BEFORE THE OHIO POWER SITING BOARD

In the Matter of the Application of Buckeye Wind, LLC, for a Certificate to Install Numerous Electric Generating Wind Turbines in Champaign County to be Collected at an Electrical Substation in Union Township, Champaign County, Ohio	:	**CASE NO. 08-0666-EL-BGN**

POST-HEARING BRIEF OF INTERVENOR
THE URBANA COUNTRY CLUB

Intervenor, The Urbana Country Club ("UCC" or "Club") hereby submits its post-hearing brief regarding the application submitted by Buckeye Wind, LLC ("Buckeye Wind") for permission to construct a major electric generation facility consisting of 70 industrial wind turbines to be located throughout eastern Champaign County, Ohio ("Wind Facility").

I. INTRODUCTION

On April 24, 2009, Buckeye Wind filed with the Ohio Power Siting Board ("Board") an application pursuant to the provisions of Ohio Administrative Code ("O.A.C") Chapter 4906-13 for a certificate of environmental compatibility to construct a wind-powered electric generation facility. The proposed project consists of 70 wind turbine generators, other associated facilities, and access roads to be located on approximately 9,000 acres of land in Goshen, Rush, Salem, Union, Urbana, and Wayne Townships, Champaign County, Ohio. *See ALJ Finding of Fact No. 1 in Entry issued 10-30-09.*

Before Buckeye Wind may be authorized to burden the rural residents of eastern Champaign County with this potentially disruptive industrial project, the Ohio Power Siting Statute requires a careful and thorough evaluation of the environmental impacts of the proposal and its alternatives.

O.R.C. § 4906.10(A) provides that the Board shall not grant a certificate unless it finds and determines that each of the certification criteria listed in the statute has been satisfied. In particular, the Board is obligated to find that Buckeye Wind has demonstrated that it has fully evaluated the "probable environmental impact" of the Wind Facility, O.R.C. § 4906.10(A)(2), and that less environmentally damaging alternatives for constructing the facility are not available. O.R.C. § 4906.10(A)(3). Combined, these provisions require that a decision on this issue is made only with full information about its probable environmental impact, and that Ohio's energy policy is achieved with the minimum adverse environmental impact possible.

The record shows that Buckeye Wind has failed to adequately consider the "probable environmental impact" of the proposed Wind Facility or to demonstrate that the proposed Wind Facility represents "the minimum adverse environmental impact" given other alternatives, as required by Ohio Revised Code ("O.R.C.") §4906.10(A)(2) & (3). Therefore, the Board must deny certification of the Wind Facility project as it is currently proposed. In the alternative, the Board should only issue a certification if the specific conditions listed immediately below and further explained in Section V of this brief are included in such certification.

Condition 1: No construction of proposed collector lines on the south side of the UCC Road Frontage (as defined below in Section II.B.).

Condition 2: No construction of proposed Turbines 48 or 49.

II. PROTECTION OF UCC ECONOMIC INTERESTS

A. Unique Character of the UCC Property

The Urbana County Club has been an important part of the Champaign County, Ohio community for 88 years. The original nine holes of the UCC golf course were designed and constructed in 1922 by Paul F. Dye. Paul's son Pete Dye grew up playing the original nine holes and served as the course superintendent during World War II before embarking on his own career as a golf course architect. In 2008, Pete Dye became the first American born golf course architect to be inducted into the World Golf Hall of Fame. Because of Pete Dye's worldwide notoriety, the UCC golf course is well known and widely respected in the golf community.

In 1992, seventy years after its original construction, the UCC Board of Directors decided to purchase adjacent agricultural land and expand the course to a regulation 18 holes. Pete Dye's son, P.B. Dye (a well respected golf course architect in his own right) was hired to design and construct the additional 9 holes while preserving the feel and character of the original track. Under his direction, the UCC golf course expansion project was completed in 1993. *See P.B. Dye's Direct Testimony, UCC Exhibit 1, p. 1.*

B. UCC Property as a Business Enterprise

The Club is located adjacent to US Route 36 as shown in UCC Exhibits A & B. There are currently 205 UCC memberships, which include 144 golf memberships (counting family and single memberships). Through the end of September, members and guests of the Club played 9,703 rounds of golf on the course during 2009. Approximately 34% of the Club's annual revenue is generated by fees and product sales directly related to golf. The general membership fees paid by golfers, plus the direct golf revenue, accounts for about 63% of the Club's revenue.

Revenue generated from non-member players and group golf outings accounts for nearly 40% of the Club's annual golf revenue. The competition for a share of the non-member and group outing business is fierce, and includes golf courses in Champaign and nearby counties. One of the most popular activities at the Club is the 9-hole golf leagues that are played by members on

Tuesday through Friday after work. League play typically begins around 5:00 pm and finishes at dusk or later. *See Pat Delaney's Direct Testimony, UCC Exhibit 3, p. 3.*

With the addition of 9 new holes in 1993, the Club became an expanded sports amenity that reflects favorably on real estate values in Champaign County. However, the Club's primary function is to provide a desirable recreational and social experience for its members. Because of the famous design and rural setting of its property, and the Club's dependence on golf for its economic viability, the UCC Board of Directors has an important vested interest in how activities on adjacent or nearby properties could change the unique character in which the UCC has operated for almost a century.

C. Need to Protect Trees Along Hole # 11 from Damage

As shown on UCC Exhibit A, the UCC property is located near the center of the proposed Wind Facility. As part of its application, Buckeye Wind is seeking authority to construct an overhead electric "collector line" in the pubic right of way ("ROW") along US Route 36, west of Ault Road and east of Ludlow Road that is located just north of and adjacent to the UCC golf course ("UCC Road Frontage"). The proposed location of such collector line along the UCC Road Frontage is shown in UCC Exhibits A & F. However, the application is not specific about which side of the road the proposed collector line would be built.

The tree line that currently separates UCC Hole No. 11 from the US Route 36 ROW is important for the following two reasons.

1. Protecting vehicular traffic from errant golf shots

Hole No. 11 of the UCC course is located along the south side of US Route 36 where the Buckeye Wind collector line is proposed, and is shown on UCC Exhibit C. When the UCC was founded, the original road along Hole No. 11 was infrequently traveled and did not become designated as US Route 36 for many years thereafter. About fifty years ago, the Club installed approximately 75 trees (mostly pines) between the fairway and the road.

As the trees matured to their full height and density in the decades that followed, the tree line became an extremely effective safety barrier protecting vehicles traveling on US Route 36 from errant golf shots. That safety barrier has become even more important as the regional population and vehicular travel along this section of US Route 36 has increased significantly over time. Pictures of the mature tree line along Hole No. 11 are included in UCC Exhibits C-1 thru C-5. *See Dye, UCC Exhibit 1, pp. 3-4.*

UCC Exhibit C shows that part of the tree line between Hole No. 11 and US Route 36 is located within the 60 foot ROW. Consequently, construction of a collector line along the south side of the US 36 ROW could require the trimming and/or removal of some trees. If required, such trimming and/or removal of trees would negatively affect the unique character of Hole No. 11 by removing or altering an important design aspect.

By removing all or a portion of the natural screening provided by the tree line, the potential distractions from passing vehicles will increase with the expected result that golfers will be more likely than before to hit an errant shot onto the road. This phenomenon is part of the psychological aspect of golf. Like the power of suggestion, when a hazard is overtly visible, it becomes a distraction and the golfer is more likely to hit the ball toward the distraction.

Furthermore, if the tree line is removed or significantly trimmed, there will be no adequate alternative to satisfy the same safety and design functions currently provided by the trees. The effectiveness of the current tree line is the result of their age and maturity. The trees provide the necessary height to interrupt the flight of a ball that has been driven from the tee without adequate loft. *See Dye, UCC Exhibit 1, p. 4.*

2. Protecting the integrity and beauty of Hole No. 11's design

In the appropriate design of a golf course, many factors are considered, including but not limited to: i) adapting individual holes to the natural terrain; ii) rising and setting sun locations; iii) direction and typical velocity of prevailing winds; iv) selection and placement of hazards; v) creating a calming or intimidating view from tee to green; and vi) screening players from off-course distractions. Those factors were considered in the original and expansion design of the UCC golf course. Selection and placement of appropriate hazards are especially important in the

design of a challenging golf course. Hazards include: trees, bushes, sand traps, rough (long grass), heather (extremely long grass), and any type of water (rivers, creeks and ponds).

In addition to its function as a safety barrier, the dense tree line constitutes a difficult "hazard" that players must consider in choosing the flight path of their tee shot on Hole No. 11. Because of the steep slope from left to right across the fairway, most tee shots aimed down the middle will tend to bounce right and down the hill into the rough. Consequently, the mature tree line along the left side of Hole No. 11 hole reduces the optimal target area of a good tee shot, increasing the difficulty of the hole. *See UCC Exhibits C-1, C-2 & C-3.*

Instead of using the public ROW, Pioneer Rural Electric Cooperative provides electric service to this area of Union Township using electric lines and poles constructed in a private easement located behind the properties on the north side of US Route 36. *See UCC Exhibits D, D-1 & D-2.* For that reason, there are no overhead electric lines in the US Route 36 ROW along the UCC Road Frontage. *See UCC Exhibits C-4 & C-5.* The UCC Board of Directors would like to see that condition remain if the Wind Facility is approved.

D. Negative Expected Effects of Turbines 48 & 49 on UCC Property

The application clearly shows that operation of certain wind turbines within the Wind Facility will create, noise, movement on the horizon, moving shadows and shadow flicker on nearby properties. Proposed Turbines 48 & 49 pose a particular concern to the UCC because of their location so near to the southwestern boundary of the UCC property. *See UCC Exhibits B-1 & F.* As shown on UCC Exhibits B-2 & B-3, Turbine 48 is proposed to be located approximately 2,000 feet from, and directly behind (by line of sight from the tee) the 5th green. Turbine 49 is proposed to be located approximately 2,800 feet from, and south of the 5th green.

1. Noise

According to the Environmental Sound Survey and Noise Impact Assessment referenced in the application, noise from Turbines 48 and 49 will definitely be heard on the UCC golf course. *See BW App. Exh. K.* In particular, Plot 2D shows that turbine noise is expected to be heard at

levels up to 34 dBA on much of the southern portion of the course and the area near No. 5 green will experience noise levels up to and exceeding 40 dBA. *See also UCC Exhibits H & I.*

It is commonly known that noise generated from wind turbines is not constant or consistent, but instead the magnitude and quality of such noise depends on the wind direction and velocity. Studies have shown that the aerodynamic noise created by wind turbines is particularly annoying compared to other mechanical and transportation sounds of the same general volume. *See UNU Exh. 47, p. 3464-3469.* Among those people who notice noise from wind turbines, swishing, whistling, pulsating/throbbing and resounding were reported to be the most annoying. To make the problem worse, aerodynamic noise is usually poorly masked by ambient noise in rural areas. *Id at 3461.*

The UCC Board of Directors is concerned about the level of noise that proposed Turbines 48 & 49 will create during operation, and how that noise will negatively affect the UCC golf course. Golf courses built in urban environments are subject to typical sounds of the city. In such an urban environment, a golfer expects to hear those sounds and must attempt to tune them out. In a rural environment, the quiet and the sounds of nature are a part of the ambience and character of the course. The tranquil atmosphere attracts golfers who enjoy the sport and the opportunity it affords to spend time in the natural environment. *See Dye, UCC Exhibit 1, pp. 5-6.* Its rural setting favorably differentiates the UCC golf course from urban setting competitors.

The noise from wind turbines would be a definite change from the peaceful atmosphere that members and guests currently enjoy at the course. Golf requires focus and concentration. For that reason, the UCC Board of Directors expects the noise from Turbines 48 & 49 to be a significant distraction for its members and guests every time they play golf when the turbines are operating. In addition, many of the members (especially after the Friday night league) like to dine after play on the Club's outdoor deck area. The UCC Board of Directors is concerned that unnatural noise from Turbines 48 & 49 may discourage outside dining, with a detrimental affect on the Club's finances. In short, because golf and dining are linked activities for the Club's members, both daytime and nighttime noise could definitely hurt league play and restaurant revenues. *See Delaney, UCC Exhibit 3, p. 5.*

The Urbana Country Club has enjoyed a quiet and tranquil environment for 88 years at is current location. This attribute is frequently noted by guests and is a distinguishing feature of the

course. Based on the extensive experience of course designer, P.B. Dye, the UCC Board of Directors believes that sound from Turbines 48 & 49 may: i) cause a distraction that would be irritating to the typical UCC member golfer; ii) negatively impact the golfer's score and overall enjoyment of the round; and iii) potentially lead to a decrease in membership, revenues and profitability. *See Dye, UCC Exhibit 1, p. 6 and Delaney, UCC Exhibit 3, p. 5.*

2. Moving Shadows, Shadow Flicker and Adverse Visual Impact

Shadow flicker from wind turbines occurs when rotating blades move between the sun and the observer. *See BW App. Exh. L, p. 2.* According to the Shadow Flicker Study referenced in the application, shadow flicker will regularly occur from Turbine 48 on holes 2 thru 8 of the UCC course during some parts of the year, at various times of the day. *See BW App. Exh. L, Map # 4.* Unfortunately, that Shadow Flicker Study focused only on occupied residential structures so it contained very little relevant information regarding the number of hours that shadow flicker was expected to occur on the UCC golf course, other than the isopleth lines shown on Shadow Flicker Map #4. *See also UCC Exh. F, G & G-1.*

Months after the application was submitted, and only a few days prior to the hearing, applicant provided the Club with a report that estimates the number of hours that shadow flicker can be expected on the UCC golf course from proposed Turbines 48 and 49. *See BW Exh. 4-A.* In that revised shadow flicker report, 4 receptor points were established on the UCC golf course for analysis. The results of that additional analysis show that Turbine 48 will produce all of the shadow flicker hours that are expected to be experienced on the UCC golf course. In particular, the "worst case" (i.e. "total possible") and "expected" number of shadow flicker hours that will be experienced at those 4 receptor points are provided below.

Receptor #	Total Possible Hours	Expected Hours	Months Affected
1	23:45	7:26	Feb, Mar, Oct, Nov
2	27:22	8:19	Feb, Oct, Nov
3	23:56	6:11	Jan, Feb, Oct, Nov
4	42:07	10:16	Feb, Nov, Dec
1-4	84:12	Not Calculated	Jan, Feb, Mar, Oct, Nov, Dec

Based on the information provided in Buckeye Wind Exhibit 4-A, there is no doubt that shadow flicker will occur on parts of Holes 2 – 8 for numerous hours in the late afternoon during the months of January, February, March, October, November and December. Although such months are not the primary golf season, UCC members regularly play golf on good weather days in each of those months.

In addition to shadow flicker, the operation of Turbines 48 and 49 so near the UCC golf course will clearly create moving shadows and movement on the horizon that will both be perceptible in a golfer's peripheral vision. Movement on the horizon can be expected any time the turbine blades are turning, and moving shadows will occur when the turbine blades are turning and the sun is shining. Although the application does not even attempt to estimate how many hours those conditions will occur on the UCC golf course property if Turbines 48 & 49 are built in their proposed locations, such oversight is understandable because the number would be significant and difficult for the Board to ignore. In any event, Buckeye Wind's failure to provide such an analysis is a serious defect in the application.

Like noise, movement is a distraction when attempting to play golf. Although the ability of a golfer to overcome minor distractions is a learned skill of the game, significant distractions are typically not tolerated on a golf course. The absence of movement is so critical to a golfer's ability to focus that at almost any course, when the grounds crews are mowing the fairways and golfers are present, the groundskeeper is instructed to stop, turn the mower off, and wait until the golfers have moved on before resuming with mowing. Likewise, at golf tournaments, marshals are hired to make sure that all spectators within the player's field of vision have stopped moving before the shot is taken. *See Dye, UCC Exhibit 1, p. 5.*

According to the Club's resident pro, Pat Delaney, moving shadows, shadow flicker and the motion of blades from a nearby operating wind turbine would definitely be a distraction to the focus and concentration needed to play a golf shot. He suggests that by watching any golf event on TV, it will be observed that professional golfers regularly wait for spectators and fellow competitors to stand still before playing a shot. In addition, the Club's weekday leagues alternate play on the front and back nine throughout the season, with regular member play occurring on the nine opposite league play. Based on that consistent use of the front nine, there would be no way

for members to avoid play during times of movement on the horizon and moving shadows caused by Turbines 48 & 49.

In addition to the distraction caused by movement and shadows, Turbines 48 and 49 will negatively affect the pristine country views that have been part of the UCC golf course property since its founding. Photos of views from several of the affected holes are included in UCC Exhibits G-2 thru G-5. Chapter 5 of the Wind Energy Siting Handbook defines the term "adverse visual impact" to be "an unwelcome visual intrusion that diminishes the visual quality of an existing landscape." There is no doubt that construction and operation of proposed Turbines 48 & 49 will constitute an "adverse visual impact" on the UCC property. Because the pristine country views are one of the distinguishing aspects of the UCC golf course, such an adverse visual impact will clearly damage the UCC.

3. Disruption to Bat Habitat Near Turbine 48

The UCC Board of Directors is concerned about the potential disruption and/or relocation of an active bat colony that is currently roosting near the UCC property and the proposed location of Turbine 48. There is no question that bats are a positive for any nearby outdoor recreational activity including a golf course because they naturally reduce the number of flying insects in the area. Although the application identifies the existence and location of an important bat colony near the UCC property, Buckeye Wind does not provide any assurances that operation of proposed Turbine 48 will not negatively affect the habitat for such bats.

The Buckeye Wind application includes a report titled "Summer 2008 Bat Mist-netting Report" prepared by Ms. Cara Meinke of Stantec Consulting. *See BW App. Exh. X.* During her cross examination at the hearing, Ms. Meinke provided the following relevant testimony.

The study she prepared identified a maternal roost of Northern Myotis bats in a stand of woods on property located near the southwestern edge of the UCC property and just north of the proposed location for Turbine 48. *See Cross Examination Testimony of Cara Meinke, Tr. Vol. III, pp. 689-694; and BW App. Exh. X, Figure 3-2, p. 14.* According to Tables 3-2, 3-3, and 3-5 of that report, a lactating female northern myotis bat was tracked to three separate trees within that stand of woods on five separate days; and a total of 46 bats were observed emerging from

that day-roost location ("A Roost") during the evenings of the survey time period. *See also Meinke Cross, Tr. Vol. III, p. 685.*

Bats are a general benefit to the environment. *Id at 680.* One of the reasons that bats are a benefit to the environment is that they eat flying insects. *Id at 681.* Bats living near an outdoor recreational area or facility are a positive because of their appetite for flying insects. *Id at 682.* Northern Myotis bats have been known to cross an open space of 50 yards (such as the opening between trees on opposite sides of a fairway) during their evening foraging. *Id at 687-688.*

Ms. Meinke agreed that operation of a nearby wind turbine might make a particular stand of woods "less attractive" for bats and they "might be displaced by that turbine." *Id at 696-697.* She further agreed that if the 46 bats known to be residing within the "A Roost" were displaced by operation of proposed Turbine 48, "that would be a bad thing for the Country Club" because those bats would not be around to eat bugs that are a pest to golfers on the UCC course. *Id at 697.* Finally, Ms. Meinke agreed that there are three circumstances that a spinning wind turbine may cause to a nearby bat colony: 1) bats may be killed by a direct strike; 2) bats may relocate their roost; or 3) bats may forage in an area distant from the roost – all three of which are bad for the golf course. *Id at 698.*

If the bats in "A Roost" are displaced by construction and/or operation of Turbine 48, the UCC will also incur a direct expense equal to the cost of pesticides that will need to be applied at the golf course to kill the flying insects that the bats would otherwise have eaten.

4. Cumulative Negative Effects of Turbines 48 & 49 Causing Loss of Revenue = Diminution in Club's Value

The income approach is an accepted method of valuing a commercial enterprise. *See Cross Examination Testimony of Tom Sherick, Tr. Vol. 6, p. 1281.* In his testimony, Mr. Sherick agreed that if an outdoor recreational facility generates less revenue because of an activity occurring on a neighboring property, that reduction in revenue could reduce the value of such an enterprise. *Id at 1284.*

The UCC Board of Directors is concerned that the "cumulative negative effects" of noise, moving shadows, shadow flicker, adverse visual impact, and loss of bat habitat that are associated with construction and operation of Turbines 48 and 49 may cause a loss of annual revenue from club operations, a diminution of it's real property value, and a reduction in the overall value of the Club.

III. LEGAL REQUIREMENTS

Before construction of an electric generation plant may commence in Ohio, a company must, among other things, obtain a certificate of environmental compatibility and public need ("Certificate") from the Board. O.R.C. § 4906.04. Pursuant to the Ohio Power Siting Statute, O.R.C. § 4906 et seq., the Board shall not grant a certificate for the construction, operation, and maintenance" of an electric generating plant unless it finds and determines [that] all of the elements set forth in the statute have been satisfied. O.R.C. § 4906.10(A). While the statute sets forth seven standards that must be satisfied before any certification can be issued, the two most relevant to this proceeding are: 1) the nature of the probable environmental impact; and 2) 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. O.R.C. § 4906.10(A)(2) & (3).

An applicant seeking to obtain a Certificate must provide the Board with a description of the impact of the proposed facility on "cultural resources," which are defined to include "recreational areas." O.A.C. § 4906-15-06(F). The applicant must estimate the probable impact of the proposed facility on cultural resources, and describe the mitigation procedures to be used during operation and maintenance of the proposed facility to minimize impact on cultural resources. O.A.C. § 4906-15-06(F)(3) & (4). The applicant must also submit data and related information on noise emissions generated by the proposed facility. O.A.C. § 4906-15-06(G).

The Board has well recognized authority to deny certification where the statutory standards for certification have not been satisfied. O.R.C. § 4906.03(D); *Ohio Edison Co. v. Power Siting Commission*, 56 Ohio St. 2d 212,214-215 (1978) (upholding denial of certification due to adverse recreational impacts). The Board also has the authority to modify an applicant's

proposal in order to minimize its environmental impact. O.R.C. § 4906.10(A). Furthermore, in order to protect environmental and public health interests, it is proper for the Board to require an evaluation of the environmental impacts of a proposed facility, and to deny certification or modify the proposal if the identified need could be satisfied with fewer adverse environmental impacts. *City of Columbus v. Ohio Power Siting Commission*, 58 Ohio St. 2d 435 (1979); *City of Columbus v. Teater*, 53 Ohio St. 2d 253, 260-61 (1978).

Finally, according to the Board's rules, the applicant bears the burden of proving that all of the statutory criteria for certification have been satisfied. O.A.C. § 4906-7-09(F). Therefore, if Buckeye Wind has failed to fully and appropriately evaluate environmental impacts or alternatives, the Board must deny certification or impose modifications that will appropriately limit the identified environmental impacts.

IV. ARGUMENT

A. Applicant Failed to Fully Evaluate the Probable Environmental Impact of Turbines 48 & 49 on the UCC property as required by O.R.C. § 4906.10(A)(2)

Christopher Shears is the Senior Vice President of Development for EverPower Wind Holdings, Inc. ("EverPower"), the parent corporation to Buckeye Wind LLC. *See Direct Testimony of Christopher Shears, BW Exh. 4, p. 1.* Mr. Shears claims to have been involved with the development of over 60 wind farm schemes during his career, and was the primary company representative chosen to provide testimony in support of the application. *Id at p. 2, 3 & 6.*

During his cross examination at the hearing, Mr. Shears clearly indicated that EverPower places very little importance on environmental considerations when making its wind turbine siting decisions. He specifically admits that EverPower has never walked away from a project for environmental considerations. In other words, if sufficient wind and transmission resources are present in the area, the proposed project will be pursued no matter what the environmental conditions are. *See Cross Examination of Christopher Shears, Tr. Vol. 1, p. 207.* Those statements show a general lack of sensitivity to the affected communities when EverPower is planning to site a wind turbine facility.

More importantly, EverPower has absolutely no experience in the siting and operation of industrial wind turbine facilities near a golf course. *See Shears Cross, Tr. Vol. 1, p. 208.* Mr. Shears has never played golf on a course with nearby turbines, so he cannot properly evaluate the probable distractions. *Id at 210.* In addition, Mr. Shears was not aware of any studies about potential negative affects of locating wind turbines near a golf course, and agreed that there is no standard for the acceptable number of shadow flicker hours on an outdoor recreational facility neighbor. *Id at 248.* In summary, Buckeye Wind never specifically considered how the noise, moving shadows, movement on the horizon, and shadow flicker that is expected to be caused by Turbines 48 & 49 would affect the UCC property and its business operations.

Buckeye Wind's application recognizes that the UCC property exists within the project area but it is void of any serious consideration of the negative effects of the proposed Wind Facility on the UCC operations. Page 188 of the application contains the following description. An almost identical description appears on page 156 of the application.

> *Urbana Country Club is a private facility, with an 18-hole course, located along US Highway 36 in Urbana. Other on-site features include a swimming pool, tennis courts, golf shop, restaurant and clubhouse (Urbana Country Club, 2009; CCC&VB, 2009). As shown on Sheet 2 in Appendix B of Exhibit I, turbines will likely be visible throughout much of the property, with the number of turbines visible ranging from 0 to 65, depending on location. No turbines will be visible from forested areas, including the extreme northeast and southwest comers of the property, and a large woodlot in the east-central portion of the course. The greatest number of turbines will be visible from the east-southern portion of the golf course (EDR, 2009). As described in Section 4906-13-07(A)(3)(c) of this Application, daytime sound levels will not exceed nominal impact thresholds at Urbana Country Club (see Plots 1A-1D in Exhibit K). When nighttime sound contours are modeled based on the worst-case L90 sound levels (Plots 2C-2D in Exhibit K), sound levels in the southern portion of the course exceed the nominal impact threshold (Hessler, 2009). However, since golf is not typically played at night the sound levels that may occur on the five affected fairways will not adversely impact recreational use of the golf course.*

For all of the reasons that are more fully explained below, the application fails to satisfy Buckeye Wind's burden of proving that the probable environmental impacts of proposed Turbines 48 & 49 have been fully evaluated with regard to the nearby UCC property.

1. Failure to fully evaluate impact of noise on playing golf

With regard to the expected effects of noise on the UCC golf course, the applicant's theory is that daytime L90 background levels of noise when the wind is blowing at 6 meters per second in the project area averages 35 dBA. Applicant also believes that new development projects in any area should be allowed to add at least 5 dBA on top of the average background level to reach the "nominal impact threshold" of 40 dBA. According to its model, Turbines 48 and 49 are not expected to produce noise on the UCC golf course at levels higher than 40 dBA. Applicant further argues that the average background level will effectively mask (make imperceptible) the turbine noise that does reach the UCC golf course.

Unfortunately, the application completely ignores the known facts that: 1) aerodynamic noise created by wind turbines is particularly annoying compared to other mechanical and transportation sounds of the same general volume; 2) among those people who notice noise from wind turbines, swishing, whistling, pulsating/throbbing and resounding were reported to be the most annoying; and 3) to make the problem worse, aerodynamic noise is usually poorly masked by ambient noise in rural areas. *See UNU Exh. 47, p. 3461-3469.* Because of that glaring oversight, applicant has not satisfied its burden of proof that the probable impact of noise from Turbines 48 and 49 has been fully evaluated with regard to the UCC property.

2. Failure to fully evaluate impact of visual distractions on playing golf

With regard to shadow flicker, the application considers its effect only on residential structures. *See Shears Cross, Vol. I, p. 253.* In pages 108-112 of the application focusing on shadow flicker, there is no mention whatsoever regarding the UCC golf course, the Woodland Golf Course, or any other outdoor recreational facility. Likewise, in the description of the UCC property on pages 156 & 188 of the application, there is no mention of how shadow flicker will affect the playing of golf. Mr. Shears tried to explain that oversight by asserting that shadow flicker outside buildings, in open fields or along roads, is less distinctive and has generally not caused impacts on human activity. *See BW Exh. 4, p. 13.* However, when cross examined on that issue, Mr. Shears could not point to one reputable study that reached the same conclusion.

See Shears Cross, Tr. Vol. 1, p. 246. He went on further to admit that Buckeye Wind has never looked at the shadow flicker effects on a nearby golf course before this project. *Id at 247.*

During his cross examination, Mr. Shears was asked to interpret the shadow flicker analysis performed by Buckeye Wind regarding effects on the UCC golf course. With regard to the conclusions of that report, Mr. Shears stated that "conservatively....we believe the effect will be 10 hours per year, and definitely in the winter months." *Id at pp. 254 & 261.* Both of those statements are inaccurate and show a lack of understanding about the potential effects of shadow flicker on UCC the golf course.

First of all, some of the time in which shadow flicker is expected to occur on the golf course is in October and November (autumn) when Club members are still regularly playing golf. Second, some Club members play golf on good weather days during the winter months. Third, Mr. Shears has no basis for his statement that the UCC golf course will "conservatively" experience only 10 hours of shadow flicker per year. As summarized above, the shadow flicker report shows a total of 10:16 hours at Receptor 4 alone. Furthermore, the report suspiciously does not even calculate the total number of expected shadow flicker hours that will be experienced at all 4 receptors. Finally, and most importantly, Buckeye Wind could have, but decided against measuring the cumulative number of hours that the UCC property would be subjected to shadow flicker but instead chose 4 arbitrary receptor points. When asked about that decision, Mr. Shears provided a convoluted answer that in essence asserted that applicant's decision to select 4 receptor points was appropriate. *See Shears Cross, Tr. Vol. I, p. 258-261.*

In addition, applicant has not shown that the shadow flicker analysis contained in Buckeye Wind Exhibit 4-A is completely accurate in any event. Mr. Dye testified that the proposed location of Turbine 48 sits on a ridge that is approximately 40 – 60 higher than the elevation of the UCC golf course, approximately 2,000 feet to the northeast. *See Dye Cross, Tr. Vol. IV, p. 960.* From the information contained in that report, there is no way to tell whether the relative elevations were considered in calculating the estimated number of hours that shadow flicker is expected to be experienced on the UCC golf course. If the relevant elevations were not included in the baseline for the calculation, the Club believes that the shadow cast by Turbine 48 will be longer and will affect the UCC golf course for more hours than the model predicts. *Id at 955.*

Notwithstanding, and without the benefit of a single study or any previous experience by anyone in the EverPower organization regarding the potential effects of shadow flicker, moving shadows, or movement on the horizon on the playing of golf, applicant summarily dismissed those commonly known distractions from its analysis supporting the application. Consequently, applicant has not satisfied its burden of proof that the probable impact of shadow flicker, moving shadows, or movement on the horizon from Turbines 48 and 49 has been fully evaluated with regard to the UCC property.

3. Failure to fully evaluate visual impacts on UCC property

The application references a Visual Impact Assessment prepared by Environmental Design and Research in which computer generated images of the proposed turbines were superimposed on pictures taken from 14 different viewpoints. *See BW Exh. 1, p. 49, and BW App. Exh. I.* The purpose of that assessment was to examine "the visual impact of the proposed wind turbines on the aesthetic resources and viewers within the Project study area." *See BW App. Exh. I, p. 28.* Because the UCC property was considered a "visually sensitive resource" within that assessment, Viewpoint 44 was located near the Club's entrance on US 36.

In his cross examination, Mr. Shears agreed that "simulations should evaluate effects at sensitive and scenic viewpoints" within a project area. *Shears Cross, Tr. Vol. 1, p. 238.* He also agreed that the UCC property is considered a "visually sensitive resource" as that term is defined by the application. *Id at 240.* Nevertheless, Buckeye Wind chose not to create a "visual simulation" of proposed Turbines 48 & 49 from the UCC course viewpoint so that the community could really understand the significant visual impairment that such turbines would create on the golf course property. When asked to explain why a visual simulation was not created from the UCC property, Mr. Shears explained that it was too "onerous" to create simulations from all viewpoints so representative locations were used. *Id at 241.*

The Club views Mr. Shears' response on that critical issue to be wholly inadequate in light of his subsequent admission that only two golf course properties are located within the project area. *Id at 242.* In recognition of the famous design and worldwide notoriety of its golf course,

the Club feels that applicant had an obligation to prepare a visual simulation of how Turbines 48 and 49 (each standing 492 feet high) would appear from the course, a mere 0.4 miles away.

Had such a visual simulation been prepared, the Club believes that it would have looked much like Figure 10 from Viewpoint 14 (two turbines shown 0.5 miles in the distance); Figure 19 from Viewpoint 119 (two turbines shown 0.6 miles in the distance relative to a home and barns); and Figure 20 from Viewpoint 123 (one turbine shown 0.5 miles in the distance relative to a mature tree line). In each of those simulations, the wind turbines clearly appear "out of place" with regard to their natural surroundings. Because such a visual simulation was not prepared, applicant has not satisfied its burden of proof that the probable visual impact from Turbines 48 and 49 has been fully evaluated with regard to the UCC property.

4. Failure to fully evaluate potential disturbance to bat habitat

The application makes clear that the proposed layout of the Wind Facility was designed to "avoid impacts to the federally endangered Indiana bat, through compliance with a setback established by the USFWS to protect home/core ranges in nearby Logan County." *See BW Exh. 1, p. 165.* As is further explained above, applicant located a few Indiana bats within Champaign County in its 2008 mist-netting study, but not in areas there turbines are proposed. *See BW App. Exh. X.* As part of that same study, the "A Roost" consisting of 46 Northern Myotis bats was identified in a stand of woods on property located near the southwestern edge of the UCC property and just north of the proposed location for Turbine 48. *See Meinke Cross, Tr. Vol. III, pp. 689-694; and BW App. Exh. X, Figure 3-2, p. 14.*

In spite of locating the "A Roost" and applicant's expert recognizing the importance of foraging Northern Myotis bats in the area of the UCC golf course, the application does not contain any mitigation strategies for protecting the important bat habitat near proposed Turbine 48. Such failure is another clear indication of how Buckeye Wind either chose to ignore, or simply did not have the expertise to understand the probable environmental impacts that the proposed Wind Facility might have on the UCC property. As a result, applicant has not satisfied its burden of proof that the probable impacts from disturbance of the bat habitat from Turbines 48 and 49 has been fully evaluated with regard to the UCC property.

5. Failure to fully evaluate the potential economic injury to the Club

Throughout the application process and during the hearing, Buckeye Wind has steadfastly maintained that construction and operation of the proposed Wind Facility will not have any appreciable effect on the value of residential properties in the project area. *See BW Exh. I, p. 166 and BW App. Exh. X, p. 94.* In his cross examination, without identifying any supporting authority for his position, Mr. Spears went even further in stating that the location of wind turbines would have no impact on the value of nearby outdoor recreational facilities. *See Spears Cross, Tr. Vol. I, p. 242-243.* However, in response to follow-up questions, Mr. Spears did concede that if the Club could show that less revenue was earned because of member dissatisfaction with the effects of wind turbine operations on nearby properties, "then maybe that has some impact on the value." *Id at 245.*

Notwithstanding that concession, the application totally ignores the possibility that the value of UCC's recreational enterprise could be significantly diminished by the nearby operation of Turbines 48 & 49. As a result, applicant has not satisfied its burden of proof that all of the probable impacts from Turbines 48 and 49 has been fully evaluated with regard to the UCC property.

B. Applicant Failed to Minimize Environmental Impact of Wind Facility on the UCC property as required by O.R.C. § 4906.10(A)(3).

1. Failure to minimize impact of proposed collector line along UCC Road Frontage.

The application contains a layout of the Wind Facility, including the proposed locations of each wind turbine and the overhead and underground "collector lines" that are required to bring electricity from the wind turbines to the substations. *See BW App. Figure 1, Land Cover Map – Grid C3.* Figure 1-13 of the Land Cover Map clearly shows that applicant is seeking authority to build overhead collector lines along UCC Road Frontage (where overhead lines have never been located). *See also Spears Cross, Tr. Vol. 1, p. 224.*

The proposed location of a collector line in the UCC Road Frontage is inappropriate for at least two reasons. First of all, it is not necessary to the success of the project. Secondly, it would not represent the "minimum impact" when compared to other options.

Mr. Shears agreed that based on the MSE Power Analysis Report, collector lines in the UCC Road Frontage "would provide the applicant with greater flexibility but is not necessary to the success for the project." *Id at 228.* Because of that concession, Buckeye Wind made a commitment during the hearing that the project would not involve installation of overhead collector lines along UCC Road Frontage. *Id at 230.* As the first alternative, Mr. Shears agreed that applicant will attempt to negotiate with Pioneer Rural Electric for access to their existing poles in a private easement located behind properties on north side of US Route 36. *Id at 231.* If that effort is unsuccessful, and only if such collector lines are determined to be necessary for the project, they may only be installed underground on the north side of the US 36 Route ROW. *Id at 232.*

Following through on that commitment made by Mr. Shears during the hearing, the UCC Board of Directors specifically demands that if a certificate is issued in this matter, it must include the limitation specifically described in Section V below regarding construction of collector lines near the UCC Road Frontage.

2. Failure to minimize shadow flicker from Turbine 48.

After Buckeye Wind ran its shadow flicker model a second time in order to estimate the number of hours that shadow flicker would affect the UCC golf course, it failed to minimize those impacts by agreeing to voluntarily disable Turbine 48 during the relevant time periods. When questioned at the hearing, Mr. Shears refused to agree that Buckeye Wind should be required to install an automatic mitigation system that would prevent Turbine 48 from turning during times when shadow flicker is expected to occur on the UCC golf course. Instead, he stated that "I think the impacts of this from a shadow flicker point of view are so de minimis that a particular requirement to shut down during these periods of the year would be, I think unnecessary, in my view." *Id at 263.*

One of the witnesses called by the Union Neighbors United was a man with first hand experience living very close to a large operating wind turbine. *See Direct Testimony of Larry Wunsch, UNU Exh. 30A.* During his cross examination at the hearing, Mr. Wunsch agreed that he would be happy with a restriction that prevented the turbine next to his home from turning during the shadow flicker periods. *See Wunsch Cross, Vol. VII, p. 1605.*

Because the application does not include any plan to mitigate the shadow flicker that is expected to be experienced on the UCC golf course, and Buckeye Wind does not believe it has any obligation to voluntarily disable Turbine 48 during the shadow flicker time periods, that position is clear evidence that the applicant has failed to minimize the environmental impact of Turbine 48 on the UCC property as required by O.R.C. § 4906.10(A)(3).

V. PROPOSED CONDITIONS

If the Board decides to issue a certificate of environmental compatibility to construct a wind-powered electric generation facility in this matter, it should include the following enforceable conditions.

Condition 1: No construction of an electric collector line in the UCC Road Frontage on the south side of US Route 36

If Applicant can show that an electric collector line along US Route 36 near the UCC Road Frontage is "necessary" for the success of the project, Applicant shall be required to negotiate in good faith with Pioneer Rural Electric Cooperative for authority to use Pioneer's private right of way behind the properties on the north side of US Route 36 to construct the necessary collector line. Only if such good faith negotiations are unsuccessful shall Applicant be authorized to construct an electric collector line on the north side of the US Route 36 ROW along the UCC Road Frontage, and that line must be installed underground.

Condition 2: No construction of Turbines 48 and 49 because their construction and operation are expected to cause an unacceptable economic effect on the Urbana Country Club operations

As an alternative to Condition 2, Applicant must be required to: a) program the operation of Turbines 48 and 49 to eliminate the possibility of shadow flicker occurring on the UCC golf course; and b) undertake appropriate mitigation to resolve any legitimate complaints from the UCC regarding the negative effects caused by operation of Turbines 48 & 49 on the UCC property. Appropriate mitigation may include temporarily preventing a turbine from turning during the time period in which the complaint is related.

VI. CONCLUSION

Ohio law provides that an applicant for a certificate of environmental compatibility to construct a wind-powered electric generation facility bears the burden of proving that all of the statutory criteria for certification have been satisfied. If the Board finds that a particular proposed project does not satisfy all of the statutory criteria for certification, the Board must either deny the application or require appropriate changes in the project design to make sure that the statutory criteria are satisfied.

With its application, Buckeye Wind seeks to obtain the Board's authority to construct the first, full scale, industrial wind facility in Ohio's history. Because its decision will become an important precedent for numerous future applications, the Board should proceed cautiously in its consideration of this application to make sure it satisfies all legal requirements before a decision is reached.

Intervenor The Urbana Country Club has provided the Board with ample evidence that certain aspects of the proposed project are expected to cause significant detrimental effects on the Club's business operations. Based on that evidence, the UCC is proposing certain conditions that would reduce, but not eliminate such detrimental effects if a certification is issued by the Board.

In closing, the UCC Board of Directors urges the Ohio Power Siting Board to include the suggested conditions in any certificate that may be issued in this matter.

Respectfully submitted,

Daniel A. Brown (0041132)
Brown Law Office LLC
204 S. Ludlow St., Suite 300
Dayton, Ohio 45402
(937) 224-1216
(937) 224-1217 fax
dbrown@brownlawdayton.com

CERTIFICATE OF SERVICE

I hereby certify that I caused a true and correct copy of the Post-Hearing Brief of Intervenor The Urbana County Club to be served upon all counsel of record listed below on this 15th day of January 2010.

Daniel A. Brown

Service List

Howard Petricoff, Esq. Stephen Howard, Esq. Michael Settineri, Esq. Vorys, Sater, Seymour and Pease LLP 52 East Gay Street Columbus, Ohio 43215 mhpetricoff@vorys.com smhoward@vorys.com mjsettineri@vorys.com Via Electronic Mail and Regular US Mail Larry Gearhardt, Esq. Chief Legal Counsel Ohio Farm Bureau Federation 280 North High Street, P.O. Box 182383 Columbus, Ohio 43218-2383 lgearhardt@ofbf.org Via Electronic Mail Jane A. Napier, Esq. Assistant Prosecuting Attorney Champaign County 200 North Main Street Urbana, Ohio 43078 janecpo@ctcn.net Via Electronic Mail Carolyn S. Flahive Thompson Hine LLP 41 S. High St., Suite 1700 Columbus, Ohio 43215 Carolyn.Flahive@ThompsonHine.com Via Electronic Mail	Werner Margard, Esq. Anne Hammerstein, Esq. Assistant Attorney General 180 East Broad Street, 9th Floor Columbus, Ohio 43215 werner.margard@puc.state.oh.us anne.hammerstein@puc.state.oh.us Via Electronic Mail Christopher A. Walker (0040696) Van Kley & Walker, LLC 137 North Main Street, Suite 316 Dayton, Ohio 45402 cwalker@vankleywalker.com Via Electronic Mail Jack A. Van Kley (0016961) Van Kley & Walker, LLC 132 Northwoods Blvd., Suite C-1 Columbus, Ohio 43235 jvankley@vankleywalker.com Via Electronic Mail G.S. Weithman, Director of Law City of Urbana 205 S. Main Street Urbana, Ohio 43078 diroflaw@ctcn.net Via Electronic Mail Gene Park Piqua Shawnee Tribe 1803 Longview Drive Springfield, Ohio 45504 Ewest14@woh.rr.com Via Electronic Mail