IN RE APPLICATION OF FIRELANDS WIND, L.L.C., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED TO CONSTRUCT A WIND-POWERED ELECTRIC GENERATING FACILITY IN HURON AND ERIE COUNTIES, OHIO; DIDION ET AL., APPELLANTS; POWER SITING BOARD, APPELLEE; FIRELANDS WIND, L.L.C., INTERVENING APPELLEE.

[Cite as *In re Application of Firelands Wind, L.L.C.*, 173 Ohio St.3d 40, 2023-Ohio-2555.]

Power Siting Board—R.C. 4906.10(A)—Wind-powered electric-generating facility—Application for certificate of environmental compatibility and public need—Power Siting Board's order granting certificate affirmed.

(No. 2022-0055—Submitted February 8, 2023—Decided July 27, 2023.)

APPEAL from the Power Siting Board, No. 18-1607-EL-BGN.

DEWINE, J.

{¶ 1} This is an appeal from an order of the Ohio Power Siting Board authorizing Firelands Wind, L.L.C., to construct a wind farm in Huron and Erie Counties. The appeal is brought by 19 nearby residents ("the residents")[1] and by the Black Swamp Bird Observatory.

{¶ 2} The residents and Black Swamp argue that the board improperly determined that the wind farm satisfies the statutory requirements for constructing a major utility facility. They assert that the project could disrupt the area's water supply, create excessive noise and "shadow flicker" for residents near the wind

1. The residents are 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, and Gerald Wensink.

farm, and kill bald eagles and migrating birds. They also claim that the board improperly delegated its duties to its staff and other government agencies, failed to follow its administrative rules, and should have required additional testing before granting the certificate.

{¶ 3} We conclude that the residents and Black Swamp have not established that the board's order was unlawful or unreasonable. Accordingly, we affirm the board's order.

I. The Power Siting Board Issues a Certificate Approving the Emerson Creek Wind Farm

{¶ 4} The power siting board must issue a "certificate of environmental compatibility and public need" before a facility capable of generating at least 50 megawatts of power may be built. R.C. 4906.01 and 4906.04. In January 2019, Firelands filed an application to construct the Emerson Creek Wind Farm—a facility that would generate up to 297.66 megawatts of electricity.

{¶ 5} Multiple parties intervened in the proceeding before the board, including various local governments, the residents, and Black Swamp. Black Swamp is an Ohio nonprofit organization that fosters appreciation for and conservation of birds and their habitats.

{¶ 6} The board staff investigated the potential impact of the project and submitted a report in March 2020. Subsequently, Firelands, the board staff, Huron County, Richmond and Norwich Townships, and the city of Willard entered into a stipulation recommending that the board issue the siting certificate subject to 44 conditions. Neither the residents nor Black Swamp joined the stipulation.

{¶ 7} Following a nine-day hearing, the board in June 2021 issued a decision and order approving the stipulation, with modifications, and directing that a certificate be issued for the wind farm. As approved, the project will consist of up to 71 turbines and cover 32,000 acres of leased land, including 84.5 acres of built facilities. In addition to the turbines, there will be access roads, buried

electric-collection cables, a substation, an operations-and-maintenance facility, and meteorological towers.

{¶ 8} The residents and Black Swamp filed a rehearing application, which the board denied. This appeal followed. The residents and Black Swamp raise seven propositions of law. The first four are raised by the residents alone, and the remaining three are raised jointly.

II. The Residents and Black Swamp Have Failed to Demonstrate that the Board's Order Was Unreasonable or Unlawful

{¶ 9} Before it may issue a certificate for the construction of a new major utility facility, the power siting board must make eight substantive determinations, which are set forth in R.C. 4906.10(A). Three are at issue in this appeal. Specifically, the residents and Black Swamp contend that the board failed to meet its obligations "to find and determine" the following under R.C. 4906.10(A):

> * * *
>
> (2) [t]he nature of the probable environmental impact;
>
> (3) [t]hat 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; [and]
>
> * * *
>
> (6) [t]hat the facility will serve the public interest, convenience, and necessity.

{¶ 10} As a creation of statute, the board may exercise only the powers granted to it by the General Assembly. *See Discount Cellular, Inc. v. Pub. Util. Comm.*, 112 Ohio St.3d 360, 2007-Ohio-53, 859 N.E.2d 957, ¶ 51. And here, the

legislature has granted the board the authority to issue a certificate of construction if the board makes the substantive determinations set forth in R.C. 4906.10(A).

{¶ 11} Our standard of review is also prescribed by statute. We may reverse, modify, or vacate an order of the board only when, upon consideration of the record, we conclude that the order "was unlawful or unreasonable." R.C. 4903.13; R.C. 4906.12. The challengers to a board order bear the burden of establishing that the order is unlawful or unreasonable. *See In re Complaint of Reynoldsburg*, 134 Ohio St.3d 29, 2012-Ohio-5270, 979 N.E.2d 1229, ¶ 18; *Monongahela Power Co. v. Pub. Util. Comm.*, 104 Ohio St.3d 571, 2004-Ohio-6896, 820 N.E.2d 921, ¶ 29. In the past, we have not generally distinguished between "unreasonable" and "unlawful." But the meanings of the terms are different, as evidenced by the legislature's use of the disjunctive "or" in the "unlawful or unreasonable" statutory standard of review, R.C. 4903.13; R.C. 4906.12. *See also* 2 Ohio Jurisprudence 3d, Administrative Law, Section 221 (2016) (explaining that the terms "unlawful" and "unreasonable" refer to different aspects of an agency's order).

{¶ 12} The "unlawful" part of the standard refers to our review of legal questions: questions like what is the proper interpretation of a statutory term, *see Elyria Foundry Co. v. Pub. Util. Comm.*, 114 Ohio St.3d 305, 2007-Ohio-4164, 871 N.E.2d 1176, ¶ 56-58, or whether the board followed the procedures prescribed by statute, *see Ohio Consumers' Counsel v. Pub. Util. Comm.*, 111 Ohio St.3d 300, 2006-Ohio-5789, 856 N.E.2d 213, ¶ 14-15, or by its own regulations, *see Ohio Partners for Affordable Energy v. Pub. Util. Comm.*, 115 Ohio St.3d 208, 2007-Ohio-4790, 874 N.E.2d 764, ¶ 12.

{¶ 13} Our review of such questions of law is de novo. *See In re Application of Duke Energy Ohio, Inc.*, 166 Ohio St.3d 438, 2021-Ohio-3301, 187 N.E.3d 472, ¶ 11. We recently clarified that "the judicial branch is *never* required to defer to an agency's interpretation of the law." (Emphasis sic.) *TWISM Ents.*,

L.L.C. v. State Bd. of Registration for Professional Engineers & Surveyors, 172 Ohio St.3d 225, 2022-Ohio-4677, 223 N.E.3d 371, ¶ 3.

{¶ 14} This case involves a statute by which the legislature has directed an agency to make determinations as to a project's compliance with broad statutory criteria. *See* R.C. 4906.10(A) (the board must "find[] and determine[] all of the following"). Most notably, does the facility "represent[] 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), R.C. 4906.10(A)(3), and will the facility serve "the *public interest, convenience, and necessity*" (emphasis added), R.C. 4906.10(A)(6). The statute dictates that the board make these determinations, not this court.

{¶ 15} The open-textured nature of the terms at issue inherently vests a degree of discretion in the administrative agency. That's where the "unreasonable" part of the standard of review comes in. The agency's exercise of its implementation authority must fall within the zone of permissible statutory construction. We will examine the reasonableness of an agency's decision about such things as whether a facility represents the "minimum adverse environmental impact," R.C. 4906.10(A)(3), or whether it will serve the "public interest," R.C. 4906.10(A)(6), by looking to whether the agency's decision falls within that zone. *See generally Ohio Edison Co. v. Power Siting Comm.*, 56 Ohio St.2d 212, 214, 383 N.E.2d 588 (1978) (noting that the broad statutory criteria that the agency consider "environmental impact" and "public interest" permitted the agency to consider a facility's impact on current and potential recreational areas).

{¶ 16} Additionally, we have found an agency's decision unreasonable when the decision is manifestly contrary to the evidence in the record or when the evidence clearly isn't enough to support the decision. *See, e.g., Ohio Consumers' Counsel v. Pub. Util. Comm.*, 114 Ohio St.3d 340, 2007-Ohio-4276, 872 N.E.2d 269, ¶ 26, 41; *Schwerman Trucking Co. v. Pub. Util. Comm.*, 10 Ohio St.2d 253,

258, 227 N.E.2d 217 (1967). The same goes for when an agency's order is internally inconsistent. *See, e.g., Ridgeview Ctr., Inc. v. Lorain Cty. Bd. of Revision*, 42 Ohio St.3d 30, 31, 536 N.E.2d 1157 (1989).

{¶ 17} Finally, in adjudicating whether a board determination is unreasonable, we do "not * * * reweigh the evidence or second-guess [the board] on questions of fact." *Lycourt-Donovan v. Columbia Gas of Ohio, Inc.*, 152 Ohio St.3d 73, 2017-Ohio-7566, 93 N.E.3d 902, ¶ 35. We will not disturb the board's factual determinations "when the record contains sufficient probative evidence to show that the board's decision was not manifestly against the weight of the evidence and was not so clearly unsupported by the record as to show misapprehension, mistake or willful disregard of duty." *In re Application of Champaign Wind, L.L.C.*, 146 Ohio St.3d 489, 2016-Ohio-1513, 58 N.E.3d 1142, ¶ 7.

A. Turbines in a Karst Plain

{¶ 18} In their first proposition of law, the residents argue that the board erred by allowing wind turbines to be placed in a karst plain to the detriment of the area's water supply. In doing so, they contend, the board violated its duty to determine that the facility "represents the minimum adverse environmental impact," R.C. 4906.10(A)(3).

{¶ 19} The northwestern portion of the wind farm is located in the Bellevue-Castalia Karst Plain. Karst is a terrain that forms over soluble bedrock like limestone. Sinkholes, caves, springs, and disappearing streams are common features of karst topography.

{¶ 20} During the board's evidentiary hearing, Firelands submitted a geotechnical report in which the subsurface of the project area was evaluated. Alfred Williams, a geotechnical engineer who oversaw the study, testified that the project area was suitable for turbine construction and that most of the proposed

turbines would be located on shale bedrock, which is not prone to karst development.

{¶ 21} However, Williams identified some proposed turbine locations that had a moderate to high probability of karst development and suggested that additional testing be undertaken at these sites. For sites where karst features were identified, he recommended injecting grouting (a mixture of sand, bentonite, and cement) into the karst openings to provide a more stable foundation for the turbines.

{¶ 22} The residents presented their own expert, Dr. Ira Sasowsky, a geoscientist and professor. He testified that Firelands did not adequately investigate the risks associated with developing a wind farm on karst. He opined that areas with karst require special attention to avoid (1) sinkholes, collapses, and other land failures and (2) disrupting or contaminating the water supply. Dr. Sasowsky testified that most of the homes in the project area receive their water from private wells. Turbine development, he cautioned, could redirect contaminated water from fields or construction areas into sinkholes, which feed into the underground aquifer. He also warned that grouting could disrupt the water supply to private wells.

{¶ 23} In response to these concerns, the board adopted several measures designed to mitigate problems presented by karst topography. As an initial matter, the board accepted a condition in the stipulation that Firelands must submit "detailed engineering drawings" that "account for karst topography" to the board's staff for approval before construction may commence.

{¶ 24} The board also modified the stipulation to impose additional restrictions. For instance, the board prohibited construction of eight turbines that had been proposed in areas with either existing karst features or a moderate to high probability of karst development. Further, the board ordered Firelands to avoid turbine construction in areas "where initial review and testing confirm[ed] that karst is likely to be encountered at a level that is moderate or above." The board also

ordered that grouting could be used only where karst is at low levels and only on approval of the board staff. Subject to those restrictions, the board concluded that the project was sufficient from a public-safety perspective and that the project's effects on water resources were expected to be minimal.

{¶ 25} The residents contend that the board did not go far enough. They point to a geological map of the project area contained in Firelands' geotechnical report. The map contains an area that is shaded light green. The residents identify this area as the karst plain and assert that it contains 25 proposed turbines. They maintain that "[g]iven the board's determination that turbines should not be sited *in areas of moderate or high karst* risk, the board should not have approved any of the turbine sites in the [light-green-shaded area]." (Emphasis added.)

{¶ 26} The problem is that the record does not support the residents' assertion that the entire light-green-shaded area represents "areas of moderate or high karst risk." Williams testified that the light-green-shaded area represents areas where the bedrock is less than 30 feet. He also testified that soil conditions can vary within an area. And while Williams stated that the light-green-shaded area shows where karst may "potentially be found," the residents do not point to any evidence establishing that the karst level for that area is moderate or above.

{¶ 27} Here, the board went beyond the stipulation and imposed additional restrictions to minimize the environmental impact that the karst might have. The residents have not proved that those additional restrictions were insufficient or that the evidence required prohibiting all turbine construction in the light-green-shaded area. The board's statutory obligation was to determine 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). By its terms, this standard does not require the board to conclude that the facility will have no adverse environmental

impact—only that the adverse environmental impact is minimal in light of the constraints. We do not find the board's determination to be unreasonable.

B. Evaluation of Impact on Water Supplies

{¶ 28} The residents next argue that the board erred by failing to require Firelands to conduct a hydrogeological study at each turbine site. In support, they point to a provision in the Ohio Administrative Code requiring an applicant to provide "an evaluation of the impact to public and private water supplies due to construction and operation of the proposed facility," Ohio Adm.Code 4906-4-08(A)(4)(a). They contend that the board's failure to require a hydrogeological study violated its duty to determine the nature of the project's probable environmental impact, R.C. 4906.10(A)(2), and whether the project represents the minimum adverse environmental impact, R.C. 4906.10(A)(3).

{¶ 29} With its application, Firelands submitted a "Groundwater, Hydrogeological, and Geotechnical Report" conducted by Hull & Associates, Inc. The report reviewed hydrogeological literature about the project area, including information relating to surface-water flows and groundwater resources. It acknowledged that the wind farm would be located in a rural area where the residents rely on private wells for their drinking water. Hull & Associates mailed a survey to landowners within the project area to gather information about the wells on their properties. Based on the literature that Hull & Associates reviewed, the well surveys, and field reconnaissance—as well as the fact that turbines must be set back a minimum distance from the nearest residential structure—the report concluded that construction of the wind turbines was "not anticipated to result in any significant negative impact to the property owners' wells."

{¶ 30} The residents complain that Firelands conducted only a geotechnical survey when, in their view, it should have conducted a hydrogeological study. In the residents' words: "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."

{¶ 31} The administrative rule, however, simply required Firelands to "[p]rovide an evaluation of the impact to public and private water supplies," Ohio Adm.Code 4906-4-08(A)(4)(a). The Hull & Associates report provided such an evaluation. The residents have failed to show that the board acted unlawfully in determining that the report was sufficient to comply with Firelands' obligation under the administrative code. And they have failed to show that the board violated its obligations to determine the nature of the probable environmental impact of the project and that the facility represents the minimum adverse environmental impact. *See* R.C. 4906.10(A)(2) and (3).

C. Noise

{¶ 32} The residents claim that the board has "authoriz[ed] noise that will cause stress, annoyance, and health damage" to nearby residents in violation of the requirement that the board determine that the facility will have the minimum adverse environmental impact. *See* R.C. 4906.10(A)(3). They contend that the wind turbines will generate a variety of unpleasant sounds, including "mechanical sounds from the turbine hub" and "swishing" and "whooshing" sounds caused by the rotating blades.

{¶ 33} The noise impact of a facility is measured by comparing turbine noise to the preexisting background (or ambient) sound level. The residents contend that the ambient-noise study performed by Firelands was flawed. This argument centers on Ohio Adm.Code 4906-4-09(F)(2). That provision specifies that a wind farm's operation must "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)."[2] In essence, the regulation requires that at a residence neighboring a facility, the noise level caused by the wind farm may not exceed five dBA above the nighttime average ambient-noise level of the project area.

{¶ 34} Firelands submitted a noise assessment conducted by Resource Systems Group, Inc. ("RSG"). As part of the noise assessment, RSG installed nine sound monitors at various locations around the project area and determined that the background nighttime average noise level in the area was 44 dBA. Thus, RSG calculated the wind farm's nighttime noise limit to be 49 dBA (the background noise plus 5 dBA). The board found that Firelands' background-noise study was reasonable and that the project complied "with sound limitations necessary for the public's protection."

{¶ 35} In arguing that Firelands' study was flawed, the residents point to Ohio Adm.Code 4906-4-09(F)(2), which requires a wind farm's noise limit to be calculated based on the background nighttime average noise level of "the project area." The residents complain that RSG installed two of the sound monitors *outside* of the project area. The residents also claim that these two monitors, as well as one other, were placed in areas that were noisy and not representative of the project area. Each of those locations had background nighttime average noise levels of 50 dBA or higher, while the noise levels at three other locations were much lower—34, 36, and 40 dBA.

{¶ 36} Firelands presented the testimony of Eddie Duncan. A director at RSG, Duncan is board certified in noise-control engineering and has 17 years of

2. "[S]ensitive receptor" refers to "any occupied building," such as a residence. Ohio Adm.Code 4906-4-09(F)(1). "Non-participating" refers to "a property for which the owner has not signed a waiver or otherwise agreed to be subject to a higher noise level." Ohio Adm.Code 4906-4-09(F)(2). According to Firelands, "Leq" is "the average sound pressure level over [a] specified period of time," such as one hour or one day. "A-weighted decibel" ("dBA") "is a scale that attempts to measure the loudness of sound waves the human ear perceives as audible sound." *Champaign Wind, L.L.C.*, 146 Ohio St.3d 489, 2016-Ohio-1513, 58 N.E.3d 1142, at ¶ 35.

experience in acoustics, including measuring and analyzing noise from energy projects. He testified that "[e]ach [monitor] location was selected as representative of a given landscape or soundscape experienced by sensitive receptors in and around the project area" based on factors such as "land use, road traffic, distance to roadways, population density, and distance to geographic features." He explained that when selecting the locations, he followed industry best practices—citing two industry standards—and relied on his professional judgment and experience.

{¶ 37} The residents have not pointed to any evidence contradicting Duncan's monitor-selection methodology. Ohio Adm.Code 4906-4-09(F)(2) does not specify how to calculate the "nighttime average sound level." Presumably, a monitor location may be representative of a soundscape within the project boundary even if that monitor is located beyond the boundary. The residents have not established that the board committed reversible error merely because RSG positioned two monitors near—but beyond—the project-area boundary. Similarly, the residents have not pointed to credible evidence proving that RSG purposely chose monitor locations to skew the average higher.

{¶ 38} The residents contend that nothing precludes the board from imposing noise limits that go beyond those required by the Ohio Administrative Code. That may well be the case. But for our purposes, we find nothing unlawful in the board's decision to evaluate the facility based on the limitations set forth in the administrative code. Nor do we find the board's determination that the facility represents the minimum adverse environmental impact to be unreasonable.

D. Shadow Flicker

{¶ 39} The residents next argue that the board failed to require Firelands to meet the shadow-flicker standard set forth in the Ohio Administrative Code. "Shadow flicker" refers to the moving shadows that a wind turbine casts on a building when the turbine is between the sun and the structure.

{¶ 40} Ohio Adm.Code 4906-4-09(H)(1) provides:

> The facility shall be designed to avoid unreasonable adverse shadow flicker effect at any non-participating sensitive receptor within one thousand meters of any turbine. At a minimum, the facility shall be operated so that shadow flicker levels do not exceed thirty hours per year at any such receptor.

{¶ 41} Firelands' application included a shadow-flicker analysis projecting that of the 1,495 "receptors"—i.e., occupied buildings—within 1,500 meters of any proposed turbine site, 55 nonparticipating receptors would receive more than 30 hours of shadow flicker per year. Throughout the board proceedings, Firelands conducted additional shadow-flicker analyses but never produced a study showing that all nonparticipating properties would be exposed to less than 30 hours of shadow flicker per year. Firelands nevertheless guaranteed that the shadow-flicker exposure for none of the nonparticipating homes would exceed the 30-hour limit. It explained that it would achieve this result through the final design of the project and, if necessary, by implementing mitigating measures such as curtailing turbine operation during certain times of the day.

{¶ 42} The board found that the project would not cause adverse shadow-flicker impacts, based on (1) a requirement in the stipulation that Firelands submit a final study 30 days prior to construction showing that the shadow-flicker impacts will not exceed 30 hours per year at any nonparticipating receptor and (2) Firelands' ability to employ mitigating measures to maintain shadow flicker within the permissible limit.

{¶ 43} The residents contend that because Firelands' study did not show compliance with the administrative-rule shadow-flicker standard, the board should not have approved the project. They argue that allowing Firelands to submit a postcertification study violates their right to participate in the review process and

divests the board of its nondelegable duty under R.C. 4906.10(A) to make required findings. The board's decision, they proclaim, "delegates all shadow flicker decisions to unaccountable Staff members."

{¶ 44} Contrary to the residents' contention, Ohio Adm.Code 4906-4-09(H)(1) does not require Firelands to produce a precertification study showing that all nonparticipating receptors will experience less than 30 hours of shadow flicker per year. Rather, the rule requires only that an applicant design the facility "to avoid unreasonable adverse shadow flicker effect" and that "the facility * * * be *operated* so that shadow flicker levels do not exceed thirty hours per year at any" nonparticipating receptor. (Emphasis added.)

{¶ 45} The board determined that even though Firelands' initial shadow-flicker studies showed some nonparticipating properties above the limit, Firelands had presented sufficient assurances that it could operate the facility within the rule's limitations. More importantly, the board emphasized that Firelands must submit another, final shadow-flicker study at least 30 days before construction and that Firelands had the ability to employ postconstruction measures to mitigate the effects of shadow flicker. The residents have not demonstrated that Firelands violated, or that the board failed to enforce, Ohio Adm.Code 4906-4-09(H)(1).

{¶ 46} We also reject the residents' contention that the board unlawfully delegated decisions to board staff. R.C. 4906.10(A) empowers the board to grant a siting certificate "upon such terms, condition, or modifications of the construction, operation, or maintenance" of the facility as the board deems appropriate. Thus, the board acted lawfully when it conditioned its approval on Firelands' submission of a study showing that the shadow-flicker requirements would be met. *See In re Application of Buckeye Wind, L.L.C.*, 131 Ohio St.3d 449, 2012-Ohio-878, 966 N.E.2d 869, ¶ 14-15; *In re Application of Icebreaker Windpower, Inc.*, 169 Ohio St.3d 617, 2022-Ohio-2742, 207 N.E.3d 651, ¶ 37-44.

E. Environmental Impact on Migrating Birds

{¶ 47} The residents and Black Swamp assert that Firelands should have conducted nighttime radar studies to evaluate the wind farm's impact on migrating passerines. Passerines include a wide variety of small birds, mostly songbirds. The residents and Black Swamp claim that without such a study, the board could not determine "[t]he nature of the probable environmental impact" as required by R.C. 4906.10(A)(2).

{¶ 48} Firelands conducted numerous bird studies throughout the project area. It retained Rhett E. Good, a biologist with 24 years of experience conducting wildlife research, including at other Ohio wind farms, to assist in the development and review of these studies. Good testified that he had consulted with the Ohio Department of Natural Resources ("ODNR") and the United States Fish and Wildlife Service ("USFWS") on behalf of Firelands and that Firelands' studies were done in accordance with ODNR's On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio (the "ODNR protocol") and the USFWS's Land-Based Wind Energy Guidelines (the "USFWS guidelines").

{¶ 49} The residents and Black Swamp countered with the testimony of Mark C. Shieldcastle, a former ODNR wildlife biologist and the current research director for Black Swamp. He opined that Firelands had not sufficiently analyzed the probable environmental impact on migrating birds and that Firelands' passerine-migration studies were not properly designed. Most notably, Shieldcastle testified that Firelands' passerine surveys were conducted during the day, even though most passerines migrate at night.

{¶ 50} The residents and Black Swamp emphasize that unlike other Ohio wind farms, the project area here is located within an important bird-migration pathway—i.e., near Magee Marsh and the Lake Erie shoreline. Accordingly, they

assert that the board must count the number of migrating birds *prior* to certifying the project, rather than relying on postconstruction monitoring.

{¶ 51} The board found that the wind farm's impacts on birds were "predictable" and "reasonably in line with similarly situated wind farms that have received certificates in Ohio." The board further concluded that the safeguards in place—such as a requirement that Firelands conduct postconstruction bird monitoring and, if necessary, implement mitigation plans approved by board staff and ODNR—provided "further assurances that the project's environmental impact is within the [b]oard's reasonable expectations for this type of wind farm."

{¶ 52} We conclude that the record contained sufficient probative evidence for the board to determine the nature of the probable environmental impact to passerines. *See* R.C. 4906.10(A)(2). Firelands conducted numerous site-specific studies, including surveys relating to migrating passerines, in accordance with the ODNR protocol and the USFWS guidelines. The board also reviewed hundreds of bird studies from existing wind farms. Firelands' witness, Good, explained why Firelands did not conduct nighttime radar studies for this project: ODNR has mapped areas of Ohio that are high-risk for nocturnal migrating passerines, and the wind farm here does not fall within such an area. As the residents and Black Swamp's own witness, Shieldcastle, acknowledged, ODNR only recommends that wind developers conduct nighttime radar monitoring for high-risk project areas.

{¶ 53} Based on this record, we cannot conclude that the board's failure to require nighttime radar testing was unlawful. Nor can we deem unreasonable the board's determination that the project represents the minimum adverse environmental impact. *See* R.C. 4906.10(A)(3).

F. Economic Impact

{¶ 54} The administrative rules require an applicant to provide "an estimate of the economic impact of the proposed facility on local commercial and industrial activities." Ohio Adm.Code 4906-4-06(E)(4). The residents and Black Swamp

argue that Firelands did not comply with this rule and that without a complete economic analysis, the board had no support for its finding that the project served the public interest, convenience, and necessity under R.C. 4906.10(A)(6).

{¶ 55} Firelands submitted a socioeconomic report prepared by EDR Environmental Services ("EDR"). The report concluded that in addition to lease payments to landowners, the wind farm will create a significant number of jobs during construction and operation, all of which will have a ripple effect on the local economy and a positive impact on the local tax base. The board accepted Firelands' evidence and concluded that "overall, the project is economically beneficial to those in the project area." After balancing the facility's projected benefits with the potential negative impacts, the board found that the project "will serve the public interest, convenience, and necessity" as required by R.C. 4906.10(A)(6).

{¶ 56} The residents and Black Swamp claim that Firelands' study was inadequate because it failed to account for potential negative economic impacts. Specifically, they assert that the facility will reduce birding tourism, harm local farmers by killing insect-eating bats, and compete with the nearby Davis-Besse Nuclear Power Station.

{¶ 57} We conclude that Firelands submitted what Ohio Adm.Code 4906-4-06(E)(4) required: an "*estimate* of the economic impact of the proposed facility on local commercial and industrial activities." (Emphasis added.) EDR used a model developed by the United States Department of Energy's National Renewable Energy Laboratory. The model allowed EDR to estimate not only the number of jobs and earnings that the project would create but also the project's economic value for the manufacturing, retail, and service-provider sectors. According to EDR, the model included state-specific multipliers to track unique industry groups in the project area and considered "a small degree of negative impacts." Based on the model, EDR calculated the facility's total economic output to be $170.4 million per year during construction and $10.6 million per year during operation.

{¶ 58} The administrative code provision did not require Firelands to specifically quantify potential losses to tourism, farmers, or other energy providers. And nothing prevented the residents and Black Swamp from submitting evidence of such potential losses. The rule required only that Firelands provide an estimate of the economic impact on local commercial and industrial activities, which it did. We find nothing unlawful about the board's interpretation of the rule and nothing unreasonable about its determination that the project "will serve the public interest, convenience, and necessity," R.C. 4906.10(A)(6).

G. Impacts on Bald Eagles

{¶ 59} The residents and Black Swamp contend that because the wind farm will impact bald eagles, the board failed to determine that the facility represents the minimum adverse environmental impact. *See* R.C. 4906.10(A)(3). They maintain that the board should have forbidden construction altogether. As an alternative, they argue that the board should have imposed a requirement that any turbine be located at least 2.5 miles away from any eagle nest.

{¶ 60} The USFWS estimated that the wind farm had a preliminary risk of killing about 2.5 eagles per year and that the area's eagle population would increase over time. To help protect the bald eagle population, the board staff and Firelands agreed to two conditions in the stipulation. First, Firelands committed to developing and implementing, prior to turbine construction, an "eagle conservation plan" in accordance with USFWS guidance for wind farms. Second, Firelands agreed to apply for an "eagle take permit" from USFWS before the facility becomes operational. An eagle-take permit authorizes unintentional eagle death resulting from an otherwise lawful activity.[3] To obtain an eagle-take permit, a wind-farm

3. The Bald and Golden Eagle Protection Act, 16 U.S.C. 668 et seq., prohibits the "tak[ing]" of a bald or golden eagle without a permit. The act defines "take" as "[to] pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." 16 U.S.C. 668c.

developer must follow a multistage process that typically includes site-specific surveys, risk assessment, and the preparation of an eagle-conservation plan.

{¶ 61} The board found that the stipulation condition was a sufficient safeguard to protect bald eagles. Although the board acknowledged that the permitting process may take several years, it concluded that Firelands "remains accountable to USFWS for the project's impact to eagle populations" and that if Firelands does not secure the permit, it would be subject to the USFWS enforcement measures for any eagle fatalities.

{¶ 62} The residents and Black Swamp raise a number of objections. As an initial matter, they contend that there are more bald eagles in the area than estimated by Firelands and that the USFWS's projection of eagle kills is too low.

{¶ 63} Both sides put on expert testimony about the prevalence of eagles in the area. A Firelands witness testified as to eagle surveys that were completed in accordance with the ODNR protocol and the USFWS guidelines. The residents and Black Swamp relied on surveys conducted by neighbors, including a trained wildlife biologist. The biologist acknowledged, however, that she was not familiar with the ODNR protocol or the USFWS guidelines and that the neighbors had not been trained by a wildlife agency. Accordingly, we find no error in the board's decision to rely on Firelands' surveys, rather than the residents and Black Swamp's evidence, to determine the prevalence of bald eagles near the project area.

{¶ 64} The residents and Black Swamp also contend that Firelands likely will not qualify for an eagle-take permit. They assert that because an eagle nest is within the project area's boundary, the project falls under a risk level at which wind farms are "not recommended." But this is not the appropriate forum to interpret the meaning of the USFWS guidance or to predict whether the agency will issue a permit to Firelands. The USFWS guidance indicates that in the first stage of developing an eagle-conservation plan, the wind-farm developer should work with

the USFWS to place the potential wind farm in the appropriate risk category. Thus, assessing the risk level for the wind farm will be part of the permitting process.

{¶ 65} In a related vein, the residents and Black Swamp argue that the board abdicated its duty to protect bald eagles by directing Firelands to merely work with the USFWS after certification. But the residents and Black Swamp have not adequately explained why that is a problem. The USFWS has in place a robust process to guide wind-farm developers in siting and operating their facilities while protecting bald eagles. It was reasonable for the board to rely on the agency with federal enforcement authority and the appropriate experience, expertise, and procedures in place. As the board explained in its order, it has imposed conditions in other siting cases subject to ODNR's or the USFWS's approval. And as we have explained, the board is not required to resolve all issues relating to a facility's potential environmental impact before issuing a certificate. *See, e.g.*, *Buckeye Wind*, 131 Ohio St.3d 449, 2012-Ohio-878, 966 N.E.2d 869, at ¶ 13-25; *Icebreaker*, 169 Ohio St.3d 617, 2022-Ohio-2742, 207 N.E.3d 651, at ¶ 39-40.

{¶ 66} The residents and Black Swamp also argue that the board violated Ohio Adm.Code 4906-4-08(B)(3)(b) by failing to require a minimum 2.5-mile setback between any bald eagle nest and a turbine. The rule requires an applicant to provide information regarding potential impacts to ecological resources during operation of the facility, including "the procedures to be utilized to avoid, minimize, and mitigate both the short- and long-term impacts of operation and maintenance." The rule imposes duties on Firelands, not the board. Firelands complied with the rule by identifying measures to minimize impacts on bald eagles. Nothing in the rule mandates a 2.5-mile buffer area.

{¶ 67} The residents and Black Swamp also argue that by not requiring a 2.5-mile buffer area, the board failed in its duty to ensure that the facility represents the minimum adverse environmental impact. Firelands presented evidence showing that based on the USFWS guidance, eagles nesting within 1.18 miles of

the wind farm are the most likely to be disturbed by turbines.[4] A Firelands witness further testified that the USFWS does not prohibit wind-farm infrastructure within this distance but does require that such nests receive special consideration and attention. For example, a nest within the radius could be selected for focused monitoring.

{¶ 68} The board acknowledged that bald eagles may die as a result of the wind farm's operation. The question before the board, however, was whether 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). Firelands' application represented that the project's anticipated short- and long-term operational impacts on wildlife were expected to be minor. The application described ways in which Firelands had designed the facility to minimize or mitigate bird mortality, including siting turbines so as "to avoid bald eagle nests and areas of concentrated eagle use." And the stipulation ensured that the wind farm would be built and operated in accordance with USFWS guidelines for protecting bald eagles. We cannot say that the board's determination that the facility represents the minimum adverse environmental impact was unreasonable.

III. Conclusion

{¶ 69} For the foregoing reasons, we affirm the board's order granting Firelands a certificate for the construction, operation, and maintenance of the Emerson Creek Wind Farm.

Order affirmed.

KENNEDY, C.J., and FISCHER, DONNELLY, STEWART, BRUNNER, and DETERS, JJ., concur.

4. The 1.18-mile distance was calculated based on the "half-mean inter-nest distance," which refers to one half of the average nearest-neighbor distance between occupied eagle nests.

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Chris Tavenor, urging affirmance for amicus curiae Ohio Environmental Council.

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