ORIGINAL

IN THE SUPREME COURT OF OHIO

In the Matter of the Application of Champaign Wind LLC for a Certificate to Construct a Wind Powered Electric Generating Facility in Champaign County, Ohio	)	**Case No. 13-1874**
	)	**On Appeal from the Ohio Power Siting Board, Case No. 12-160-EL-BGN**

MERIT BRIEF OF APPELLANTS UNION NEIGHBORS UNITED (UNU), ROBERT McCONNELL, DIANE McCONNELL, AND JULIA F. JOHNSON

Jack A. Van Kley (0016961) (Counsel of Record)
Van Kley & Walker, LLC
132 Northwoods Blvd., Suite C-1
Columbus, OH 43235
Telephone: (614) 431-8900
Facsimile: (614) 431-8905
jvankley@vankleywalker.com
Attorney for Appellants UNU, Robert & Diane McConnell, and Julia Johnson

Christopher A. Walker (0040696)
Van Kley & Walker, LLC
137 North Main Street, Suite 316
Dayton, OH 45402-1772
Telephone: (937) 226-9000
Facsimile: (937) 226-9002
cwalker@vankleywalker.com
Attorney for Appellants UNU, Robert & Diane McConnell, and Julia Johnson

Chad A. Endsley (Counsel of Record)
General Counsel
Ohio Farm Bureau Federation
P.O. Box 182383
Columbus, OH 43218-2383
Telephone: (614) 246-8256
Facsimile: (614) 246-8656
cendsley@ofbf.org
Attorney for Intervening Appellee Ohio Farm Bureau Federation

Werner L. Margard (Counsel of Record)
Devin D. Parram
Assistant Attorneys General
Office of the Attorney General
General Public Utilities Section
180 East Broad Street, 9th Floor
Columbus, OH 43215
Telephone: (614) 466-4397
Facsimile: (614) 644-8764
Werner.margard@puc.state.oh.us
devin.parram@puc.state.oh.us
Attorneys for Appellee Ohio Power Siting Board

Sarah Bloom Anderson
Summer J. Koladin-Plantz
Assistant Attorneys General
Environmental Enforcement Section
30 East Broad Street, 25th Floor
Columbus, OH 43215-3400
Telephone: (614) 466-2766
Facsimile: (614) 644-1926Ohio
sarah.anderson@ohioattorneygeneral.gov
summer.plantz@ohioattorneygeneral.gov
Attorneys for Appellee Ohio Power Siting Board

Kevin S. Talebi, Prosecuting Attorney
(0069198) (Counsel of Record)
Jane A. Napier, Ass't Pros. Att'y (0061426)
Champaign County
205 South Main Street
Urbana, OH 43078
Telephone: (937) 484-1900
Facsimile: (937) 484-1901
jnapier@champaignprosecutor.com
Attorneys for Appellants Champaign County and Goshen, Union, and Urbana Townships

M. Howard Petricoff (0008287)
(Counsel of Record)
Michael J. Settineri (0073369)
Miranda R. Leppla (0086351)
Vorys, Sater, Seymour and Pease LLP
52 East Gay Street
P.O. Box 1008
Columbus, Ohio 43216-1008
Telephone: (614) 464-5414
Facsimile: (614) 719-4904
mhpetricoff@vorys.com
mjsettineri@vorys.com
mrleppla@vorys.com
Attorneys for Intervenor-Appellee Champaign Wind LLC

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES

Federal:

Ohio:

ADMINISTRATIVE MATERIALS

SECONDARY AUTHORITIES

MISCELLANEOUS

STATEMENT OF FACTS

Poorly regulated wind energy projects make bad neighbors. Without responsible regulatory oversight, utility-scale wind turbines emit loud, annoying noises into neighboring homes and yards, spoil previously enjoyable views, cast flickering shadows into windows, impair adjoining property values, kill birds and bats, create fire hazards, and launch broken blades across fields and roads. The Certificate of Environmental Compatibility and Public Need issued by the Ohio Power Siting Board ("OPSB") for the Buckeye Wind II wind project ("BW II or "Project") will create a poorly regulated wind facility.

A. The Project: The Project consists of 52[1] wind turbines to be constructed largely within the same footprint as 52[2] turbines previously approved by OPSB for Buckeye Wind, LLC. ("BW I"). (Co. Ex. 1, Applic., ICN 7, Ex. Q, Fig. 20 (Supp. 20); Certif., ICN 187)[3] Champaign Wind, LLC, a subsidiary of EverPower Wind Holdings, Inc. ("EverPower"), was formed solely to acquire the Certificate and plans to transfer the Certificate to Buckeye Wind, LLC, another EverPower subsidiary, to combine BW I and BW II into a single wind farm. (Shears, Tr. 889:21-22 (Supp. 150); Speerschneider, Tr. 181:7-10 (Supp. 25)) This strategy skirts a promise made by OPSB Executive Director Kim Wissman to Appellant Julie Johnson and others in 2008 that the OPSB would avoid turbine congestion by approving only one wind project in eastern Champaign County. (Johnson Dir., UNU Ex. 17 at 12:13-21 (Supp. 356)) Now the Board has sited a second wind project within essentially the same footprint as BW I.

---

[1] The Project as proposed consisted of up to 56 turbines. (Applic., ICN 5 at 2) The board disapproved four of the turbine sites. (Certif. at 88, ¶ 43, 98, ¶68)

[2] (Shears, Tr. 917:19 (Supp. 151))

[3] This brief uses the following abbreviations for citations: Answer to question in written testimony (A); Application (Applic.); Certificate (Certif.); Company (Co.); Direct Testimony (Dir.); Exhibit (Ex.); Figure (Fig.); Transcript (Tr.). A name preceding a transcript citation identifies the testifying witness.

The application identifies seven turbine models that "represent the range of turbine types anticipated to be used" at BW II. (Applic. at 44, 48 (Supp. 8B-9) While Champaign Wind has not committed to selecting any of these models, the ultimately selected model "will be essentially equivalent" to them "in terms of its dimensions, appearance, and electrical output." (*Id.* at 44 (Supp. 8B)) This brief will refer to the seven models as the "preferred list."

Because these turbines are vastly taller than any existing structures in Champaign County (Johnson Direct, UNU Ex. 17 at 5:8-9 (Supp. 353)), they will dominate the landscape east of Urbana in the rural residential communities in eastern Champaign County. The turbines will be visible over 260 square miles. (Applic., ICN 7, Ex. Q at 73, Table 4 (Supp. 21)) Between 82 to 108[4] turbines will be visible at any given point over nearly half (47%) of the project area. (*Id.*) Residents throughout the entire project area will be confronted with views of spinning, blinking turbines in what is currently an open, scenic region. (*Id.*; Johnson Dir., UNU Ex. 17 at 5:8-11 (Supp. 353)) Appellant Johnson will be able to see all 52 of the BW II turbines from her property, in addition to about 50 turbines in the BW I project. (*Id.* at 355)

Champaign Wind states that about 453 residences and unknown structures (that might be residences) will be located within a half mile of a BW II turbine, while 1,234 will be located within a mile of a turbine. (Speerschneider, Tr. 349:22-350:9 (Supp. 41)).

B. The UNU Intervenors: Appellant Union Neighbors United is a nonprofit corporation formed to promote the safety and well-being of the Champaign County community by addressing issues relating to the siting of industrial wind turbines. (Johnson Dir., UNU Ex. 17 at 2:2-4 (Supp. 352)) UNU's members own properties within 1,000 to 4,400 feet of proposed turbine sites. (UNU Ex. 22S (Supp. 461)) UNU and three of its members, Robert and Diane

[4] The estimate of up to 108 turbines is set forth in the application; the board subsequently reduced the maximum number by four. (Certif. at 88, ¶ 43, and 68, ¶98).

McConnell and Julia Johnson, intervened into the OPSB proceeding. These three individuals reside and own real property within the Project's boundaries. (UNU Ex. 17 at 1, 10; UNU Ex. 22S)(Supp. 351, 354, 461)) Hereinafter, UNU, Ms. Johnson, and the McConnells will be referred to collectively as "UNU."

C. Proceedings Below

1. Case Initiation and Intervention: On January 6, 2012, Champaign Wind notified the board of its intent to apply for a certificate. (Notice, ICN 1) UNU filed a petition for leave to intervene on March 5, 2012 (ICN 2), which was granted on August 2, 2012. (Entry, ICN 22)

2. Discovery

(a) Discovery of Documents Relating to the Application and its Drafts: UNU served Champaign Wind with document requests for the drafts of the application, and the records relating to the substantive contents of the draft and final applications. (Req. for Prod. of Doc's, ICN 36 (Request 44)). Setting a pattern for the rest of the OPSB proceeding, one of the two Administrative Law Judges ("ALJs") assigned to the case denied UNU's motion to compel the production of those documents, ruling that the request was "not relevant to the current application." (Entry, ICN 152 at 2) The board affirmed the ALJ's Ruling. (Certif. at 12); Entry on Rehearing at 11)

(b) Subpoenas of Records about Turbine Noise and Blade Throw Hazards: UNU served subpoenas *duces tecum* on two turbine manufacturers whose turbine models are on the preferred list, General Electric and Gamesa, seeking records about blade failure, including the distances that blades can travel if thrown from a turbine. (Gamesa Motion to Quash Subpoena, ICN 66 (subpoena attached); Return of Service of General Electric Subpoena, ICN 77) UNU also served a subpoena on EDP Renewables North America ("EDP") seeking documents about noise and a

turbine blade failure accident that had occurred at EDP's Timber Road II Wind Farm. (Return of Service, ICN 78) Following motions to quash from Champaign Wind and some of the subpoenaed companies, the ALJ quashed all of the subpoenas on relevance grounds except as specifically related to turbine models on the preferred list. (Order, ICN 86 at 10-11, ¶ 22) The board affirmed. (Certif. at 8-9; Entry on Rehearing at 13-15)

3. Evidence and Hearing: The board conducted an evidentiary hearing from November 8 to December 6, 2012.

(a) Cross-Examination of Staff Witness Conway about Application Draft: UNU sought to cross-examine Staff witness Andrew Conway regarding an early draft of the Staff Report to show that Mr. Conway accepted the Applicant's claims about turbine safety without questioning them, even though one turbine model on the preferred list at the time had thrown blades from the Timber Road II Wind Farm earlier that year. (Tr. 2554:10-2556:11 (Supp. 252-3)) The draft contained inconsistent prior statements of the witness regarding the reliability and safety of that turbine. (*Id.* at 2585:6-23 (Supp. 268A)) The ALJ barred cross-examination regarding the prior draft, and admission of the draft itself, as irrelevant. (*Id.* at 2556:12-17, 2585:24-2586:1 (Supp. 253, 268-268B)) Again, the board affirmed the ruling. (Certif. at 12; Entry on Rehearing at 12)

(b) Cross-Examination of Staff Witness Conway about Timber Road II Blade Throw Incident: UNU tried to cross-examine Mr. Conway about his investigation of the Timber Road II incident to determine how far the shattered blades had traveled and whether they had struck neighbors' yards or homes, in order to determine the size of the setbacks necessary to protect the neighbors of BW II. The ALJ blocked cross-examination as irrelevant, and the board affirmed. (Tr. 2568:22-2575:16 (Supp. 261, 268); Certif. at 9; Entry on Rehearing at 18)

(c) Exclusion of Palmer Testimony: The ALJs struck the direct expert testimony of William Palmer about the frequency and distances of blade throws that was based on a database the ALJs deemed hearsay, while admitting similar testimony by Champaign Wind and the Staff. (Tr. 1360-1362; 1480:21-1481:6 (Supp. 200-201A, 210-211); Palmer Dir., UNU Ex. 22 at 14:24-25, 20:11-12, 20:23-25, 20:27, 20:37-38, 22:2-4 (Supp. 405, 411 413)) The ALJs even struck some of the blade throw data that Mr. Palmer himself had compiled. (Palmer, Tr. 1479:11-15) The board affirmed the ruling, relying on erroneous information outside of the record to conclude that the database was unreliable. (Certif. at 10; Entry on Rehearing at 19)

4. Motion to Reopen Hearing: Prior to OPSB's decision, UNU filed a motion on January 17, 2013 requesting the Board to reopen the evidentiary hearing record to admit into evidence the report of a new turbine noise study (the "Shirley Wind Study") that had been conducted after the conclusion of the hearing. (Motion to Reopen , ICN 176) The Wisconsin Public Service Commission commissioned the study to evaluate adverse health claims by residents within the Shirley Wind project. The study's participants -- including Champaign Wind's noise expert, David Hessler -- concluded that the health complaints were well-founded and that there is now enough evidence to classify low-frequency noise from wind turbines as "a serious issue, possibly affecting the future of the wind industry." (UNU Reply re Reopening Record, ICN 178, Ex. B, at 6-7) Mr. Hessler also concluded that a 39.5 dBA night time noise limit is necessary to protect a wind farm's neighbors, reversing his position in BW II on which OPSB relied to find that a 44 dBA limit is sufficiently protective. (*Id.*, Ex. B of Ex. B at 8)[5] The board denied the motion to reopen the record to accept this evidence. (Certif. at 15; Entry on Rehearing at 19)

[5] "dBA" stands for A-weighted decibels, which quantify the loudness of sounds as perceived by the human ear by removing the frequencies that cannot be heard. (Applic. at 41)

5. Certificate Issuance, Petitions for Rehearing, and Appeal: The OPSB issued its opinion and order granting the Certificate on May 28, 2013. (Certif., ICN 187)

UNU filed a petition for rehearing with OPSB on June 27, 2013. (ICN 188) Following OPSB's denial of the petition (ICN 199), UNU brought this appeal on November 27, 2013. (Notice of Appeal, ICN 201)

D. Facts About Blade Safety

In April 2012, after Champaign Wind filed its application, two blades broke off of a wind turbine in the Timber Road II wind project in Paulding County, scattering large chunks of turbine debris in many directions. (UNU Ex. 22A-7, A-9 (Supp. 434, 436)) OPSB had issued a certificate for this wind project, concluding that its safety equipment would prevent blade throw. (UNU Ex. 22J-2 (Supp. 456)) EDP's report revealed that the accident resulted from a manufacturing defect and operator error. (UNU Ex. 22A-2, A-3, A-42 (Supp. 429-430, 441)) Lightning had damaged a third blade. (UNU Ex. 22A-3, A-8 (Supp. 435))

This incident led UNU to retain safety expert William Palmer for advice and testimony on turbine safety in the BW II proceeding. Mr. Palmer is an engineer with 30 years of experience in safety and risk assessment for the power industry. (Palmer Dir., UNU Ex. 22 at 2-5 (Supp. 393-396)) Mr. Palmer advised that UNU blade pieces of an injurious size will travel 500 meters (1640 feet). (Palmer, Tr. 1472:15-20 (Supp. 208); Conway, Tr. 2526:16-19 (Supp. 247)) Despite this information, OPSB has authorized BW II turbines as close as 561, 600, and 934 feet to neighboring properties, public roads, and homes, respectively. (Applic. at 82 (Supp. 11A); UNU Ex. 22R (Supp. 458-460))

Each blade on modern wind turbines ranges from 150 to 167 feet long and weighs about 20,000 pounds. (Palmer Dir., UNU Ex. 22 at 6:26-28 (Supp. 397)) The blade tips are as high as

492 feet above the ground. (*Id.* at 6:30 (Supp. 397)) The blade tips rotate at about 212 miles an hour, and have considerable energy if a part breaks off. (*Id.* at 6:29-31 (Supp. 397)) Champaign Wind's safety expert, Robert Poore, testified that the blades rotate even faster in "overspeed," when the turbine loses control over the rotational rate. (Tr. 589:7-17 (Supp. 71))

Wind turbines are susceptible to fires that can hurl burning debris into the countryside and burn large acreages. (Palmer Dir., UNU Ex. 22 at 15:24-16:22 (Supp. 406-407); Shears, Tr. 922:13-925:10 (Supp. 152-155)) Turbines are too high for fire-fighting crews to fight the fires. (Palmer, Tr. 1427:4-17 (Supp. 202))

The outer 10% of a non-rotating turbine blade falling to the ground hits with the impact of a Ford Crown Victoria falling over two and a half times the height of Niagara Falls. (Palmer Dir., UNU Ex. 22 at 15:4-5 (Supp. 406)) A rotating blade propelled to the ground hits with more force. (*Id.* at 15:5-7 (Supp. 406)) The kinetic energy of a rotating blade can propel broken blade pieces for long distances. (*Id.* at 6:28-30, 17:1-11 (Supp. 408))

While turbine blades are composed of fiberglass rather than metal, they are lethal at high speeds. A flying three-kilogram sized piece of blade (6.6 pounds) has the same impact as dropping a 40 pound concrete block from an 8-story window on a person below. (*Id.* at 15:10-13 (Supp. 406)) A one kilogram (2.2 pounds) sized blade piece can easily smash a vehicle's windshield and injure the occupants. (*Id.* at 17:22-30 (Supp. 408)) A person struck by a blade or blade piece is likely to die or become seriously injured, even in a house or an automobile. (Palmer Dir., UNU Ex. 22 at 15:2-22 (Supp. 406))

E. Facts About Wind Turbine Noise:

The noise report attached to BW II's application, prepared by David Hessler of Hessler Associates, utilizes computer modeling to quantify the combined noise levels that nearby citizens

will hear from the BW I and BW II turbines at their homes and land. (Applic. Ex. O at 38) To review this report, UNU retained Richard James, whose 42-year acoustical engineering career has included a balanced representation of government, citizens, and industrial companies such as General Motors, Ford, Toyota, Mazda, John Deere, Navistar, Anheuser-Busch, Mitsubishi, and Goodyear, and who invented the computer modeling concept that Mr. Hessler used in his report. (James Dir., UNU Ex. 19 at 2-5, 9, 27 (Supp. 359-362, 366, 384); James, Tr. 1122:12-1123:5, 1239:7-13 (Supp. 171-172, 192))

Wind turbines produce loud blade swishing sounds and low frequency rumbles and roars as the large blades move through the air. (James Dir., UNU Ex. 19 at 10-11 (Supp. 367-368)) They also make mechanical noises such as gear-box noises and whistles. (*Id.* at 10 (Supp. 368)) This produces an irritating, fluctuating sound that causes annoyance, stress, and sleep disturbance. (James, Tr. V 1131:20-1132:1, 1236:18-23 (Supp. 174-175, 191))

Mr. Hessler's noise report admits that the noise volume from wind turbines rises and falls in about one second intervals as the blades turn. (Applic. Ex. O at 39) The highly variable nature of wind turbine noise can lead to sleep disturbance. (Hessler, Tr. VI 849:6-9 (Supp. 137)) A significant percentage of the persons residing within 2,500 feet of a turbine awaken frequently, suffer sleep deprivation, and hear turbine noise as the dominant noise. (Punch Dir., UNU Ex. 23 at 1206:19-1207:23, 1254:8-19 (Supp. 185-186, 193))

Turbine sounds are also dominated by low frequency noise. (James Dir., UNU Ex. 19 at 28 (Supp. 385)) Mr. Hessler acknowledged that low frequency noise passes through a home's wall "much more" easily than high frequency noise. (Hessler, Tr. 866:8-11 (Supp. 149)) This is similar to the effect of music from a "boom car" that shakes nearby vehicles. (James Dir., UNU

Ex. 19 at 30 (Supp. 387)) Consequently, wind turbines can be heard as distinct sounds even during high winds and storms. (*Id.* at 31 (Supp. 388))

UNU's audiologist expert, Dr. Jerry Punch, testified that a significant portion of nearby residents find fluctuating turbine sounds to be highly disturbing, experiencing symptoms that include sleep disturbance, annoyance, headaches, ear pressure or pain, dizziness, nausea, anxiety, and a general feeling of distress or discomfort. (Punch Dir., UNU Ex. 23 at 10, A16 (Supp. 471))

Notably, while turbine noise inflicts a significant percentage of its recipients with annoyance and health disorders, not everyone is susceptible to these symptoms. (Punch Dir., UNU Ex. 23 at 11, A17 (Supp. 472)) By analogy, not everyone is susceptible to motion sickness when on a boat, but no one disputes that some people experience genuine discomfort and sickness. However, this explains why some neighbors of wind projects feel no ill effects, while others are uncomfortable or ill.

UNU's experts testified about some of their case studies that illustrate the consequences of exposure to loud wind turbine noise. Two families assisted by Mr. James and/or Dr. Punch in Michigan have abandoned their homes due to the ill effects of wind turbine noise. (Punch Dir., UNU Ex. 23 at 6, A9 (Supp. 467); James, Tr. 1111:9-1112:7 (Supp. 168-169)) One of these families has suffered from nausea, balance problems, and inner ear maladies. (*Id.*)

The husband in the other Michigan family had difficulty sleeping at night because of ringing and pulsatile tinnitus in both ears (blood passing through the ears) when the turbines are operating. (Punch Dir., UNU Ex. 23 at 20, A33 (Supp. 481)) Earplugs did not help him, and he had ear pain and a balance problem that made him feel like he was on a roller coaster when sitting still. (*Id.*) The wife felt pressure and pulsations in her upper chest cavity, tingling in one

arm and one ear, dizziness, and general balance problems. (*Id.*) At one point, she visited the emergency room because of heart palpitations and pressure around the heart, neck, and ears. (*Id.*) At night, she experienced frequent arousal from sleep, and earplugs and sleeping in the basement did not help. (*Id.*) The family's young son had sleeping problems, headaches, and vomiting. (*Id.*)

Milo Schaffner, a township trustee in Van Wert County, testified at the hearing that he is bothered by turbine noise that makes him feel "like when young people play loud music and like a bass drum is beating on my chest." (Schaffner, Tr. 1305:23-1306:13 (Supp. 194A-194B)) This noise originates from a turbine one mile away at the Blue Creek Wind Farm in Ohio, which has an OPSB certificate.

Another Wisconsin family experienced similar problems, abandoning its home to live in a recreational vehicle at a campground. (James, Tr. 1112:18-1113:9 (Supp. 169-170)) Mr. Hessler knew of three Wisconsin homes abandoned by owners unable to tolerate turbine noise. (Hessler, Tr. IV 850:23-851:10 (Supp. 138-139)) These incidents are not unusual, as Dr. Punch is familiar with reports on hundreds of families that have experienced health disorders from wind projects. (Punch Dir., UNU Ex. 23 at 19, A33 (Supp. 480)) Health complaints have arisen "[a]nywhere there's wind turbines." (Punch, Tr. XI 1783:17-18 (Supp. 228))

ARGUMENT

Standards Applicable To Judicial Review Of Board 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 Tp. v. Power Siting Comm., 49 Ohio St.2d 231 (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, ¶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.*

Rulings by administrative tribunals to admit or exclude evidence are reviewed for an abuse of discretion that materially prejudices a party. *State ex rel. Crescent Metal Products, Inc. v. Indus. Comm'n*, 61 Ohio St.2d 280, 282 (1980). An abuse of discretion implies that the trial court's attitude is unreasonable, arbitrary or unconscionable. *AAAA Enterprises, Inc. v. River Place Cmty. Urban Redevelopment Corp.*, 50 Ohio St. 3d 157, 161 (1990). A decision is unreasonable if there is no sound reasoning process that would support that decision. *Id.*

Hearsay is permitted in administrative hearings, but the discretion to consider hearsay evidence cannot be exercised in arbitrarily. *Bivins v. Ohio State Bd. of Emergency Med. Servs.*, 2005-Ohio-5999, 165 Ohio App.3d 390, 399 (6th Dist. 2005); *Fox v. Parma Cmty. Gen. Hosp.*, 2005-Ohio-1665, 160 Ohio App.3d 409, 420 (8th Dist. 2005); *Haley v. Ohio St. Dental Bd.*, 7 Ohio App.3d 1 (2nd Dist. 1982). A requirement to conduct a "hearing" implies a "fair hearing." *State ex rel. Ormet Corp. v. Indus. Comm'n of Ohio*, 54 Ohio St. 3d 102, 104 (1990).

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, because it has the capacity to generate in excess of 50 MW of electricity. Applic. 2; R.C. 4906.01(B).

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, *inter alia*:

(a) The nature of the probable environmental impact;

(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; and

(c) That the facility will serve the public interest, convenience and necessity.

R.C. 4906.10(A)(2), (3), (6).

PROPOSITION OF LAW ABOUT ECONOMIC ISSUES

Proposition of Law No. 1: The Board Acts Unreasonably And Unlawfully By Finding A Wind Power Facility Serves The Public Interest, Convenience And Necessity, Where The Only Basis For Its Finding Is An Unconstitutional Statute.

The board may not issue a certificate to a facility that does not meet the public interest, convenience and necessity.[6] R.C. 4906.10(A)(6). The board's determination that the Project meets the public need rests on its finding that the Project's power could be purchased by utilities to satisfy their mandate under R.C. 4928.64(B)(3) to procure in-state renewable energy. (Certif. at 35) Because this mandate violates the Commerce Clause of the U.S. Constitution, UNU filed a motion for rehearing asking OPSB to reconsider its finding of public need. OPSB responded that it "must continue to follow the statute until directed otherwise by the Court." (Entry on Rehearing, ICN 199 at 20-21)

[6] In the interest of brevity, the remainder of this Section will refer to these criteria as "public need."

The Entry on Rehearing represents that, notwithstanding the Commerce Clause question, the Project will serve a benefit by selling electricity to electric utilities. (*Id.* at 20-21) However, the board did not explicitly determine that this purpose serves the public need – and for good reason. The record contains no evidence that electric utilities need BW II's electricity, or that they would even want wind-generated electricity if the legal mandate did not force them to buy it. In fact, in January of 2013, the PUCO determined that a proposed renewable energy facility did not serve the public need because new solar generation was not needed to aid utilities in meeting their benchmarks under R.C. 4928.64(B). *In re Long-Term Forecast Report of Ohio Power Company*, No. 10-501-EL-FOR (Jan. 9, 2013) at 26 (Supp. 493). Indeed, if electric utilities needed wind power, surely OPSB would have pointed this out when writing the Certificate. That leaves the unlawful in-state mandate as the only basis for OPSB's finding of public need.

This mandate, Ohio's Alternative Energy Portfolio Standard (AEPS), requires electric utilities to provide a portion of their retail electricity supply to Ohio consumers from "alternative energy resources." R.C. 4928.64(B). Half of these resources must be generated from "renewable energy resources," such as wind energy. *Id.*; R.C. 4928.01(A)(37)(a)(ii). The AEPS electric utilities must meet annual quotas for supplying renewable energy, culminating in 12.5% of total kilowatt hours sold in 2024 and thereafter. Of critical importance here, R.C. 4928.64(B)(3) requires, "At least one-half of the renewable energy resources implemented by the utility or company shall be met through facilities located in this state; the rest shall be met with resources that can be shown to be deliverable into this state." (Emphasis supplied.)

This geographic preference for in-state renewable energy is a *per se* violation of the Commerce Clause. U.S. Constitution Article I, Section 8, cl. 3. Though the clause is stated as a

grant of regulatory power to Congress, the Supreme Court has construed the Commerce Clause to have a "negative" or "dormant" aspect that prohibits the states from unjustifiably burdening or discriminating against the flow of interstate commerce. *E.g., Emerson Electric Co. v. Tracy* (2000), 90 Ohio St.3d 157, 159. For purposes of the Dormant Commerce Clause, discrimination "simply means differential treatment of in-state and out-of-state interests that benefits the former and burdens the latter." *Oregon Waste Systems, Inc. v. Dep't of Env. Quality*, 511 U.S. 93, 99-100 (1994). "Barriers to the free flow of commerce based on point of origin or other geographic factors to benefit local interests are virtually *per se* invalid," unless the state can show a non-protectionist and compelling local interest that can be served in no other way. *Philadelphia v. New Jersey*, 437 U.S. 617, 624 (1978); *Emerson Electric Co.*, 90 Ohio St.3d at 159-160.

The U.S. Supreme Court has cited the Dormant Commerce Clause as grounds to invalidate numerous state laws that have discriminated between in-state and out-of-state sources of energy. For example, the Court struck down a New Hampshire law prohibiting an in-state utility from selling its hydroelectric energy outside the state. *New England Power Co. v. New Hampshire*, 455 U.S. 331, 339 (1982). The Court similarly struck down an Oklahoma law requiring all Oklahoma coal-fired electrical generating plants producing power for sale in Oklahoma to burn a mixture of coal containing at least 10% Oklahoma-mined coal. *Wyoming v. Oklahoma*, 502 U.S. 437, 440 (1992). And in *New Energy Co. of Indiana v. Limbach*, 486 U.S. 269 (1988), the Court invalidated an Ohio law that denied a tax credit for out-of-state ethanol fuel if its state of origin did not provide a reciprocal tax credit to ethanol manufactured in Ohio.

The Seventh Circuit Court of Appeals recently observed that a Michigan statute mandating the availability of renewable energy "trips over an insurmountable constitutional objection" insofar as that law discriminated in favor of in-state energy sources and against out-

of-state sources. *Illinois Commerce Comm'n v. FERC*, 721 F.3d 764, 776 (7th Cir. 2013). The court stated, "Michigan cannot, without violating the commerce clause of Article I of the Constitution, discriminate against out-of-state renewable energy." *Id.* Commentators agree. Stiles, *Renewable Resources and the Dormant Commerce Clause*, 4 Env'tl & Energy Law and Policy J. 34, 64 (2009) ("Any requirement that the energy used to meet the [Renewable Portfolio Standard] threshold must be generated within the state itself would almost certainly be found to violate the Dormant Commerce Clause"); Endrud, *State Renewable Portfolio Standards: Their Continued Validity and Relevance in Light of the Dormant Commerce Clause, the Supremacy Clause, and Possible Federal Legislation,* Harv. J. on Legis. 260, 270 (2008) (such a requirement "would almost certainly be struck down as serving no purpose other than economic protectionism").

Ohio's AEPS trips twice over this constitutional obstacle. First, it discriminates against out-of-state renewable energy sources by requiring utilities to meet half of their renewable energy quotas through in-state sources. R.C. 4928.64(B). Second, utilities that fail to meet the AEPS goals must submit compliance payments to the Advanced Energy Fund (AEF). R.C. 4928.61. Monies from the AEF are administered by the State to provide "financial, technical, and related assistance for advanced energy projects in this State or for economic development assistance." R.C. 4928.62(A). Ohio redistributes those AEF funds in a geographically discriminatory manner, by limiting funding to in-state sources only. *Id.* This sort of in-state subsidy was ruled unconstitutional in *West Lynn Creamery v. Healy*, 512 U.S. 186 (1994).

The board cited the AEPS's in-state benchmark requirement as its primary reasoning for finding that the Project meets the public interest, convenience, and necessity as required by R.C. 4906.10(A)(6). At the outset of its evaluation of the public need criterion, the board stated:

> The Board recognizes that Section 4928.64, Revised Code, requires Ohio's electric utilities to procure, at a minimum, 50 percent of the renewable energy requirement from resources located within the state of Ohio. Consequently, the Board is aware that an electric utility may fulfill a portion of its AEPS requirements by entering into an electric utility supply contract with the owner of a wind facility, such as the proposed facility in the application at issue. The Board believes that this potential benefit of the project adds support to a finding that the proposed project is in the public interest, convenience and necessity as required by Section 4906.10(A)(6) of the Revised Code.

(Certif. at 35) This in-state mandate of R.C. 4928.64(B) unlawfully discriminates against out-of-state renewable energy in violation of the Dormant Commerce Clause. Therefore, the board erred in basing its finding of public need on the Project's putative benefits in assisting utilities to meet the unlawful quotas under that statute. UNU requests the Court to vacate the Certificate for lack of showing that the Project meets the public need under R.C. 4906.10(A)(6).

PROPOSITIONS OF LAW ABOUT BLADE THROW

Proposition of Law No. 2: The Ohio Power Siting Board's Revocations Of Subpoenas For Evidence Pertinent To Safety Threats From A Wind Utility Abuse The Board's Discretion And Violate The Subpoenaing Party's Discovery Rights Under R.C. 4903.082.

After learning about the blade throw incident at Timber Road II, UNU served subpoenas on EDP and other wind companies to identify the causes of blade throws, their frequency, and their travel range. UNU sought this information to define the precautions necessary to keep homes, public roads, and property lines out of the blades' striking range. The ALJ quashed all of the subpoenas after some of the subpoenaed companies filed motions to quash. The ALJ ruled that most of the requested information was irrelevant, because it pertained to blade failures of turbine models not on the BW II preferred list.

The Timber Road II incident illustrates why this information is relevant and important. As explained later in this brief, Champaign Wind's application proposed to use the same

technology for preventing blade throw that was required by OPSB's certificate for Timber Road II. The events at Timber Road II demonstrated that these requirements are ineffective.

OPSB's certificate required Timber Road II's blades to be constructed and certified under international standards and to employ equipment to prevent detachment. (UNU Ex. 22H-5 (Supp. 453)). Both of these precautions failed. One blade broke due a manufacturing defect, and disintegrated after striking the tower while rotating. (UNU Ex. 22A-2, A-3, A-42 (Supp. 429-430, 441)) After a safety device shut off the turbine in response to the blade throw, the technician who was operating the wind project remotely in Portland, Oregon restarted the turbine without checking on the turbine. (UNU Ex. 22A-2 (Supp. 429)) The result was predictable -- the second blade was overloaded without the first blade and also broke, struck the tower, and shattered. (UNU Ex. 22A-2, A-3, A-4, A-42, A-47 (Supp. 429-431, 441, 446)) The force of the rapidly rotating blades against the tower launched broken blade parts into the countryside. EDP's report admitted that one landed on the property of a neighboring landowner. (UNU Ex. 22A-2 (Supp. 429)) When the turbine manufacturer, Vestas, inspected the other turbines at Timber Road II, it found another blade that had been damaged by a different cause, lightning. (UNU Ex. 22A-3, A-8) Consequently, another blade failure may have been in progress

While EDP's report provided some useful evidence, it omits some of the most important information. The report discloses the landing spots only for blade debris that was three kilograms (6.6 pounds) or heavier (UNU Ex. 22A-9), i.e., the flying pieces that had the same force as dropping a 40 pound concrete block from an 8-story window (Palmer Dir., UNU Ex. 22 at 15:10-13 (Supp. 406)). Since even a blade piece of one kilogram (2.2 pounds) in size can easily smash a vehicle's windshield and injure the occupants (*id.* at 17:22-30 (Supp. 408)), UNU realized the importance of finding out how far the smaller blade pieces had traveled from Timber

Road II, learning whether EDP had truthfully reported the distances of all the larger pieces, and obtaining other evidence related to blade defects and blade throws.

Consequently, UNU filed a motion in September 2012 asking OPSB to issue a subpoena to EDP for its records about the incident. UNU also asked OPSB to issue subpoenas to some other companies seeking records to assess the threat from blade throw, to identify certificate conditions necessary to decrease the likelihood of blade throw, and to identify the setbacks necessary to avoid collisions between flying blades and people, automobiles, and buildings. (Motions for Subpoenas to EDP, Gamesa Wind, and General Electric, ICN 48, 49, 51)

UNU served EDP with a subpoena duly issued by an OPSB ALJ for the following:

> 1. All documents relating to any turbine blade failure or damage at any wind turbine project operated by or on behalf of EDP.
>
> 2. All documents relating to the turbine blade failure occurring on or around April 24, 2012 on the Timber Road II Wind Farm.
>
> 3. All telephone memoranda, correspondence, and other documents relating to the telephone discussion between Gabriel Alonso and Kim Wissman on May 1, 2012 about turbine blade failure at the Timber Road II Wind Farm.
>
> 4. All memoranda, correspondence, and other documents relating to any other communication between EDP and the Ohio Power Siting Board about turbine blade failure.
>
> 5. All studies, reports, and other documents relating to the distance that turbine blades can fly when released from wind turbines.

(Return of Service, ICN 78) UNU also served subpoenas on General Electric and Gamesa, which manufacture three of the seven wind turbine models on Champaign Wind's preferred list for BW II (Applic. at 44 (Supp. 8B)), requesting, *inter alia*:

> 1. All documents relating to any blade failure or blade damage that has occurred at any wind turbine.

2. All studies, reports, and other documents relating to the distance that turbine blades can fly when released from wind turbines.

(Gamesa Motion to Quash, ICN 66 (subpoena attached); Return of Service of General Electric Subpoena, ICN 77)

Three days later, Champaign Wind notified OPSB that it was no longer considering the Vestas V100 turbine model, which had launched the blades at Timber Road II, as one of the models under consideration for BW II. (Notice of Correspondence, ICN 53) Then Champaign Wind moved to quash all subpoenas, arguing, *inter alia*, that evidence about turbine safety at other projects was irrelevant. (Motion to Quash at 5-6, ICN 57) EDP, represented by the same law firm as Champaign Wind, filed a motion to quash arguing, *inter alia*, that safety evidence from Timber Road II was irrelevant, because the Vestas V100 model was no longer under consideration. (Motion to Quash at 6, ICN 56) Gamesa also filed a motion to quash. (ICN 66)

UNU's response to the motions to quash noted that it had discovered a worldwide database of blade failures, fires, and other wind turbine accidents compiled by a Scottish organization known as the Caithness Windfarm Information Forum, including the distances traveled by broken blades. (Memo. at 3-5, ICN 76) UNU observed that this database and the events at Timber Road II had demonstrated that blade throws and fires threaten a community without adequate setbacks, and that the subpoenaed evidence would help UNU to prove that flying blades are common, identify the causes of blade failure, and quantify their travel range.

UNU also explained that it had found an expose on the wind industry's blade failures in WindPower Monthly, a publication for the wind industry. (*Id.* at 6-8; Ex. E) The publication noted that this problem is especially acute in the United States, where the rush to build wind projects before federal tax credits expire has driven turbine manufacturers "to move new blades through design-testing and commercial manufacturing too quickly." (*Id.* at 6-7 & Ex. E-2)

UNU informed the ALJs that the wind industry is concealing these safety problems. WindPower Monthly reported that turbine manufacturers are "reticent to share much detail on the exact defects seen in various blade failures." (*Id.* at 7 & Ex. E-2) Consequently, subpoenas were indispensable for uncovering this information. Records provided by UNU with its memorandum implicated every manufacturer on Champaign Wind's list of preferred turbine models, and most, if not all, of the world's turbine manufacturers. (*Id.* at 5-6) Consequently, UNU's subpoenas to those same manufacturers would uncover evidence about the problem.

Nevertheless, an ALJ quashed most of the subpoenas' records requests, ruling that records about blade failures and throws at other wind projects such as Timber Road II are irrelevant. (Entry of Oct. 22, 2012 at 10-11, ¶¶ 22-23, ICN 86) The ALJ stated that the failure of the Vestas V100 blades at Timber Road II was not relevant, because Champaign Wind had withdrawn the Vestas V100 from the preferred list. (*Id.* at ¶ 23) The ALJ also opined that the "significant collection of documents relating to turbine blade failure" within UNU's memorandum indicated that quashing the subpoena would not impose a hardship on UNU, because the subpoenaed information is readily available through other means. (*Id.* at ¶ 22) The ALJ even quashed the subpoena that General Electric did not contest. (*Id.*) The Board later affirmed this order. (Certif. at 8-9)

The ALJ's entry allowed the subpoenas for blade safety information only to the extent that it sought information about three turbine models still on Champaign Wind's preferred list. (Entry of Oct. 22, 2012 at 11, ¶ 23, ICN 86) However, the relatively new models on this preferred list have a limited operational history and thus their records would not provide a representative picture of the problems experienced by commercial class turbines. (Speerschneider, Tr. 311:13-23 (Supp. 33A))

Contrary to the ALJ's entry, the threat to the public from blade throw is not unique to the Vestas V100 or any other turbine model. The relevant characteristics of the Vestas V100 are similar to those of the other turbine models listed in Champaign Wind's application. (Palmer Dir., UNU Ex. 22 at 23:4-6 (Supp. 414)) They have a similar narrow blade profile, use gearboxes, and have similar hub heights and rotational speeds. (*Id.* at 23:4-6 (Supp. 414)) All will be operating in similar conditions of wind shear, and will be exposed to similar operating conditions of lightning and icing. (*Id.* at 23:6-7 (Supp. 414))

Champaign Wind's witnesses agreed with Mr. Palmer on this point, and in fact, they based their testimony on information about turbine models other than those on Champaign Wind's preferred list. Robert Poore similarly testified that the Vestas V100 and all of the turbine models listed on Champaign Wind's preferred list have characteristics relevant to blade throw, blade throw distances, and setbacks that are similar to the other turbine models that have been used by wind developers. (Poore, Tr. 624:12-635:1 (Supp. 74)) EverPower executive Michael Speerschneider testified that blade throw information from "all the turbines that have been installed worldwide" is relevant. (Speerschneider, Tr. 300:17-21 (Supp. 29)) "There's a lot of similarity in turbines in the industry with different manufacturers." (*Id.* at 303:10-12 (Supp. 31)) For that reason, Mr. Speerschneider relied on a number of blade throw studies for this testimony, even though the studies did not evaluate any of the six turbine models that Champaign Wind is considering. (*Id.* at 316:3-20 (Supp. 34)) Otherwise, he noted, there would be inadequate information to make informed judgments if only the data from one manufacturer were considered. (*Id.*) Staff member Andrew Conway also relied on blade safety data for other models for his conclusions on blade throw from large databases of turbines in other countries. (Conway, Tr. 2493:13-2494:2; 2523:1-2524:9 (Supp. 236-237, 244-245))

The ALJs also agreed with this point during the hearing, at least when Champaign Wind sought to introduce testimony about the safety record of other turbine models. Because the order to quash subpoenas had ruled that safety information about other turbine models is irrelevant, UNU asserted the same objection to Mr. Poore's and Mr. Shear's testimony about the blade safety of other turbine models. OPSB admitted this testimony anyway. (Tr. 644:20-645:6; 646:20-647:2; Tr. 943:8-15, 944:14-16 (Supp. 87-90, 158-159)) OPSB then based its conclusions on the frequency of blade throw on testimony from Mr. Conway and Champaign Wind about the blade safety record of other turbine models. (Certif. at 42)

R.C. 4903.082, which applies to OPSB proceedings under R.C. 4906.12, provides that the parties to board proceedings are entitled to full discovery:

> All parties and intervenors shall be granted ample rights of discovery. The present rules of the public utilities commission should be reviewed regularly by the commission to aid full and reasonable discovery by all parties.

The Board violated this law by thwarting UNU's attempt to discover evidence vital to this case.

Moreover, the Court has observed that, under the "principles of administrative law," an administrative subpoena will be enforced if it is authorized by law and relevant to the matter at issue. *Harris v. Stutzman*, 42 Ohio St. 3d 13, 15 (1989). Ohio Admin.Code 4906-07-08 authorized OPSB to issue the subpoenas. And since OPSB's rulings acknowledge that evidence about the wind industry's safety record is relevant, its decision to prevent UNU from obtaining this evidence was an abuse of discretion. Accordingly, the Court should vacate OPSB's certificate and remand with instructions to issue the requested subpoenas and reopen the hearing to admit any evidence or testimony arising out of the subpoenaed evidence.

Proposition of Law No. 3: The Ohio Power Siting Board Abuses Its Discretion When It Denies A Party The Opportunity To Cross-Examine A Witness About Facts That The Board's Order And Witnesses For Both Sides Reveal To Be Relevant.

Although the Board ruled that Champaign Wind's testimony about the safety records of turbine models other than those on Champaign Wind's preferred list was relevant, it still prevented UNU from eliciting the same type of evidence at the hearing.

During the hearing, OPSB staff member Andrew Conway revealed that he went to Timber Road II to investigate on the day after the accident. (Conway, Tr. 2568:16-21 (Supp. 261)) Since Mr. Conway had recommended the setbacks for the Certificate, UNU sought to cross-examine Mr. Conway about the information he learned about the travel distances and destinations for blade debris from this incident.

Counsel for Champaign Wind and the Staff objected to these questions, and the ALJ sustained these objections. UNU was not allowed to ask Mr. Conway whether he had looked for blade debris outside the wind farm, interviewed neighbors or wind operators, determined how far the blade debris traveled, or determined whether blade pieces had fallen in yards or hit houses. (Tr. X 2568:22-2575:16 (Supp. 261-268)) So OPSB prevented UNU from testing the validity of Mr. Conway's setback recommendations with evidence from Timber Road II.

UNU asked the Board to overrule the ALJs' exclusion of this testimony and to reopen the hearing to hear this evidence. The Board responded:

> The distance in which turbine blades traveled at a different wind farm with a turbine model that is not under consideration in this proceeding is not a fact of consequence in determining whether the proposed setbacks considered within the application at hand are reasonable; thus, it is irrelevant.

(Certif. at 9) OPSB's statement that blade throws at other wind farms with different turbine models is contrary to the testimony of every witness who testified on blade safety at the hearing, as described on page 21 above. OPSB's rulings on this issue were abuses of discretion. The hearing record should be reopened to allow and consider this testimony.

Proposition of Law No. 4: Although Hearsay Evidence Is Permitted In Administrative Hearings, The Discretion To Admit And Consider Hearsay About Blade Throw Threats May Not Be Exercised In An Arbitrary Or Discriminatory Manner.

At the hearing, the ALJs allowed Champaign Wind's and the Staff's witnesses to freely testify about what they had heard about the frequency of blade throw in the wind industry. Nevertheless, OPSB prevented William Palmer from testifying about or drawing conclusions from the Caithness database, an extensive, reliable compilation of turbine accidents showing the prevalence of blade failure in the industry and blade travel distances. Characterizing the testimony and the database as hearsay, OPSB employed an arbitrary double standard allowing the applicant and the Staff to utilize hearsay, but not UNU.

OPSB allowed Robert Poore to rely on hearsay in his direct testimony that "it is unusual for even those of us embedded in the industry to hear about blade throw. I would characterize blade throw as an unusual occurrence." (Co. Ex. 9 at 5, A11 (Supp. 325)) Mr. Poore based his opinion on "[w]ord of mouth or the press or other things." (Poore, Tr. 578:17-21 (Supp. 60)) Mr. Poore had no statistics for his opinion, nor did he identify any source of information. OPSB's decision contends that UNU elicited Mr. Poore's testimony about the industry's blade safety record. (Certif. at 10) However, UNU had to cross-examine Mr. Poore about his direct testimony that blade throws are rare in the industry. (Tr. 578:6-13 (Supp. 60)) After identifying the hearsay basis for his testimony, UNU objected to Mr. Poore's testimony. (Tr. III 645:7-16 (Supp. 88) But OPSB allowed it, saying that Mr. Poore's impressions about the frequency of blade throw were based on his experience. (Tr. 646:20-647:2 (Supp. 89-90); Certif. at 10-11)

Even though OPSB did not allow Mr. Palmer to rely on the Caithness database, OPSB allowed Staff witness Andrew Conway to rely on two databases on turbines in two other countries for his conclusions on the frequency of blade throw. (Conway, Tr. 2493:13-2494:2;

2523:1-2524:9 (Supp. 236-237, 244-245)) Accordingly, OPSB admitted Poore's and Conway's testimony on the frequency of blade throw even though it was hearsay.

Yet OPSB excluded Mr. Palmer's testimony on hearsay grounds. Important aspects of Mr. Palmer's written direct testimony were based on the wind industry's blade safety record as revealed in the Caithness database of wind turbine accidents. (UNU Ex. 22G) Based on this information, Mr. Palmer noted that flying blades and blade pieces have crashed through roofs of homes, thrown fire balls on an adjoining property, knocked out electric power by taking out an electric transmission line, and landed on vehicles, roads, a garden, a hiking path, a factory, a school parking lot, swimming pool, and a school playing field. (Palmer Dir., UNU Ex. 22G; UNU Ex. 22 at 14:15-25, 18:3-19:4, 20:6-22:16 (Supp. 405, 409-413)) His written testimony recounted that blade pieces have smashed through a farmhouse roof while a family slept inside, landed in a yard where the landowner had been standing shortly before the incident, and narrowly missed a 17-year old youth. (*Id.* at 21:11-15, 20-25, 44-46 (Supp. 412)) This written testimony also identified the long distances that heavy blade pieces have been known to fly upon detachment, including a one-ton piece that was hurled 400-500 meters (1312-1640 feet). (*Id.* at 14:17-25, 20:6-22:16 (Supp. 405, 411)) He observed that the blade failures in the database are instructive as to safety considerations for the BW II turbine models, because their applicable characteristics are similar. (*Id.* at 22:25-31 (Supp. 413))

Despite the probative value of the Caithness database, the ALJs denied the admission of the database into evidence and struck Mr. Palmer's testimony that was based on about the database's information. (Palmer, Tr. 1360-1362 (Supp. 200-201A)) The ALJs struck all of the above testimony on the basis of hearsay, as well as UNU Exhibits 22G, 22L, and 22M, which consisted of a copy of the Caithness database and Mr. Palmer's compilations of blade safety

statistics based in part on the database. (Tr. 1360-1362, 1480:21-1481:6 (Supp. 200-201A, 210-211); Certif. at 10; Palmer Dir., UNU Ex. 22 at 14:24-25, 20:11-12, 20:23-25, 20:27, 20:37-38, 22:2-4 (Supp. 405, 411, 413) The ALJs even struck some of the blade throw data that Mr. Palmer himself had compiled. (Palmer, Tr. 1479:11-15 (Supp. 209))

The Board's decision compared the Caithness database to online forums such as Wikipedia, where anyone can add and edit the publication. (Certif. at 10) As sole support for this conclusion, OPSB cites oral argument from Champaign Wind's attorney. But its counsel did not make this representation, nor is there any record evidence for this conclusion. Similarly, while its counsel did argue that the web site for the database has a disclaimer of accuracy (Tr. 1350:21-22 (Supp. 199A)), the record contains no evidence for that contention either.[7] OPSB erred by basing its ruling of reliability on information outside the record.

The only record evidence of the database's reliability is Mr. Palmer's testimony, which fully supports its reliability. Mr. Palmer's direct testimony explained that it "is carefully prepared based on available information from publicly available sources, and information in the database has been independently verified." (Palmer Dir., UNU Ex. 22 at 12:18-20 (Supp. 403)) His testimony stated that the database is "[o]ne of the best sources" of turbine accident data. (*Id.* at 9:27-29 (Supp. 400)) He further noted that he is a member of the Caithness organization that compiles this data, he contributes information for the database, he personally assists in that compilation, and he checks the database quarterly for accuracy. (*Id.* at 9:27-10:7, 11:25-31 (Supp. 400, 402)) He noted that the database does "an exemplary job" of listing the information

[7] While not in the record, the Caithness web site actually discloses that the web site's authors, not the general public, compile and edit the database and that "[t]he authors have made every effort to ensure that these pages are accurate." *See* http://www.caithnesswindfarms.co.uk/Disclaimer.pdf. As with any well-managed web site, the web site authors disclaim any liability for errors to avoid lawsuits.

sources for the reported incidents and that he has never found a listed incident that had not been publicly reported. (*Id.* at 11:29-31 (Supp. 402)) Nevertheless, the ALJs even struck his testimony about the database's accuracy. *Id.* at 12:18-20; Tr. 1360 (Supp. 403).

The Caithness database was the primary source of the information attached to UNU's memorandum opposing the motions to quash the subpoenas -- the same evidence identified by the ALJ's order to quash as demonstrating that UNU did not need to obtain more evidence by subpoena. (Entry of Oct. 22, 2012, ICN 86 at 11, ¶ 22) So, after preventing UNU from using subpoenas to obtain non-hearsay blade safety evidence directly from the wind companies, OPSB excluded the only publicly available evidence that comprehensively catalogues blade throw incidents. Now OPSB contends that UNU did not introduce enough evidence to prove that blade throw is serious enough to warrant larger setbacks. (Certif. at 41)

Thus, while OPSB ignored the hearsay rule to admit Poore's and Conway's testimonies, its ALJs applied a stringent standard with respect to UNU's witness. The prejudicial result of these rulings is that OPSB has set inadequate setbacks based on witnesses' non-credible hearsay statements about the infrequency of blade throws, while excluding and disregarding UNU's voluminous evidence from the Caithness database that numerous blade throws have occurred.

Hearsay is permitted in administrative hearings, but the discretion to consider hearsay evidence cannot be exercised in an arbitrary manner. *See* the Standard of Review, page 11, *supra*. Here it was inconsistent for OPSB to admit and rely on Mr. Poore's opinion based on "[w]ord of mouth or the press or other things" and on Mr. Conway's testimony about two turbine databases, while excluding Mr. Palmer's testimony about a more reliable turbine database. This arbitrary double standard is an abuse of discretion. Since Mr. Palmer's uncontested testimony establishes the reliability of the Caithness database, UNU requests that the Court remand OPSB's

decision with instructions to admit Mr. Palmer's testimony and to consider that testimony in revising its safety setbacks.

Proposition of Law No. 5: A Wind Utility Certificate That Allows Wind Turbines To Be Sited So Close To Neighboring Homes, Land, And Public Roads That Citizens, Their Property, And Passing Motorists Are At Risk Of Death, Physical Injury, Or Property Damage From Propelled Blades And Fires Is Unreasonable And Does Not Represent The Minimum Adverse Environmental Impact As Required By R.C. 4906.10(A)(3).

A. Today's Technology Has Been Proven Insufficient To Prevent The Manufacturing Defects, Lighting Strikes, Poor Maintenance, Wind Shear, And Operator Error That Detach And Hurl Blades From Turbine Towers.

As explained below, UNU has proven that turbine parts can be propelled for 500 meters (1640 feet). Nevertheless, OPSB is allowing Champaign Wind to place its turbines as close as 561feet and 934 feet from neighbors' land and homes, respectively. (Applic. at 82 (Supp. 11A) To justify this decision, OPSB ascribes particular significance to the fact that blade throw has not killed or injured anyone. (Certif. at 41-42) That is, OPSB will ignore the risks until someone is injured or dies. William Palmer testified that this approach is contrary to the accepted practices of both industry experts and government regulators in industrial safety. (Palmer Dir., UNU Ex. 22 at 19:6-20:4 (Supp. 410)) Safety practices must be implemented before someone is harmed, not afterwards. (*Id.*) Without setbacks matching the distance that blades can be thrown, wind farm neighbors must live in homes, work in fields, recreate and relax in yards, and drive on public roads within the striking range of wind turbine debris. Even worse, OPSB's strategy appears to be to conceal the danger from the public, as demonstrated by its refusals to subpoena records or to disclose what it knows about Timber Road II. The industry's symptomatic carelessness, reported blade strikes on buildings, and near misses of citizens show that it is only a matter of time before injuries occur, unless appropriate setbacks are employed.

Both UNU's and Champaign Wind's experts testified that a myriad of reasons can cause turbine blades to break. Manufacturing defects are a major cause of blade failure. (Palmer Dir., UNU Ex. 22 at 7:13-17, 27:16-34 (Supp. 398, 418); Poore Dir., Co. Ex. 9 at 6 (Supp. 326)) The wind industry has been manufacturing larger turbines using outdated, inexpensive, and unreliable technology designed for smaller turbines, which encourages blade failure. (Palmer Dir., UNU Ex. 22 at 27:27-34 (Supp. 418)) Unpleasant working conditions stemming from the use of toxic chemicals in turbine factories has discouraged the more skilled workers from working in them, resulting in lower quality products. (*Id.* at 28:26-29 (Supp. 419)) In addition, quality control record has suffered as the market demand for turbines has increased and new factory employees have been added to meet demanding deadlines. (Poore, Tr. 629:4-23 (Supp. 79))

Other significant causes of blade failure include lightning strikes, wind shear, overspeeding, poor design, inadequate maintenance, and operator error. (Palmer Dir., UNU Ex. 22 at 7:2-25, 29:11-18, 29:24-30:13 (Supp. 398, 420-421); Poore Dir., Co. Ex.9 at 6-7 (Supp. 326)) Two blade failures at Timber Road II resulted from both manufacturing defects and operator error, while a lightning strike damaged another blade. Even the wind industry admits that blade failure is a widespread problem. (Palmer Dir., UNU Ex. 22 at 28:1-2 (Supp. 419))

Recognizing this problem, Champaign Wind's application and the Certificate promise to employ the same equipment to prevent blade throws that were promised and unsuccessfully employed by Timber Road (then called Paulding Wind II). (Palmer Dir., UNU Ex. 22 at 31:26-32:5 (Supp. 422-423)) The Timber Road II certificate also, wrongly, predicted that these measures would adequately address blade throw. (UNU Ex. 22J-2 (Supp. 456))

Champaign Wind and OPSB claim that turbine manufacturers have improved their technology and certify their turbines according to international standards, thus obviating the need

for longer setbacks. (Applic. at 83 (Supp. 11B); Certif. at 25-26) However, these measures have not prevented the manufacturing flaws that continue to cause blade failures. (Palmer Dir., UNU Ex. 22 at 27:11-16 (Supp. 418)) In fact, the Timber Road II turbines were manufactured after blade manufacturing supposedly had improved. (*Id.* at 28:23-24 (Supp. 419)). Timber Road II's blades were certified under international standards as required by its certificate. (UNU Ex. 22H-5 (Supp. 453); Conway, Tr. 2553:3-8 (Supp. 250)). Moreover, even careful manufacturing will not prevent blade throw from lighting, inadequate maintenance, wind shear, and operator error.

OPSB's decision asserts that safety systems such as two independent braking systems will prevent blade throw, but the Timber Road II certificate required that equipment, too. (Certif. at 26; UNU Ex. 22J-2 (Supp. 456); Conway, Tr. 2553:15 - 2554:3 (Supp. 250-251)) Independent braking systems are unreliable for stopping runaway turbine blades. (Palmer Dir., UNU Ex. 22 at 31:1-24 (Supp. 422)) Mr. Poore also explained that operator error is usually the reason why such safety systems fail. (Poore, Tr. 549:4-15 (Supp. 59)) Obviously, setbacks are necessary to isolate the public from the blades when the safety equipment fails.

B. The Wind Industry's Blade Safety Record Is Far Worse Than The Accident Rate Allowed By Government Standards For Its Competitors In Energy Production, So Setbacks Are Essential To Isolate The Public From Flying Blade Parts.

While the Timber Road II and BW II applications contain almost identical assurances about blade safety, Champaign Wind's application does not repeat the Timber Road representation that blade throws are decreasing. (UNU Ex. 22 H-5, H-6 (Supp. 453-454); Applic. at 83 (Supp. 11B)) Timber Road II has already taught Ohio that blade throw is not unlikely: it is a certainty.

The publicly available data on the frequency of blade failures do not account for those that the wind industry is concealing. Even Mr. Poore had not heard about the many incidents in

the Caithness database. (Poore, Tr. 579:16-589:6 (Supp. 61)) A 2011 study by Sandia National Labs for the U.S. Department of Energy found that the wind industry is concealing its incidents of blade failure and has hidden the true magnitude of the problem. (Palmer Dir., UNU Ex. 22 at 12:2-13:17 (Supp. 403-404)) The wind industry's refusal to share information about its blade failures has restricted the industry's ability to figure out solutions to the problem. (*Id.* at 28:3-8 (Supp. 419)) Subpoenas were indispensable for uncovering this information, but OPSB blocked this vital means to collect evidence.

Despite the wind industry's secretiveness, the available information demonstrates that blade throws are not unusual. Staff member Andrew Conway testified that blade failures are expected to occur once in every 2400 turbines every year. (Certif. at 42; Conway, Tr. 2493:13-16 (Supp. 236)) At this rate, the United States will experience 13 turbine blade throws every year. *See* the 7th page of Co. Ex. 12, showing 32,184 turbines in the country (Supp. 30). This is hardly a low failure rate, and the consequences for even one accident could be disastrous.

OPSB's decision contends that automobile deaths and animal strikes are more common than blade throw. (Certif. at 41) These are not comforting statistics. Automobile deaths and animal strikes are anything but unusual, and industry does not tolerate risks of that magnitude if they are preventable. Instead, Mr. Palmer testified that the normal failure rate allowed by the nuclear power industry is 1 times 10 to the minus 6, or one in one million. (Palmer, Tr. 1468:12-20 (Supp. 207A); Palmer Dir., UNU Ex. 22 at 28:18-19 (Supp. 419)) The conventional power industry allows a failure rate of 10 times 10 to the minus 6, or 10 in one million. (*Id.* at 28:17-18 (Supp. 419)) Thus, the current blade detachment rate is 125 times larger than the failure rate that government agencies allow in the conventional power industry and 1250 times higher than the

government standard for the nuclear industry. (*Id.* at 28:15-19, 29:6-9 (Supp. 419-420)) Wind projects should be held to the same standard as their competitors in the power industry.

Mr. Palmer testified that the rate of blade throw has not decreased during recent years and that blade failure has remained "stubbornly high." (Palmer Dir., UNU Ex. 22 at 13:23-25, 28:10-11, 14-15 (Supp. 404, 319)) Mr. Shears was aware of about 50 incidents of blade detachment that have occurred at wind projects since 1994. (Shears, Tr. 927:19-928:7 (Supp. 156-157)) Blade throw is a real threat, and setbacks are necessary to isolate the public from this threat.

C. The Available Data About Blade Throw Demonstrate The Need For 1640-Foot Setbacks To Protect Neighbors' Homes And Lands And 1000-Foot Setbacks To Protect Motorists On Public Roads From Death, Physical Injury, Or Property Damage From Blade Throw And Fires.

Although OPSB excluded much of Mr. Palmer's statistics on blade throw distances, the record still demonstrates that persons inside or outside their homes are at risk of serious injury or death at distances of at least 1640 feet (500 meters) from wind turbines. (Palmer Dir., UNU Ex. 22 at 15:19-22, 23:23-24:9 (Supp. 406, 414-415)) Accordingly, William Palmer recommended a setback distance of at least 1640 feet between Champaign Wind's turbine sites and nearby homes to protect them from flying blade parts and fireballs. (*Id.* at 24:4-5 (Supp. 415); Palmer, Tr. 1453:7-1454:2 (Supp. 206-207))

Mr. Palmer bases his setback recommendation of 1640 feet on past events that prove that blade parts of an injurious size travel that distance. (Palmer, Tr. 1472:15-20 (Supp. 208)) Blade throws of 500 meters have been documented in Denmark. (Palmer, Tr. 1433:16-18 (Supp. 204)) Mr. Palmer is personally aware of two instances in which blade parts have traveled for distances of 1607 and 1640 feet. (Palmer Dir., UNU Ex. 22 at 24:3-4 (Supp. 415)) Andrew Conway's research for the Staff discovered that broken blade parts can travel 500 meters (1640 feet). (Conway, Tr. 2526:16-19 (Supp. 247))

EDP's Timber Road report disclosed that a blade piece of at least 6.6 pounds landed 233 meters (764 feet) from the turbine tower. (UNU Ex. 22A-9 (Supp. 436)) This projectile had the same impact as dropping a 40 pound concrete block from an 8-story window. (Palmer Testimony, UNU Ex. 22 at 15:10-13 (Supp. 406)) Yet, OPSB now as authorized BW II turbines as close as 561, 600, and 934 feet to neighboring properties, roads, and homes, respectively. (Applic. at 82 (Supp. 11A); UNU Ex. 22R (Supp. 458-460))

Although OPSB suppressed UNU's attempts to subpoena EDP's evidence and question Mr. Conway about the travel distances for the Timber Road II blades, the record reveals that some blade pieces actually flew further than 764 feet. Milo Schaffner saw a one foot by one foot chunk of blade lying in a field about 1158 feet from the tower. (Schaffner Dir., UNU Ex. 21 at 3, A10, A11 (Supp. 391C)) He also saw smaller blade pieces near a public road and about 100 feet from a family's home, 1561 feet from the turbine. (Schaffner, Tr. 1331:7 - 1332:1 (Supp. 198-199); Schaffner Dir., UNU Ex. 21 at 3-4, A9 & A11 (Supp. 391C-391D)) An eyewitness informed him that the family's children had picked up additional blade pieces from their yard. (Schaffner, Tr. 1319:2-7 (Supp. 196))

During the Timber Road II incident, the wind farm immediately established an emergency clearance zone of 500 meters (1640 foot) around the damaged turbine. (UNU Ex. 22A-7 (Supp. 434)) OPSB staffer Andrew Conway admitted that the Timber Road II incident caused the Staff to consider a 500 meter setback for BW II. (Conway, Tr. 2563:8-2566:18 (Supp. 256-259)) Following his discussions about Timber Road II with Champaign Wind, the company removed the Vestas V100 model from its preferred list and the Staff stopped considering a 500 meter setback. (Conway, Tr. 2557:14-2558:4 (Supp. 254-255)) Even though other turbines propel their blades just as far as the Vestas V100, Champaign Wind concocted the

argument that only the safety record for turbine models listed in the application is relevant in an attempt to avoid meaningful setbacks.

Mr. Palmer observed that an electric utility in his home province of Ontario advocates for 500 meters between turbines and its 500 kV power lines to prevent the power disruption from a blade strike. (Palmer Dir., UNU Ex. 22 at 24:11-17 (Supp. 415)) The utility based this setback on the review of documented blade throw distances. (Palmer, Tr. 1484:2-13 (Supp. 212))

Mr. Palmer's opinion is consistent with the safety manuals issued by turbine manufacturers. Turbine manufacturer RePower's safety manual for the MM92 turbine model on the BW II preferred list instructs wind farm operators to cordon off an area of 1640 feet around a turbine afflicted with overspeed or fire. (UNU Ex. 29 at 76, 77 (Supp. 488B-488C)) The manual warns that rapidly rotating rotors present "danger of life due to components and parts flying around!" (*Id.* at 77 (Supp. 488C) The manual further warns that "[t]here must not be any persons within the area of 1640 feet around!" (*Id.*) The Nordex safety manual included in the application instructs the wind operators to keep all persons farther than 500 meters from a burning turbine. (Applic. Ex. R, Nordex Safety Manual, at 52)

Mr. Poore's evidence revealed that wind developers voluntarily use setbacks of 1500 feet between turbines and occupied structures for 40% of the time, setbacks of 2000 feet for 10% of the time, and setbacks of more than 2000 feet for 10% of the time. (Poore, Tr. 614:6-22 (Supp. 72)) Thus, the wind industry uses voluntary setbacks of 1500 feet or more at least 60% of the time. (*Id.*) Moreover, the industry trend is toward larger setbacks. (*Id.* at 615:4-13 (Supp. 73))

Mr. Palmer has determined that, while a vehicle provides some protection to its occupants from the smallest blade debris, motorists are at risk of serious injury or death from blade throw at distances of at least 1000 feet (305 meters) from a turbine, based on the size of

blade pieces that can be hurled that distance. (Palmer Dir., UNU Ex. 22 at 15:10-22 (Supp. 406)) Consequently, he has recommended a setback of at least 1000 feet between the BW II turbines and nearby public roads. (*Id.* at 25:1-12 (Supp. 416))

Based on setbacks of 1640 and 1000 feet from homes and roads, respectively, the table in UNU Exhibit 22R shows that 35 BW II turbines are too close to roadways and/or buildings. (Palmer Testimony, UNU Ex. 22 at 25:20-23 (Supp. 416)) The turbines are closer than 1600 feet to 37 homes (two turbines are too close to two homes). (UNU Ex. 22R (Supp. 458-460))

The 1640-foot setbacks also must be established at the property lines of nonparticipating neighbors, i.e., the people who do not lease land to the wind farm, as required by Ohio Admin.Code 4906-17-08(A)(5). That rule requires the application to evaluate and describe the potential impact from blade throw "at the nearest property boundary, including its plans to minimize potential impacts if warranted."

The Timber Road II incident and other wind farm accidents are wake up calls that are ignored at the public's peril. OPSB should not be allowed to wait until someone is killed or maimed before using protective setbacks. The Board has unreasonably failed to require a setback of at least 1640 feet between the BW II turbines and the homes and land of nearby landowners, and a setback of at least 1000 feet from public roads. Consequently, BW II does not represent the minimum adverse environmental impact as required by R.C. 4906.10(A)(3), and the Court should vacate the Certificate.

PROPOSITIONS OF LAW RELATED TO TURBINE NOISE

Proposition of Law No. 6: The Ohio Power Siting Board's Decision To Issue A Certificate To A Wind Energy Utility Authorizing Noise That Will Cause Discomfort, Annoyance, Sleep Deprivation, 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.

A. The 44 dBA Night Time Limit In The BW II Certificate Will Expose Nonparticipating Homes To Noise Levels Louder Than The 40 dBA Ceiling The Board Adopted In BW I.

In BW I, Buckeye Wind modeled its project so that all but a few nonparticipating neighbors would be protected from turbine noise above 40 A-weighted decibels ("dBA"), and OPSB's certificate limited BW I's noise to the modeled level. (Hessler, Tr. 852:16-19, 853:17-21, 856:12-20 (Supp. 140-141, 144)) Many BW I and BW II turbines will be so close together that the combined noise from both projects will be heard at numerous homes of the same unfortunate neighbors. (Hessler, Tr. 858:17-859:10 (Supp. 146-147); Applic. Ex. O, Plot 5 (see the red areas) (Supp. 16A)). Because the BW II turbines are so close to neighboring homes, the new turbines will elevate community noise levels above the 40 dBA level that the Board found necessary to protect the public in BW I. So Champaign Wind requested, and OPSB granted, an even more lenient night time noise limit of 44 dBA for BW II. This limit applies to the cumulative noise volumes from BW I and BW II "at the exterior of any currently existing nonparticipating sensitive receptor" (e.g., at the walls of neighbors' homes). (Certif. at 88, Condition 46) Champaign Wind witness Mundt admitted that a study upon which he relied found that the odds of noticing turbine noise increases by 30% for every dBA increase in noise. (Mundt, Tr. 2969:5-6 (Supp. 278)) Consequently, allowing BW II to increase the noise by 4 dBA above the approved BW I sound level will make it 120% more noticeable.

Plot 5 of Mr. Hessler's noise report in the application shows that BW II, by itself or in combination with BW I, will expose a "sizeable number" of nonparticipating residences including UNU's members to noise levels above 40 dBA. (Hessler, Tr. 858:17-859:10 (Supp. 146); Johnson Dir., UNU Ex. 17 at 3:8-12 (Supp. 352A); UNU Ex. 17I (Supp. 357)) As

explained below, this noise level will lead to great annoyance, sleeplessness, and health problems among the population.

B. A New Sound Source Should Not Be Allowed To Raise The Neighborhood's Night Time Or Daytime Noise Level By More Than Five dBA Above The L90 Background Level.

If a new noise is no louder than a community's existing sound level, the background sound may mask the new noise. (Hessler, Tr. 765:11-16, 767:14-16 (Supp. 100, 102)) Conversely, a new sound is noticeable if it is louder than the existing community level. The acoustical engineering profession has determined that a new sound is unacceptably loud if it increases the existing sound level by more than five dBA, because at that level 10% of the exposed population is "annoyed" by new noise. (James Dir., UNU Ex. 19 at 14 (Supp. 371))

Acousticians generally use the term "annoyance" to refer to higher levels of stress that harm the body. (James, Tr. 1235:16-22 (Supp. 190)) In contemporary medicine, "annoyance" is a precise technical term describing a mental state characterized by distress and aversion, which if maintained, can lead to a deterioration of health and well-being. (Mundt, Tr. 2977:18-2978:5 (Supp. 279)) Annoyance is usually defined as an unpleasant mental state characterized by irritation, frustration, distraction, or anger. (Punch Dir., UNU Ex. 23 at 13, A21 (Supp. 474)) A report cited by Dr. Mundt found that the stress from turbine noise may interfere with a person's ability to recover from the psychological stress of the work day by resting at home. (Mundt, Tr. 2956:4-2957:7 (Supp. 274-275))

Most modern textbooks on community noise use the five dBA above background standard to identify unacceptably loud noise. (James Dir., UNU Ex. 19 at 13 (Supp. 370)) Louder noise results in community noise complaints and sleep disturbance. (James Dir., UNU Ex. 19 at 10, 13 (Supp. 367, 370)) Mr. Hessler testified that this limit "seems to have worked

fairly well" and a wind project noise should not exceed this standard. (Hessler, Tr. 802:2-6, 803:4-18 (Supp. 117-118))

To accurately quantify background sound, acoustical engineers universally use a metric known as L90. (James Dir., UNU Ex. 19 at 15, 16, 18 (Supp. 372-373, 375)) L90 is the sound level exceeded during 90% of the measurement period. (Applic. at 68 (Supp. 10)) The L90 measures the quietest 10% of an interval to identify the amount of background sound normally available to mask turbine noise that otherwise would awaken a person. (Hessler, Tr. 788:1-5 (Supp. 107)) This filters out the sporadic noise from brief noise events, such as occasionally passing cars, that would only briefly mask the new sound. (Hessler, Tr. 786:14-21 (Supp. 105))

To shoehorn its new turbines into the area already approved for BW I turbines, Champaign Wind has circumvented the acoustical standard of five dBA above the L90 background. Champaign Wind asked, and OPSB acquiesced, that the turbines be allowed to increase the community's sound level by five dBA above the background sound measured with a different technique -- Leq -- thus eviscerating the limit's protectiveness.

The Leq sound level is the average sound level during a specified measurement period. (Applic. at 68) Champaign Wind's application admits that the Leq is elevated by sporadic, short-duration noise events, such as passing vehicles, and is often unrepresentative of the quietest periods between these short-term events. (*Id.*) The Leq includes short-term noise spikes in its average instead of filtering them out. (Hessler, Tr. 793:6-16 (Supp. 110)) This average provides a misleading benchmark for determining whether background sound will mask a new noise source. For example, a community's usual background sound level may be 35 dBA, with occasionally passing cars raising the average sound level to 40 dBA. In that instance, a new noise source of 45 dBA would be an intrusive10 dBA above background for most of the time.

For this reason, the Leq is not appropriate for measuring background sound. (James Dir., UNU Ex. 19 at 15 (Supp. 372))

Ignoring this principle, the Board's decision represents that "there is no credible evidence that the use of the Leq to establish the background sound level is in anyway unreasonable or inappropriate." (Certif. at 62) The decision further contends that "the record is devoid of any evidence" that utilizing the Leq for background is unreasonable. (*Id.*)

OPSB's position disregards the admissions of Champaign Wind's own consultant, Hessler Associates, during the hearing. David Hessler agreed with the conclusion in a treatise authored by George Hessler that "[i]t is shown that LAeq is not a good metric for quantifying levels in quiet environments, at least if the data is to be used for noise impact studies." (Hessler, Tr. 797:11-23 (Supp. 114)) The BW II project area is a quiet area as defined in George Hessler's paper. (*Id.* at 796:17-797:3 (Supp. 113)) David Hessler testified that the Leq is "not normally used to quantify background sound for this kind of application," and that he has never used the Leq for background, except for BW II. (Hessler, Tr. 794:4-18 (Supp. 111))

The 44 dBA night time limit adopted by OPSB is substantially higher than five dBA above the L90 background. Mr. Hessler measured an L90 background night time level of 33 dBA for the BW II project, and he previously measured a night time L90 of 29 dBA in the same geographic area for the BW I project. (Hessler, Tr. 793:17-23 (Supp. 110); James Dir., UNU Ex. 19 at 20 (Supp. 377)) Both of his L90 measurements are substantially lower than his night time Leq of 39 dBA for BW II. (Hessler, Tr. 793:17-23 (Supp. 110)) Even using the higher L90 of 33 dBA, the Board should not have approved turbine noise levels higher than 38 dBA, which is five dBA above the L90 background.

OPSB's 44 dBA night time limit is 11 dBA above the 33 dBA L90. Since the odds of noticing turbine noise increase by 30% for every dBA increase in noise (Mundt, Tr. 2969:5-6 (Supp. 278)), BW II's turbine noise will be 330% more noticeable than the acoustically acceptable five dBA level. The limit should be 38 dBA, based on the 33 dBA L90.

OPSB also set erroneous daytime limits based on the Leq background. These limits are 44 dBA, or five dBA above the Leq background level measured "at the location of the sensitive receptor," whichever is louder. (Certif. at 88, Condition 46)

The Board's abandonment of the universally accepted use of the L90 to justify the overpopulation of turbines in the project area is manifestly against the weight of the evidence and should be reversed. The Court should remand the night and day limits with instructions to base them on the L90 background levels.

C. Because Turbine Noise Levels Above 35 dBA Cause Sleep Disturbance And Serious Annoyance, And Because Night Time Noise Above 40 dBA Causes Health Damage, The Board Acted Unreasonably By Agreeing To Champaign Wind's Request For Night Time Noise Limits Of 44 dBA.

The World Health Organization (WHO) has concluded that noise in the 30 to 40 decibel range leads to sleep disturbance and reduces the quality of life. (Punch Dir., UNU Ex. 23 at 15, A24 (Supp. 476); Punch, Tr. 1743:15-22 (Supp. 226)) The damage to sleep in this range includes awakening, body movements, arousals, and sleep disturbance. (Punch, Tr. 1741:21-1742:9 (Supp. 224))

Although WHO also characterizes the effects as "modest" between 30 dBA and 40 dBA (Punch, Tr. 1742:6-7 (Supp. 225)), its conclusions pertain to industrial sounds that are not dominated by low frequency acoustic energy rather than turbine noise. (James Dir., UNU Ex. 19 at 10 (Supp. 367)) In contrast to the sounds that WHO studied, the turbines' rhythmic swishing

sounds and the low frequency rumble and roar of the large blades moving through the air can be distinctly heard even during high wind conditions. (*Id.* at 10-11 (Supp. 367-368))

Consequently, studies of wind turbine noise show that the threshold at which 10% of the population is annoyed is approximately 10 dBA lower for wind turbines than other industrial noise sources. (*Id.* at 14 (Supp. 371)) A European study found that 10% of the neighbors exposed to turbine noise between 30 to 35 dBA are "very annoyed" at the sound. (*Id.*) Sleep disturbance plagues 25% of the population exposed to these levels. (*Id.*)

The National Institutes of Health (NIH) has determined that sleep affects the capacity to learn, and negatively affects memory, temperament, heart health, and hormones. (Punch Dir., UNU Ex. 23 at 14, A23 (Supp. 475)) According to the NIH, prolonged sleep disturbance results in lowered immunity to disease. (*Id.*) Even Champaign Wind's witness Mundt admitted that sleep deprivation can cause health problems. (Mundt, Tr. 2982:23-2983:3 (Supp. 281))

The WHO has determined that persons exposed to noise levels between 40 and 55 decibels experience adverse health effects. (Punch, Tr. 1742:10-1743:3 (Supp. 225)) WHO found that many people exposed to this range of noise have to adapt their lives to cope at night, and that vulnerable groups such as children, the chronically ill, and the elderly are more severely affected. (*Id.* at 1742:4-1743:3 (Supp. 225)) Consequently, WHO recommends a limit of 40 decibels at night. (Punch, Tr. 1816:17-23, 1818:23-1820:17 (Supp. 229, 231-233)) However, this recommendation is lenient, since EPA's guidelines recommend that quiet rural communities be exposed to no more than 40 dBA in daytime and 30 dBA at night. (*Id.*)

Therefore, annoyance and sleep disturbance from wind turbine noise start at 30 dBA and become progressively worse at higher decibels. Night time noise above 40 dBA causes serious health impairment. OPSB's 44 dBA night time exposes a "sizeable number" of nonparticipating

families to night time noise levels above 40 dBA (Hessler, Tr. 858:17-859:10 (Supp. 146-147)), and these residents will be at risk for health damage.

D. The Board's 44 dBA Night Time Limit Is Inconsistent With A Wind Turbine Siting Guide Prepared By Champaign Wind's Consultant For The State Of Minnesota.

Mr. Hessler has authored a wind turbine siting guide for the Minnesota Public Utilities Commission (PUC), funded by the U.S. Department of Energy. (Hessler, Tr. 791:3-11, 804:11-805:7 (Supp. 108, 119-120)) His guide advises:

> As a general rule of thumb, an increase of up to 5 dBA above the pre-existing LA90 sound level is usually found to be acceptable whereas greater increases should be avoided. This design approach only holds for background levels of about 35 dBA or above. When lower background sound levels are found a design goal of 40 dBA or less at all residences should be sought.

(Hessler, Tr. 803:4-18 (Supp. 118); James Dir., UNU Ex. 19 at 16 (Supp. 373)) This guidance states that turbine noise should not increase the noise level by more than five dBA above the L90 background if the L90 is 35 dBA or higher. The guide also provides that the turbine noise should be kept at 40 dBA or less if the L90 background is lower than 35 dBA.

The siting guide also explains that "[t]he LA90 measure . . . essentially defines the true 'background' noise floor." (Hessler, Tr. 799:17-23 (Supp. 116)) That is, the L90 and not the Leq must be used for background. The guide finds that turbine noise in quiet residential areas must be 40 dBA or less, because "relatively high" annoyance rates of 20 to 25% occur among persons exposed to turbine noise of 40 to 45 dBA. (*Id.* at 849:14-850:16 (Supp. 137-138))

Mr. Hessler stood by these principles in his testimony. (*Id.* at 803:19-804:3 (Supp. 118)) But OPSB's 44 dBA limit exceeds even Mr. Hessler's practices. The Project area is in a quiet residential area, with an L90 of no more than 33 dBA. Thus, even under Mr. Hessler's guide, the turbine noise must not exceed 40 dBA.

The Board admits that "[a]s both UNU and Champaign [Wind] acknowledge, WHO determined that the nighttime sound level of 40 dBA is the threshold at which sound goes from being relatively unnoticed to intrusive and annoying." (Certif. at 63) Based on this finding, the Board's order rejected UNU's request below for a noise limit of 35 dBA, because it is stricter than the 40 dBA that WHO found necessary to protect public health. (*Id.*) The Board then inexplicably adopts 44 dBA as its limit, because "[t]he only other figure recommended in the record is the 44 dBA, which Champaign [Wind] proposes and Staff recommends." (*Id.*)

OPSB's decision correctly admits that WHO has determined that sound above 40 dBA is "intrusive and annoying." Nevertheless, rather than adopting that level as its standard, OPSB adopted Champaign Wind's 44 dBA standard because no party advocated for 40 dBA. But the Board's public duty is to hear evidence and exercise its informed judgment to identify the proper standard, not to blindly defer to any party's proposal. UNU's Motion for Reconsideration reminded OPSB that, if the Board disagreed with UNU's proposed 35 dBA standard, it should have adopted the 40 dBA standard that it admitted to be necessary. (Motion at 49, ICN 188)

While OPSB may have admitted that a limit higher than 40 dBA allows annoyance and intrusiveness, this does not mean that 40 dBA is adequately protective. Contrary to OPSB's statement, WHO did not find that noise is "relatively unnoticed" below 40 dBA. Instead, WHO concluded that noise from 30 to 40 decibels leads to awakenings, body movements, arousals, and sleep disturbance and reduces the quality of life. (Punch Dir., UNU Ex. 23 at 15, A24 (Supp. 476); Punch, Tr. 1741:21-1742:9, 1743:15-22 (Supp. 224-226)) As explained at page 40, above, wind turbine noise should not exceed 38 dBA, which is five dBA above the L90.

Consequently, the BW II project as proposed is unreasonable and does not "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" as required by R.C. 4906.10(A)(3). UNU requests that the Court direct OPSB to issue a night time noise limit that does not exceed 38 dBA.

Proposition of Law No. 7: Wind Utility Certificates Issued By The Ohio Power Siting Board Must Contain Noise Limits That Protect The Neighbors' Use Of Their Entire Property, Not Just Their Homes.

Ohio Adm.Code 4906-17-08 requires a wind project's application to "[e]valuate and describe the cumulative operational noise levels for the wind facility at each property boundary for each property adjacent to the project area." Emphasis added. When OPSB conducted its rulemaking proceeding for wind turbines, the board emphasized that "[i]t is imperative that the noise level be evaluated at the boundary of the project site." *Matter of Adoption of Ohio Adm.Code Chapter 4906-17*, OPSB Case No. 08-1024-EL-ORD at ¶¶ 120-21. (Supp. 52)

The Certificate approves a noise limit of 50 dBA, and 52 dBA in some places, for noise at the property lines of nonparticipating neighbors. (Applic. at 76-77) Even Mr. Hessler acknowledges that 50 dBA of noise is too high for a person's home and has caused problems at other wind projects. (Hessler, Tr. 740:25-41:16 (Supp. 97)) Yet OPSB is allowing BW II to impose these harmful noise levels on outdoor areas where neighbors seek to use their yards, patios, fields, and undeveloped acreage for outdoor social events and other activities.

Mr. Hessler admitted that a 50 dBA limit at nonparticipants' property lines may discourage them from using their land for projects such as letting their adult children build homes there. (Hessler, Tr. 742 (Supp. 99)) This land will be unmarketable if they wish to sell it. Thus, hundreds of landowners in eastern Champaign County will be deprived of their rights to fully use and enjoy their land for beneficial purposes. Consequently, the Court should instruct OPSB to apply the 38 dBA limit not only to the neighbors' homes, but also to their land.

Proposition of Law No. 8: The Ohio Power Siting Board Acts Unlawfully And Unreasonably Where It Quashes A Party's Subpoena Seeking Evidence About Noise Problems At Other Approved Wind Projects, Even While Relying On The Staff's Representations That No Such Noise Problems Exist As Support For Its Decision To Issue A Certificate.

UNU served a discovery subpoena on EDP for noise records at Timber Road II:

7. All records relating or referring to noise produced by any wind turbines in the Timber Road II Wind Farm, including but not limited to noise measurements.

8. All records relating or referring to complaints about the Timber Road II Wind Farm.

(Return of Service, ICN 78) UNU sought evidence that OPSB's lenient noise limits at other wind projects are resulting in noise problems in their communities. An ALJ granted motions by EDP and Champaign Wind to quash this subpoena, ruling that "UNU is seeking an entire body of information that is not tailored in any way to the proposed project." (Entry of Oct. 22, 2013 at 10-11, ¶ 22) The Board affirmed this entry. (Certif. at 8-9)

OPSB's rules prohibit discovery against the Board's Staff, even though the Staff is authorized to conduct discovery against other parties. Ohio Admin.Code 4906-7-07(A)(9). So UNU could not conduct discovery against the Staff to obtain information about noise complaints at other Ohio wind projects. That fact, along with the ALJ's blockage of the EDP subpoena, left UNU with no opportunity for discovery about noise problems at other Ohio wind projects.

Since the ALJ had stopped UNU's discovery of noise complaints from EDP, UNU sought information about noise complaints while cross-examining the staff witness who testified in support of the noise limits requested by Champaign Wind, Raymond Strom. But Mr. Strom had no reliable information about complaints at the two other Ohio wind projects, since he did not monitor this facility's noise compliance nor talk to anyone who did. While Mr. Strom said he had heard of only one credible noise complaint, he did not monitor noise issues at either wind

project and did not talk to any staffer with that responsibility. (Strom, Tr. 2798:14-2799:24, 2831:20-2832:1 (Supp. 269-272)) In fact, prior to the hearing, he did not know that noise from Blue Creek Wind Farm that makes Milo Schaffner feel "like a bass drum is beating on my chest." (Strom, Tr. 2831:22-2832:2 (Supp. 271-272); Tr. 1305:23-1306:13 (Supp. 194A-194B)

Everpower officer Mr. Speerschneider acknowledged that noise and noise complaints at other wind projects are pertinent, because other turbine models are similar and because noise standards imposed on the other wind farms are similar to those requested for BW II. (Tr. 316:21-317:2, 341:8-342:21 (Supp. 34-35, 39-40)) Nevertheless, the ALJs struck Milo Schaffner's direct testimony about the complaints of 14 families that he had received in his role of township trustee about the loud, annoying, and disturbing noise from the Blue Creek Wind Farm. (Schaffner Dir., UNU Ex. 22 at 1, A4 (Supp. 391A); Schaffner, Tr. 1291:15-17 (Supp. 194)) A subpoena is necessary to obtain noise evidence that OPSB will accept.

Even though OPSB had quashed UNU's subpoena on relevance grounds, OPSB has based its noise limits in BW II in large part on Mr. Strom's testimony that few noise complaints have occurred at Ohio's two operating wind farms. OPSB found it "relevant that, of the two wind farms currently certificated in Ohio that have similar Leq noise conditions, only two noise complaints have been received." (Entry on Rehearing at 40, ¶ 37 & at 42, ¶ 39)

Having prevented UNU from obtaining and introducing relevant evidence of the wind farms' noise problems, OPSB now contends that there are no such problems. OPSB's concealment of noise problems at Ohio's operating wind projects is an abuse of discretion and violated UNU's "ample rights of discovery" under R.C. 4903.082. The Court should vacate and remand the Certificate with instructions to reopen discovery, reissue the subpoena to EDP, and reopen the hearing to hear any relevant evidence obtained pursuant to the subpoena.

Proposition Of Law 9: The Ohio Power Siting Board Abuses Its Discretion By Denying A Party's Motion To Reopen The Hearing Record To Admit New Evidence That Is Not Cumulative And That Addresses Facts Central To The Board's Decision.

Three months before OPSB's decision, UNU filed a motion requesting OPSB to reopen the hearing record to admit a report on a study that Hessler & Associates and three other noise experts had prepared after the hearing. (UNU Motion to Reopen Record, ICN 176) In this investigation, David Hessler had measured the low frequency noise from Nordex N100 wind turbines in a home near the Shirley Wind Farm in Wisconsin. (UNU Reply re Reopening Record, Ex. B at 2-3, ICN 178 (Supp. 531)) The Nordex N100 is one of the models under consideration for BW II. (Applic. at 44 (Supp. 8B)) He observed that, while the family's husband showed no ill effect from the noise, the "long-term response of the inhabitants of R2 has been severely adverse for the wife and child." (UNU Reply re Reopening Record, Ex. B, Appx. B at 6 (Supp. 544)) The report signed by Mr. Hessler concluded that infrasound and low-frequency noise from wind turbines is "a serious issue, possibly affecting the future of the industry." (*Id.*, Ex. B at 7, ICN 178 (Supp. 535)) Significantly, Mr. Hessler's study led him to recommend an average noise design goal of 39.5 dBA or less for the turbines, which reverses his position in BW II that 44 dBA is okay. (*Id.*, Ex. B, Appx. B at 8 (Supp. 536))

Ohio Adm.Code 4906-7-17(C) authorizes the OPSB hearing record to be reopened prior to final decision for new evidence that is not merely cumulative. Evidence of new and distinct facts is not cumulative, even though it tends to establish the same general result established by evidence already in the record. *Kroger v. Ryan*, 83 Ohio St. 299 (1911). Evidence that contradicts a party's prior testimony or evidence is not cumulative. *State v. Siller*, 2009-Ohio-2874, ¶ 57 (10th Dist. 2009). The Shirley Wind report is not cumulative; it contradicts Mr. Hessler's opinion in BW II that a 44 dBA limit is protective and eviscerates the entire basis for

OPSB's adoption of that limit. OPSB's ruling is an abuse of discretion, and the Court should remand the certificate with instructions to admit and hear testimony on this study.

OTHER PROCEDURAL ERRORS

Proposition of Law No. 10: The Ohio Power Siting Board's Failure To Allow Discovery Or Cross-Examination About Drafts Of A Wind Utility Application And Related Records Violates R.C. 4903.082 And Abuses Its Discretion.

The ALJ denied UNU's motion to compel Champaign Wind to produce drafts of the application and documents related to the application, ruling that these documents are irrelevant. (Entry, ICN 152 at 2) The board affirmed the ALJ's ruling, contending that these records "will not make it more or less probable that Champaign's application meets or does not meet the requirements of Section 4906.10, Revised Code." (Certif. at 12)

The board's rules authorize a party to obtain discovery of any unprivileged, relevant matter. Ohio Admin.Code 4906-7-07(A)(2). A party may also discover any information that appears reasonably calculated to lead to the discovery of admissible evidence. (*Id*). This rule is similar to both the PUCO's discovery rule, Ohio Admin.Code 4901-1-16(B), and Ohio Civil Rule 26(B)(1). In a decision construing the scope of permissible discovery in PUCO cases, the Court noted that Civil Rule 26(B)(1) "has been liberally construed to allow for broad discovery of any unprivileged matter relevant to the subject matter of the pending proceeding." *Ohio Consumers Counsel v. Pub. Util. Comm'n*, 111 Ohio St.3d 300, 2006-Ohio-5789, ¶ 83.

Under this standard, the discovery of draft applications is a permissible means for learning about the incompleteness or inaccuracy of the final application. If earlier drafts contradict the final application, or include information about Project impacts that was removed from the final application, this information would certainly be relevant to OPSB's review of the Project's impacts and approvability.

By analogy, drafts of a lease have been determined to be "extremely relevant" to the meaning of a disputed lease, even where the parties had rejected the drafts during negotiations. *Shore v. Best Cuts, Inc.*, 8th Dist. Cuyahoga No. 77340, 2000 WL 1754007, *2 (Nov. 30, 2000). The discovery of drafts has also been found relevant under the analogous Rule 26(B)(1) of the Federal Rules of Civil Procedure. *Golden Valley Microwave Foods, Inc. v. Weaver Popcorn, Inc.*, 132 F.R.D. 204, 212 (N.D. Ind. 1990).

Moreover, UNU's discovery request also sought "documents relating or referring to any part of the Application or any part of its draft or preliminary versions." (ICN 36 (Doc. Req. 44)) (emphasis supplied). Technical records and other documents used to prepare or provide information for the application are indisputably relevant.

The board's flawed reasoning regarding the relevance of drafts infected the conduct of the hearing itself, where the ALJ barred cross-examination of Staff member Conway about an earlier draft of the Staff Report. UNU's counsel sought to show that Mr. Conway accepted Champaign Wind's claims about turbine safety without question, even though one of the turbine models under consideration at the time had malfunctioned and thrown blade debris into the countryside at Timber Road II. (Tr. 2554:10 - 2556:11 (Supp. 251-253)) The draft contained the witness' inconsistent prior statements about the reliability and safety of the proposed turbine (*id.* 2585:6-23 (Supp. 268A)), and thus was relevant for impeaching the credibility and rigor of his assessment of blade throw risk for BW II. Nonetheless, the ALJ barred cross-exam regarding the prior draft: "Consistent with our past ruling that the application drafts were not relevant to the proceeding, the drafts of the Staff Report are also not relevant to this proceeding. We are only looking at the Application before us and the Staff Report before us." (Tr. 2556:12-17 (Supp.

253)) Based on the same reasoning, the ALJ also barred the admission of the draft into evidence. (Tr. 2585:24-2586:1 (Supp. 268A-268B))

By barring discovery, testimony, and evidence about drafts of the Staff Report and the application, the board prevented UNU from conducting a fair and reasonable inquiry into the protectiveness of the certificate conditions that will affect the health and safety of UNU's members. Appellants request the Court to remand with directions to reopen the proceedings to allow the requested discovery, witness examination, and evidence.

CONCLUSION

The BW II project as approved by the Board's Order does not represent the minimum environmental adverse environmental impact under R.C. 4906.10(A)(3), considering the state of available technology and the nature and economics of the various alternatives. Nor does it serve the public interest, convenience, and necessity under R.C. 4906.10(A)(6). For these reasons, UNU requests that the Court vacate the Certificate.

OPSB also abused its discretion by throttling UNU's efforts to obtain evidence through subpoenas and document requests, to cross-examine opposing witnesses, and to introduce relevant evidence at the hearing. For those reasons, UNU requests that the Court vacate the Certificate and remand for further proceedings to correct these procedural errors.

Respectfully submitted,

Jack A. Van Kley (0016961)
Christopher A. Walker (0040696)
Van Kley & Walker, LLC
132 Northwoods Blvd., Suite C-1
Columbus, Ohio 43235
Telephone: (614) 431-8900
Facsimile: (614) 431-8905
Email: jvankley@vankleywalker.com

CERTIFICATE OF SERVICE

I hereby certify that, on February 3, 2014, a copy of the foregoing Merit Brief of Appellants was served upon the following counsel and parties of record by electronic mail:

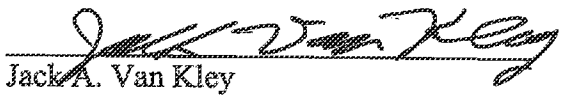
M. Howard Petricoff
Vorys, Sater, Seymour and Pease LLP
52 East Gay Street
P.O. Box 1008
Columbus, Ohio 43215
mhpetricoff@vorys.com

Chad Endsley
General Counsel
Ohio Farm Bureau Federation
P.O. Box 182383
Columbus, Ohio 43218-2383
cendsley@ofbf.org

Devin Parram
Assistant Attorney General
180 East Broad Street, 9th Floor
Columbus, Ohio 43215
devin.parram@puc.state.oh.us

Jane A. Napier
Prosecutor's Office
Champaign County
200 North Main Street
Urbana, Ohio 43078
jnapier@champaignprosecutor.com

Sarah Bloom Anderson
Assistant Attorney General
Environmental Enforcement Section
30 E. Broad St., 25th Floor
Columbus, OH 43215
sarah.anderson@ohioattorneygeneral.gov



Jack A. Van Kley
Counsel for Appellants