strikes at operating turbines.

(22) Sixty days prior to the first turbine becoming operational, Applicant shall submit a post-construction avian and bat monitoring plan for the ODNR Division of Wildlife (DOW) and Staff review and confirmation that it complies with this condition. Applicant's plan shall be consistent with the ODNR-approved, standardized protocol, as outlined in the ODNR's On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio. This includes having a sample of turbines that are searched daily. Collectors of bird and bat carcasses for the purpose of post-construction monitoring shall obtain the appropriate carcass collection permits. The post construction monitoring shall begin within two weeks of operation of the first turbine and be conducted for a minimum of two seasons (April 1 to November 15), which may be split between calendar years. If monitoring is initiated after April 1 and before November 15, then portions of the first season of monitoring shall extend into the second calendar year (e.g., start monitoring on July 1, 2019 and continue to November 15, 2019; resume monitoring April 1, 2020 and continue to June 30, 2020). The second monitoring season may be waived at the discretion of the ODNR and Staff. The monitoring

start date and reporting deadlines will be provided in the DOW approval letter.

(23) If Staff and the ODNR, in consultation with the USFWS, determine that significant mortality, as defined in ODNR's approved, standardized protocols, has occurred to birds and/or bats due to construction or operation of the facility, the ODNR and Staff will notify the Applicant. As soon as possible and no longer than 30 days after receiving notification of the significant mortality, Applicant shall implement practices to rectify the significant mortality, which will include development and submission of a mitigation plan or adaptive management strategy to Staff and the ODNR for review to confirm compliance with this condition. Operation activities that could adversely impact the identified animals shall be modified to minimize risk until the mitigation plan or adaptive management strategy is agreed upon.

(24) Applicant shall adhere to seasonal cutting dates of October 1 through March 31 for removal of any trees greater than or equal to three inches in diameter unless coordination efforts with ODNR and USFWS allow a different course of action.

(25) Prior to any in-water work, the Applicant shall provide information to Staff and ODNR indicating that no mussel impacts would occur at stream crossings. If this is not possible, then the appropriate survey(s) shall be performed in coordination with ODNR and Staff. If mussels found in the project area cannot be avoided, as a last resort, a professional malacologist shall collect and relocate the mussels to suitable and similar habitat. All surveys, assessments, and relocation plans shall be completed in

accordance with the Ohio Mussel Survey Protocol and provided to Staff and ODNR for review to ensure compliance with this recommendation.

(26) Applicant shall conduct no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous species and their habitat.

(27) Construction in upland sandpiper preferred nesting habitat types shall be avoided during the species' nesting period of April 15 through July 31. Mapping of these habitat areas shall be provided to the construction contractor along with instructions to avoid these areas during the restricted dates unless coordination with ODNR allows a different course of action.

(28) Construction in northern harrier preferred nesting habitat types shall be avoided during the species' nesting period of May 15 through August 1. Mapping of these habitat areas shall be provided to the construction contractor along with instructions to avoid these areas during the restricted dates unless coordination with ODNR allows a different course of action.

(29) Prior to construction, if impacts to potential suitable habitat for the Blanding's turtle, Kirtland's snake, and smooth greensnake are proposed, the Applicant shall obtain an ODNR-approved herpetologist to conduct habitat suitability surveys to determine if suitable habitat exists within the project area. If suitable habitat is determined to be present, the Applicant shall avoid impacts to suitable habitat by doing one of the following:

(a) Avoid the area determined to be suitable habitat along with an appropriate buffer determined by the ODNR.

(b) Obtain an ODNR-approved herpetologist to conduct a presence/absence survey. If either species is determined to be present, the Applicant shall continue to coordinate with the ODNR to assure that impacts are avoided.

(c) Obtain an ODNR-approved herpetologist to develop and implement an avoidance/minimization plan.

(30) Should construction be delayed beyond five years of the date of the certificate, certain wildlife surveys may be required to be updated as determined by Staff and ODNR.

(31) Applicant shall develop and implement an Eagle Conservation Plan prior to the start of turbine construction. The Eagle Conservation Plan shall be developed in coordination with the USFWS and in accordance with the USFWS Eagle Conservation Plan Guidance document and 2016 Revised Eagle Take Permit Regulations (50 CFR 22). The Eagle Conservation Plan shall be developed in coordination with the USFWS prior to the start of turbine construction. Additionally, Applicant shall apply for an Eagle Take Permit from the USFWS prior to the project becoming operational. Further correspondence with the USFWS shall be provided to Staff and filed on the docket to confirm compliance with this condition, within seven days of receipt; but in no event, less than 30 days prior to turbine construction.

(32) Applicant shall notify Staff at (866) 270-6772 or contactOPSB@puco.ohio.gov within 30 minutes of the discovery of

any extraordinary event unless notification within that time limit is impracticable under the circumstances. Extraordinary events include, but are not limited to tower collapse, turbine failure, thrown blade or hub, collector or feeder line failure, injury to any person, property damaged by ice throw, or nacelle fire. A written report shall be submitted to staff within 30 days detailing the incident and corrective actions to be taken to avoid, prevent, mitigate, or minimize a recurrence. Where additional related information is obtained after the 30-day written report is submitted, Applicant shall make a supplemental report as soon as practicable.

(33) The facility shall be operated so that the cumulative nighttime sound level at any nonparticipating sensitive receptor within one mile of the project boundary will not exceed 5 dBA over the project area ambient nighttime average sound level (Leq), except during daytime operation that is in accordance with Ohio Adm.Code 4906-4-09(F)(2).

(34) At least 30 days prior to construction, Applicant shall docket a shadow flicker study showing that cumulative shadow flicker impacts will not exceed 30 hours per year at any non-participating sensitive receptor.

(35) At least 30 days prior to construction, Applicant shall submit to Staff relevant portions of the turbine manufacturer's turbine restart procedures due to vibration, ice accumulation, lightning storm, and collector or feeder line failure.

(36) Applicant shall only construct the Vestas V150, Siemens Gamesa SG145, or Nordex N149 wind turbine models that have tip heights from 591 feet to 602 feet at turbine location T82.[2]

(37) At least 30 days prior to the preconstruction conference, Applicant shall conduct a microwave path study that identifies all existing microwave paths that intersect the wind farm project, and a worst-case Fresnel zone analysis for each path. A copy of this study shall be provided to the path licensee(s), for review, and to Staff for review and confirmation that the Applicant is complying with this condition. The assessment shall conform to the following requirements:

(a) An independent and registered surveyor, licensed to survey within the state of Ohio, shall determine the exact locations and worst-case Fresnel zone dimensions of all known microwave paths or communication systems operating within the project area, including all paths and systems identified by the electric service providers that operate within the project area. In addition, the surveyor shall determine the center point of all turbines within 1,000 feet of the worst-case Fresnel zone of each system, using the same survey equipment.

(b) Provide the distance in feet between the nearest rotor blade tip of each surveyed turbine identified within

[2] The Board finds that this condition is superseded by condition 40, which indicates that there will be no turbine construction at T82.

section (a) above and the surveyed worst-case Fresnel zone of each microwave system path.

(c) Provide a map of the surveyed microwave paths, center points, and boundaries at a legible scale.

(d) Describe the specific, expected impacts of the project on all paths and systems considered in the assessment.

(38) All existing licensed microwave paths, and licensed communication systems shall be subject to avoidance or mitigation. Applicant shall complete avoidance or mitigation measures prior to commencement of construction for impacts that can be predicted in sufficient detail to implement appropriate and reasonable avoidance and mitigation measures. After construction, Applicant shall mitigate all observed impacts of the project to microwave paths, and licensed communication systems within seven days or within a longer time period acceptable to Staff. Avoidance and mitigation for any known point-to-point microwave paths, and licensed communication systems shall consist of measures acceptable to Staff, Applicant, and the affected path owner, operator, or licensee. If interference with an omni-directional or multi-point system is observed after construction, mitigation would be required only for affected receptors.

(39) At least 30 days prior to the preconstruction conference, Applicant shall design and hold a training session to inform local aviation stakeholders (including, but not limited to, the Willard Airport) of the changes to flight procedures and altitudes outlined in the FAA DNH letter.

(40) Applicant will not construct turbine locations T80, T81, T82, and T83.

(41) Applicant shall meet all recommended and prescribed FAA DNH letter requirements to construct an object that may affect navigable airspace for the remaining turbines.

(42) At least 30 days prior to the preconstruction conference, Applicant shall file in this docket a copy of the FAA DNH letter for the meteorological towers.

(43) Applicant shall file in this docket copies of the FAA temporary construction permits for any work activity involving construction cranes when they are received, but no later than seven days prior to crane deployment.

(44) If Applicant receives certification as a Qualified Energy Project (QEP) in a given county under Revised Code 5727.75, Applicant will comply with all requirements under R.C. 5727.75 in that county, including, but not limited to, entering into a road use maintenance agreement (RUMA)[3], providing training and equipment to local first responders, and engaging in a university program.

(Joint Ex. 1 at 2-9.)

[3] We note that the required implementation of RUMAs is not dependent upon the QEP certification, as that requirement exists independently in Ohio Adm.Code 4906-4-09(I)(9), and Firelands has expressly committed to entering RUMAs with county engineers prior to commencing construction (Firelands Ex. 1 at 243-244).

VII. CERTIFICATE CRITERIA

{¶ 51} R.C. 4906.10(A), 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 pipeline;

(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, the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and the facility will serve the interests of electric system economy and reliability;

(5) The facility will comply with R.C. Chapters 3704, 3734, and 6111, as well as all rules and standards adopted under those chapters and under R.C. 1501.33, 1501.34, 4561.32, and 4561.341;[4]

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

(7) The impact of the facility on the viability as agricultural land or any land in an existing agricultural district established under R.C. Chapter 929 that

[4] The Board notes that R.C. 4906.10 was recently amended, effective October 17, 2019, such that all references to R.C. 1501.33 and 1501.34 were removed.

is located within the site and alternative site of the proposed major facility; and

(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.

VIII. CONSIDERATION OF CERTIFICATE CRITERIA

{¶ 52} Consistent with R.C. 4906.10(A), the Board has reviewed the record and made determinations regarding each of the statutory criterion.

A. Basis of Need

{¶ 53} R.C. 4906.10(A)(1) requires that the Board consider the basis of the need for the facility if the facility is a gas pipeline or an electric transmission line.

{¶ 54} Staff concluded that R.C. 4906.10(A)(1) is not applicable in this proceeding, given that the project is not a gas pipeline or an electric transmission line (Staff Ex. 1 at 29). Signatory Parties agree that this criterion is not applicable to this proceeding.

{¶ 55} Because the project is not a gas pipeline and does not include approval of an electric transmission line, the Board finds that R.C. 4906.10(A)(1) is not applicable under the circumstances (Staff Ex. 1 at 29).

B. Nature of Probable Environmental Impact

{¶ 56} R.C. 4906.10(A)(2) requires that the Board determine the nature of the probable environmental impact of the proposed facility.

{¶ 57} Signatory Parties maintain that the project should be approved in regard to its socioeconomic impacts, public service and safety impacts, and ecological impacts.

1. SOCIOECONOMIC IMPACTS

{¶ 58} Economically, Firelands asserts the construction of the facility and its ongoing use will have a positive impact in the local area. According to Firelands, project construction will produce $62.9 million in employment earnings and the value of the economic output associated with the facility is $170.4 million. Firelands further projects that each year of operation will generate roughly $3.1 million in earnings and $10.6 million in economic output. Firelands also states the local government revenues will benefit, as PILOT are estimated at between $1.8 million to $2.7 million per year. (Firelands Ex. 1 at 7, 8, 19; Firelands Ex. 36 at 4.) In addition to Applicant's claims, multiple public comments discussed the positive economic impacts that the project could bring in terms of tax payments for schools and local governments, increased jobs, environmental protection resulting from carbon-free electricity generation, diversification of electric power, and maintaining current land use (Aug. 20, 2020 Tr. at 45, 55, 83, 94, 103, 110, 128, 132, 135, 139, 142, 163, 170, 176, 196, 218, 222, 224, 236, 239).

{¶ 59} Local Farmers join in highlighting the project's economic benefits, both to the community at large and to participating landowners. They stress the testimony supportive of the project's financial impact to the budgets of local schools and government entities. (Aug. 20, 2020 Tr. at 45-46, 84; Tr. Vol. VI at 810.) Further, they argue that the payments to participating landowners ease the financial burden of farmers by providing a significant income stream without impairing the overall farming characteristics of the local farming community (Local Farmers Ex. 1 at 3, Ex. 2 at 3). In addition to the direct financial impact claims, Local Farmers highlight the benefits to climate change that ensue from creating power sources that are independent of fossil fuels (Local Farmers Ex. 1 at 3, Ex. 9 at 55-56).

{¶ 60} Staff adds to the consideration of socioeconomic impacts from the project, emphasizing that the project does not interfere with land use planning, including the use of recreational areas. Staff notes that while the project encompasses approximately 32,000 acres, only 85 acres are expected to be permanently dedicated to the project, and 83 of the lost acres are currently agricultural. Moreover, while several of the proposed turbines are

expected to be sited near the Buckeye Trail and North Coast Inland Trail, Staff finds that their presence does not diminish the overall enjoyment of these recreation areas. Similarly, Staff finds that nearby cultural and historical resources will not be substantially affected by the project, noting that Firelands has entered into a Programmatic Agreement (PA) with OHPO in order to minimize the project's impact (Staff Ex. 1 at 30-32; Firelands Ex. 37 at 5-6).

{¶ 61} Residents and BSBO dispute the recommendations of the Stipulating Parties as to the socioeconomic impacts of the project. They raise concerns regarding issues of (1) blight, (2) diminished property values, and (3) economic damage from the project. (Aug. 20, 2020 Tr. at 151, 153-155; Tr. Vol. IV at 557; Residents Ex. 2; Residents Ex. 7; Tr. Vol. V at 637-642.)

{¶ 62} In terms of blight, Residents and BSBO aver generally that the installation of turbines is inconsistent with the natural features of the community. They further stress that the turbines will (1) be visible from more than half of a ten-mile radius around the project, (2) be visible from most transportation corridors, and (3) add blinking red lights that interfere with the night sky. (Tr. Vol. V at 671-674.)

{¶ 63} In terms of diminished property values, Residents and BSBO dispute the conclusions of witness Michael MaRous, who testified on Applicant's behalf in support of the position that the project will not negatively impact local property values. In addition to critiquing Mr. MaRous' background in providing testimony in more than two dozen cases in support of wind farm operators, Residents and BSBO challenge the witness' conclusions claiming that (1) his comparison appraisal techniques are flawed, (2) he improperly considered comparison properties outside of the project area, (3) his reliance on county auditor communications is misplaced, (4) he lacks important experience as a real estate broker, (5) his use of agricultural appraisal techniques is misplaced, and (6) the studies upon which he bases his conclusions were sponsored by the wind power industry and rely upon flawed analysis. Residents and BSBO stress that there is disparity in the conclusions as to

the property value impact of wind farms, emphasizing (1) the cross-examination testimony of witness MaRous in response to these issues, and (2) published studies supporting the conclusion that property values suffer in response to wind farm installations. (Tr. Vol. IV at 539-542, 553, 557; Residents Ex. 7.)

{¶ 64} In terms of economic damage from the project, Residents and BSBO dispute that the project will enhance the community's economic welfare. They dispute the credibility of witness Erica Tauzer, who testified on Applicant's behalf in support of the project, arguing that (1) her lack of training as an economist impacts her credibility, (2) her modeling fails to consider declines in property values, costs of government subsidies, costs associated with declining bat and bird populations, and the impact on other electricity production sources. They further maintain that the results of the Jobs and Economic Development Impact (JEDI) model created by the U.S. Department of Energy is flawed because it fails to analyze negative economic impacts on local commercial and industrial activities. (Tr. Vol. V at reply at 68.) In addition to disputing the validity of the evidence proffered by Applicant and Local Farmers, Residents and BSBO note that the local testimony in the case favored opposition (25) over support (20) (Aug. 20, 2020 Tr. 20, 25, 32, 38, 50, 64, 71, 78, 89, 96, 120, 125, 144, 150, 156, 185, 190, 199, 207, 212, 229, 240, 246, 255, 258).

{¶ 65} Consistent with the Staff Report and the evidence presented at hearing, the Board finds that the probable impact of the project on socioeconomic conditions has been evaluated and determined. We observe the positive economic impact that the construction and operation of the project will have on the local community. We accept the testimony supportive of the project's favorable economic impact on the citizens served by the increased funding to local governments finding that, overall, the project is economically beneficial to those in the project area. (Firelands Ex. 36 at 5-8, 19.) Further, we find that the project is designed in a manner that minimizes the affect to local (1) viewsheds, (2) recreational activities, and (3) cultural or historical resources. Balancing these considerations, we find that the project is consistent with the socioeconomic conditions in the project area and should be approved pursuant to this consideration.

2. PUBLIC SERVICES, FACILITIES, AND SAFETY

{¶ 66} Staff considered the following issues common to wind-powered facilities in recommending that the project satisfies protective requirements as to public services, facilities, and safety: setbacks; turbine foundations; roads and bridges; blade shear; ice throw; construction noise; operational noise; low frequency noise and infrasound; shadow flicker; wind velocity; safety; communications; and, decommissioning.

{¶ 67} Firelands avers that the project complies with all public services, facilities, and safety considerations. Firelands intends to comply with all requirements applicable to construction safety, setbacks, noise and shadow flicker limitations, water resource protections, road and bridge protections, and signal interference considerations. For items such as turbine installation engineering and shadow flicker analyses that are dependent on the project's final design, Firelands stresses that the terms of the Joint Stipulation require Staff's final approval of detailed engineering drawings and updated shadow flicker analysis prior to construction. For the remaining siting considerations such as noise impacts, water source protections, setbacks, shadow flicker, and signal interference protections, Firelands maintains that the evidence submitted in support of the project sufficiently addresses these considerations. (Joint Ex. 1 at 3; Firelands Ex. 1.)

{¶ 68} Firelands further maintains that its decommissioning plan provides public assurances as to safety and financial resources. As detailed in its application, Firelands is committed to providing a decommissioning plan to Staff and the Huron and Erie county engineers at least 30 days prior to the preconstruction conference. The decommissioning plan will describe the plan for the removal of facility components, as well as the reclamation and restoration of the project area's topography. Further, the plan will provide financial assurances as to funding the decommissioning through the use of a performance bond, which will (1) correlate to the costs of decommissioning as determined by an independent engineer licensed by the state, and (2) be subject to cost adjustments every five years during the life of the project. (Firelands Ex. 1 at 46-47, 240-244.)

{¶ 69} Staff maintains that the application is consistent with statutory public protection requirements. Staff is satisfied with Applicant's commitment to submit final engineering drawings, which are subject to Staff review and approval, prior to allowing the start of construction activities. Further, Staff concludes that, for those items that are not contingent on the final design of the project, including the project's impact on roads and bridges, that Applicant satisfies public protection concerns. (Joint Ex. 1 at 3; Staff Ex. 1 at 46, 48.)

{¶ 70} Residents and BSBO contest the determination that the project complies with the siting criteria at issue based on deficiencies as to consideration of (1) the project's noise impacts, (2) the project's impact on water sources, (3) the safety of turbine construction in relation to karst soils and setback requirements, (4) shadow flicker, and (5) impacts to GPS and television signals.

{¶ 71} In terms of noise impacts, Residents and BSBO contest that the project's construction will comply with noise limitations. First, they claim that Applicant's baseline sound determination is flawed because (1) testing occurred at locations where baseline sound was inflated, and (2) two of the nine sound study locations were located outside of the project area. Additionally, they claim that the permissible sound level increases described in the Joint Stipulation are inconsistent with the 5 dBA limitation described in Ohio Adm.Code 4906-4-09(F)(2), and that consistent exposure to turbine noises, even below the permissive threshold level permitted by Code, has a serious negative health consequence. In order to remedy these issues, Residents and BSBO propose that either (1) sound limitations be set at 40 dBA in accordance with World Health Organization (WHO) warnings, (2) the sound studies used to support the Joint Stipulation be revised to exclude certain monitoring stations such that the project's maximum allowable nighttime sound level would be established below 45.1 dBA in accordance with Ohio Adm.Code 4906-4-09(F)(2), or (3) the language in Stipulated Condition 33 be modified to clarify that the maximum noise level increase is below, not at, the additional 5 dBA limitation. (Residents Ex. 8, 9; Residents Brief at 11.)

{¶ 72} In terms of impacts to water resources, Residents and BSBO maintain that the project's impact has not been adequately addressed, primarily in regard to karst soil construction considerations. They specifically cite to concerns regarding (1) pollution, (2) flow impairments, (3) flooding, and (4) drought. They argue that karst soils are susceptible to subsurface pathways that could connect surface contaminants to groundwater. They further claim that the project's proposed grouting of karst cavities will (1) enhance the potential for groundwater contamination, (2) increase local flood conditions, and (3) diminish the production of local water supply wells. Based on these considerations, they claim (1) that additional testing is required, and (2) that construction must be avoided in karst areas where grouting would be required.

{¶ 73} In support of their water resources positions, Residents and BSBO cite to the testimony of Dr. Ira Sasowsky, a geoscientist who provided expert testimony as to geologic, hydrologic, and soil considerations. According to Dr. Sasowsky, constructing turbines on karst topography involves significant risks to water supplies due to the disruption of subsurface water flows, which can disrupt aquifer recharging, restrict subsurface stormwater drainage in a manner that induces greater flood risks, and induce erosion-related surface collapses. Further, Dr. Sasowsky maintains that water quality is also impacted by karst-related sinkholes, as the sinkholes allow contaminated surface water to more freely penetrate aquifers that feed local water supplies. Based on these concerns, Residents and BSBO oppose construction in karst geology and the use of grouting techniques.

{¶ 74} Firelands submits that its geotechnical investigation of proposed turbine sites supports that the project can safely occur in spite of karst concerns. Initially, Firelands stresses that its geotechnical desk study determined that the vast majority of the proposed turbine sites are located outside of karst prone areas in the Ohio Shale Formation, where the underlying bedrock is shale, rather than limestone. Firelands notes that shale is not prone to karst development and is generally not conducive to water wells due to poor yields. Firelands further explains that it intends to conduct site-specific geotechnical borings at each

proposed turbine location prior to construction as part of the final design process, and that final construction siting and techniques will be dependent on Staff approval. To date, Firelands' initial geotechnical field borings at potential turbine sites found a moderate or greater probability of karst development, with features that were minimal in size, at only seven of the proposed sites. Given the minimal karst encounters that are expected to be confirmed by final geotechnical testing and installation design, Firelands maintains that its planned use of grouting techniques, where necessary to provide foundation support, are consistent with the Board's minimum adverse environmental impact and public interest considerations.

{¶ 75} In terms of the placement of turbines, Residents and BSBO claim that turbines cannot be placed safely (1) within 1,640 feet from neighboring properties, and (2) on karst soils. With respect to the setback claim, they cite to the safety manual of turbine manufacturer Nordex. (Firelands Ex. 82 at 47.) In addition to referencing the distance recommendation within the Nordex safety manual, they rely upon the fact that there have been five blade throw events in Ohio since 2009. (Tr. Vol. III at 454-455.) With respect to safety concerns resulting from constructing on karst, they claim that additional geotechnical analysis is required to determine what locations, if any, could support safe turbine placement (Tr. Vol. VIII at 1064-1065; Firelands Ex. 87 at 27).

{¶ 76} In terms of shadow flicker limitations, Residents and BSBO claim that the modeling submitted in support of the application indicates that the project will exceed the 30-hour per year permissible standard applicable to nonparticipating neighbors (Ohio Adm.Code 4906-4-08(H)(1); Firelands Ex. 1 at 92; Tr. Vol. I at 61-62). They argue that the project should not be certificated as conditioned in the Joint Stipulation, claiming that actual modeling for the final project design must serve as the basis for the certification. Further, they claim that the project should be required to operate in a manner that eliminates shadow flicker for all nonparticipating neighbors. (Residents Brief at 32-34.)

{¶ 77} In terms of the project's potential impacts to television and global positioning satellite reception, Residents and BSBO are dissatisfied with proposed Joint Stipulation Condition 38 in regard to communication protections. They maintain that the stipulation language is vague in a manner that might allow Firelands to avoid its obligation to remedy TV or GPS signal disruption. (Tr. Vol. III at 400-401, 435.)

{¶ 78} Firelands rebuts the assertions by Residents and BSBO regarding the project's impacts on noise, water resources, shadow flicker, and signal interference, as well as allegations that turbine construction and setback requirements are inadequate.

{¶ 79} In rebutting claims relating to impacts from noise, shadow flicker, and signal interference, Applicant maintains that its studies are reliable in supporting the project's compliance with public protections. Applicant disputes claims that it improperly determined the project's baseline ambient sound level and commits to operating below the 5dBA increase threshold mandated in Ohio Adm.Code 4906-4-09(F)(2). Applicant maintains that its survey of baseline sound levels in the project area is accurate, and that the locations of its monitors result in an accurate measure of ambient sound levels across the project area. Further, Applicant stresses its commitment to comply with shadow flicker and signal interference oversight by Staff such that public protections are not jeopardized by the project. (Firelands Ex. 1 at 3, 69, 101; Firelands Ex. 31 at 10; Firelands Ex. 41 at 2, 9.)

{¶ 80} In rebutting claims of deficient setback and siting requirements, Firelands maintains that the Nordex safety manual provision cited in support of requiring a minimum setback requirement of 1,640 is misplaced, as the safety manual at issue is solely intended to address the emergency management response in case of a tower fire. In support of this position, witness Pedder produced a letter from Nordex, which described the intention of the language in the safety manual. (Firelands Ex. 31 at 8-9, NP-2.) Further, Staff witness Bellamy also testified as to his experience in investigating five blade shear incidents in Ohio, describing that where sheared blades have migrated at all from a turbine's base, that the migration has been limited to between 250 -765 feet (Tr. Vol. III at 454-456).

{¶ 81} Moreover, as for turbine foundations, Firelands emphasizes that the consideration of final turbine construction design is reasonably contingent on its receipt of certification, and that Staff maintains oversight as to safe construction measures. Firelands recognizes the karst geology that impacts a portion of the project area. In developing its geotechnical design and construction recommendations, Firelands completed geological and hydrogeological reviews, subsurface explorations, engineering evaluations, and a risk hazard assessment. The combined effect of these considerations led to Firelands' determination that the project's turbine construction will (1) occur safely in terms of avoiding tower instability, (2) avoid disruption to public and private water supplies, (3) protect aquifers, and (4) minimize flooding impacts in the project area. (Firelands Ex. 1 at 79, Ex. E; Firelands Ex. 39 at 5; Joint Ex. 1 at 3.)

{¶ 82} The Board finds that the setback requirements in R.C. 4906.201 and Ohio Adm.Code 4906-4-08(C)(2) shall apply to this project. In reaching this decision, we accept the testimony of witnesses Pedder and Bellamy, and the clarifying correspondence of manufacturer Nordex. Initially, we note that the turbines will have various protections and state-of-the-art technology to ensure safety. Specifically, Firelands notes that each turbine will have braking systems, speed controls, pitch controls, and ice-detection equipment. (Firelands Ex. 1 at 85-89.) We find that the safety features incorporated into the design and manufacturing of the proposed turbines are sufficient to protect the public's safety and property.

{¶ 83} The Board also accepts the stipulated finding that the project can safely occur despite the karst features at issue, subject to the following modification. Initially, we find that construction is not permitted at locations T24, T25, T26, T42, T43, T73, T74, and T75. According to Firelands' geotechnical expert witness, these sites have been identified as locations where either (1) potential solution cavities within bedrock were encountered during drilling activities, (2) available geologic maps and literature document mapped karst features, or (3) boring logs, geological maps, and literature demonstrate a moderate to high probability of karst development (Firelands Ex. 38 at 6-8). We reject the contention that

these sites may be further reviewed using additional testing to determine whether they can be considered for installation using grouting techniques. While grouting may be an effective measure to safeguard installation in certain instances, we are opposed to the use of grouting techniques on a widespread basis. Here, much of the proposed project lies outside of areas where karst is expected to be encountered at a moderate to high level. We find that construction in these areas is reasonable. But in areas where initial review and testing confirm that karst is likely to be encountered at a level that is moderate or above, we conclude that those areas must be avoided for construction purposes.

{¶ 84} Our decision is not intended to reject the notion of using grouting techniques for all construction purposes. We recognize that grouting may be an effective technique for ensuring the safe construction of future turbines. Nevertheless, we disfavor the use of grouting on a widespread basis, particularly in areas where karst activity is prevalent. As Residents and BSBO demonstrate, grouting can impact water management, including important aspects of water migration and contamination. In recognition of these impacts, we reject claims that grouting should be considered as an appropriate remedial construction technique in areas where karst is anticipated at a level that is moderate or higher, as described above.

{¶ 85} As for the use of grouting in areas other than those that are not expressly prohibited herein, we modify Stipulated Condition 7 to require that, where it intends to employ grouting measures, Firelands must file in the case docket detailed engineering drawings outlining its intended use of grouting. Further, the use of the proposed grouting shall be contingent upon Staff filing a written approval of any proposed grouting in the case docket at least 30 days prior to the preconstruction conference.

{¶ 86} Subject to these limitations, we find that the overall project is sufficient from a public safety perspective. (Firelands Ex. 1 at 80, 82, Ex. E; Firelands Ex. 38 at 3-6; Firelands Ex. 39 at 3-7; Tr. Vol. VI at 770-771.)

{¶ 87} As for operational noise, including low frequency noise and infrasound, we accept the stipulated finding that the project complies with sound limitations necessary for the public's protection, subject to clarification that the maximum permissible nighttime Leq is below, rather than "at or below" 49 dBA. We conclude that the baseline sound analysis is reasonable in establishing the background Leq at 44 dBA, rejecting the claim that Firelands acted improperly in its choice of monitoring sites. (Firelands Ex. 1 at 69, Ex. G; Firelands Ex. 41 at 8.) Further, we find that Stipulated Condition 33 is intended to describe the requirement that Firelands must adhere to the nighttime noise level limits that are below 5 dBA, as set forth in Ohio Adm.Code 4906-4-09(F)(2). Moreover, relying on the expert testimony of Dr. Mundt in support of the application, we reject the claim that the sound effects, including infrasound, preclude the project's safe operation (Firelands Ex. 42 at 8-9).

{¶ 88} As for shadow flicker, we find that the project complies with shadow flicker limitations. We acknowledge that the studies relied upon by Firelands are conservative, maximum-case, scenarios. In reality, the final project will involve between 16-25 fewer turbines than the 87 that have been modeled to date. Moreover, while the specifications of turbine models and exact siting remain under development, the Board is convinced that that the project will not cause adverse shadow flicker impacts based on (1) the requirement in Stipulated Condition 34 that Firelands submit a final study 30 days prior to construction, and (2) the ability of Firelands to employ post-construction techniques, including curtailment of operations, in order to maintain shadow flicker conditions within permissible tolerances. We further concur that (1) the predictive value of the preliminary shadow flicker studies, and (2) Staff's reservation of final approval of a final shadow flicker report prior to construction, provide assurances that the project will comply with the shadow flicker requirements set forth in Ohio Adm.Code 3906-4-09(H)(1). (Firelands Ex. 1 at 3, 91, 95; Firelands Ex. 31 at 5; Joint Ex. At 8.)

{¶ 89} As for communications, Firelands asserts that the project is not expected to impact either television (TV) reception or local global positioning systems (GPS). Further, if any unexpected impacts occur, Firelands is committed to resolving such issues in favor of

those who are unexpectedly impacted by the project. As for TV reception, mitigation measures would include the potential for Firelands to purchase cable or satellite services for those negatively impacted by the project. As for GPS services, which are relied upon in guiding mobile farming vehicles, Firelands has committed to installing repeater stations that will overcome any signal blockages that might result from turbine construction. (Firelands Ex. 1 at 101; Firelands Ex. 31 at 10; Firelands Ex. 44 at 3-4; Joint Ex. 1 at 9.)

{¶ 90} The Board also finds that the language in the Joint Stipulation, as supplemented through sworn hearing testimony, is clear in requiring Firelands to mitigate TV and GPS signal disruptions that might arise from the project. Initially, we note that the language in Stipulated Condition 38 is broad, requiring that all licensed microwave paths and communications system disruptions must be avoided or mitigated. Where any disruption is anticipated, mitigation must occur prior to construction. And where any disruption occurs unexpectedly, Staff is empowered to ensure that Firelands takes timely and satisfactory mitigation action. In addition to the language in the Joint Stipulation, the record supports Firelands' obligation to remedy TV and GPS interference, as evidenced by the testimony of Nathan Pedder, the project's development manager. (Tr. Vol. I at 41.) For these reasons, we conclude that the project will not adversely impact communications systems.

{¶ 91} The Board also finds that the language in the Joint Stipulation is clear in providing a satisfactory plan and financial security for decommissioning the project. In accordance with Ohio Adm.Code 4906-4-09(I), Firelands commits to (1) providing a decommissioning plan to the Board and county engineers at least 30 days prior to the preconstruction conference that addresses removal of the facility and reclamation of the land, (2) updating the decommissioning plan every five years, and (3) posting a performance bond, which shall be reviewed every five years for sufficiency, in the amount of the per-turbine decommissioning costs multiplied by the sum of the number of turbines constructed. (Firelands Ex. 1 at 46-47, 240-244.)

{¶ 92} Similarly, the Board finds the Joint Stipulation, in concert with Ohio Adm.Code 4906-4-09(I)(9), ensures that local roads and bridges will be properly maintained and satisfactorily addressed by the Applicant. Firelands has committed to entering into a road use agreement with local county engineers and the Board recognizes that this is a requirement outlined in the Board's rules. We note that pursuant to Ohio Adm.Code 4906-4-09(I)(9) the Applicant must enter into a road use agreement prior to construction and must provide financial assurance to the counties that road and bridges will be restored to their original condition. The Board additionally directs that the road use agreement must be provided to Staff before construction can begin.

{¶ 93} In summary, the Board finds that the probable impact of the project on public services, facilities, and safety has been evaluated and determined. As determined herein, we note that the consideration of issues common to wind facilities, such as setbacks; turbine foundations; roads and bridges; blade shear; ice throw; construction noise; operational noise; low frequency noise and infrasound; shadow flicker; wind velocity; safety; communications; and, decommissioning have been sufficiently addressed by Firelands and Staff. We further observe that Firelands is taking necessary precautions to ensure the turbines will be constructed and operated safely. For example, the turbines will have state-of-the-art braking systems, pitch controls, sensors, vibration monitors, fire suppression systems, and ice detection equipment. Additionally, pursuant to Condition 5 of the Joint Stipulation, Firelands will obtain all necessary federal and state permits and authorizations.

3. ECOLOGICAL IMPACTS

{¶ 94} Signatory Parties contend that the Application and the Joint Stipulation provide the Board with the ability to determine the ecological impact of the project, noting that Firelands conducted an ecological assessment to determine the project's impact (Firelands Ex. 1 at Ex. Z). The ecological assessment involved the combined desktop, and field survey review, and considered: vegetative communities; surface water; aquatic and terrestrial plant and animal life; species of commercial and recreational value; and, threatened and endangered species. In furtherance of protecting against ecological impacts,

Staff recommends sixteen conditions (Conditions 16-31) that should be adopted regarding the project's construction and operation (Staff Ex. 1 at 77-79).

{¶ 95} Relative to the project's expected vegetation impacts, the project will permanently disturb 84.5 acres when complete. Nearly all the disturbance (83.3 acres) will occur to agricultural land, with the remaining disturbance impacting land that is currently barren, urban, or forestland. Additional temporary land disturbance will occur during the project's construction. Staff and Firelands maintain that the vegetation impacts resulting from the project's construction and operation are limited as a result of the recommended certificate conditions and based on the fact that facility components are not sited in proximity to forestland, streams, and wetlands. (Firelands Ex. 1 at 142-144.)

{¶ 96} Relative to surface water impacts, the project will cross 11 streams for access road purposes, 47 streams for collection line installation purposes, 20 wetlands for collection line installation purposes, and one wetland for access road purposes. Staff and Firelands agree that the project will minimize these impacts through (1) the use of horizontal directional drilling (HDD), (2) the coordination of construction through Ohio EPA, ODNR, and the U.S. Army Corps of Engineers (USACE), (3) the requirement that Firelands employ a Staff-approved environmental specialist during construction activities that may affect sensitive areas, and (4) the requirement that Firelands must provide for Staff approval a construction access plan that identifies how impacts to sensitive areas will be avoided or minimized during the project's construction, operation, and maintenance. (Staff Ex. 1 at 38-39; Firelands Ex. 1 at 54, 150-154; Joint Ex. 1 at 5.)

{¶ 97} Other than with respect to impacts to birds and bats, Staff and Firelands maintain that there will be minimal impact to (1) aquatic and terrestrial plant and animal life, (2) species of commercial and recreational value, and (3) threatened and endangered species. The limited impact is attributable to (1) siting considerations designed to avoid encounters, (2) Firelands' commitment to contact Staff, ODNR, and USFWS if the project's construction, operation, or maintenance encounter any threatened or endangered plant or

animal species, and (3) the fact that much of the native wildlife species in the project area will adapt to the presence of the man-made features on the habitat. (Firelands Ex. 1 at 154-156; Staff Ex. 1 at 41.)

{¶ 98} We note that Residents and BSBO do not argue against the conclusion that, other than with respect to (1) bats and birds, and (2) water resources, the environmental impacts from the project have been determined and included in the terms of the Joint Stipulation. Accordingly, we focus on the disputed issues involving the alleged impacts to bats and birds having discussed water resources issues earlier herein.

4. BIRD AND BAT IMPACTS

{¶ 99} Relative to impacts to birds and bats, including species that are endangered, threatened, or species of concern, the project was extensively reviewed in consultation with USFWS and ODNR. Further, Applicant conducted extensive wildlife field assessments between 2009 – 2020, including: raptor nest and migration surveys (11); eagle use surveys (4); passerine migration (3); breeding bird (4); owl playback (1); bat activity (2); bat mist-net (4). These surveys were conducted in accordance with recommended protocols of ODNR, and survey methods were consistent with the recommendations of both the USFWS and ODNR. Survey results document that the project area currently has known nests or serves as a known habitat range for several significant bird and bat species. Despite the presence of these species, Firelands and Staff agree that the project satisfies the requirement in R.C. 4906.10(A)(2). (Firelands Ex. 1 at 121, Ex. R-T, V-X; Firelands Ex. 32 at 4-17, 24; Staff Ex. 1 at 56.)

{¶ 100} Firelands emphasizes its commitment to operational requirements aimed at measuring the impact of the project on birds and bats, as well as curtailing operations where impacts are deemed excessive by wildlife regulators – namely, USFWS and ODNR. USFWS issued a technical assistance letter (TAL) regarding Indiana bat protections. In compliance with the recommendations in the TAL, Firelands will curtail turbine operations by (1) increasing the cut-in speed for all turbines to 6.9 meters/second from ½ hour before sunset

to ½ hour after sunrise between March 15 and May 15, and between August 1 and October 15, and (2) feathering to below 6.9 meters/second the turbines that are within the home range of the Indiana Bat maternity colonies during the summer (May 16 to July 31) between ½ hour before sunset to ½ hour after sunrise. Moreover, Firelands will mitigate construction impacts to bat species by adhering to seasonal tree cutting dates of October 1 through March 31. Further, Firelands agrees to (1) submit a post-construction avian and bat monitoring plan that satisfies the recommendations of USFWS, ODNR, and Staff, and (2) comply with ODNR mitigation requirements if post-construction monitoring confirms that bird/bat mortality rates are significantly excessive as determined by ODNR. Similar to the state's enforcement efforts, USFWS requires specific bald eagle and other raptor protections. Firelands is committed to obtaining an ETP from USFWS prior to operating the facility. As a requirement for obtaining an ETP, Firelands will develop an ECP, which requires (1) an initial assessment of eagle risk, (2) a post-construction monitoring plan, and (3) an adaptive management plan. (Firelands Ex. 1 at 24-25, Firelands Ex. 33 at 18; Joint Ex. 1 at 7.)

{¶ 101} In consideration of Applicant's commitment to comply with the above recommendations of USFWS and ODNR, Staff concludes that the project complies with ecological condition requirements aimed at protecting birds and bats subject to compliance with 16 conditions. In general, the conditions are intended to ensure that the project be developed and operated in continuing cooperation with environmental regulators at the state and federal level. As the precise impacts of operating the facility are unknown, post-construction monitoring, including collision detection, will be required for two operating seasons. During the monitoring period, Firelands is required to comply with demands from Staff and wildlife regulators to develop and implement mitigation plans or adaptive management strategies if the facility's operation results in significant adverse impacts to wildlife. (Staff Ex. 1 at 56, 77-79; Joint Ex. 1 at 5-7.)

{¶ 102} Residents and BSBO argue that the project does not meet ecological impact requirements with respect to bird and bat protections for myriad reasons, including: there is insufficient bird and bat survey information to ascertain mortality expectations; the

absence of nighttime radar monitoring fails to protect migrating birds; plans to minimize bat mortality are insufficient; there is no compensatory plan for bat mortality; ODNR and USFWS monitoring protocols for birds and bats are inadequate; and, the eagle activity surveys provided in support of the project were deficient and produced results significantly inconsistent with reports of Residents and BSBSO. For these reasons, Residents and BSBO claim that there is insufficient information to determine the nature of the probable environmental impact such that Firelands' application should be denied. Regarding bird and bat mortality concerns, Residents and BSBO rely on the testimony of Dr. Shieldcastle (birds) and Dr. Smallwood (bats), who testified that the survey data submitted in favor of the project inaccurately minimized mortality expectations. According to these experts, the impact of the project on birds and bats is unknown, as the estimated mortality numbers are based on faulty data. (Tr. Vol. VII at 914; Tr. Vol. VIII at 1102; BSBO Ex. 1; BSBO Ex. 2; BSBO Ex. 7-10.)

{¶ 103} Firelands emphasizes that there is an abundance of information for the Board to determine the probable environmental impact. In addition to the extensive wildlife field assessments it conducted in accordance with protocols set forth by ODNR and USFWS between 2009-2020, Firelands provided data from over 200 post-construction monitoring studies in support of the project's estimated impact on bats and birds (Firelands Ex. 32 at 21, 24). Based on this combined analysis, Firelands maintains there is ample evidence to demonstrate that the facility will have minimal impact on birds and bats.

{¶ 104} Firelands also stresses that post-construction monitoring will determine the accuracy of the estimated impact and require Firelands to modify operations to ensure that actual impacts align with pre-construction estimates. According to Joint Stipulation Condition 23, and the post-construction avian and bat monitoring plan, a triad of regulators (USFWS, ODNR, and Staff) are empowered to require that Firelands develop either a mitigation plan or adaptive management strategy should the project's actual operations cause a significant, unexpected, impact to bird and bat populations. (Tr. Vol. II at 222; Firelands Ex. 5 at 2; Firelands Ex. 32 at 24, 25; Firelands Ex. 47.)

{¶ 105} Initially, the Board acknowledges the extensive evidence provided in order to evaluate the nature of the probable environmental impact of the project on birds and bats, including 29 site-specific surveys conducted between 2009 and 2020, in dedication to understanding the estimated impact to raptors, passerines, eagles, breeding birds, owls, and bats. In addition to Firelands' coordinated efforts with ODNR and USFWS at estimating the project's expected impacts to bats and birds, we also acknowledge the value of the knowledge gained from the aggregated data from more than 200 post-construction monitoring studied wind projects, which further describe mortality expectations from wind farm projects, as described by Witness Good. (Firelands Ex. 32 at 21.) Further, we acknowledge the value of the eagle risk assessment data presented by Witness Farmer in coordination with USFWS. (Firelands. Ex 32 at 21, 24.; Firelands Ex. 33.)

{¶ 106} From this evidence, we conclude that the nature of the probable environmental impact can be determined. Firelands witness Rhett Good testified as to the studies that document the impact of terrestrial wind farms on bird and bat populations. In his opinion, the bird mortality rate is reasonably estimated to be consistent with other midwestern wind projects, which have resulted in a median bird mortality rate of 2.63 birds per MW per year. Similarly, his projection for bat mortality is a rate of 7.9 bats/MW/year. Witness Good testified that the project has been designed and modified to mitigate these mortality rates by placing turbines in tilled agricultural sites and avoiding their placement in forested areas. Staff's review of the project highlights the awareness of the potential need for greater bird and bat protections as compared with Ohio's terrestrial wind projects due to the fact that the project has eight times the amount of forested area as other operating projects in agricultural landscapes in the state. In furtherance of the need to quantify the actual impact of the project, and reserve control of mitigation measures that might be warranted should its operations result in excessive mortality, Staff recommends that the project be conditioned on (1) the development of a post-construction monitoring plan that is acceptable to Staff, ODNR, and USFWS, (2) committing to develop a mitigation plan that is acceptable to Staff and ODNR in response to significant mortality findings during post-

construction monitoring, (3) implementing curtailment measures for the life of the project in satisfaction of USFWS's TAL as to Indiana bat protections, and (4) developing an ECP in conjunction with obtaining an ETP from USFWS.

{¶ 107} Residents and BSBO dispute the contention of the Stipulating Parties that the conditions agreed to in the Joint Stipulation associated with determining the nature of the environmental impact of the project on bats and birds are adequate. Residents and BSBO insist that further monitoring should be completed before a certificate is issued and that, without such monitoring data, the nature of the probable environmental impact cannot be determined.

{¶ 108} The Board disagrees with the arguments raised by Residents and BSBO. As discussed above, the probable impact of the project on birds and bats can be evaluated by, among other things, examining similarly situated wind projects in the state and midwest. Pursuant to R.C. 4906.10(A)(2), the Board is tasked with identifying the nature of the probable impact, not the actual impact. The Supreme Court of Ohio describes "a dynamic process that does not end with the issuance of a construction certificate." *Buckeye Wind* at ¶ 16. Thus, R.C. 4906.10(A)(2) authorizes the Board to conditionally approve a certificate and to continue to monitor the project as it develops. Here, we conclude that the project's environmental impacts are predictable, and reasonably in line with similarly situated wind farms that have received certificates in Ohio. Moreover, the safeguards in place to monitor and mitigate impacts beyond our current expectations provide further assurances that the project's environmental impact is within the Board's reasonable expectations for this type of wind farm.

5. CONCLUSION

{¶ 109} Consistent with our determinations above, the Board finds that the nature of the probable environmental impact can be evaluated and determined. Issues such as the proximity of nearby properties to the wind turbines in relation to items such as blade shear, shadow flicker, set-back requirements, and ice throw have been addressed. Further, in light

of the additional construction restrictions that we impose relative to (1) avoiding construction in areas where karst is anticipated at a level that is moderate or above, and (2) obtaining Staff approval of engineering plans prior to allowing the use of grouting techniques at any locations within the project, we conclude that the project's impacts to water resources, vegetative, and aquatic life are expected to be minimal. Moreover, we find that the project's impact to birds and bats due to collision, attraction, and avoidance associated with the turbines has been reasonably determined through the combined actions of Firelands, ODNR, USFWS, and Staff. (Staff Ex. 1 at 30-56.)

C. Minimum Adverse Environmental Impact

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

{¶ 111} Signatory Parties claim that the Application and the Joint Stipulation provide for several measures to ensure that the project has the requisite minimum adverse environmental impact. Ultimately, Signatory Parties believe that the Joint Stipulation provides a well-balanced approach to ensuring that the facility represents the minimal adverse impact to the environment, while also taking into the consideration the need for certainty with regard to the construction and operation of the project.

{¶ 112} Residents and BSBO generally believe that Firelands and the other Signatory Parties have failed to provide the information the Board requires in order to determine whether the facility represents the minimum adverse environmental impact pursuant to R.C. 4906.10(A)(3). Their arguments primarily pertain to the protection of (1) water resources, and (2) avian and bat species that may be impacted by the project.

1. WATER RESOURCE CONSIDERATIONS

{¶ 113} As discussed previously, Firelands contends that the evidentiary record demonstrates that the project poses mitigated risk.

2. AVIAN AND BAT IMPACT CONSIDERATIONS

{¶ 114} As discussed previously, Firelands contends that the evidentiary record demonstrates that the project poses mitigated risk to birds and bats, noting (1) the 29 avian and bat surveys conducted since 2009, (2) the requirement that Applicant submit a post-construction avian and bat monitoring plan for review and approval by Staff, ODNR, and USFWS, (3) the requirement that Applicant must develop and receive approval for a mitigation plan if monitoring demonstrates that its operations are causing mortality that is significantly beyond what ODNR expects for the project, (4) the requirement that Applicant develop an ECP and obtain an ETP from USFWS prior to starting operations, and (5) the requirement that Applicant comply with operational curtailment measures recommended by USFWS during four and one-half months of each year to protect bat species, including Indiana bats. Firelands reiterates, as documented in the Joint Stipulation, that its commitment to rigorous post-construction bird and bat monitoring ensures that the risk to birds and bats will remain within projected, reasonable expectations for the project. (Joint Ex. 1 at 5-7.)

{¶ 115} Staff agrees that the monitoring and adaptive management strategies contained in the Joint Stipulation will ensure monitoring and assessment of the project's impacts as it becomes operational. Despite the low risk attributed to the project, as calculated by Firelands' consultants, Staff notes that the Joint Stipulation introduces significant protections to any eventual impacts that may occur during pre-construction, construction, or operational phases of the project, including the considerable monitoring and adaptive management strategies. (Joint Ex. 1 at 5-7.)

{¶ 116} In opposing the project, Residents and BSBO contend that the application contains significant flaws that prevent the Board from making a determination on whether

the project represents the minimum adverse environmental impact, including (1) the application lacks credible data regarding expected bat mortality, (2) the bat mortality safeguards (raising cut-in speeds and feathering blades during spring and fall migration) recommended by the USFWS in the TAL are deficient, (3) the project cannot adequately protect bats without employing a real-time acoustic detection system, (4) there is no plan for compensating for bats that are taken by the project, (5) the post-construction monitoring plan is inadequate, both in terms of how it will be conducted and the duration of the plan, (6) the siting of turbines in the path of migratory birds is impermissible, (7) there was no nighttime radar monitoring study to assess the expected impact on migrating birds, (8) Applicant's bird and eagle survey results are flawed as, among other issues, they do not align with testimony of local individuals who provide their accounts of eagle activity in the project area, and (9) eagle activity surveys are inadequate to predict eagle fatalities.

{¶ 117} In response, Firelands notes that the Board's standard for considering certification applications does not require that the project represent zero impacts. Rather, Firelands argues the statute requires the Board to determine that all measures have been taken to ensure the minimum adverse environmental impact "considering the state of available technology and the nature of economics of various alternatives, and other pertinent considerations." R.C. 4906.10(A)(3). Firelands emphasizes its coordinated efforts with ODNR and USFWF at confirming that the project minimizes the impact on wildlife. Given the extensive wildlife accommodations provided for in the Joint Stipulation, Firelands maintains that Staff, and the other Signatory Parties, were justified in supporting the agreement.

{¶ 118} Staff also disputes the arguments raised by Residents and BSBO as to whether the project complies with minimum ecological adverse environmental impact requirements. Staff emphasizes the 16 conditions in the Joint Stipulation (specifically, conditions 16-31) that ensure proper mitigation of the project's environmental impact.

3. AVIAN AND BAT IMPACT MITIGATION PLAN

{¶ 119} Firelands contends that the Stipulated Conditions agreed to in this case will ensure that the project complies with the minimum adverse environmental impact requirement set forth in R.C. 4906.10(A)(3). Firelands submits that this case is consistent with past wind energy projects certificated by the Board, which have required the applicant to submit a post-construction monitoring protocol or bird and bat conservation strategy between receipt of the certificate and the commencement of the facility's operation. See, e.g., *In re Application of Paulding Wind Farm IV, LLC*, Case No. 18-91-EL-BGN, Opinion, Order, and Certificate (Feb. 21, 2019). In an effort to proactively coordinate its efforts with ODNR and USFWS, Firelands indicates that it completed extensive wildlife studies in coordination with ODNR and USFWS, and that it will continue its impact mitigation cooperation with the wildlife experts once the project is completed. In fact, as a result of negotiations, Signatory Parties aver that, at least 60 days prior to commencement of construction, Firelands will submit a final avian and bat monitoring plan to ODNR and Staff. Further, Firelands will submit its post-construction monitoring results for review by ODNR, Staff, and USFWS to ensure that the project avoids significant impacts to avian and bat species. Further, should any significant impacts occur, Firelands is required to address them through the development of a mitigation plan that is subject to review and approval by ODNR. (Joint Ex. 1 at 5-6.) Firelands also emphasizes that these measures supplement its commitment to operational limitations such as raising cut-in speeds and feathering blade speeds in satisfaction of USFWS requirements that are directed at protecting protected bat species. (Firelands Ex. 1 at 161; Tr. Vol. II at 222.)

{¶ 120} Staff agrees that Conditions 22 and 23 of the Joint Stipulation, which require Firelands to (1) develop and comply with a post-construction avian and bat monitoring plan, and (2) implement practices necessary to respond to any significant adverse wildlife impacts, are sufficiently protective of wildlife. (Joint Ex. 1 at 5.)

{¶ 121} Finally, Firelands and Staff argue that Staff and ODNR have the expertise and resources necessary to monitor and enforce the Applicant's compliance with the conditions

in the Joint Stipulation, consistent with their roles of monitoring certificate conditions on behalf of the Board for approximately 50 years.

4. ENDANGERED AND THREATENED SPECIES MITIGATION PLAN

{¶ 122} Firelands acknowledges USFWS's assessment that the project may adversely affect threatened and endangered species. Firelands notes that Joint Stipulation Condition 23 provides that, if post-construction monitoring reveals a potential occurrence at the project involving these species, adaptive management measures will be part of the avian and bat impact mitigation plan, ensuring potential impacts are minimized. This includes contacting Staff, ODNR, and USFWS and modifying operations that pose a risk to the identified species (Joint Ex. 1 at 6).

{¶ 123} Staff also contends that state and federally listed species are specifically protected under the terms of the Joint Stipulation, noting that proposed Condition 19 contains detailed responsive steps to be taken to minimize potential risks posed to those species when encountered at the project site. This condition broadly serves to stay operational activities that could adversely impact the identified plants and animals while also requiring that Firelands develop and submit a long-term strategy, which at a minimum, has to address the underlying cause of the encounter to ODNR and Staff as a proposed modification to its adaptive management strategy.

5. OTHER ENVIRONMENTAL IMPACTS

a. Ecological

{¶ 124} Firelands states that the project was designed in a manner that minimizes its ecological impact in terms of tree clearing, impacts to wetlands and surface waters, shadow flicker, and sound impacts. Specific to water quality and aquatic species impacts, Firelands anticipates minimal impacts because the project (1) is being sited primarily on agricultural land, (2) will be constructed in compliance with a NPDES water permit, a SWP3, and a soil erosion and sediment control plan, (3) avoids Category 3 wetlands, and minimizes potential impacts on stream and wetland crossings, using HDD technology where necessary, (4) will

be constructed under the direction of a Staff-approved on-site environmental specialist, (5) requires specific coordination with ODNR regarding protections to mussels, the Blanding's turtle, Kirtland's snake, and smooth greensnake, and (6) avoids in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. (Firelands Ex. 1 at 142-143; Joint Ex. 1 at 3-9.)

{¶ 125} Staff, as a signatory party, agrees that the application, as supplemented and modified by the Joint Stipulation, represents an appropriate balance and contends that the extensive studies undertaken related to bird and bat impacts, as well as water resources impacts, satisfy Ohio's statutory requirements (Staff Ex. 1 at 56, 58).

b. Geological and Hydrology

{¶ 126} Firelands states that the project adequately addresses both (1) surface water management, and (2) the potential for impacts resulting from karst areas surrounding the placement of the project. Relative to surface water management, Firelands is committed to protecting the area from surface water impacts through the use of best management practices, including (1) preserving surface water drainage, (2) using open trench installation or avoidance, where necessary, to account for pre-existing surface or drain tile conditions, (3) coordinating with the appropriate floodplain administrator as to reviewing the project and, where needed, securing a floodplain permit. Regarding known karst geology in the region, Firelands intends to conduct further testing, such as electrical imaging or void assessment, in areas where karst development is at or above a moderate level. Where the testing confirms karst features, Firelands will utilize the expertise of a licensed geotechnical engineer to determine whether construction can safely occur using bedrock grouting, or some other remediation measure. Where the construction is not feasible under these circumstances, Firelands will avoid construction in such areas. (Firelands Ex. 1 at 75-79, Ex. E; Firelands Ex. 38 at 5-6; Firelands Ex. 39 at 3-5; Joint Ex. 1 at 3.))

{¶ 127} Staff concludes that the project complies with the minimum adverse impact requirements. Staff reviewed and concluded that the project would result in a low potential

impact to land use, cultural resources, streams, wetlands, transportation, and communications. Further, in addressing specific concerns as to karst geology and surface water protections, Staff maintains that the required compliance with state and federal permitting, as well as Staff's reservation of final approval of detailed engineering drawings prior to construction, adequately ensure the safe design and construction of the project. (Stipulated Conditions 5, 7.)

{¶ 128} Residents and BSBO argue that the project fails to meet the minimum adverse impact requirements based on (1) the disruption to and contamination of water supplies, (2) safety concerns as to construction in karst areas, and (3) concerns of increased flooding. In support of their position, the project opponents rely on testimony from Dr. Sasowsky, whose testimony questions whether turbine construction can safely occur in areas where karst topography is prevalent. (Residents Ex. 3.)

{¶ 129} Firelands and Staff counter the opposition concerns citing to the stipulated requirements regarding obtaining engineering approval of final design plans prior to construction and complying with surface water protections afforded under state and federal law. Moreover, Firelands cites to the substantial subsurface geological studies and hydrogeological field work as supportive of its plans for evaluating and protecting water supplies, safeguarding against changes in flood exposure, and ensuring that turbine construction occurs safely, or is avoided where safe siting cannot occur.

c. Effects on sound shadow flicker, viewshed, and safety

{¶ 130} Firelands indicates that the project complies with minimum adverse environmental impact concerns as to its impact on sound, shadow flicker, viewshed, and operational safety. In terms of sound, Firelands asserts that the project will operate within the sound level of 5 dBA above the nighttime ambient sound level measured in the area, using the equivalent Leq as the metric for sound at any non-participating sensitive receptor. Firelands presented evidence supporting that the background Leq in the project area is 44 dBA, which would place a sound level limit from the project at 49 dBA. Firelands asserts

that the projected sound from the project is within permissible limits, as defined by Ohio Adm.Code 4906-409(F)(2) and Stipulated Condition 33.

1. EFFECTS CAUSED BY SHADOW FLICKER

{¶ 131} Firelands indicates that the project will comply with the 30 hour per year shadow flicker limitation contained in Ohio Adm.Code 4906-4-09(H)(1), advising that the final construction plan for the project will vary from the study that was submitted to Staff in support of the application. Variables that will produce the required shadow flicker results include (1) avoiding turbine construction in shadow flicker sensitive locations, (2) implementing targeted vegetation screening or window treatment, and (3) using operational curtailment to reduce shadow flicker to within acceptable limits.

{¶ 132} Staff concurs that the shadow flicker study submitted with the application, together with Applicant's commitment to modifications as described above, demonstrate that the project is compliant with the minimum adverse environmental impact requirements. Moreover, Staff maintains that compliance is secure based on Stipulated Condition 34, which requires Applicant to file and seek Staff approval of another shadow flicker study 30 days prior to construction.

{¶ 133} Residents and BSBO argue that the shadow flicker aspects of the project should not be approved on a conditional basis, and that Applicant is required to file a final a legally compliant shadow flicker report prior to the Board's certification.

2. EFFECTS ON VIEWSHED

{¶ 134} Firelands maintains that the viewshed effects from the project are mitigated based on (1) adherence to siting setback requirements, (2) the commitment to reduce the number of turbines from 87 to between 52 and 71, and to site turbines along field edges or hedgerows, where practical, and (3) the consistent design, speed, color, height and rotor diameter of the turbines (Firelands Ex. 2; Firelands Ex. 31 at 5, 218-220; Firelands Ex. 46 at 19). Moreover, Firelands contends that the determination of the aesthetics of individual

turbines is subjective and varies within the project area. In support of these claims, Firelands cites to (1) testimony at the local public hearing, (2) the inclusion of intervenors Yingling and Erf as Stipulating Parties, and (3) the fact that the project enhances the economic viability in the region without significantly impacting its agrarian qualities.

{¶ 135} Residents and BSBO assert that the proposed turbines cause an unacceptable impact to the area's viewshed. They focus particular attention on their desire to maintain the undeveloped quality of the rural community, as well as their claim that property values will be impacted by the project.

3. EFFECTS ON SAFETY

{¶ 136} Firelands asserts that the project complies with public safety requirements. In addition to describing the project's safe construction measures, Applicant provides substantial information in support of its claim that the project will, once complete, operate safely. Firelands claims that the risk of tower collapse or blade failure is extremely low, and that the facility's setback requirements are sufficiently protective of the public. Similarly, Firelands adds that the turbines to be constructed will be certified in accordance with international design standards that incorporate safety technology considerations in response to the consideration of blade throw, ice management, vibration, and extreme weather operations.

{¶ 137} Staff concurs with Applicant's position that the proposed facility design and turbine selections are safety compliant. Moreover, Staff recommends that any certificate be conditioned on Applicant's commitment to timely and adequately respond to turbine failure events by (1) staying operations, (2) immediately communicating with Staff, (3) investigating and submitting an incident report prior to resuming operations.

{¶ 138} Residents and BSBO argue that the project's safety measures are inadequate, citing to a Nordex manufacturer's safety manual, which describes that, in the event of a turbine fire, the recommended safe distance from the turbine is 1,650 feet. Based on this

manufacturer recommendation, and the five incidents of blade throw that have occurred in Ohio since 2009, Residents and BSBO assert that, if the project is certificated, that the minimum setback requirement be at least 1,650 feet.

6. BOARD CONCLUSION

{¶ 139} As provided in R.C. 4906.10(A)(3), the Board is required to review the measures and safeguards proposed in the Joint Stipulation to ensure that they are adequate to find that the facility, as conditioned, represents the minimum adverse environmental impact, considering the state of available technology, and the nature and economics of various alternatives, and other pertinent considerations. As discussed in further detail below, we find conditions set forth in the Joint Stipulation sufficiently ensure the minimum adverse environmental impact as result of the project.

{¶ 140} One of the most contested issues in this case involved the project's adverse environmental impact on birds and bats. At the outset, we note the extensive amount of information that has been provided by Firelands regarding the risk assessments and analyses undertaken to identify and sufficiently respond to the project's risks. Relative to bird and bat protections, Applicant provided a combined 29 surveys that were conducted during the period from 2009 through 2020, including: Raptor Nest Survey and Monitoring (8); Raptor Migration/Use (3); Passerine Migration (3); Eagle Use (4); Breeding Bird (4); Owl Playback (1); Bat Activity (2); and, Bat Mist-Net (4). (Firelands Ex. 1 at 121; Firelands Ex. 32 at 4-17.) Moreover, the number and quality of these surveys were at or above the recommendations of ODNR and USFWS, the agencies with expertise in the management of these wildlife resources.

{¶ 141} The Board recognizes that the project will impact birds, bats, and water resources despite the extensive efforts aimed at minimizing these impacts. This possibility is not fatal to the proposed project. We have significant experience in certificating wind energy projects consistent with the applicable statutory criteria, which dictates that the facility represent the minimum adverse environmental impact considering the state of

available technology and the nature and economics of various alternatives, and other pertinent considerations. R.C. 4906.10(A)(3).

{¶ 142} We note that ODNR regularly reviews the impact on natural resources associated with wind energy projects, and that ODNR intends to collaborate with USFWS as to the protection of wildlife species under their collective jurisdiction. Further, we note that as proposed in Joint Stipulation Conditions 22-23, Applicant is required to conduct post-construction monitoring in compliance with oversight by Staff, ODNR, and USFWF. This monitoring will determine whether the project's impacts exceed those anticipated by the wildlife experts. If excess impacts are demonstrated, Applicant is required to develop and obtain ODNR approval for a management strategy to address the excess impact. Similarly, with respect to eagle conservation measures, as proposed in Joint Stipulation Condition 31, Applicant must work with USFWS to secure an ETP, which as a prerequisite, requires Applicant to develop and obtain approval as to mitigation measures intended to protect eagle populations. We find that these wildlife safeguards ensure that this project meets the requirements of R.C. 4906.10 and represents the minimum adverse environmental impact.

{¶ 143} In addition to the two seasons of monitoring that are provided for immediately upon the onset of the facility's operations as described in Joint Stipulation Condition 22, we note that Joint Stipulation Condition 23 protects bird and bat populations during the lifetime of the project's operations. Specifically, if at any time the project causes a significant mortality event, as defined by ODNR protocols, Firelands is required to cooperate with Staff and ODNR to develop a mitigation plan in order to continue the facility's operations. By ensuring a timely response to any significant mortality events during the lifetime of the project, we conclude that avian and bat species are sufficiently protected. In furtherance of these protections, and the right of public awareness of the operating effects caused by the project, we order that any mitigation plan or adaptive management strategy that is developed in accordance with Stipulated Condition 23 must be filed in the case docket.

{¶ 144} Joint Stipulation Condition 19 also provides a higher level of oversight and protection in regard to state and federally endangered and threatened species, in addition to all applicable laws and regulations, including the federal Endangered Species Act and R.C. 1531.25, Ohio's statute protecting species threatened with statewide extinction (Joint Ex. 1 at 5). Specifically, Condition 19 contains responsive steps that are required to be taken to minimize the risks posed to these species, which are triggered if these species are encountered at the project site. Record evidence demonstrates there are a variety of ways the Applicant may utilize to determine whether an endangered or threatened species is encountered at or near the project site, including on-site identification by individuals working at the project site, physical evidence of the presence of such species, including the construction of a readily-identifiable nesting area on the turbines or platforms, and the recovery of carcasses. Consistent with our approach as to Stipulated Condition 23 (above), we also order that any notice required in response to Stipulated Condition 19 must be filed in the case docket.

{¶ 145} With respect to eagle protections, we note that Joint Stipulation Condition 31 requires Firelands to develop an ECP in furtherance of its application for an ETP, and that the correspondence between Firelands and USFWS relating to the ETP must be filed in the case docket. We note that the ETP application process is robust and can take up to several years, requiring the applicant to characterize eagle risks and develop plans for avoidance, minimization, and ongoing adaptive management of the risk during the lifetime of the project's operations. (Firelands Ex. 33 at 18-22.) Further, we note that Firelands remains accountable to USFWS for the project's impact to eagle populations such that it is expected to take the steps necessary to secure the ETP. As described by witness Farmer, in the absence of securing an ETP, the facility is subject to USFWS enforcement measures for eagle fatalities from its operations, as described in the Bald and Golden Eagle Protection Act. (Tr. Vol. II at 296-297; Firelands Ex. 38 at 18, 22.) Based on these facts, we conclude that the project will have a minimum adverse environmental impact to eagle populations.

{¶ 146} With respect to recreational use of the surrounding land and the aesthetic effects of the turbines, as noted earlier in our discussion of R.C. 4906.10(A)(2), the results of Firelands' VIA demonstrated that visual impacts are mitigated by plans for strategic siting and setbacks, reducing the number of turbines from 87 to between 52 and 71, and the consistent design, speed, color, height and rotor diameter of the turbines (Firelands Ex. 1 at 218-220; Firelands Ex. 46 at 3, 9-14, 15, 19). Based on these siting considerations, we find that Firelands has adequately addressed the concerns raised during the local public hearing as to siting the wind turbine facility.

{¶ 147} Finally, we must address the arguments raised by Residents and BSBO questioning whether Staff and ODNR are able to confirm compliance with the conditions set forth in the Joint Stipulation. Given their vast experience with overseeing Ohio's terrestrial wind energy projects, we find that Staff and ODNR have the requisite expertise to ensure compliance with the conditions of the Joint Stipulation. Historically, we have permitted subsequent modification of Board conditions subject to ODNR or USFWS approval, specifically in regard to avian and bat protection plans. See, e.g., *In re the Application of Champaign Wind, LLC*, Case No. 12-160, Opinion, Order, and Certificate (May 28, 2013) (where the Board issued a certificate which imposed a condition requiring a post-construction avian and bat monitoring plan for ODNR and Staff review, consistent with ODNR's terrestrial wind project protocols).

{¶ 148} Based on the evidence of record in this proceeding as summarized and documented herein, the Board finds that the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of various alternatives as outlined in compliance with R.C. 4906.10(A)(3). In reaching this conclusion, we emphasize the modifications to the project that are necessary to protect the public as to karst considerations, including (1) prohibiting the construction of turbines at locations where karst is anticipated at a level of moderate or above, and (2) prohibiting the use of grouting techniques at any other project location absent Staff's

advance written approval after its review and consideration of engineering drawings as submitted in the case docket by Firelands prior to the preconstruction conference.

D. Consistent with Regional Plans

{¶ 149} R.C. 4906.10(A)(4) provides that, in the case of an electric transmission line or generating facility, the Board must ensure that such 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 such facility will serve the interests of electric system economy and reliability.

{¶ 150} Firelands contends that the proposed project satisfies R.C. 4906.10(A)(4), noting that the facility will interconnect with the PJM transmission system for sale at wholesale or under a power purchase agreement (PPA). Firelands represents that it has a PPA contract in place with AEP Energy Partners, which in turn is seeking to meet clean energy demand from a Google data center located in New Albany, Ohio. (Firelands Ex. 31 at 6.) Firelands further provides that the PJM Feasibility Study, System Impact Study (SIS), and Facilities Study all included the analysis of the project, which were all completed as of November 2018 (Firelands Ex. 1 at 28-31). The PJM Feasibility Study, which evaluated compliance with reliability criteria for summer peak conditions in 2020 and analyzed the injection of the generating capacity from the project into the transmission system, found (1) no potential local or network problems with the substation, and (2) no violations with regard to deliverability. As for the SIS, Firelands describes one multiple facility contingency, an overload to 100.86 percent on the Beaver-Black River 138kV line, after evaluating the project's compliance with applicable reliability planning criteria for summer peak conditions in 2020. The described overload will, however, be mitigated by two PJM baseline projects that are scheduled for in-service dates by June 2021. Firelands understands that it may be required to advance costs for the upgrades in order to fully deliver the project's production to PJM. (Firelands Ex. 1 at 28-31.)

{¶ 151} Furthermore, Firelands asserts that Joint Stipulation Conditions 12 and 13 support that the facility is consistent with regional plans for the electric power grid and that the facility will serve the interests of electric system economy and reliability. Condition 12 requires Firelands to have a signed Interconnection Service Agreement with PJM. Condition 13 requires the facility to be operated in such a way to assure that no more than 297.7 MW would be injected into the Bulk Power System at any time. (Joint Ex. 1 at 4.)

{¶ 152} As noted earlier, Staff similarly recommended 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. As the various PJM system studies indicated, once the above-mentioned PJM baseline upgrades are complete, no reliability violations would occur during single and multiple contingencies. Further, Applicant is required to obtain a signed Interconnection Service Agreement with PJM and to operate the facility at a capacity of no more than 297.7 MW. (Staff Ex. 1 at 62; Joint Ex. 1 at 4.)

{¶ 153} The evidence provided by Staff and Firelands regarding the various PJM system studies persuades us to also find this criterion has been satisfied. In making this finding, we note that the project was evaluated according to (1) the federal reliability standards as required by the North American Electric Reliability Corporation (NERC), and (2) the regional grid feasibility study and SIS as conducted by PJM. Further, we emphasize that the SIS specifically evaluates issues such as generator deliverability, multiple facility contingency, potential congestion due to local energy deliverability, and system reinforcements. Further, we note that the Joint Stipulation incorporates both of Staff's originally proposed conditions regarding these issues (Joint Ex. 1 at 76). Thus, the record establishes that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving the state of Ohio and interconnected utility systems, and will serve the interest of electric system economy and reliability, in accordance with R.C. 4906.10(A)(4).

E. Air, Water, Solid Waste, and Aviation

{¶ 154} Pursuant to R.C. 4906.10(A)(5), the facility must comply with Ohio law regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

1. SUMMARY OF EVIDENCE

{¶ 155} Initially, in support of its argument that the application satisfies this criterion, Firelands asserts that no air pollution permits are required for the facility (Firelands Ex. 1 at 48-50).

{¶ 156} In regard to water pollution and use, Firelands commits to obtaining the following permits prior to construction: (1) Ohio NPDES construction stormwater permit (includes developing a SWP3 and filing a Notice of Intent with OEPA); (2) individual Nationwide Permit under Section 404 of the Clean Water Act (CWA); (3) Water Quality Certification (401) from OEPA; (4) Ohio Isolated Wetland Permit (if required after final engineering); and, (5) permit to install on-site sewage treatment from OEPA. (Firelands Ex. 1 at 51-53; Firelands Ex. 15 at 3.)

{¶ 157} Firelands further alleges that it has addressed any of the project's potential aviation-related concerns. Firelands notes that it coordinated the project with the FAA, ODOT-OA, and Signatory Parties to ensure against adverse impacts. As a result of these efforts, Firelands has committed to (1) comply with all aviation requirements as directed by the FAA and ODOT-OA, and (2) avoid construction on four proposed turbine sites that were concerns of the city of Willard, which ultimately became a Signatory Party. In addition to complying with all recommended and prescribed FAA DNH letter requirements, Firelands will file (1) a copy of the FAA DNH letter for the project's meteorogical tower locations, and (2) copies of the FAA temporary construction permits for work activity involving cranes. Firelands will also conduct training 30 days prior to the preconstruction conference to inform local aviation stakeholders of changes to flight procedures and altitudes outlined in

the FAA DNH letter. Further, Firelands avers that Joint Stipulation Conditions 40-42[5] ensure compliance with all aviation navigational requirements. (Firelands Ex. 1 at 58-59; Joint Ex. 1 at 9.)

{¶ 158} In evaluating aviation considerations, Staff recommended that the Board find that the facility complies with the requirements specified in R.C. 4906.10(A)(5), provided certain conditions be approved by the Board (Staff Ex. 1 at 64-69).

{¶ 159} While Residents and BSBO did not contest this issue during the hearing, there was stakeholder testimony at the local hearing that indicated that there were aviation concerns about the project. These related primarily to emergency response times that might be impacted by longer flight routes attributable to avoiding turbines. (Aug. 20, 2020 Tr. at 99-100.)

2. BOARD CONCLUSION

{¶ 160} We are persuaded by the record evidence produced by Firelands and other Signatory Parties as to these issues. In response to the various concerns raised during the local public hearings regarding the detrimental effect of the project, Staff concluded that Firelands will obtain various state and federal permits related to water, including a permit under Sections 404 and 10 of the CWA and a Section 401 Water Quality Certification from the Ohio EPA (Staff Ex. 1 at 35, 38-39; Joint Ex. 1 at 3). We also find that aviation-related concerns surrounding the project have been sufficiently addressed by Applicant, noting that Applicant's cooperation with the FAA and ODOT-OA provide sufficient assurances that aviation will continue to be safe in spite of the project's impact on flight routes in the area.

---

[5] Staff originally recommended in Stipulated Condition 39 that Applicant must coordinate air navigation requirements with both the FAA and ODOT-OA (Staff Report at 64-67). After issuing the Staff Report, Staff received correspondence from ODOT-OA clarifying that the project did not impact matters within its scope of review. Accordingly, Staff rescinded Stipulated Condition 39, which originally required broader ODOT-OA approval. (Tr. Vol. V at 699.)

{¶ 161} Thus, the record establishes that, to the extent any of them are applicable, construction of the proposed facility will comply with the requirements in the Ohio Revised Code regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous waters, and air navigation, and all rules and standards adopted under the relevant Ohio Revised Code Chapters.

F. Public Interest, Convenience, and Necessity

{¶ 162} Pursuant to R.C. 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity.

1. SUMMARY OF EVIDENCE

{¶ 163} Firelands contends that it has dedicated a substantial amount of time to gauge public interest and perception of the project, engaging local stakeholders and local communities. Further, Firelands stresses the project's economic development benefits, including tax payments to schools and local governments, new jobs and manufacturing, environmental protection, local energy generation, diversification of electric power, and maintaining current land use. (Firelands Ex. 1 at 35-39.)

{¶ 164} Moreover, Firelands has also submitted a complaint resolution plan as a part of its application, which will allow all complaints related to the facility to be adequately investigated and resolved. Firelands adds that, as agreed to in the Joint Stipulation, it will be required to file quarterly reports in the docket summarizing complaints received and the actions taken to resolve the complaint. (Firelands Ex. 1 at Attach. M; Firelands Ex. 12; Joint Ex. 1 at 3.)

{¶ 165} Local Farmers and several members of the community join Firelands in stressing the project's (1) local economic benefits, and (2) positive impact on reducing the state's production of greenhouse gases (Firelands Ex. 1 at 35-38; Firelands Ex. 36; Local Farmers Ex. 1 at 3; Local Farmers Ex. 9 at 55-56; Aug. 20, 2020 Tr. at 45, 55, 83, 94, 103, 110, 128, 132, 135, 139, 142, 163, 170, 176, 196, 218, 222, 224, 236, 239).

{¶ 166} Similar to its arguments related to R.C. 4906.10(A)(2) and (A)(3), Residents and BSBO contend that Firelands has failed to demonstrate that the project will serve the public interest, convenience, and necessity, as required by R.C. 4906.10(A)(6). In support of this position, Residents and BSBO provided testimony from witness Schreiner, who described that the project will be inefficient and unreliable in producing electricity, and that the continuing addition of intermittent electricity resources has a negative cumulative effect on the state's ability to maintain energy availability. (Residents Ex. 1; Tr. VII 866-869.) Further, they claim that wind energy is more expensive than non-intermittent energy, and that the increased costs of production is inconsistent with the public's interest.

{¶ 167} Firelands moved to strike or disregard the testimony of witness Schreiner, who testified against the project on behalf of Residents and BSBO, arguing that his testimony is irrelevant in determining the public interest, convenience, and necessity of the project. Further, Firelands asserts that, even if Mr. Schreiner's testimony remains admitted in the case, his credibility is outweighed by the testimony of Firelands' rebuttal expert, Deepesh Rana. Mr. Rana testified that, based on his relevant experience and specific knowledge of the project, that the project will not negatively impact the reliability of the grid. (Firelands Ex. 90 at 3-6.)

2. BOARD CONCLUSION

{¶ 168} The record establishes that the facility, as conditioned by the Joint Stipulation and modified herein, will serve the public interest, convenience, and necessity. Public interest, convenience, and necessity should be examined through a broad lens. For example, this factor should consider the public's interest in energy generation that ensures continued utility services and the prosperity of the State of Ohio. At the same time, this statutory criterion regarding public interest, convenience, and necessity, must also encompass the local public interest, ensuring a process that allows for local citizen input, while taking into account local government opinion and impact to natural resources. As part of the Board's responsibility under R.C. 4906.10(A)(6) to determine that all approved projects will serve the public interest, convenience, and necessity, we must balance projected benefits against

the magnitude of potential negative impacts on the local community. In reaching the determination in this case that the public interest, convenience, and necessity is satisfied, we note (1) the local governmental support the project received from the City of Willard, Huron County, Richmond Township, Norwich Township, and (2) there was no local governmental opposition to the project (Joint Stipulation at 17.) Moreover, as described above, we note that local witness testimony in the case was balanced with: opponents focusing primarily on the project's (1) effect on bird and bat mortality, (2) impacts to safety, surface water, and ground water resulting from installing turbines and related project construction on land that is impacted by karst geology, (3) safety and aesthetics of the proposed turbines, (4) negative economic impacts from the project, (5) impact on agriculture land use, (6) impact on the electric reliability system resulting from increased intermittent electricity generation, and (7) impact on flight operations around the project area; and, supporters focusing primarily on (1) the project's favorable income potential through tax payments to schools and local governments, (2) benefits to leaseholders, (3) new job creation, (4) maintaining current agricultural land use, and (5) the benefits of renewable energy.

{¶ 169} While Mr. Schreiner's testimony based on his roles in nuclear plant operations, including his experience in working with grid management, is relevant to this case, we conclude that his testimony is less credible than that of witness Rana in regard to the alleged impact of the project in terms of grid reliability and cost determinations. We note that Mr. Schreiner provides no credible evidence demonstrating that the project will increase generation costs, nor does his experience in nuclear plant operations directly relate to grid reliability expectations that might be expected from the Firelands wind project. Conversely, witness Rana's experience is in direct relation to wind energy projects, which enables him to testify more credibly as to the grid reliability and cost issues before the Board. Moreover, as noted earlier herein, we are also persuaded by the reliability considerations required by NERC and PJM in determining that the project will not adversely impact system reliability. Accordingly, we conclude that the expert arguments proffered by Residents and

BSBO to establish that the proposed project will not promote the public interest, convenience, and necessity as required by R.C. 4906.10(A)(6), are not compelling.

G. Agricultural Districts

{¶ 170} Pursuant to R.C. 4906.10(A)(7), the Board must determine the facility's impact on the agricultural viability of any land in an existing agricultural district within the project area of the proposed facility.

{¶ 171} Firelands, Staff, and Local Farmers contend that the project will help preserve agricultural land, avoid the conversion of farmland to other uses, and support farming by enhancing the long-term economic viability of the participating farmers. Firelands stresses that the project will result in the permanent loss of 82 acres of agricultural land, and that impact of the lost acreage is minimized by the project's design, which attempts to site turbines and access roads along field edges where possible.

{¶ 172} Staff concludes that the impact of the project on the viability of agricultural land in an existing agricultural district has been determined in compliance with R.C. 4906.10(A)(7). In reaching this determination, Staff notes that Applicant is committed to (1) continuing meetings with participating landowners to ensure uninterrupted, efficient use of agricultural land, (2) de-compacting soils impacted by the project's construction, (3) coordinating with landowners to avoid long-term impacts to irrigation systems, (4) act to avoid subsurface drainage infrastructure, and make timely repair when necessary, (5) avoid impacts to agricultural structures, (6) restore agricultural land to its intended use after construction, and (7) address landowner concerns during the growing season after construction to correct any remaining consequences from the project's construction. (Staff Ex. 1 at 73). Accordingly, Staff recommends a finding that the Joint Stipulation complies with R.C. 4906.10(A)(7).

{¶ 173} Residents and BSBO do not raise any specific object to Staff's conclusion as a finding that the impact of the proposed project on the viability of agricultural land in an

existing agricultural district has been determined in compliance with R.C. 4906.10(A)(7). Nevertheless, as described above, in opposing the project they maintain generally that the project's impact on groundwater, property values, the local economy, and wildlife are all inconsistent with the current agricultural uses that will be impacted by the project.

{¶ 174} We conclude that the project's impact on the viability of agricultural land in an existing agricultural district has been determined in compliance with R.C. 4906.10(A)(7). We find that, once constructed, the project will have only a minor impact on the continued agricultural viability in the area surrounding the project. In reaching this determination, we accept the Staff recommendations, including the conditions specified in the Joint Stipulation.

H. Water Conservation Practices

{¶ 175} R.C. 4906.10(A)(8) requires that a proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives. Staff and Firelands express that water usage would be minimal. According to Staff, no water would be used in the process of production of electricity, and only minimal water usage would be necessary at the O&M building (Staff Ex. 1 at 74). Upon review, we conclude that R.C. 4906.10(A)(8) is satisfied.

IX. CONSIDERATION OF THE STIPULATION

{¶ 176} Pursuant to Ohio Adm.Code 4906-2-24, parties before the Board are permitted to enter into stipulations concerning issues of fact, the authenticity of documents, or the proposed resolution of some or all of the issues in a proceeding. Under Ohio Adm.Code 4906-2-24(D), no stipulation is binding on the Board. However, the Board affords the terms of such an agreement substantial weight. The standard of review for considering the reasonableness of a stipulation has been discussed in a number of Board proceedings. *See, e.g., In re Hardin Wind, LLC*, Case No. 13-1177-EL-BGN (Mar. 17, 2014); *In re Northwest Ohio Wind Energy, LLC,* Case No. 13-197-EL-BGN (Dec. 16, 2013); *In re AEP Transm. Co., Inc.*, Case No. 12-1361-EL-BSB (Sept. 13, 2013); *In re Rolling Hills Generating LLC*, Case No. 12-1669-EL-BGA (May 1, 2013); *In re American Transm. Systems Inc.,* Case No. 12-

1727-EL-BSB (Mar. 11, 2013). The ultimate issue for the Board's consideration is whether the agreement, which embodies considerable time and effort by the signatory parties, is reasonable and should be adopted. In considering the reasonableness of a stipulation, the Board has used the following criteria:

(a) Is the settlement a product of serious bargaining among capable, knowledgeable parties?
(b) Does the settlement, as a package, benefit ratepayers and the public interest?
(c) Does the settlement package violate any important regulatory principle or practice?

A. Is the settlement a product of serious bargaining among capable, knowledgeable parties?

{¶ 177} Upon review, the Board finds that the Joint Stipulation is the product of serious bargaining among capable, knowledgeable parties. Initially, we note (1) the diversity of the participants in the stipulation, which included local residents, local public officials, and Staff, and (2) that all parties were represented by knowledgeable, competent counsel that regularly appear before the Board. Based on these facts, the Board finds that the first criterion is met.

B. Does the settlement, as a package, benefit ratepayers and the public interest?

{¶ 178} Firelands additionally avers that the second criterion is satisfied and that the project benefits ratepayers and the public interest. Firelands explains the project will produce positive economic impacts, including adding (1) 50 full time equivalent jobs, (2) over $170 million of economic input, and (3) up $82 million in combined local tax revenue (Firelands Ex. 31 at 19). Further, according to Firelands, the facility responds to demand from the general public and the local economy for locally-generated, renewable energy, as evidenced by the fact that the facility has a PPA in place that will meet demand from a new Google data center located within the state. As discussed previously, the Board received

many comments from the public, both in support of the project and in opposition, either at the public hearing or submitted to the docket. In support of the project, individuals touted economic benefits to schools and local governments, new jobs, green and diversified energy benefits, and the preservation of current land use. (Aug. 20, 2020 Tr. at 45, 55, 83, 94, 103, 110, 128, 132, 135, 139, 142, 163, 170, 176, 196, 218, 222, 224, 236, 239.) Additionally, we note that multiple local governments joined in supporting the Joint Stipulation. The Board also received many comments expressing support for renewable energy projects in Ohio. Those opposing the project, including 25 individuals who offered public testimony in the case, expressed that the turbines, as currently proposed, are not in the public interest because they are: (1) unsafe, (2) environmentally harmful, and (3) inconsistent with local landowner property rights expectations. (Aug. 20, 2020 Tr. at 20, 25, 32, 38, 50, 64, 71,78, 89, 96, 120, 125, 144, 150, 156, 185, 190, 199, 207, 212, 229, 240, 246, 255, 258.)

{¶ 179} The Board concludes that the second element is satisfied. As a package, the Joint Stipulation benefits ratepayers and the public interest in multiple ways. First, we acknowledge the positive economic impact the project is expected to have. As mentioned, over 50 jobs would be created and more than $170 million in economic output are expected from the project. Additionally, the project would result in significant tax revenue for local governments. (Staff Ex. 1 at 33-35.) Additionally, the conditions in the Joint Stipulation, as modified, including the post-construction monitoring and curtailment requirements detailed above, ensure that the impacts on avian and bat species, as well as other environmental aspects of the project, will be effectively minimized. The Board otherwise acknowledges the support for the project from trade groups, local officials, small businesses, and many other local citizens. While we acknowledge the concerns raised in opposition to the project, we conclude that the project strikes a reasonable balance of the competing local interests in terms of protecting public safety, environmental concerns, landowner rights, renewable energy, and local governmental financial concerns. Thus, we determine that, overall, the project will benefit ratepayers and the public interest.

C. Does the settlement package violate any important regulatory principle or practice?

{¶ 180} Firelands asserts that the application and the Joint Stipulation comply with all relevant regulatory principles and practices. Specifically, the Applicant maintains that every required criterion under R.C. 4906.10 is met. Staff and the other Signatory Parties agree. Residents and BSBO, however, disagree and maintain that the Joint Stipulation, as proposed, unlawfully delegates the Board's authority to USFWS and ODNR. As discussed, the Joint Stipulation permits Firelands to obtain its certificate based on the combined positions of USFWS and ODNR as to both (1) the project's predicted wildlife impacts, and (2) the additional monitoring and curtailment measures that the project is subject to once operational. Residents and BSBO contend that the Board is improperly delegating its authority to USFWS and ODNR to make the final statutory determinations as to the probable environmental impact and whether the project represents the minimum environmental impact.

{¶ 181} In reply, Firelands and Staff assert that the arguments raised by Residents and BSBO lack merit. Firelands maintains that there is enough evidence on the record for the Board to make a determination as to R.C. 4906.10(A)(2) and (A)(3). Specifically, Firelands emphasizes that the 29 pre-construction surveys performed since 2009 provide more than enough information for the Board to ascertain the probable environmental impact. According to Firelands, the purpose of the post-construction monitoring is to confirm that bird and bat mortality aligns with pre-construction analysis. Staff explains that the ongoing role of ODNR and Staff is to implement and enforce the conditions included in the Joint Stipulation. Firelands and Staff state this process has been recognized as acceptable by the Supreme Court of Ohio, citing *In re Application of Buckeye Wind, L.L.C.*, 131 Ohio St.3d 449, 2012-Ohio-878 (*Buckeye Wind*). As described in *Buckeye Wind*, the Supreme Court of Ohio found that the siting statutes "authorize a dynamic process that does not end with the issuance of a construction certificate." *Buckeye Wind* at ¶ 16. According to Firelands, the Supreme Court of Ohio has found that the Board can authorize Staff to

monitor compliance with the certificate conditions. Further, Firelands expresses that any submission to Staff would be public record and available for additional scrutiny. Staff notes that R.C. 4906.97 allows any party to file a complaint if a developer violates a certificate. Firelands also explains that R.C. 4906.07 requires a hearing regarding any modification to a certificate that materially increases any environmental impact of the facility.

{¶ 182} Initially, as described in our discussion of R.C. 4906.10(A)(3), the Board finds that the Joint Stipulation requires Firelands to file the bird and bat impact mitigation plan (including the collision monitoring plan) in the public record for the Board to review. Moreover, we find that Staff and ODNR's ongoing role is not unlawful. As stated in *Buckeye Wind*, the Supreme Court of Ohio has found that the Board is statutorily authorized to allow Staff to monitor compliance with the conditions enumerated in this decision. As further explained by the Court "* * *proper facility siting is subject to modification as the process continues—proposals are tested and matched to the defined conditions." *Buckeye Wind* at ¶ 17. Thus, Residents and BSBO are incorrect to describe Staff's continued involvement as an improper delegation of authority. Rather, Staff's ongoing duties are a necessary component in a dynamic process. Above, we made our determinations regarding the statutory requirements of R.C. 4906.10. In order to ensure that Firelands continues to comply with those requirements, ongoing monitoring is required. While the Board is able to determine the nature of the probable environmental impact, Staff's involvement will be able to calculate the specific, actual environmental impact in compliance with the certificate conditions as the project is constructed and begins operation. Staff and ODNR will be reviewing the results of Firelands' post-construction monitoring to determine if it meets the specific, quantitative standards outlined in Conditions 22-23 of the Joint Stipulation. As we expressed previously, Staff and ODNR have experience monitoring the development of Ohio's terrestrial wind generation projects and they are eminently qualified to oversee Firelands' compliance with this order. The Board is not persuaded by the arguments of Residents and BSBO that Firelands' compliance with the conditions is not subject to additional review or public comment. First, we recognize that any material changes to the

project require an application to amend the certificate. In addition, as acknowledged in *Buckeye Wind*, pursuant to R.C. 4905.07 all of Staff's records are open to inspection. *Buckeye Wind* at ¶ 25.

{¶ 183} Based on the record in this proceeding, the Board concludes that all of the elements established in accordance with R.C. Chapter 4906 are satisfied for the construction, operation, and maintenance of the wind generating electric facility described in Firelands' application, subject to the conditions set forth in the Joint Stipulation and this Order. In reaching this conclusion, we note the importance of maintaining public awareness of the items that are subject to further actions by Firelands in advance of beginning construction of the project. In order to ensure continuing public awareness of these items, and the overall progress of the project, we instruct that where Firelands submits further information to Staff in satisfaction of the terms of the Joint Stipulation, that it must also simultaneously file the information in this case docket. Accordingly, based upon all of the above, the Board approves and adopts the Joint Stipulation, as modified, and hereby issues a certificate to Firelands in accordance with R.C. Chapter 4906.

X. PROCEDURAL ISSUES

{¶ 184} As a final matter, Firelands requests that the Board reconsider ALJ rulings that denied its motion in limine that was filed on October 9, 2020. In the motion, Firelands sought to strike all or portions of the testimony of witnesses Dennis Schreiner and Mark Shieldcastle, who testified in opposition to the application on behalf of Residents and BSBO. As to each witness, Firelands asserted that his testimony was irrelevant, unreliable, prejudicial, or otherwise improper in relation to the issues before the Board. Conversely, Residents and BSBO argued that the testimony of each witness was proper for admission. As to each witness, the ALJ admitted testimony over Firelands' objection.

{¶ 185} Witness Schreiner testified as an expert regarding the project's impact on the economy and reliability of the electric grid. His expert credentials included his experience and training involving (1) nuclear power technology while in the Navy, (2) work as a

Nuclear Regulatory Commission (NRC) Licensed Reactor Operator and NRC Senior Licensed Reactor Operator at the Davis-Besse nuclear power facility, (3) work as a senior instructor for Babcock and Wilcox, a nuclear plant operator, and (4) private consulting regarding NRC certification requirements. Moreover, he testified that his duties with Davis-Besse included, among other positions, serving as a control room operator, where he coordinated power flows from the facility to the regional grid. Based on his experience and training involving the operation of a nuclear generating facility, including the manner in which the facility responded to regional grid coordination issues, the ALJ determined that his testimony as to the project's impact on efficiency and reliability was probative to the issues before the Board (Tr. Vol. VII at 834-835). *See,* R.C. 4906.10(A)(4) and 4906.10(A)(6).

{¶ 186} Witness Shieldcastle testified as an expert regarding the project's environmental impact on birds, bats, and other wildlife. A portion of his prefiled testimony was stricken based on a hearsay objection. But the ALJ allowed the witness' testimony to stand over Firelands' objection regarding the importance of protecting birds in the project area. In admitting the testimony, the ALJ noted that the witness has both personal and professional knowledge that support his testimony, which includes his service as an officer of BSBO. Further, the ALJ explained that the testimony was useful in adding context to his testimony as to the health effects of preserving bird populations. (Tr. Vol. VII at 918-919.)

{¶ 187} Ohio Adm.Code 4906-2-29(F) provides, in pertinent part, that any party that is adversely affected by a ruling issued under Ohio Adm.Code 4906-2-28 or any oral ruling issued during a public hearing and that elects not to take an interlocutory appeal from the ruling may still raise the propriety of that ruling as an issue for the Board's consideration by discussing the matter as a distinct issue in its initial brief.

{¶ 188} We find that the ALJ determinations are proper as to the admission of the testimony of witnesses Schreiner and Shieldcastle. In each circumstance, the ALJ determined that the testimony at issue was both relevant and reliable. We note that, as discussed earlier, we determined that neither witness' testimony was persuasive to establish

that the proposed project was either inconsistent with electric system economy and reliability, or the public interest, convenience, and necessity as required by R.C. 4906.10(A)(4) and 4906.10(A)(6). Nevertheless, as to each witness, the ALJ properly (1) considered the relevance of the testimony at issue, (2) assessed whether issues of prejudice outweighed relevancy considerations, and (3) afforded the opportunity for broad cross examination. Further, in upholding these rulings, we find that the ALJs acted consistent with the past practice of the Board, which focuses on making evidentiary rulings in accordance with the parameters outlined by the Supreme Court of Ohio in response to motions to strike testimony on a case-by-case basis. See, e.g., *In re Duke Energy Ohio, Inc.*, Case No. 03-93-EL-ATA, et al. Entry (Feb.28, 2007).

XI. FINDINGS OF FACT AND CONCLUSIONS OF LAW

{¶ 189} Firelands is a corporation and a person under R.C. 4906.01(A).

{¶ 190} The proposed electric generation facility is a major utility facility, as defined in R.C. 4906.01(B).

{¶ 191} On October 26, 2018, Firelands filed a pre-application notification letter informing the Board of the public informational meeting for its proposed facility.

{¶ 192} Firelands held a public informational meeting regarding the project on November 15, 2018.

{¶ 193} On January 31, 2019, Firelands filed its application for a certificate to construct a wind-powered electric generation facility in Huron and Erie counties, Ohio.

{¶ 194} On March 7, 2019, an ALJ ordered Firelands to conduct an additional public information meeting due to substantial changes between the information in the October 26, 2018 pre-application notification letter and January 31, 2019 application.

{¶ 195} On March 13, 2019, Firelands filed proof of its publication of the notice regarding the additional public informational meeting in accordance with Ohio Adm.Code 4906-3-03.

{¶ 196} On March 29, 2019, Firelands filed its confirmation of notification to property owners and affected entities of the date of the additional public information meeting.

{¶ 197} Firelands held an additional public information meeting regarding the project on April 3, 2019.

{¶ 198} On April 17, 2019, the Board notified Firelands that its application, as supplemented, had been found to be sufficiently complete pursuant to Ohio Adm.Code 4906-1, et seq.

{¶ 199} Firelands filed supplements to its application on March 18, April 11, July 10, September 12, and October 4, 2019.

{¶ 200} On September 12, 2019, Firelands filed notice of payment of the application fee to the Board pursuant to Ohio Adm.Code 4906-3-07(A).

{¶ 201} On September 27, and October 11, 2019, Staff filed motions to modify the completeness determination that was originally issue on April 17, 2019.

{¶ 202} On October 24, 2019, an ALJ granted Staff's October 11, 2019 motion to modify the completeness determination that was originally issued on April 17, 2019.

{¶ 203} On December 3, 2019, the Board notified Firelands that its application, as further supplemented, had been found to be sufficiently complete pursuant to Ohio Adm.Code 4906-1, et seq.

{¶ 204} On December 10, 2019, Firelands filed its proof of compliance with the requirements for service of its accepted and complete application, consistent with Ohio Adm.Code 4906-3-07(A).

{¶ 205} On December 23, 2019, the ALJ issued an Entry establishing the effective date of the application as December 23, 2019, and adopting a procedural schedule for the case, including dates for a local public hearing and adjudicatory hearing.

{¶ 206} By Entries dated June 25, June 26, October 24, and, December 23, 2019, and March 5, 2020, Residents, Huron County, Norwich Township, Richmond Township, Erie County, city of Willard, Local Farmers, and BSBO were granted intervention.

{¶ 207} The Staff Report of Investigation was filed on March 2, 2020.

{¶ 208} On March 11, 2020, the ALJ issued an order suspending the procedural schedule and postponing all hearing dates due to the COVID-19 state of emergency that was declared by the governor on March 9, 2020.

{¶ 209} On July 13, 2020, the ALJ issued an Entry adopting a new procedural schedule for the case, including dates for the local public hearing and adjudicatory hearing, both of which were to be conducted using remote hearing technology due to the COVID-19 continued state of emergency.

{¶ 210} On July 23, 2020, Firelands filed its proof of service and publication regarding the rescheduled date, time, and virtual hearing arrangements of the local public and adjudicatory hearings, including proof of notice of the public hearing and adjudicatory hearing to affected property owners and elected officials, in substantial compliance with Ohio Adm.Code 4906-3-09(A)(2).

{¶ 211} The local public hearing was held using remote hearing technology on August 20, 2020.

{¶ 212} On September 11, 2020, Firelands, Staff, Huron County, city of Willard, Norwich Township, Richmond Township, and Local Farmers filed a joint stipulation and recommendation.

{¶ 213} In accordance with the procedural Entry on July 13, 2020, the parties filed direct testimony on September 11 and September 21, 2020.

{¶ 214} The adjudicatory hearing using remote hearing technology commenced on October 5, 2020, and concluded on October 16, 2020. At the close of the hearing, a briefing schedule was set.

{¶ 215} In accordance with the established briefing schedule, initial briefs were filed by Firelands, Local Farmers, Staff, and jointly by Residents and BSBO on November 20, 2020. Reply briefs were filed by the same parties on December 4, and December 7, 2020.

{¶ 216} Adequate data on the proposed economically significant wind farm has been provided to make the applicable determinations required by Ohio Adm.Code 4906.10(A). The record evidence in this matter provides sufficient factual data to enable the Board to make an informed decision.

{¶ 217} The record establishes that, because the project is not a gas pipeline or an electric transmission line, R.C. 4906.10(A)(1) is not applicable.

{¶ 218} The record establishes the nature of the probable environmental impact from construction, operation, and maintenance of the project, consistent with R.C. 4906.10(A)(2).

{¶ 219} The record establishes that the project, subject to the conditions set forth in this Opinion, Order, and Certificate, represents the minimum adverse environmental impact, considering the available technology and nature and economics of the various alternatives, and other pertinent considerations, consistent with R.C. 4906.10(A)(3).

{¶ 220} The record establishes that, as a generating facility, the project is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability, in accordance with R.C. 4906.10(A)(4).

{¶ 221} The record establishes that the project, subject to the conditions set forth in this Opinion, Order, and Certificate, will comply with R.C. Chapters 3704, 3734, and 6111; R.C. 4561.32 and 4561.341; and all rules and regulations thereunder, to the extent applicable, consistent with R.C. 4906.10(A)(5).

{¶ 222} The record establishes that the project, subject to the conditions set forth in this Opinion, Order, and Certificate, will serve the public interest, convenience, and necessity, consistent with R.C. 4906.10(A)(6).

{¶ 223} The record establishes that the project, subject to the conditions set forth in this Opinion, Order, and Certificate, will have a minimal permanent impact on agricultural resources consistent with R.C. 4906.10(A)(7).

{¶ 224} The record establishes that the project, subject to the conditions set forth in this Opinion, Order, and Certificate, incorporates maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives, consistent with R.C. 4906.10(A)(8).

{¶ 225} The evidence supports a finding that all of the criteria in R.C. 4906.10(A) are satisfied for the construction, operation, and maintenance of the project as proposed by Firelands, subject to the conditions set forth in this Opinion, Order, and Certificate.

{¶ 226} The evidence supports a finding that the Joint Stipulation, as modified, (1) is the product of serious bargaining among capable, knowledgeable parties, (2) as a package, benefits ratepayers and is in the public interest, and (3) does not violate any important regulatory principle or practice.

{¶ 227} Based on the record, the Board should issue a certificate of environmental compatibility and public need, pursuant to R.C. Chapter 4906, for the construction, operation, and maintenance of the project, subject to the conditions set forth in this Opinion, Order, and Certificate.

XII. ORDER

{¶ 228} It is, therefore,

{¶ 229} ORDERED, That the Joint Stipulation be approved and adopted subject to the modifications herein. It is, further,

{¶ 230} ORDERED, That a certificate be issued to Firelands for the construction, operation, and maintenance of the wind-powered electric generation facility, subject to the conditions set forth in the Joint Stipulation and this Order. It is, further,

{¶ 231} ORDERED, That where Firelands submits further information to Staff in satisfaction of the terms of the Joint Stipulation, that it must also simultaneously file the information in this case docket. It is, further,

{¶ 232} ORDERED, That a copy of this Opinion, Order, and Certificate be served upon all parties and interested persons of record.

BOARD MEMBERS:
Approving:

Jenifer French, Chair
Public Utilities Commission of Ohio

Matt McClellan, Designee for Lydia Mihalik, Director
Ohio Development Services Agency

Mary Mertz, Director
Ohio Department of Natural Resources

W. Gene Phillips, Designee for Stephanie McCloud, Director
Ohio Department of Health

Drew Bergman, Designee for Laurie Stevenson, Director
Ohio Environmental Protection Agency

Sarah Huffman, Designee for Dorothy Pelanda, Director
Ohio Department of Agriculture

MLW/hac

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

6/24/2021 4:33:54 PM

in

Case No(s). 18-1607-EL-BGN

Summary: Opinion & Order approving and adopting the stipulation and recommendation, as modified herein, between Firelands Wind, LLC, Staff, and other parties and directs that a certificate be issued to Firelands Wind, LLC for construction of a new 297.66 megawatt wind-powered electric generation facility. electronically filed by Ms. Mary E Fischer on behalf of Ohio Power Siting Board

CERTIFICATE OF SERVICE

I hereby certify that, on April 15, 2022, a copy of the foregoing Appendix Volume I was served upon the following counsel of record by electronic mail:

Christine M.T. Pirik
Terrence O'Donnell
William Vorys
Jonathan R. Secrest
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, OH 43215
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
wvorys@dickinsonwright.com
jsecrest@dickinsonwright.com

Attorneys for Firelands Wind, LLC

Werner L. Margard III
Robert A. Eubanks
Assistant Attorneys General
Public Utilities Section
30 E. Broad Street, 26th Floor
Columbus, OH 43215
Tel: (614) 466-4397
Fax: (614) 644-8764
Werner.margard@OhioAGO.gov
Robert.eubanks@OhioAGO.gov

Attorneys for Ohio Power Siting Board

/s Jack A. Van Kley
Jack A. Van Kley
Counsel for Appellants