March 24, 2021

VIA ELECTRONIC MAIL

Ms. Dianne Martin, Chairperson
New Hampshire Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301

RE: DOCKET NO. 2015-02, ANTRIM WIND SOUND MONITORING

Dear Chairperson Martin:

I have carefully read Antrim Wind, LLC's ("Antrim Wind") March 22, 2021 submission including two technical memoranda prepared by Kenneth Kaliski of RSG, Inc., and Robert O'Neal of Epsilon Associates, Inc. Messrs. Kaliski and O'Neal each present their opinions for how the Committee should interpret the Committee's own rules. Their opinions are largely the same as those already put forth by Antrim Wind that attempt to change the intent of the rules without addressing the failure of Acentech to follow the rules. However, I am happy to respond again. Before doing so, I believe it is important to reaffirm the Committee's established precedence regarding wind turbine noise standards as it was this precedence that guided the rulemaking process, and this precedence that Antrim Wind, through Messrs. Kaliski and O'Neal, is attempting to reinterpret to their benefit.

1. SEC Precedent and SEC Rulemaking

Prior to 2015 and the adoption of the existing SEC rules, the Committee accepted and reviewed four applications for wind energy facilities and imposed noise standards on three of the four, namely Lempster Wind, LLC, Groton Wind, LLC, and Antrim Wind, LLC (2012). Granite Reliable Power, LLC was permitted without noise conditions. In each case where noise conditions were imposed, the SEC adopted a "shall not exceed" or Lmax standard which is effectively equivalent to the Leq 1/8-second standard incorporated in the SEC rules today.

The "shall not exceed"' standard is well established in limiting wind turbine noise in the United States and can be found in numerous jurisdictions including Dallas County IA, Gratiot County MI, Beaver and Denmark Townships in MI, Sweetwater and Albany Counties in WY, Madison County IA, Jasper and Newton Counties in IN, Mason County KY, and Penn Forest Township PA. Also see Tennessee Code Ann. § 65-17-105 and Wisconsin Admin. Code § PSC 128.14(3).

The permit language for Lempster Wind, LLC, Groton Wind, LLC, and Antrim Wind, LLC (2012) is generally the same as shown in the table below.

SEC Noise Limits by Project	
Lempster Wind	• Not to exceed 55 dBA or 5dBA more than the ambient level whichever is greater. Noise is to be measured at the property line of nearby homeowners or 300-feet from homes, whichever is closer (Town agreement). Different standard for Goshen/Lempster school. • SEC standard triggered mitigation measures including installing Energy Star air-conditioners in bedrooms of non-participating homeowners if sound levels at the outside facades of homes exceed 45 dBA or 5 dBA greater than ambient, whichever is greater, to ensure that interior bedroom sound levels do not exceed 30 dBA or 5dBA greater than ambient, whichever is greater, with windows closed.
Granite Reliable	• No noise standards
Groton Wind	• Daytime: Not to exceed 55 dBA or 5 dBA above ambient • Nighttime: Not to exceed 45 dBA or 5 dBA above ambient • Campground: Not to exceed 40 dBA or 5 dBA above ambient
Antrim Wind	• Daytime: Not to exceed 45 dBA or 5 dBA above ambient • Nighttime: Not to exceed 40 dBA or 5 dBA above ambient

The Health and Safety stakeholder group convened under SB99 prepared a consensus document which served as the foundation for what became NH Site 301.18 (Sound Study Methodology). The stakeholder group was well aware of the Committee's "shall not exceed" precedent and worked to preserve that standard in the final rules. While the group did not recommend a final sound limit (ex: "shall not exceed" 40 dBA), the group was deliberate in its recommendation that *all monitoring and reporting* of wind turbine sound reflect the signature amplitude modulation ("AM") found in megawatt-scale turbines.[1] It is for this reason that the 1/8-second interval using the Lfast (Leq) metric stood as its own recommendation in the SB99 report.[2]

Mr. Kaliski's memo fails to consider that the SB99 report was only a first step in an extended rulemaking process pursuant to SB99 and SB281. Ultimately, it was the Committee that determined what recommendations would be accepted, amended, or rejected.

During deliberations, the Committee acknowledged the purpose of NH Site 301.14(f)(2) and its reliance on NH Site 301.18. *(Chairman Honigberg: "…this [NH Site 301.14(f)(2)] is where the standard is set, and 18 is where you explain how and where you test." Docket 2014-04 TR 09-29-2015 at 141)* Mr. Kaliski and others may not like that the Leq 1/8-second time interval is cited under

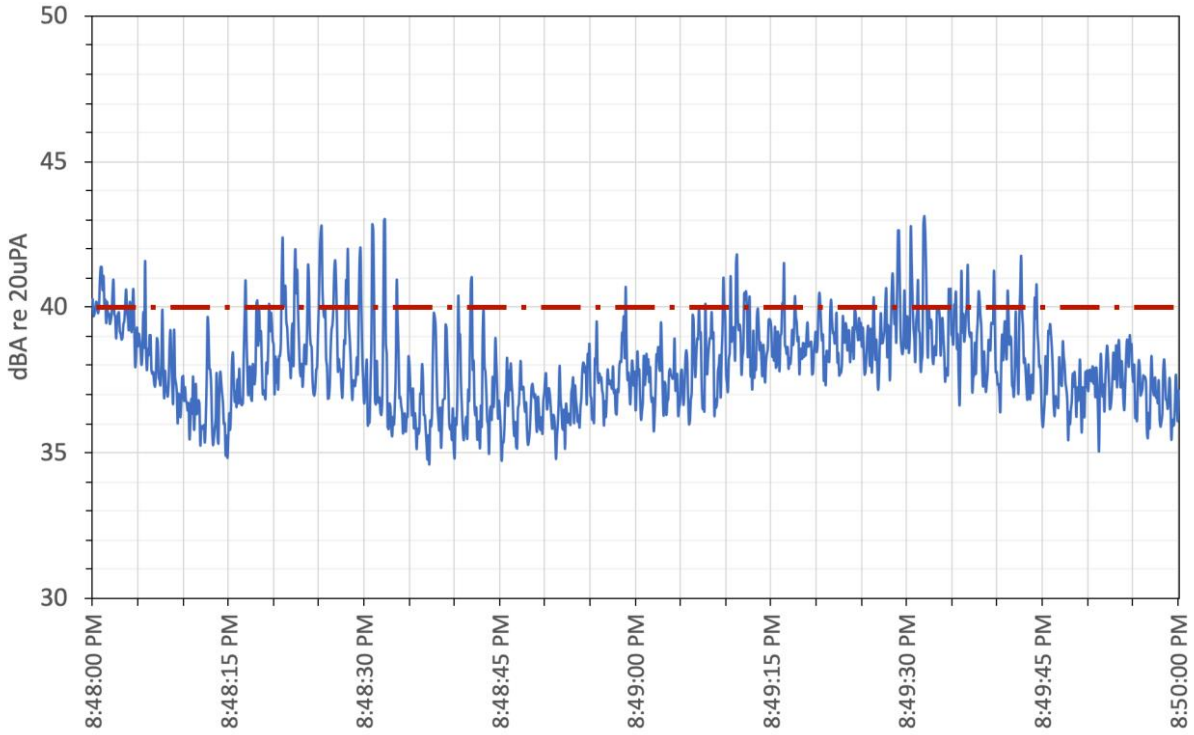
[1] Amplitude modulation in wind turbines is defined as the periodic changes in amplitude or loudness of a signal associated with the rate of blade-pass frequency.

[2] *Office of Energy and Planning Senate Bill 99 of 2013 Report*, Table 1.a "All sound measurements during post-construction monitoring will be taken at 0.125-second intervals measuring both "fast" response and Leq metrics. (August 12, 2014) https://www.nh.gov/osi/energy/programs/documents/sb99-rulemaking-final-deliverable.pdf

Site 301.18 but that is how the rule was adopted. The fact remains that Site 301.18(e)(6) is the only point in the SEC rules where an interval is ascribed for Leq.[3]

2. Effect of Leq Time Interval on Noise Reporting

The purpose of the SEC sound standard is to ensure that a permitted facility does not produce an unreasonable adverse effect on public health and safety. The Committee's Leq 1/8-second standard is functionally equivalent to the Lmax noise standard applied in the Lempster, Groton, and Antrim Wind (2012) dockets. This standard is designed to capture the peaks and troughs of amplitude modulation found in turbine noise emissions. The deficiencies of increasing the Leq time interval to 1-hour is best illustrated in the below plot[4] of actual turbine noise measured at the Antrim Wind facility during a 2-minute period when a complaint was made. The turbines were dominating the acoustic environment at the time of the complaint.



The red dashed line denotes the Committee's 40 dBA limit; the blue lines represent 1/8-second Leq measurements. For this example, the not-to-exceed 40 dBA Lfast limit (measured as a 0.125 exponential equivalent sound level Leq) is exceeded when the blue line is above the red line. Yet, if we accept Antrim Wind's opinion that the rule is a one-hour Leq there would be no exceedances.

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[3] *Lisa Linowes, Janice Longgood, And Barbara Berwick's Reply To Antrim Wind Energy, LLC's Objection To Motion For Rehearing* at 8 https://www.nhsec.nh.gov/agendas-minutes/documents/2015-02_2021-02-22_linowes_longgood_berwick_reply_awe_obj_rehearing.pdf

[4] *Rand Report Antrim Wind Facility* at 6 https://www.nhsec.nh.gov/projects/2015-02/post-certificate-filings/2015-02_2020-09-23_sound_monitoring_rpt.pdf

One-hour or even 10-minute averaging removes the amplitude modulation characteristic leaving the incorrect impression that the noise is acceptable. Doing so enables Antrim Wind to report to the SEC that its facility is operating in compliance with the standard while the Berwicks, Longgoods, Morrisons, Bucos and others suffer repeated adverse conditions. Individuals residing near the turbines still experience these sound exceedances even if an acoustician averages them away on paper.

3. **Kaliski-O'Neal Failed to Follow SEC Noise Standard at Lempster and Groton Wind**

The permits issued by the SEC for Lempster and Groton Wind define a "not to exceed" noise standard with no reference to "average," "Leq," or "equivalent." Under this standard, any noise increase from wind turbines over the permitted level should be reported as an exceedance. Yet, neither Lempster Wind nor Groton Wind[5] sought exceptions to the permit noise condition, nor were there any complaints at the time that such a standard was "unreasonable," "inappropriate," or "would produce absurd results." *(Kaliski memo at 2, O'Neal memo at 2)*

A quick review of the post-construction monitoring reports for Lempster and Groton may reveal why. Messrs. Kaliski and O'Neal *did not follow* the Committee's "not to exceed" condition. Rather, it appears they *dismissed* this language for both projects and replaced it with their own noise standard based on 10-minute averaging of data (i.e. Leq 10-minute).

The decision to disregard the Committee's language in favor of their own sound standard was not due to a misreading of the permit, but a deliberate act to ignore the language. Proof of this can be seen in the attached December 22, 2016 memo authored by Mr. Kaliski and Epsilon Associates acoustician, Richard Lampeter, involving NextEra Energy's Tuscola Wind III facility proposed for Almer Township, Michigan. In the memo to their client, Messrs. Kaliski and Lampeter state that since Almer Township's "shall not exceed" wind noise standard "does not specify a metric or averaging time for the wind turbine sound level limit," they (Kaliski-Lampeter) "assumed a one-hour equivalent average sound level (Leq)." (*Exhibit A at 1)*

Remarkably, Messrs. Kaliski and Lampeter used their deceptive act in New Hampshire to justify their assumption in Almer Township. Their memo stated:

> 'The New Hampshire Site Evaluation Committee (NH SEC) imposed language that a permittee "shall not exceed" a certain sound level as a condition of approval for a wind energy project in New Hampshire. The language did not specify the metric, but sound levels from this project were evaluated using Leq sound levels. This methodology was accepted by the State for the compliance evaluation.' (*Exhibit A at 5*)

To my knowledge there is no record of the SEC acting to accept the sound compliance reports for either Lempster or Groton Wind. In essence, RSG and Epsilon ignored the SEC's permit conditions for noise monitoring at two New Hampshire wind sites *and then lied* about the SEC's response in order to bolster their claim that a "shall not exceed" standard really means one-hour averaging. This egregious act alone should call into question the trustworthiness of RSG and

[5] Mr. Kaliski conducted post-construction sound monitoring at Lempster Wind. Mr. O'Neal conducted sound monitoring at Groton Wind.

Epsilon in the Antrim matter and raise serious doubt over whether the Lempster and Groton wind facilities are operating in compliance with their permits.

In the same memo at 2, Messrs. Kaliski and Lampeter admit that measurements using a "shall not exceed" metric (Lmax) would be "about 6 dB to 11 dB greater than the Leq 10 minute" measurement. This 6 to 11 dB correction is significant. The notion that through rulemaking the Committee would vote to relax its precedent of Lmax in favor of one-hour averaging and enable turbines to operate as much as 11 dB louder is simply nonsensical and not supported anywhere within the rulemaking record.

4. **Kaliski-O'Neal Advance Arguments Thrown-out in Federal and State Courts**

Many of the same technical arguments detailed in Messrs. Kaliski's and O'Neal's memos for Antrim Wind were made in Almer Township, MI and ultimately presented before the Honorable Thomas L. Ludington in Tuscola Wind III, 2017 U.S. Dist. LEXIS 182278. Tuscola Wind III appealed Almer Township's denial of its permit claiming the "shall not exceed" standard was not reasonable and that a 1-hour average was more correct (*Exhibit B at 5*).

The judge ultimately decided in favor of the township and wrote this in his decision:

> 'Tuscola's expert (Mr. Lampeter) agreed that the Lmax standard is a valid metric which is used in certain municipal noise ordinances and that the Almer Township Zoning Ordinance could be interpreted in several reasonable ways. The Township's noise expert opined that most sound experts would read the Almer Township Zoning Ordinance as imposing an Lmax standard, confirmed that the Lmax standard is a valid metric, and identified a specific municipality where the noise emissions ordinance utilizes an Lmax standard. Against this factual background (and considering the plain language of the statute), the Township Board's conclusion that § 1522(C)(14) imposes an Lmax standard was reasonable. That conclusion was consistent with principles of statutory interpretation and supported by substantial evidence in the record. Reasonable minds might have arrived at a different conclusion. But the fact that several reasonable alternatives exist does not constitute a "cogent reason" to disregard a municipality's interpretation of its own ordinance.' (*Exhibit B at 44*)

Despite a federal court finding that Lmax is a valid metric for a "not to exceed" noise limit, Messrs. Kaliski's and O'Neal are ignoring this finding and reiterating their same flawed Leq methodology in New Hampshire hoping for a different outcome.

Messrs. Kaliski and O'Neal also argue that one-hour averaging is needed to maintain compatibility with pre-construction sound modeling. This is false. Modeling is nothing more than a tool for the applicant to demonstrate, *before a permit is issued,* that a facility will operate in compliance with the noise standard. The Committee's "shall not exceed" standard is "the law." The burden is on the modeler to ensure his/her model correctly conforms to that law. If, as in Almer Township, there is a 6-11 dB difference between the long-term averaged Leq (assuming 1 hour) and the Lmax, the developer has the obligation to use that information to provide a sufficient safety factor in his facility design.

Messrs. Kaliski and O'Neal are well aware that prediction modeling produces long-term average noise levels (Leq 1-hour or more). NH Site 301.18(c)(3) and (4) require modelers to apply all necessary corrections to ensure the resulting prediction conforms to the Committee's sound standard. A prediction based on long-term averages will produce quieter operating noise levels than one based on Lmax or 1/8-second Leq.

It appears that Mr. O'Neal has attempted to substitute his opinions for the clear meaning of the regulations in several cases without success. For example, in his 61-page opinion issued on April 21, 2020, Carbon County Judge Steven R. Serfass in Pennsylvania ruled Mr. O'Neal's testimony "not credible" after Mr. O'Neal tried to claim that predictive turbine noise modeling based on long-term averages would meet Penn Forest Township's Lmax standard for turbine noise. (*Exhibit C at 36-37*)

There is a legitimate question whether Mr. O'Neal tried to use this same tactic in the Antrim 2015-02 docket.

5. Responses to Other Miscellaneous Claims

Mr. Kaliski and Mr. O'Neal each make various other misleading technical claims in their memos, many of which appear intended to obfuscate, rather than enlighten, the reader. These include Mr. O'Neal's argument that calculating a LA-10 or LA-90 using a 1/8-second Leq is "non-sensical." It is not. Obviously, other jurisdictions have successfully enforced Lmax standards where such standards were upheld in courts of law, including federal court. And obviously other acousticians with experience with wind turbine measurements have had no problem working within the constraints of the Committee's standard.

Finally, Antrim Wind's reference to "one nighttime hour" in NH Site 301.18(e)(1) as proof the Committee intended one-hour averaging is incorrect. The purpose for stating that measurements "shall include at least one nighttime hour" has nothing to do with the measurement metric. Rather, it is meant to ensure observers take at least one hour period of observation for some measurements at the facility at a time of day (nighttime) and during an operating condition when we could reasonably expect worst-case noise emissions to occur. The purpose for citing a one-hour timeframe was only to ensure observers spent at least some time at the site at night and did not dominate their on-site measurements during daytime hours.

Thank you for the opportunity to comment on this important matter.

Respectfully,

Lisa Linowes
for The Windaction Group

EXHIBIT A

MEMO

TO:	Ryan Pumford, NextEra Energy Resources, LLC
FROM:	Ken Kaliski, P.E., INCE Bd. Cert., RSG Richard Lampeter, Epsilon Associates
DATE:	December 22, 2016
SUBJECT:	Tuscola III modeling of L_{max} and 10-minute L_{eq}

The Almer Township ordinance does not specify a metric or averaging time for the wind turbine sound level limit. In our modeling submitted as part of Tuscola Wind III's permit application, we assumed a one-hour equivalent average sound level (L_{eq}), as this represents a relatively short-duration exposure, and can be predicted with a high degree of confidence using manufacturer sound power data (which is an L_{eq}) and the ISO 9613-2 model with appropriate adjustments.

We understand that at the last Planning Commission meeting regarding Tuscola Wind III's permit application, there were discussions about using shorter averaging times, including a 10-minute L_{eq} and a maximum instantaneous sound level (L_{max}). This memo outlines our modeling of these metrics.

10-MINUTE L_{eq}

A not-to-exceed standard using a shorter averaging time will generally result in higher sound levels. For example, take the following one-hour period consisting of six 10-minute L_{eq} sound levels during which the wind turbine was clearly discernible from ambient sound in the MassCEC study[1]: 40.9, 41.1, 42.0, 42.3, 41.8, and 41.3 dBA. The equivalent one-hour average is 41.6 dBA and the highest of these 10-minute sound levels is 42.3 dBA. The difference between the highest 10-minute L_{eq} and the one-hour L_{eq} is 0.7 dB. This trend is typical for periods of minimal background contamination.

As a result, to model the maximum 10-minute L_{eq}, we will apply an additional 1.0 dB beyond the +2.0 dB adjustment that is already included in our modeled results.

L_{MAX}

As noted above, the L_{max} is the maximum instantaneous sound level. L_{max} is typically not used to measure wind turbine sound levels for the purposes of regulation for several reasons:

[1] RSG et al, "Massachusetts Study on Wind Turbine Acoustics," Massachusetts Clean Energy Center and Massachusetts Department of Environmental Protection, 2016.

- It is not representative of long-term exposure to wind turbine sound. Rather, it is a short-term statistical anomaly that occurs 0.0000001% of a year (i.e. 1 second in a year).
- One cannot subtract background from L_{max} measured levels since the L_{max} is not an equivalent average sound level, but rather the result of a damping function applied to the measured sound levels.
- The L_{max} is highly variable as a metric that results in poor repeatability among similarly conducted measurements.
- Manufacturers of wind turbines do not report L_{max} sound power for their wind turbines – only L_{eq}.
- L_{max} is the result of many complex temporal interactions that cannot be reliably modeled, include synchronization of blade passages, angle to the turbine rotor, wind direction, turbulence, wind shear, previous sound levels, and several other factors.
- The ISO 9613-2 model forecasts equivalent average sound levels, not instantaneous L_{max}.

It should be noted that, when L_{max} is considered as a sound metric in other ordinances or guidelines not specific to wind turbine sound, the limits are typically higher than an L_{eq}. For example, the World Health Organization guidelines for sleep disturbance identify a 60 dBA L_{Fmax} limit compared to a 45 dBA $L_{eq(8\text{-hours})}$. Both metrics are measured outside the bedroom window.

Based on the factors listed above, it is very difficult to quantify the additional adjustment necessary to conduct a modeling study of L_{max} for a wind energy project. This necessitates the addition of a highly conservative adjustment factor to estimate an operational L_{max}. The MassCEC study, depending on what table is viewed and other post-construction measurements, ranges L_{Fmax}[2] values from about 6 dB to 11 dB greater than the L_{eq}, although some degree of background contamination is included in those L_{max} values. For this study, to be conservative, we are using an additional 11 dB adjustment above the +2.0 dB already modeled.[3]

MODELING RESULTS

The modeling results comparing 1-hour L_{eq}, 10-minute L_{eq}, and L_{Fmax} are shown in Figure 1. For simplicity, we only show the 45 dBA contour under each metric.

As shown, the 10-minute L_{eq} 45-dBA isoline is slightly larger than the one-hour L_{eq} isoline. The use of a 10-minute L_{eq} as the metric for the sound limit would require some additional adjustments to the NRO plan to meet a 45 dBA standard at non-participating property lines.

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[2] "F" identifies the response time: Fast.

[3] The MassCEC study has data on the L_{max} measured when wind turbines were and were not operating. Although modeling adjustment factors for L_{max} are not specifically quantified in the MassCEC study, useful tabular data are presented that support the conservative estimate in this analysis. That is, while L_{max} measurement data were reported, the MassCEC study did not calibrate models to estimate L_{max} for regulatory purposes. In fact, the MassCEC study concluded that the L_{max} metrics had the lowest predictability and repeatability of the metrics evaluated. We know of no other studies that explicitly look at what adjustment to make to the ISO 9613-2 model to account for wind turbine L_{max}.

The L_{Fmax} isolines are well outside participating properties. No turbines could be constructed on participating land in the Township using this metric.

CONCLUSIONS

A specific sound level metric is not specified in Almer Township's ordinance. The ordinance says that noise emissions from a WECS "shall not exceed" 45 dBA at a non-participating property line. But "shall not exceed" is not a metric; it simply means that, whatever metric is reasonably applied, that number shall not exceed 45 dBA. Therefore, an interpretation must be made on what is the most appropriate metric to apply to evaluate this ordinance.

For the evaluation of the 45 dBA sound level limit in Almer Township, the modeling analysis included in the application submittal assumed a one-hour L_{eq} sound metric. The L_{eq}, or the equivalent continuous sound level, is the level of a hypothetical steady sound that would have the same energy (i.e., the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. While it represents the time average of the fluctuating sound pressure, the L_{eq} is mostly determined by louder noises if there are fluctuating sound levels.[4] The L_{eq} is not an arithmetic average of the sound levels.

This metric (L_{eq}) is appropriate for the evaluation of the "shall not exceed 45 dBA" section of the ordinance for the following reasons:

- Per industry standard (IEC 61400-11), sound levels provided by the manufacturer for analysis are L_{eq} sound levels.
- An L_{eq} model input results in a L_{eq} model output, so an L_{eq} limit allows for an "apples to apples" comparison.
- The L_{eq} metric is found in guidelines such as the World Health Organization's guideline values for the prevention of sleep disturbance.
- The ANSI Standard on compatible land use (ANSI/ASA S12.9-2007/Part 5) uses a metric derived from a L_{eq} for identifying compatible sound levels for different land uses.
- EPA uses a L_{eq} metric in its document entitled "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," which identified levels requisite to protect the public from adverse health and welfare effects.
- Neighboring communities, such as Akron Township, Columbia Township, and Huron County (which used ABD to help it develop its recently amended ordinance), recognize the L_{eq} as the appropriate metric for evaluating sound levels.
- In the absence of a specified metric, L_{eq} has been approved in post-construction measurement programs in nearby Fairgrove and Guilford Townships.

[4] Because sound is represented on a logarithmic scale and the averaging is done with linear mean square sound pressure values, higher sound levels are weighted more than lower sound levels. For example, if the sound level for a half hour is 20 dB and the next half hour it increases to 45 dBA, the L_{eq} for that hour would be 42 dBA.

FIGURE 1: 45 dBA ISOLINES FOR MAXIMUM 1-HOUR L_{eq}, 10-MINUTE L_{eq}, AND L_{Fmax}

Evaluating a "shall not exceed" limit for a wind energy project using an L_{eq} is a common interpretation not only in Michigan as presented above but throughout the United States. For example, the South Dakota Public Utility Commission Draft Model Ordinance for Siting of Wind Energy Systems uses "…**shall not exceed** fifty-five (55) dBA, **average** A-weighted sound pressure at the perimeter of occupied residences existing at the time the permit application is filed…" [emphasis added]. Navajo County, Arizona uses "…**shall not exceed** the greater of (a) 45 dBA $\mathbf{L_{Aeq,10}}$; or, (b) the measured background, $L_{A90,10}$ plus 5 dB, as measured at the exterior at any legal residence …" [emphasis added]. The New Hampshire Site Evaluation Committee (NH SEC) imposed language that a permittee "shall not exceed" a certain sound level as a condition of approval for a wind energy project in New Hampshire. The language did not specify the metric, but sound levels from this project were evaluated using L_{eq} sound levels. This methodology was accepted by the State for the compliance evaluation.

Kerrie Standlee of ABD wrote in his December 6, 2016 memo that L_{eq} is a reasonable metric to apply in Almer Township, although he suggests using a different time interval: "While I can agree that it might be reasonable to conclude that the 45 dBA noise limit in the wind energy facility noise ordinance could be considered an L_{eq} noise metric and not an absolute maximum noise level limit, I cannot agree with the consultant that the limit could be a one-hour L_{eq} noise level limit." In addition, he states, "If the Commission decides to consider adopting a noise metric for the Tuscola Wind III project other than the maximum noise level metric, I would suggest consideration be given to adopting a 10-minute L_{eq} metric." While the modeling analysis for a 10-minute L_{eq} did not demonstrate compliance under the current layout configuration, adjustments to the layout and/or NRO modifications would likely result in a layout that could comply with a 10-minute L_{eq} interpretation of the sound provision of the ordinance.

As outlined previously in this memo, the L_{max} metric is not a typical or appropriate metric for the evaluation of a "shall not exceed" wind energy ordinance. If this interpretation is applied, no wind turbines can be constructed on the land identified as participating in the submittal based on the modeling analysis presented in this memo.

EXHIBIT B

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
NORTHERN DIVISION

TUSCOLA WIND III, LLC,

Plaintiffs,

Case No. 17-cv-10497

v

Honorable Thomas L. Ludington

ALMER CHARTER TOWNSHIP, et al,

Defendants.
_____/

OPINION AND ORDER AFFIRMING THE DECISION OF THE ALMER CHARTER TOWNSHIP BOARD OF TRUSTEES

On February 15, 2017, Plaintiff Tuscola Wind III, LLC, ("Tuscola") filed a complaint naming the Almer Charter Township and that Township's Board of Trustees as Defendants. ECF No. 1. Count One of the Complaint is the "Claim of Appeal." Compl. at ¶¶ 100–124. Tuscola Wind's claims arise out of Defendants' denial of a Special Land Use Permit ("SLUP") that would have permitted Tuscola Wind to construct the "Tuscola III Wind Energy Center" in Tuscola County, Michigan. Compl. at 6. Oral argument on the claim of appeal was held on October 5, 2017. For the following reasons, the Board of Trustee's denial of the SLUP will be affirmed.

I.

Tuscola Wind III, LLC, is a Delaware limited liability company, which is indirectly wholly owned by NextEra Energy Resources, LLC. Tuscola Wind SLUP App. at 1, ECF No. 30, Ex. B. Tuscola is attempting to build the "Tuscola Wind III Energy Center" in Tuscola County, Michigan. *Id.* The project, if completed, would include 55 wind turbines in Fairgrove, Almer, and Ellington Townships, and would produce enough energy to supply 50,000 homes with wind energy. *Id.* In its SLUP application, Tuscola explained that "[t]he Project facilities are to occupy 15.2 acres of land, and will be serviced by 6.6 miles of access roads, occupying 12.9 acres of land." *Id.* at 2.

Prior to submitting the SLUP application, Tuscola had entered into agreements with 87 landowners (representing 192 parcels of land) for the use of their property for the project. *Id.* Those individuals are described as "participating landowners." *Id.* Thus, at the time the SLUP application was submitted, Tuscola had already identified the ideal number of and locations for wind turbines in Almer Township, categorized parcels of land as necessary or unneeded, and secured access to the parcels it believed were required for the proposed project. The present dispute centers on Tuscola's attempt to secure SLUP approval for the 19 wind turbines that Tuscola wishes to build in Almer Township.

A.

The Almer Township Zoning Ordinance characterizes wind energy systems as special land uses. As such, Tuscola was required to seek a Special Land Use Permit ("SLUP") from the Township for the project. *See* Almer Zoning Ord. Art. 24, ECF No. 30, Ex. A. Pursuant to Section 2401 of the Zoning Ordinance, the first step in receiving approval for a wind energy system is to submit a SLUP application to the Township's Planning Commission. *Id.* at § 2401. Upon receipt of the application, the Planning Commission is required to hold a public hearing within 45 days. *Id.* After the public hearing, the Planning Commission recommends either granting or denying the application to the Township Board and must state its reasons for the decision. *Id.* Once the Planning Commission issues its recommendation, the Township Board will render a decision on the SLUP application. *Id.*

Section 1522 of the Almer Township Zoning Ordinance provides special requirements for SLUP applications involving a wind energy system. *Id.* at § 1522. Among other things, the applicant must provide an escrow account to cover the Township's costs and expenses associated with the SLUP zoning review and approval process. *Id.* at § 1522(C)(1). Likewise, the applicant

must fund and submit environmental and economic impact studies (if requested by the Township). *Id.* at § 1522(C)(2)–(3). The application must include a site plan which specifies the design characteristics of the turbines, safety features, security measures, and a lighting plan. *Id.* at § 1522(C)(4).

The Zoning Ordinance also addresses noise emissions from the turbines:

> Noise emissions from the operations of a [Wind Energy Conversion System] shall not exceed forty-five (45) decibels on the DBA scale as measured at the nearest property line of a non-participating property owner or road. A baseline noise emission study of the proposed site and impact upon all areas within one mile of the proposed WECS location must be done (at the applicant's cost) prior to any placement of a WECS and submitted to the Township. The applicant must also provide estimated noise levels to property lines at the time of a Special Use application.

Id. at § 1522(C)(14).

Similarly, "[a]ll efforts shall be made not to affect any resident with any strobe effect or shadow flicker." *Id.* at § 1522(C)(20).

And the Zoning Ordinance provides the general admonishment that "[t]he wind energy conversion system shall not be unreasonably injurious to the public health and safety or to the health and safety of occupants of nearby properties." *Id.* at § 1522(C)(7).

B.

On September 23, 2016, Tuscola submitted its SLUP application to the Almer Township Planning Commission. Several portions of the application became points of contention between Tuscola and the Planning Commission. Those sections will be summarized.

In the SLUP application, Tuscola referenced three studies which analyzed the "impact wind farms have on property values." SLUP App. at 10. Each study found no evidence that wind farms have a statistically significant impact on nearby property values. One study, conducted by the Lawrence Berkeley National Laboratory, analyzed home sales near 67 wind facilities across nine

states. *Id.* Another study, conducted by the University of Rhode Island, analyzed 48,000 home sales that occurred within 5 miles of wind turbines in Rhode Island. *Id.* at 11. The third study, jointly prepared by the Lawrence Berkeley National Laboratory and the University of Connecticut, reviewed 122,000 home sales within 1 mile of operating turbines in Massachusetts. *Id.* Besides summarizing these three studies, Tuscola did not include any information or analysis regarding the possible impact of the proposed wind farm project on Tuscola County property values, specifically.

Tuscola attached a Sound Modeling Report as Appendix "D" to the SLUP application. Sound Modeling Rep, ECF No. 30, Ex. B. The report begins by quoting the Zoning Ordinance requirement (reproduced above) which provides that "[n]oise emissions from the operation of a WECS . . . shall not exceed forty-five (45) decibels on the DBA scale as measured at the nearest property line of a non-participating property owner or road." § 1522(C)(14). In the report, Tuscola asserts that "[n]o metric is specified for this ordinance, so we have assumed a 45 dBA 1-hour L_{EQ}." Sound Modeling Rep. at 4.

Later in the report, Tuscola expanded on its decision to construe the ordinance as involving 45 dBA 1-hour L_{EQ}. Tuscola explained: "Sound pressure levels are constantly changing. It is for this reason that it makes sense to describe sound levels over time." *Id.* at 5. The report then defined various ways of measuring sound levels: "L_{min} and L_{max} are simply the minimum and maximum sound level, respectively, monitored over a period of time." *Id.* But more sophisticated measures of sound levels over time exist:

> Ln is the sound level exceeded n percent of the time. . . . For example, the L_{10} is the sound level that is exceeded 10 percent of the time, while L_{90} is the sound level exceeded 90 percent of the time. The L_{50} is the median and is exceeded half the time. The L_{90} is often described as the "residual" level, describing a condition when most short-term contaminating sources are removed.

Id.

Finally, Tuscola defined its preferred metric: "One of the most common ways of describing noise levels is in terms of the continuous equivalent sound (L_{EQ}). The L_{EQ} is the average of the sound *pressure* over an entire monitoring period." *Id.* (emphasis in original). Tuscola goes on:

> The monitoring period . . . can be for any amount of time. It could be one second ($L_{EQ\ 1\text{-}sec}$), one hour ($L_{EQ(1)}$), or 24 hours ($L_{EQ(24)}$). Because L_{EQ} is a logarithmic function of the average pressure, loud and infrequent sounds have a greater effect on the resulting L_{EQ} than quieter and more frequent sounds. . . . Because it tends to weight the higher sound levels and is representative of sound that takes place over time, the L_{EQ} is the most commonly used descriptor in noise standards and regulations.

Id. at 6.

Next, Tuscola discussed metrics for frequency weighting:

> [S]ound pressure levels are expressed in terms of decibels. Since the human ear is not sensitive to all frequencies equally, some frequencies, despite being the same decibel level, seem louder than others. For example, a 500 Hz tone at 80 dB sounds louder than a 63 Hz tone at 80 dB. For this reason, frequency weightings are applied to sound levels . . . . The most common weighting scale used in environmental noise analysis in the A-weight, which more accurately represents the sensitivity of the human ear at low to moderate sound energy. An A-weighted sound level is usually denoted with the unit dBA or dB(A).

Id.

Thus, the Zoning Ordinance specifies the metric for use in frequency weighting (dBA), but does not expressly identify the metric for measuring sound pressure levels. Applying its preferred metric of L_{EQ} 1-hour, Tuscola found that "the highest modeled sound level at any non-participating property line, or road adjacent to a non-participating property line within the Township of Almer is 45 dBA and the highest sound level at any residence is 44 dBA." *Id.* at 9.

The SLUP application additionally proposed that the "electrical power collection system," which would transport the energy produced by the turbines, include aboveground power lines. SLUP App. at 13. The Zoning Ordinance requires all electrical connection systems and power

lines from wind turbines to be located below ground, but permits the Planning Commission to waive that requirement. *See* Zoning Ord., at § 1522(C)(15).

C.

To assist in its consideration of the application, the Township retained the Spicer Group, Inc., an engineering consulting firm. On October 25, 2016, the Spicer Group sent Tuscola an email requesting clarification and/or additional information regarding several aspects of the application. Spicer Oct. 25 Email, ECF No. 30, Ex. C. Three of the Spicer Group's concerns are relevant. First, Spicer questioned several aspects of the sound emissions report, including how Tuscola chose the 1-hour L_{EQ} as the proper metric. *Id.* at 2. The Spicer Group further asked when Tuscola would be submitting an economic impact study, indicating concern that "the property value information provided on pages 10 through 11 of the TW3 SUP Application is not local and not pertinent to Almer Township." *Id.* Finally, the Spicer Group indicated that Tuscola's proposal to place the power lines above the ground did not conform with the Zoning Ordinance requirement that all electrical connection systems and lines from a wind farm be placed underground. *Id.* at 3. The Spicer Group acknowledged that the Planning Commission has discretion to waive that requirement, but suggested that Tuscola had not yet sought that waiver. *Id.*

Tuscola responded to the Spicer Group's inquiries on October 31, 2016. Oct. 31, 2016, Resp, ECF No. 30, Ex. D. Tuscola defended its use of the 1-hour L_{EQ} metric by asserting that international standards for measuring sound in the wind turbine context use that metric. *Id.* at 4. Tuscola further noted that the Akron, Ellington, and Columbia Townships use the 1-hour L_{EQ} metric and that past wind power projects in the area were assessed under that metric. *Id.* Tuscola explained that it did not provide an economic study specific to Almer Township because the Township had not requested one. Finally, Tuscola defended its proposal to place the power lines

from the wind turbines above ground. Tuscola explained that construction, maintenance, and repair are all more difficult and costly for underground lines. *Id.* at 6. Similarly, underground power lines require more cables and have a shorter life expectancy. *Id.*

D.

1.

On November 8, 2016, the Spicer Group submitted a report to the Planning Commission analyzing Tuscola's SLUP application. Spicer Rep., ECF No. 30, EX. F. In the report, the Spicer Group concluded that Tuscola had complied with many, indeed most, of the Zoning Ordinance's requirements. But the Spicer Group did identify a number of outstanding issues. Among other recommendations, the Spicer Group suggested that the Planning Commission should require Tuscola to commission or identify an economic impact study for the proposed Almer Township project. *Id.* at 5. The Spicer Group also noted that Tuscola had not provided information confirming that the proposed turbines had a braking device which complied with the Zoning Ordinance.[1] The Spicer Group explained that Tuscola was seeking an exception to certain Zoning Ordinance requirements: first, instead of building an 8-foot fence around the turbines, Tuscola was requesting leave to keep the structures locked at all times[2]; and, second, Tuscola was seeking leave to build aboveground transmission lines. Finally, the Spicer Group indicated that Tuscola's noise emissions report left several questions unanswered, including whether the 45 dBA limit was measured to the closest road, or simply to the closest road adjacent to a *non-participating property*. *Id.* at 7.

[1] § 1522(C)(11) requires each wind turbine to be "equipped with a braking device capable of stopping the [turbine's] operation in high winds."

[2] *See* § 1522(C)(8).

On November 10, 2016, the Planning Commission held a public hearing to discuss the SLUP application. Nov. 10, 2016, Hearing Tr., ECF No. 30, Ex. I. At the hearing, a representative from Tuscola discussed the project. Among other things, the Tuscola representative explained why he believed that 45 dBA 1-hour L_{EQ} was the appropriate metric to use in determining the sound emissions produced by the turbines. *See id.* at 29–35. First, the representative explained that the 1-hour L_{EQ} metric was used by certain international standards and was the metric used by the manufacturer to model probable sound emissions. *Id.* at 31. The representative also explained that the 1-hour L_{EQ} metric was more practical: L_{EQ} is used in many noise emission standards, regulations, and guidelines (including neighboring townships).[3] More importantly, the 1-hour L_{EQ} metric is not "susceptible to wind gusts or other extraneous non-wind turbine events," unlike the L_{max} metric. *Id.* at 32.

For the rest of the hearing, members of the community expressed their opinions on the proposals. Most speakers communicated objections to various aspects of the application (if not the project as a whole), but some expressed support for the wind energy project. Two sound engineers testified at the hearing. The first engineer, Rick James, is an employee of e-Coustic Solutions and was hired by concerned citizens. *Id.* at 107. First, Mr. James opined that Tuscola's noise emissions report likely understated the dBA level at several property lines. *Id.* at 108–09. Second, Mr. James challenged Tuscola's assertion that the noise emissions provision in the Zoning Ordinance allowed for an averaged sound level measurement, as opposed to a maximum level: "[T]he words are very explicit, they say, 'Shall not exceed 45 dBA.' When you read law you can't read into it when the words aren't there. It doesn't say 45 dBA Leq, it does not say 45 dBA average, it says not exceed

[3] The Tuscola representative specifically mentioned one New Hampshire regulation which stated that the noise emissions "shall not exceed" 45 dBA and where that language was interpreted as involving the L_{EQ} metric.

45 dBA." *Id.* at 109. Ms. Kerrie Standlee, the principle engineer for Acoustics by Design, also testified.[4] *Id.* at 130. Ms. Standlee concurred with Mr. James's interpretation of the ordinance:

> [T]he limit is stated in there that the level shall not exceed 45 dBA. It doesn't give any descriptor, is it supposed to be the Lmax or – and as was mentioned, an L90 or an L10 at 50, an Leq, it doesn't specify. Mr. James is correct in that when something is not specified, you take the normal interpretation, which would be Lmax. I'm with – I'm on the City of Portland Noise Review Board and we have an Lmax standard. It's not specified as the Lmax it's just – like yours it says it shall not exceed this level. And that is an absolute level, not – not an equivalent energy level.

Id. at 131.

Ultimately, the Planning Commission concluded that additional information was necessary before the SLUP application could be ruled upon. Accordingly, the public hearing was adjourned.

2.

The day after the public hearing, Tuscola sent the Planning Commission a response addressing several of the concerns raised by the Spicer Group. Nov. 11, 2016, Prop. Conditions, ECF No. 30, Ex. J. Tuscola offered to provide a copy of GE's safety manual and technical documentation to confirm that the turbines were equipped with a braking device, but indicated that the documents could be provided only if the Township entered into a "commercially reasonable non-disclosure agreement." *Id.* at 4. Tuscola also committed to providing a "baseline noise emission study" prior to site plan approval. *Id.*

Several days later, Tuscola sent another communication to the Planning Commission further addressing several of the issues identified by the Spicer Group. Nov. 15, 2016, Resp., ECF No. 30, Ex. K. The response included an economic impact report. *See* Economic Impact Rep., ECR No. 30, Ex. K. That economic impact report discussed the project's probable financial impact on local jobs, tax revenue, and lease payments. The report did not specifically identify the impact

[4] Acoustics by Design was retained by the Township to assist in reviewing the application.

the project would have on local property values, but summarized the studies (previously mentioned in the original SLUP application) which found no evidence in other states that existing wind farms lowered nearby property values. Tuscola also addressed the Spicer Group's concern regarding security at the turbines. Rather than placing a fence around the turbines as contemplated by the ordinance, Tuscola proposed "an alternate means of access control at the turbines: a locked access door built into the turbine." Nov. 15, 2016, Rep. at 5. Tuscola reiterated its request for permission to construct aboveground power lines.

Finally, Tuscola turned to the noise emissions issue. First, Tuscola discussed whether the 45 dBA limit is measured to the nearest road, even if the property owners adjacent to the road are participating in the wind project:

> Where a non-participant is adjacent to a participant and the two are separated by a road, it is logical that the 45 dBA limit applies at the non-participating property line, which is also the road center. But where two participating properties are adjacent but separated by a road, it is also logical that the 45 dBA limitation does not apply. The purpose of this subsection is to protect non-participants from the potential effects of wind turbine sound at the property line. From a policy standpoint, it makes no sense to protect those using the road (typically in an automobile) from wind turbine sound.

Id. at 6.

Next, Tuscola addressed the appropriate sound metric by which to measure the sound level:

> A specific sound level metric is not specified in this ordinance. The ordinance says that noise emissions from a WECS "shall not exceed" 45 dBA at a non-participating property line, but "shall not exceed" is not a metric; it simply means that, whatever metric is reasonably applied, that number shall not exceed 45 dBA. Therefore, an interpretation must be made on what is the most appropriate metric to apply to evaluate this ordinance.

Id.

Tuscola explained that its preferred metric, L_{EQ}, is the "sound metric commonly used in community sound surveys, guidelines, regulations (including those in neighboring communities), and standards, and is appropriate for use here." *Id.* at 7

In further support of its proposed metric, Tuscola explained that "[t]he standard for measuring the wind turbine sound power, IEC 61400-11, requires L_{eq} sound level measurements" and thus "[an] L_{eq} sound level limit allows for an appropriate and reasonable 'apples to apples' comparison.'" *Id.* (emphasis omitted). Tuscola further emphasized that most public health studies use L_{EQ} to define their findings. *Id.* Perhaps most importantly, Tuscola explained that nearby Ellington and Columbia Townships use a 1-hour L_{EQ} metric to regulate sound emissions and that the same metric governed "compliance evaluations for [previous wind farm projects] in neighboring townships, including Akron (L_{eq} specified), Fairgrove (no metric specified in the ordinance), and Gilford (no metric specific in the ordinance)." *Id.* Tuscola additionally noted that the Huron County and Akron Township ordinances couple "shall not exceed" language with an L_{EQ} metric. *Id.*

Finally, Tuscola articulated why it believed an L_{EQ} metric was more suited for measuring the true impact of wind farm noise emissions:

> A L_{eq} metric makes more sense here than a short-duration metric such as an L_{max}, which is susceptible to wind gusts and other extraneous events that result in elevated sound levels unrelated to the operation of the wind turbine. In addition, it is not reasonable to determine that a facility is out of compliance based on a 1-second reading above a particular limit. The intent of a sound ordinance is typically to allow for the continued use and enjoyment of the property and/or residence. For sounds that are of a short duration and dramatic, such as gun shots, mine blasts, or pile driving, an L_{max} metric could make sense, and is analogous to a speed limit infraction where an instantaneous level is necessary to protect the safety of drivers on the roadway. But for sound sources that are continuous in nature and do not include dramatic spikes, such as a wind turbine, using L_{eq} over a given time period is more appropriate. Even then, as noted above, the measurement will be primarily determined by any louder noises during the time period.

Id. at 8.

E.

On November 17, 2016, the Almer Township Board approved a "Wind Energy Conversion Systems Moratorium Ordinance." Moratorium, ECF No. 30, Ex. M.[5] In the moratorium, the Board indicated that applications for "Wind Energy Conversion Systems may be proliferating" and so "[t]he Township Board requires sufficient time for enactment of amendments to its Zoning Ordinance to establish reasonable regulations pertaining to the establishment, placement, construction, enlargement, and/or erection of Wind Energy Conversion System." *Id.* at 2. Thus, the Board enacted a

> moratorium, on a temporary basis, on the establishment, placement, construction, enlargement, and/or erection of Wind Energy Conversion Systems within the Township and on the issuance of any and all permits, licenses or approvals for any property subject to the Township's Zoning Ordinance for the establishment or use of Wind Energy Conversion Systems. . . . [T]his Ordinance shall apply to any applications pending before any Township board or commission, including the Township Board, Planning Commission or Zoning Board of Appeals.

Id. at 3.

F.

On December 6, 2016, Acoustics by Design, the sound engineering firm retained by the Township to aid in reviewing the SLUP application, submitted a memorandum to the Planning Commission addressing the Zoning Ordinance's 45 dBA limit. Acoustics by Design Memo, ECF No. 30, Ex. O. The memorandum, prepared by Kerrie Standlee, addressed the proper interpretation of the "shall not exceed" language:

> Ordinance 1522 states that the noise radiating from a wind energy facility cannot exceed a level of 45 dBA at the nearest property line of a non-participating property

[5] Although independent corroboration of this fact is not present in the record, Tuscola alleges that four new Board members were elected on November 8. According to Tuscola, each of these new Board members were part of an anti-wind citizen advocacy group. One of the newly elected Board members, Jim Tussey, was designated as the Board's Planning Commission representative. Defendants do not contest these assertions.

> owner or road. It does not however say anything about a noise metric that is associated with the limit. Because noise can be quantified in several ways, the omission of that detail has resulted in some of the Commissioners asking if the limit was intended to be what is referred to as a "maximum" noise level limit or if it was intended to be a limit associated with some other noise metric such as a statistical noise level limit (for instance, the L_{01}, L_{10}, L_{50}, or L_{90} noise level – defined as the level exceeded 1%, 10%, 50% and 90% of a specified time period) or an energy equivalent noise level (the Leq noise level – the noise level, which if present continuously, that would have the same acoustic energy as the time-varying sound level present during a specified time period).

Id. at 3.

Ultimately, Mr. Standlee opined that the ordinance established a maximum noise level limit:

> Without having access to any information regarding the ordinance author's intentions relative to the wording used in the ordinance, I would conclude that the 45 dBA limit specified in the ordinance is addressing a "maximum" noise level limit and not a limit associated with some other noise descriptor. Model noise ordinances written over the past 50 years have shown that noise ordinances can be written with a maximum noise level limit or they can be written with some other noise metric limit. However, in each case where a metric other than the maximum noise level is included, the noise metric was specified in the ordinance. When a noise limit is specified in an ordinance without reference to any specific noise metric, it is generally understood by acousticians that the limit is intended to be a "maximum" noise level limit and not a limit for a noise descriptor other than the maximum noise level.

Id.

The memorandum further explained that, even if a L_{EQ} metric were adopted, Tuscola's proposed

1-hour L_{EQ} metric was unreasonable:

> While I can agree that it might be reasonable to conclude that the 45 dBA noise limit in the wind energy facility noise ordinance could be considered an Leq noise metric limit and not an absolute maximum noise level limit, I cannot agree with the consultant that the limit could be a one-hour L_{eq} noise level limit. . . . Given the relatively short amount of time required to quantify the turbine sound level, it would be more reasonable to consider the noise limit in the ordinance is [sic] related to an L_{eq} metric associated with a time period that is much shorter than a one-hour time period.

Id.

G.

On December 7, 2016, the Planning Commission held a second public hearing. Dec. 7, 2016, Tr., ECF No. 30, Ex. Q. A Tuscola representative opened the hearing by addressing the concerns previously raised by the community and the Planning Commission. In large part, the Tuscola representative summarized the company's November 15, 2016, submission to the Planning Commission. A representative of the Spicer Group was also present. After Tuscola's presentation, members of the Planning Commission began asking questions of both the Tuscola representatives and the Spicer Group. One Planning Commission member, Jim Tussey, appeared to lead the discussion (the relevant aspects of which will be summarized here).

First, Mr. Tussey addressed the noise emission metric dispute, asking whether the L_{max} metric is equivalent to the L_{EQ} metric. *Id.* at 43. Tuscola's representative said it was not. *Id.* at 44. The Planning Commission then addressed the economic impact study. Chairman Braem was concerned about the lack of local studies:

> I appreciate the studies from other areas and looked at them, but in my opinion the ordinance has stated property values and I would say the assumption is Almer Township or at the least, you know, in possibly the townships where we already have turbines, and what were the property increases, whatever. . . . Could they supplement with an assessment of their opinions of the property-value impact a little closer to home?

Id. at 58–59.

In response, a Tuscola representative explained that any study of only Almer Township would be statistically suspect:

> A study specific to Almer Township I think would be too -- too minute and specific to really have, you know, statistically significant results, and so that's why we relied on those larger studies that covered a lot more areas over a much -- a much longer period of time. So we didn't find any more specific info specific to this area, but I can look in to see what more specific info can be provided to you.
>
> The closest that I found is Tuscola controller presentation [sic] to the county that he indicated since wind turbines came through Tuscola County property values in those particular areas have climbed and have climbed higher than the overall

> increase in property values that has been occurring since 2009. . . . And I want to point out that the national level studies that cover multiple states, I used an analysis method that, yes, it included some houses that were farther away from turbines, and fewer houses that were near turbines, but the way that the model weighted it is the nearer the house to a turbine, the exponentially higher that data point was weighted.

Id. at 59–60.

Eventually, the discussion returned to the proper noise emission metric. First, the Spicer Group representative explained his understanding of the ordinance: "[The Acoustics by Design sound engineer is] saying without any qualifier in your ordinance he thinks that it would be -- that you would interpret it as an Lmax, meaning 45 aren't at the property line . . . . The sound produced by the turbine itself, a hard line at the property line that would not exceed 45 decibels." *Id.* at 65. Mr. Tussey then articulated his understanding of the ambiguity in the ordinance: "That seems very reasonable, but just for everyone here to hear that there's ambiguity in the specification, and isn't the ambiguity caused because the first part of it uses an abbreviation of dBA? It doesn't spell out the words decibels space A weighted, it just says dBA?" *Id.* at 66. After the Spicer Group representative agreed, Mr. Tussey continued:

> And the second part it says not to exceed when it could have used the engineering term Lmax in replacement of the text not to exceed. So we kind of have a little bit of a mixture, on one part we use an engineering unit, metric as it's called, and on the other side we use a text form or a written form of the method Lmax. Now, couldn't we have written the whole part out in English and couldn't we have written the whole part out using metric?

Id.

The Spicer Group representative agreed that the standard could have been expressed in whole using either written language or mathematical and technical metrics. *Id.*

In response, Tuscola emphasized that the Acoustics by Design report indicated that the ordinance could be reasonably construed as creating an L_{EQ} standard, and then explained why an L_{max} metric was problematic:

> The Lmax is a challenge two reasons [sic]. One, you would not be able to do an unattended program per se, there's just too much fluctuation in the maximum. And also, it's challenging when you're there. . . . So you'll get wind gust which is brief but it will cause your sound levels to vary, and that makes it a -- one of the challenges on trying to use an Lmax along with the other challenges regarding sound power, apples-to-apples comparison, all that other stuff I talked about. But in the field trying to take a measurement and you're seeing the sound levels change if you're looking at a sound level meter, you know, varying and that could be due to lots of things, not necessarily the wind turbine. So it's difficult to pinpoint that sound level to a particular event.

Id. at 71–72.

When asked whether the tester could simply disregard non-representative spikes in sound, Tuscola explained the difficulty in doing so:

> I mean, looking at it I can say okay, I felt the wind gust, all right, I'm going to throw this period out, but it becomes – it's on the observer. All right. The observer threw out a lot of periods and then somebody could go back and say well, why did you throw out all these periods? Well, it was a wind gust, I'm trying just to get an Lmax, and you can't go back and turn things off and try to get an Lmax background per se because the wind speeds vary and it's hard to pinpoint exact one-second level to an event. It's not impossible at times, but that's one of the challenges where you're depending on the observer to make that call versus just collecting data and seeing what the numbers bear out over a 10-minute period in leq.

Id. at 72–73.

At this point, Mr. Tussey asked whether Tuscola's position was that the L_{max} metric was never used. Tuscola admitted that it was used in some situations: "There are instances where Lmax could be appropriate to evaluate, and Kerry Stanley indicated that in his experience in Portland they used an Lmax, so it's not – I'm not going to say it's never used, but an leq has been determined in other instances to be a reasonable approach as well for a similar type worry." *Id* at 73.

Eventually, Planning Commission Chairman Braem acknowledged: "I guess our charge we've got to interpret what our ordinance says." *Id.* at 78. The Tuscola representative appeared to agree:

> I think it's an interpretation of what's reasonable. Is it meant to be a one-second exceedence? And if you feel that then that's an Lmax. If you feel that it's reasonable for some other duration, what's the reasonable way to apply this? I think that's the determination you have to make. I'm just giving you . . . what I've seen in other jurisdictions in my experience, and that's the leq.

Id. at 81.

Members of the Planning Commission then deliberated over whether they needed more information from Tuscola regarding the sounds emissions or whether they were prepared to make a determination regarding the proper interpretation of the ordinance. Ultimately, Chairman Braem moved to table consideration of the SLUP application and request further information from Tuscola. *Id.* at 94. The Planning Commission discussed the outstanding issues, and then approved the motion to adjourn. The Township's attorney summarized the requested information as follows: "[Y]ou want to request information from NextEra on property values, noise, sound models based on Lmax and if there is the justification you just referenced regarding the cost estimate on the decommissioning of the individual towers." *Id.* at 105.

H.

1.

On December 22, 2016, Tuscola provided the supplemental information which the Planning Commission had requested. Dec. 22, 2016, Supp. Info, ECF No. 30, Ex. T. Among other things, Tuscola provided a report addressing whether the proposed development would comply with the Zoning Ordinance, if interpreted as providing a 45 dBA L_{max} limit. In the report, Tuscola again explained why the L_{max} metric is a poor tool for measuring wind turbine emissions:

- It is not representative of long-term exposure to wind turbine sound. Rather, it is a short-term statistical anomaly that occurs 0.0000001% of a year (i.e. 1 second in a year).

- One cannot subtract background from L_{max} measured levels since the L_{max} is not an equivalent average sound level, but rather the result of a damping function applied to the measured sound levels.

- The L_{max} is highly variable as a metric that results in poor repeatability among similarly conducted measurements.

- Manufacturers of wind turbines do not report L_{max} sound power for their wind turbines – only L_{eq}.

- L_{max} is the result of many complex temporal interactions that cannot be reliably modeled, include synchronization of blade passages, angle to the turbine rotor, wind direction, turbulence, wind shear, previous sound levels, and several other factors.

- The ISO 9613-2 model forecasts equivalent average sound levels, not instantaneous L_{max}.

Dec. 22, 2016, Noise Emissions Memo. at 2, ECF No. 30, Ex. T.

> Tuscola further explained:
>
> The report . . . makes it quite clear that using an Lmax metric would make development of commercial wind energy in Almer Township impossible. Indeed, using that metric, a single wind turbine could not be sited within 2,775 feet (over ½ mile) from a non-participating property line. As Epsilon and RSG conclude in their report, requiring an Lmax metric would preclude Tuscola Wind III from siting a single wind turbine in the Township.

Dec. 22, 2016, Supp. Info. at 1.

Tuscola further argued that the ordinance should not be interpreted as imposing an L_{max} standard because the ordinance was ambiguous, the industry standard is L_{EQ}, and because that interpretation "would not allow for any commercial wind development, which would be exclusionary and thus unlawful." *Id.* at 2.

Next, Tuscola addressed the Planning Commission's request for an economic impact study which provided information regarding the project's likely impact on local property values. Tuscola explained:

> We already provided the Planning Commission with multiple scientific studies showing that wind turbines do not have a measurable impact on nearby property values. Several of these studies are described in our application. . . . These scientific studies make it clear that the Tuscola III project will not substantially diminish and impair property values. The Township does not need an area-specific study to substantiate that conclusion. That being said, we have attached some additional information specific to Tuscola County further showing the positive economic impact of wind turbines on all property owners in the community.
>
> The first attachment is Standard & Poor's 2016 Bond Rating Report for Tuscola County, along with an article explaining the report. Standard & Poor gave the county a AA-bond rating, crediting wind development for expanding the tax base: "Although counties across the state experienced broad-based valuation declines, Tuscola's tax base has expanded during the past several years, largely as a result of the development of wind turbines and infrastructure."
>
> . . .
>
> If the Township were to deny our SLUP application based on the alleged failure to provide an adequate property value study, that would be a violation of our legal rights. No other special land use in Almer Township requires a property value study. Even sexually oriented businesses, which can be sited as close as 300 feet from a residential district and 1000 feet from a church or school (much closer than a turbine can be sited to non-participating property line) are not required to submit a property value study as part of their permitting process.

Id. at 3–4.

2.

On December 29, 2016, the Spicer Group responded to Tuscola's supplemental memorandum. Spicer Group Dec. 29, 2016, Resp., ECF No. 30, Ex. U. First, the Spicer Group addressed Tuscola's submissions regarding the local property values:

> We note that the zoning ordinance requires such studies to address "…the area affected by the WECS…" and shall include probable financial impact as to "…property values." The 12/22 submittal does not address property values in the area of Almer Township; the focus seems to be on personal property values (note, the term "property values" is broad and inclusive of real property and personal property; the term "personal property values" is more narrow and is specific to personal property.)

Id. at 2 (quoting § 1522(C)(3)).

Next, the Spicer Group addressed the noise emissions issue. The Spicer Group questioned the accuracy of the data Tuscola provided regarding probable sound emission levels under an L_{max} metric, explaining that the data was drawn from a Massachusetts study that might be premised on disparate conditions. The Spicer Group also challenged Tuscola's claim that application of an L_{max} standard would be illegally exclusionary: "This apparent claim of exclusionary zoning is without merit – the Almer Township zoning ordinance is not prohibiting the development of the Wind Energy Conversion System. The applicant could secure more leases with property-owners to ensure they have enough participating parcels." *Id.* at 4.

3.

On January 3, 2017, Tuscola's representative sent a letter to the Planning Commission addressing the Spicer Group's memorandum. Jan. 3, 2017, Letter, ECF No. 30, Ex. V. The letter first disputed the Spicer Group's contention that the property value data had been limited to information regarding personal property. Rather, the letter emphasized that the studies and reports provided had discussed the impact of wind turbines on real property values in a variety of contexts (albeit not in an Almer Township-specific context). *Id.* at 2–3. Second, the letter addressed a number of the Spicer Group's contentions regarding the sound emissions issue. In large part, the letter reiterated Tuscola's previous arguments regarding why the ordinance did not require application of the L_{max} metric and why that interpretation was not warranted. The Tuscola representative also defended its L_{max} model, explaining that the Spicer Group's concerns simply underscore the unhelpful nature of the L_{max} metric in the wind turbine context:

> Our acousticians' report explains the basis for the Lmax modeling and their conservative assumptions. As our report points out, expected Lmax sound levels are not generally evaluated with respect to a sound limit for wind energy systems. This coupled with a lack of manufacturers' data and lack of scientific studies comparing pre and post-construction studies for an Lmax results in a higher degree of uncertainty regarding an Lmax evaluation as compared to an Leq. Therefore,

> more conservatism is included in our acousticians' analysis. Spicer's questions further illustrate why it makes no sense to imply an Lmax metric in the ordinance in the first instance.

Id. at 4.

I.

1.

On January 4, 2017, the Planning Commission held its third and final public hearing on the SLUP application. Jan. 4, 2017, Hearing Tr., ECF No. 30, Ex. X. At the hearing, Tuscola summarized the documents it had submitted since the last hearing. As before, the discussion centered on the noise emissions issue. Planning Commission member Tussey asked whether the ordinance's standard (45 dBA), was an "incomplete metric." *Id.* at 18. The Tuscola representative asserted that "[i]t's ambiguous as to the metric used to measure 45 dB(A)." *Id.* Mr. Tussey continued: "And you're saying it's ambiguous because there's not more to 45 dB(A). There should be a dB(A) something, such as Leq one hour, and then it would be a complete metric. That's what you've said, that 45 dB(A) Leq one hour is a complete metric." *Id.* at 20. The Tuscola representative clarified the company's position: "45 dB(A) is not ambiguous. The ordinance is silent as to a metric, which means it requires interpretation." *Id.* Mr. Tussey then articulated his interpretation of the ordinance:

> [I]n the scientific community metric is -- are the units applied to whatever value. For example, miles per hour is a metric. . . . You can use additional qualifiers on the metric. For example, Ryan, I could say that you drove a 45 miles an hour to get here and everybody would understand that. And there would be no argument that miles per hour is the metric.
>
> . . .
>
> So the ordinance does state dB(A) and dB(A) is a valid metric. No one questions if dB(A) is, in fact, a dB(A). There are options to provide additional metric qualifiers to that metric, but dB(A) is the metric. And you have confused, I believe at a scientific level, the use of dB(A) with some qualifier with dB(A); and, hence,

> you're trying to make a presentation that somehow our ordinance is incomplete. And I do not find it incomplete. I find the ordinance quite complete. It says 45. Just as if the speed was said to be 45, not to exceed, any average person can understand that. . . . [T]he purpose of this body is not to rewrite an ordinance.

Id. at 20–22.

Tuscola responded: "[T]he ordinance is silent as to the way you measure 45 dB(A)." *Id.* at 23. Rather, the metric raises that question: "[W]hen you have a 45, you have to – is it instantaneous, is it - - is it a maximum, is it an Leq, is it L90? That metric is part of it, and it's not in this ordinance." *Id.*

After addressing other disputed issues, including whether Tuscola was required to provide Almer Township-specific property value studies, Planning Commission member Daniels moved to recommend denial of the SLUP application. *Id.* at 44. The Commissioners then discussed their opinions on the application. Chairman Braem asked Commissioner Tussey whether the ordinance should be interpreted as imposing an L_{max} standard since neighboring townships had interpreted similar language as creating an L_{EQ} standard. Tussey replied: "I'm not struggling with Lmax because 45dB(A) is a valid metric. . . . And the fact that the ordinance says not to exceed – and I believe even from a legal standpoint we're always to interpret the simplest definition in English. And that our job here isn't to interpret what they meant; it is to enforce what is written." *Id.* at 45–46.

Commissioner Daniels also articulated his rationale for recommending denial of the SLUP application. He asserted that "[t]he ordinance does not allow for the averaging varying levels of sound. We, as a Planning Commission, are not here to rewrite the ordinance, but to enforce the ordinance as written. And it mandates a maximum sound level of 45 decibels." *Id.* at 47. Commissioner Daniels also opined that Tuscola had not procured adequate insurance coverage for the turbines and had not made sufficient efforts to minimize shadow flicker for Almer Township

residents. Chairman Braem then briefly explained that he was satisfied with the insurance coverage, the economic impact study, and efforts to reduce shadow flicker.

Ultimately, the Planning Commission voted 3 to 1 to recommend denial of the SLUP application (two members did not vote because of a conflict of interest). *Id.* at 51–52.

2.

On January 17, 2017, the Almer Township Board held a public meeting to review the Planning Commission's recommendation regarding the SLUP application. Jan. 17, 2017, Tr., ECF No. 30, Ex. DD. After opening the floor to public comments (including comments by a Tuscola representative), the Board discussed the Planning Commission's recommendation to deny the SLUP application. Every Board member to discuss the recommendation on the record was supportive of the Planning Commission's rationale for denial. And most Board members appeared to focus on the noise emissions issue. For example, Board Member Rosenstangel stated that the Planning Commission's recommendation was "very well put together. And my concern was the 45 decibels shall not exceed. And I think that's what we should stick with is it shall not exceed the 45 decibels." *Id.* at 19. Board Member Graff made a similar statement:

> I also agree with the shall not exceed. I look at this not any different than a speed limit. If you're going 55 miles an hour, 55 miles an hour is the speed limit that you're supposed to have, you can't average it out. You can't drive from Saginaw to Cass City and go 75 miles an hour, but you have to slow down for all the little towns in between. When the police officer stops you outside of Cass City, you don't say, well, you have to relook at it because, if you average it out, I was only going 55 miles an hour.

Id. at 20–21.

Likewise, Board Member Tussey (who is the Board's Planning Commission representative) reiterated his reasons for opposing the SLUP application. Ultimately, the Almer Township Board voted 5 to 1 to deny the SLUP application. *Id.* at 33–35.

The Board simultaneously issued a Resolution articulating its rationale for denying the SLUP application. Res. Deny. SLUP, ECF No. 30, Ex. FF. In the Resolution, the Board identified five areas in which the SLUP application did not comply with the Zoning Ordinance. First, the Board faulted Tuscola for not providing an adequate economic impact study. Despite being asked to "provide a property values analysis that was localized to Almer Township," Tuscola "provided property value analyses based on other states, as well as some information concerning *personal* property values in Michigan, but still provided no *real property* value analyses using Michigan data." *Id.* at 6–7 (emphasis in original).

Second, the Board found that the SLUP application did not comply with the Zoning Ordinance's limit on noise emissions. The Board explained that the ordinance's "limitation on noise emissions . . . is clear and unambiguous and requires no further qualifying metric or analysis." *Id.* at 7. In response to Tuscola's argument that an L_{EQ} standard should be utilized, the Board found that "using an L_{eq} standard is inconsistent with the plain and unambiguous language of the Zoning Ordinance, which clearly provides that noise from a WECS 'shall not exceed forty-five (45) decibels.'" *Id.* at 8. The Board further referenced the opinion of "acoustician Kerrie G. Standlee," who advised the Planning Commission that the language of the Zoning Ordinance would ordinarily be interpreted by acousticians as establishing a maximum noise level limit.[6]

Third, the Board explained that Tuscola had not complied with the ordinance's requirement that an eight foot security fence be placed around the turbines. The Board acknowledged that Tuscola sought a variance from that requirement from the Planning Commission, but noted that the variance was not approved. And the Board concurred with that decision: "The Township Board

[6] The Board further indicated that even if an L_{EQ} metric were adopted, the 1-hour L_{EQ} suggested by Tuscola was not warranted. Rather, a ten-minute interval would be more appropriate. Tuscola had previously indicated that, if a ten-minute interval were applied, the proposed locations of the wind turbines would have to be revisited. Thus, even if the Board adopted the L_{EQ} metric, Tuscola would still have been required to amend its proposal.

also does not approve this alternative, as the Township Board finds that the proposed alternative of having no fence will not adequately protect the public health, safety, and welfare." *Id.* at 10.

Fourth, the Board faulted Tuscola for not providing the turbine safety manual and thus confirming that the turbines are equipped with an adequate braking device: "The Applicant has withheld documentation . . . that would identify the braking device's capability, citing the Applicant's nondisclosure agreement with GE." *Id.* at 10–11.

Fifth, the Board found that Tuscola had not complied with the ordinance's requirement that the electrical lines stemming from the turbines be placed underground. Again, the Board concurred with the Planning Commission's refusal to waive that requirement: "The Township Board . . . does not grant the requested waiver because it finds that the proposed underground lines would be detrimental to the aesthetics of the Township and will not protect the public health, safety, and welfare." *Id.* at 11.

Finally, the Board noted that it had previously approved a moratorium on wind energy projects in the Township and thus was precluded from approving the SLUP application even if it had complied with the Zoning Ordinance.

3.

On January 9, 2017, several days after the Planning Commission recommended denial of the SLUP application, Tuscola requested an interpretation of the Zoning Ordinance's 45 dBA limit by the Zoning Board of Appeals. ZBA Interp. App., ECF No. 30, EX. Z. In the application, Tuscola asked the ZBA to provide expedited review: "Under Section 2401 of the Ordinance, the Township Board must make a decision on Tuscola Wind III's application within 30 days of the Planning Commission's recommendation; in other words, by February 3, 2017. Given that the ZBA's

interpretation will be binding on the Township Board, we respectfully request that the ZBA render its interpretation before that date." *Id.* at 4.

The ZBA did not give expedited consideration to Tuscola's request. When the Almer Township Board denied the SLUP application, the ZBA appeal had not yet been resolved. Tuscola subsequently withdrew its request for an interpretation of the Zoning Ordinance's provision regarding noise emissions. March 10, 2017, Email, ECF No. 35, Ex. 4.

II.

Review of Count One of the complaint (a claim of appeal from the Township Board decision denying the SLUP application) is governed by article 6, § 28 of the Michigan Constitution. Pursuant to that section, the review "shall include, as a minimum, the determination whether such final decisions, findings, rulings and orders are authorized by law; and, in cases in which a hearing is required, whether the same are supported by competent, material and substantial evidence on the whole record." Mich. Const. Art. 6, § 28.

Thus, the Court must determine both whether the decision was "authorized by law" and supported by "substantial evidence." A decision is "authorized by law" if "allowed, permitted, or empowered by law." *Northwestern. Nat. Cas. Co. v. Ins. Com'r*, 586 N.W.2d 563, 566 (1998) (citing Black's Law Dictionary (5th ed.)). In other words, "[t]he decision must be affirmed unless it is in violation of statute, in excess of the statutory authority or jurisdiction of the agency, made upon unlawful procedures resulting in material prejudice, or is arbitrary and capricious." *Brandon Sch. Dist. v. Michigan Educ. Special Servs. Ass'n*, 477 N.W.2d 138, 141 (1991). Thus, the "authorized by law" analysis "focuses on the agency's power and authority to act rather than on the objective correctness of its decision." *Northwestern*, 586 N.W.2d at 566.

"Substantial evidence" is "evidence that a reasonable person would accept as sufficient to support a conclusion. While this requires more than a scintilla of evidence, it may be substantially less than a preponderance." *Dowerk v. Charter Twp. of Oxford*, 233 Mich. App. 62, 72 (1998). The Michigan Supreme Court has discussed the nature of the "substantial evidence" standard:

> What the drafters of the Constitution intended was a thorough judicial review of administrative decision, a review which considers the whole record-that is, both sides of the record-not just those portions of the record supporting the findings of the administrative agency. Although such a review does not attain the status of De novo review, it necessarily entails a degree of qualitative and quantitative evaluation of evidence considered by an agency. Such review must be undertaken with considerable sensitivity in order that the courts accord due deference to administrative expertise and not invade the province of exclusive administrative fact-finding by displacing an agency's choice between two reasonably differing views.

Michigan Employment Relations Comm'n v. Detroit Symphony Orchestra, Inc., 393 Mich. 116, 124 (1974).

"Strict deference must be given to an administrative agency's findings of fact," and the "agency's decision must be upheld if it is supported by such evidence as a reasonable mind would accept as adequate to support the decision." *THM, Ltd. v. Comm'r of Ins.*, 176 Mich. App. 772, 776 (1989).

Pursuant to the Michigan Zoning Enabling Act, "[a] request for approval of a land use or activity shall be approved if the request is in compliance with the standards stated in the zoning ordinance, the conditions imposed under the zoning ordinance, other applicable ordinances, and state and federal statutes." M.C.L. 125.3504.

III.

Tuscola argues each of the Board's purported reasons for denying the SLUP application were contrary to Michigan law and not supported by substantial evidence. Tuscola further argues that the Board did not have the authority to enact a moratorium on wind energy projects in the Township. For its part, the Township argues that Tuscola's appeal is not ripe because the company

did not appeal from a final decision of the Township. Next, the Township argues that each of the Board's expressed reasons for denying the SLUP application were reasonable and permitted by law. And, finally, the Township argues that the temporary moratorium on wind energy project permits was valid.

A.

The Township argues that this case is not ripe for appeal. Practically speaking, this argument is about finality. The Township argues that because Tuscola did not appeal to the Zoning Board of Appeals, a final decision on the SLUP application had not been rendered. If appeal to the ZBA is a precondition to judicial review in this context, then this Court lacks jurisdiction to adjudicate this matter. Accordingly, this threshold issue will be resolved first.

Tuscola contends that the Court has jurisdiction to hear this appeal via article 6, section 28 of the Michigan Constitution. That provision states that "[a]ll *final* decisions, findings, rulings and orders of any administrative officer or agency existing under the constitution or by law, which are judicial or quasi-judicial and affect private rights or licenses, shall be subject to direct review by the courts as provided by law." *Id.* (emphasis added).

The Almer Township Zoning Ordinance establishes a Zoning Board of Appeals ("ZBA"). Almer Twp. Zoning Ord., Art. 23. The Almer Township's ZBA was created under the authority and direction provided by the Michigan Zoning Enabling Act, M.C. L. 125.3101 *et seq.* Pursuant to M.C.L. 125.3604(1),

> An appeal to the zoning board of appeals may be taken by a person aggrieved or by an officer, department, board, or bureau of this state or the local unit of government. In addition, a variance in the zoning ordinance may be applied for and granted under section 4 of the uniform condemnation procedures act, 1980 PA 87, MCL 213.54, and as provided under this act. The zoning board of appeals shall state the grounds of any determination made by the board.

Id.[7]

More importantly, M.C.L. 125.3605 specifies that "[t]he decision of the zoning board of appeals shall be final. A party aggrieved by the decision may appeal to the circuit court for the county in which the property is located as provided under section 606." Thus, the Michigan Zoning Enabling Act specifies that, generally, a decision regarding a zoning ordinance is final for purposes of article 6, section 28 of the Michigan Constitution only after the zoning board of appeals has decided the issue.[8]

Tuscola argues that "a ripeness challenge is appropriate only when a party challenges the constitutionality of an ordinance, not when the party claims an appeal from a township's administrative decision." Pl. Reply Br. at 1, ECF No. 37. In support of that contention, Tuscola cites *Arthur Land Co., LLC v. Otsego Cty.*, 645 N.W.2d 50 (Mich. Ct. App. 2002). There, the Michigan Court of Appeals explained that

> although there is no requirement that a plaintiff exhaust administrative remedies before bringing a taking or substantive due process claim, *Electro-Tech, Inc. v. H.F. Campbell Co.*, 433 Mich. 57, 79, 445 N.W.2d 61 (1989), a judicial challenge to the constitutionality of a zoning ordinance, as applied to a particular parcel of land, is not ripe for judicial review until the plaintiff has obtained a final, nonjudicial determination regarding the permitted use of the land (e.g., denial of a special-use permit or variance). *See Paragon*, *supra* at 576, 550 N.W.2d 772.

Id. at 58 n. 20.

[7] M.C.L. 125.3604 permits local governments to give zoning boards of appeals the authority to grant use variances, but does not require them to do so. *Id.* at 125.3604(11).

[8] Note that M.C.L. 125.3607(1) permits "[a]ny party aggrieved by any order, determination, or decision of any officer, agency, board, commission, zoning board of appeals, or legislative body of any local unit of government made under section 208" to appeal directly to the circuit court. The cited section, M.C.L. 125.3208, involves scenarios where "the the use of a dwelling, building, or structure or of the land is lawful at the time of enactment of a zoning ordinance or an amendment to a zoning ordinance." In that situation, the local legislative body may provide provisions in the amended zoning ordinance addressing the treatment of prior existing but now nonconforming uses. That situation is not present here, but the exception to the general requirement of appeal to the ZBA prior to judicial review proves the rule.

But *Arthur Land* does stand for the proposition that Tuscola suggests. The footnote which Tuscola cites simply distinguishes between the kinds of constitutional claims which require finality. Here, Tuscola is challenging the Township Board's interpretation and application of the Zoning Ordinance, not advancing any kind of taking or substantive due process claim. And, further, the very section of the Michigan Constitution which Tuscola relies upon for jurisdiction predicates its applicability on the existence of a *final* decision. If the SLUP application has not been denied in a final, nonjudicial determination, this Court has no jurisdiction under article 6, section 28 of the Michigan Constitution.

The determinative question, then, is whether the Almer Township Board's denial of the SLUP application was a final decision. Tuscola argues that it was: "A township board's decision on a SLUP application is a final decision that does not need to be appealed to the ZBA unless required by the zoning ordinance." Pl. Reply Br. at 2. In support of that contention, Tuscola relies upon *Carleton Sportsman's Club v. Exeter Twp.*, 550 N.W.2d 867, 869 (Mich. Ct. App. 1996). In *Carleton*, the Michigan Court of Appeals held that "where a township zoning ordinance does not provide for review of a request for a special land-use permit by a zoning board of appeals, the township board's decision is final and subject to appellate review by the circuit court pursuant to Const. 1963, Art. 6, § 28." *Id.*

The *Carleton* decision was premised on the language in the Michigan's Township Rural Zoning Act, M.C.L. 125.271 *et seq.*, which specified that "an appeal of a township board's decisions regarding special land-use and planned unit development decisions, 'may be taken to the board of appeals only if provided for in the zoning ordinance.'" *Carleton*, 550 N.W.2d at 869 (quoting M.C.L. 125.290). The Michigan's Township Rural Zoning Act has since been replaced by the Michigan Zoning Enabling Act, but the operative language remains. *See* M.C.L. 125.3603

("For special land use and planned unit development decisions, an appeal may be taken to the zoning board of appeals only if provided for in the zoning ordinance.").

Here, the Almer Township Zoning Ordinance does not expressly grant the ZBA jurisdiction to consider Township Board denials of SLUP applications. The Zoning Ordinance gives the ZBA general jurisdiction to "hear and decide appeals where it is alleged there is error of law in any order, requirement, decision or determination made by the Zoning Administrative or *administrative bod*y in the enforcement of this Ordinance." Almer Twp. Zoning Ord., Art. 23, § 2302 (emphasis added). A township board is typically a legislative body, but can act in an administrative capacity in certain situations. The Michigan Court of Appeals has explained that "approval of special use permits" is typically an administrative function, but "where the city council is given the discretion to review the issue de novo and accept or reject the recommendations of the planning commission in the ordinance, the council's power is, instead, legislative." *Swiecicki v. City of Dearborn*, No. 262892, 2006 WL 2613593, at *7 (Mich. Ct. App. Sept. 12, 2006) (citing *Sun Communities v. Leroy Twp*, 617 NW2d 42 (Mich. Mc. App. 2000) and *Hesse Realty, Inc v. Ann Arbor*, 61 Mich. App 319, 323–324 (1975)). The Almer Township Zoning Ordinance grants the Township Board discretion to conduct a de novo review of the Planning Commission's recommendations regarding SLUP applications, and thus Tuscola is appealing from a legislative decision.

The Zoning Ordinance does not on its face permit appeals to the ZBA from legislative decisions by the Township Board. And such a dynamic would be counterintuitive because the members of the ZBA are appointed by the Township Board and are tasked with interpreting the provisions of the Zoning Ordinance as enacted *by* the Township Board. Because the Zoning Ordinance does not specifically provide for appeal of a SLUP application to the ZBA, the

Township Board's decision is a final and appealable order per *Carleton*. The denial of the SLUP application is ripe for review.

B.

Proceeding to the merits of the appeal,[9] Tuscola has not demonstrated that the denial of the SLUP application was contrary to law or not support by substantial evidence, as those standards have been articulated by Michigan courts. The Township Board based its denial of the application on five perceived deficiencies in the SLUP application. Accordingly, the Township Board's decision will be disturbed only if none of the five bases for denial were consistent with the law and supported by substantial evidence.

The record reflects that the Planning Commission, Township Board, and Tuscola devoted substantial attention to the proper interpretation of the Zoning Ordinance's section providing that noise emissions from wind turbines "shall not exceed" 45 dBA. Zoning Ordinance, § 1522(C)(14). Because so much of the record is devoted to that dispute, this issue will be addressed first. For several reasons, Tuscola's noncompliance with the noise emission limit was a permissible basis for the Township Board to premise its denial of the SLUP application.

1.

The initial issue which must be confronted is the extent to which this Court should defer to the Township Board's interpretation of its own Zoning Ordinance. Tuscola contends that the Court must conduct a de novo review of the proper interpretation of the ordinance. Appellant Br. at 20.

[9] Tuscola also challenges the validity of the moratorium which the Township Board enacted in November of 2016. Although the moratorium on wind energy projects was enacted after Tuscola's SLUP application was submitted (but before it was rejected), the Planning Commission and Township Board proceeded to consider the SLUP application on its merits. At most, the Township Board relied upon the moratorium as an alternative (and secondary) basis for denying the SLUP application. Because the Board's denial of the application was supported by substantial evidence and was not contrary to law, the legitimacy of the moratorium need not be resolved. And, importantly, because the moratorium has now ended, any opinion on the Township Board's prospective authority to enact another moratorium would constitute an advisory opinion. *See* Appellee Resp. Br. at 24–25.

In fact, Tuscola expressly identifies its "ZBA request for interpretation" as further articulating the reasons why the Township Board's interpretation was incorrect. *Id.* at 20 n. 14. Tuscola thus assumes that this Court's analysis should be conducted independently and without reference to the Township Board's. But such an approach is inconsistent with Michigan law.

Michigan Courts have repeatedly confirmed that courts should defer to municipal interpretations of zoning ordinances. *See Macenas v. Vill. of Michiana*, 446 N.W.2d 102, 110 (Mich. 1989) ("[T]he import of our case law is that a reviewing court is to give deference to a municipality's interpretation of its own ordinance."); *Id.* ("[I]n cases of ambiguity in a municipal zoning ordinance, where a construction has been applied over an extended period by the officer or agency charged with its administration, that construction should be accorded great weight in determining the meaning of the ordinance."); *Davis v. Bd. of Ed. for Sch. Dist. of River Rouge*, 280 N.W.2d 453, 454 (Mich. 1979) ("We acknowledge that the construction placed upon a statute by the agency legislatively chosen to administer it is entitled to great weight."); *Paye v. City of Grosse Pointe*, 271 N.W. 826, 828 (Mich. 1937) (holding that a municipality's construction of an ordinance is not binding on a court, but that the municipality's construction is "always entitled to the most respectful consideration" and should not "be overruled without cogent reasons") (internal citations omitted). *But see Kalinoff v. Columbus Twp.*, 542 N.W.2d 276, 277 (Mich. Ct. App. 1995) (holding that deference to the zoning board's interpretation would not be given because "when the language used in an ordinance is clear and unambiguous, we may not engage in judicial interpretation, and the ordinance must be enforced as written").

The Michigan Court of Appeals' decision in *Sinelli v. Birmingham Bd. of Zoning Appeals* is particularly instructive. 408 N.W.2d 412, 414 (Mich. Ct. App. 1987). In *Sinelli*, the dispute centered on the meaning of the term "public property" in the zoning ordinance. The plaintiffs in

Sinelli wished to prevent a new restaurant from leasing a portion of land zoned as "public property" from the City of Birmingham to use for parking. The City argued that its interpretation of "public property,"—specifically, that it included off-street private parking—was "a reasonable exercise of [its] discretion." *Id.* The circuit court granted summary disposition for the defendants. On appeal, the Michigan Court of Appeals emphasized that "Birmingham has consistently interpreted § 5.15 as allowing the city to lease for parking purposes property zoned 'public property.'" *Id.* In conjunction with a discussion regarding the proper construction of the ordinance, the court concluded that the City of Birmingham had arrived at "a reasonable interpretation of the provision." *Id.* And, the court explained, that was sufficient to justify judgment for the defendants: "This Court will not sit in judgment on matters wholly within the reasonable discretion of local zoning boards whose decisions are regarded as final and binding unless caprice, abuse of discretion, or arbitrary action is provable." *Id.* at 415.

Here, the final decision on the SLUP application was rendered by the Township Board, the legislative body which enacted the Zoning Ordinance in the first place. And, as explained above, the SLUP application denial constitutes a legislative decision under Michigan law. In this context, the importance of deferring to the Township Board's interpretation of the statute is even greater. When a statute or ordinance is ambiguous, the ultimate authority on the meaning of the language would naturally be the legislative body which drafted and enacted it. *See Macenas*, 446 N.W.2d at 111 ("When there is no readily apparent meaning to a statutory phrase, we ordinarily turn to an attempt to determine the intent of the legislative body that enacted the statute or ordinance."). Typically, courts must interpret ambiguous statutory language without the benefit of an interpretation by the relevant legislative body. But where, as here, the legislative body has provided

an interpretation of the ordinance it passed, it would be counterintuitive to provide that interpretation no deference.

Thus, this Court does not sit in de novo review of the Zoning Ordinance provision regarding noise emission levels (assuming that the ordinance is ambiguous). Rather, the question is whether the Township Board's interpretation of the ordinance was "reasonable." *Sinelli*, 408 N.W.2d at 414. *See also Macenas*, 446 N.W.2d at 112. If the Board's decision was the result of "caprice, abuse of discretion, or arbitrary action," then it was not reasonable. *Sinelli*, 408 N.W.2d at 415. But unless there are "cogent reasons" to conclude that the Board's consideration was not reasonable, the Board's interpretation must be affirmed. *Macenas*, 446 N.W.2d at 112.

2.

Tuscola argues that the "Board's interpretation of Section 1522(C)(14) as unambiguously providing for an L_{max} sound metric was not reasonable." Appellant's Br. at 20. But, for several reasons, that argument falls short. First, the plain language of § 1522(C)(14) is best interpreted as imposing an L_{max} standard. Second, even if the provision is considered to be ambiguous, there is at best equivocal support for construing the provision as imposing an L_{EQ} standard. Rather, even if the provision could reasonably be interpreted as imposing an L_{EQ} standard, Tuscola has simply demonstrated that several reasonable interpretations of the provision exist. In the absence of cogent reasons to find the Township Board's interpretation unreasonable, its interpretation must be affirmed.

i.

As indicated above, Michigan courts have held that "when the language used in an ordinance is clear and unambiguous, we may not engage in judicial interpretation, and the

ordinance must be enforced as written." *Kalinoff*, 542 N.W.2d at 277. Thus, if the provision in question is not ambiguous, no further analysis is necessary.

The provision in question reads, in full:

> Noise emissions from the operations of a [Wind Energy Conversion System] shall not exceed forty-five (45) decibels on the DBA scale as measured at the nearest property line of a non-participating property owner or road. A baseline noise emission study of the proposed site and impact upon all areas within one mile of the proposed WECS location must be done (at the applicant's cost) prior to any placement of a WECS and submitted to the Township. The applicant must also provide estimated noise levels to property lines at the time of a Special Use application.

§ 1522(C)(14).

In the written resolution which the Township Board issued in conjunction with its denial of the SLUP application, the Board reasoned that the "limitation on noise emissions . . . is clear and unambiguous and requires no further qualifying metric or analysis." Res. Deny SLUP at 7. Tuscola argues that the provision is facially ambiguous because "'[s]hall not exceed' is not a metric—it simply means that whatever metric is applied, that number shall not exceed 45 dBA." Appellant Br. at 21.

The fundamental dispute between the parties is whether the provision includes a metric for measuring 45 dBA or whether the "shall not exceed" language constitutes a definable means of measuring sound emissions. Several facts are uncontested. First, all parties agree that sound can be measured in different ways. *Compare* Appellants Br. at 21 *with* Appellate Resp. Br. at 15. *See also* Sound Modeling Rep. at 5–6. Possible sound emission metrics include L_{max}, L_{min}, L_n, or L_{EQ}. As detailed above, each of these metrics constitutes a distinct way of measuring sound levels over time. The dispute between the parties centers on whether the ordinance calls for use of L_{max} or L_{EQ}. As already explained, L_{max} is "the . . . maximum sound level . . . monitored over a period of time." *Id.* at 5. L_{EQ}, on the other hand, is the "continuous equivalent sound." *Id.* In other words, L_{EQ} is the

"logarithmic function of the average [sound] pressure" over an "entire monitoring period." *Id.* at 6, 5.

Both L_{max} and L_{EQ} are meaningful only in the context of a given period of time. L_{max} can be measured only in reference to a time period: the maximum sound level reached during the specified period of measurement. Similarly, a complete L_{EQ} metric requires a notation of the length of the monitoring period that is being averaged. *See id.* at 6 ("The monitoring period . . . can be for any amount of time. It could be one second ($L_{EQ\ 1\text{-}sec}$), one hour ($L_{EQ(1)}$), or 24 hours ($L_{EQ(24)}$)."). Tuscola concedes (even advances) this point: "[The Township] argues that L_{eq} makes no sense because that metric requires a monitoring period and no monitoring period is specified in the Ordinance. . . . But as the Township itself points out, L_{max} requires a monitoring period as well." Appellant Reply Br. at 4–5 (internal citations omitted).

Section 1522(C)(14) does not include any language expressly identifying the length of the monitoring period. As such, the ordinance is ambiguous on that point. But that point of ambiguity is not the basis on which the Township Board denied the SLUP application. As Tuscola implicitly recognizes in the argument just quoted, the ambiguity created by the absence of a specified monitoring period exists regardless of whether the ordinance is interpreted as imposing an L_{max} or L_{EQ} standard. In other words, if the Township Board construed the ordinance as imposing a ten minute monitoring period, the question of whether the 45 dBA limit had been violated during that ten minute period would still be dependent on the means of measuring sound emissions. If L_{max} were used, then a single instance of sound emissions exceeding 45 dBA during the ten minutes would put the turbine in violation of the ordinance. If L_{EQ} were used, then the ordinance would be violated only if the continuous equivalent sound pressure over the ten minutes exceeded 45 dBA.

Tuscola appears to concede that, if the L_{max} metric were adopted, then its turbines would be in noncompliance with the ordinance regardless of the length of the monitoring period. *See* Dec. 22, 2016, Supp. Info at 1 ("The report . . . makes it quite clear that using an Lmax metric would make development of commercial wind energy in Almer Township impossible."). The ambiguity regarding the monitoring period is thus irrelevant. Rather, the determinative issue (and the one on which the Township Board rested its conclusion) is whether the ordinance imposes an L_{max} or L_{EQ} standard. And the Township Board's conclusion that § 1522(C)(14)'s language unambiguously provides for an L_{max} standard was eminently reasonable.

L_{max} involves maximum sound level achieved over a period of time; L_{EQ} involves a logarithmic averaging of the sound pressure over a period of time. By definition, then, if sound emissions over one hour total 45 dBA L_{EQ}, then the sounds emissions during that period almost certainly included moments when the instantaneous sound level exceeded 45 dBA. In other words, the "continuous equivalent sound" measured during a specified period inevitably constitutes a midpoint between the absolute high and low values measured during that period. *See* Sound Modeling Rep. at 5.

The "[s]hall not exceed" language in § 1522(C)(14) is facially indistinguishable from a L_{max} standard. If a wind turbines emitted 46 dBA of noise, then a common-sense reading of the provision (relying only on the language of the provision and no extraneous information) would conclude that the turbine had violated § 1522(C)(14). No language in § 1522(C)(14) would support a conclusion that one *instantaneous* emission of 46 dBA of noise is not violative of the statute as long as the turbine's *average* emission does not exceed 45 dBA.

When § 1522(C)(14) is compared to other ordinances which the Township could have mirrored, the best interpretation of the section becomes clear. Take, for example, the language in

Huron County's noise ordinance: "The audible sound from a Wind Energy Facility at a Noise Sensitive Facility may not exceed the Equivalent A-Weighted Continuous Sound Level (L_{eq}) limits set forth in Table 1[.]" Appellee Resp. Br. at 17 (emphasis omitted). The Huron County Ordinance thus defines the L_{EQ} standard by using the words "equivalent" and "continuous." Conversely, the Almer Township Zoning Ordinance is devoid of any terms that correspond to an L_{EQ} standard: there is no mention of equivalent, continuous, or average sound levels. Rather, § 1522(C)(14) simply specifies that the emissions "[s]hall not exceed" 45 dBA. That language is coterminous with the definition of L_{max} (as defined by Tuscola itself): If the wind turbine emits a sound that exceeds 45 dBA, the ordinance has been violated. The ordinance does not, on its face, provide for an averaging of noise emissions. Thus, the best interpretation of § 1522(C)(14) is that it unambiguously provides for a L_{max} standard. Any alternative interpretion would require inclusion of additional language or terms; the L_{max} standard alone is consistent with the words, and only the words, of § 1522(C)(14).[10]

ii.

Even if the Court were to conclude that § 1522(C)(14) is ambiguous regarding how to measure sound emissions (and not just ambiguous regarding the length of time over which to measure them), Tuscola's argument still falls short. Tuscola argues, correctly, that when an ordinance is ambiguous, courts must apply principles of statutory interpretation. "Unless defined in the statute, every word or phrase of a statute should be accorded its plain and ordinary meaning, taking into account the context in which the words are used." *Alcona Cty. v. Wolverine Envtl.*

[10] The maxim "expressio unius est exclusio alterius" is applicable here: "the expression of one thing is the exclusion of another, [the maxim] means that the express mention of one thing in a statute implies the exclusion of other similar things." *Alcona Cty. v. Wolverine Envtl. Prod., Inc.*, 590 N.W.2d 586, 590 (Mich. Ct. App. 1998). The ordinance specifies that a certain noise level shall not be exceeded, but does not provide that noise emissions shall be averaged. Because language referring to average noise emissions or continuous equivalent pressure has been omitted, the implication is that such language has been purposely excluded.

Prod., Inc., 590 N.W.2d 586, 590 (Mich. Ct. App. 1998). "Statutory language should be construed reasonably and the purpose of the statute should be kept in mind." *Id.* (internal citations omitted). Tuscola emphasizes that some courts (though no Michigan courts) have relied upon industry standards when interpreting statutory language. Appellant Br. at 23. *See also Prill v. Hampton*, 453 N.W.2d 909, 912 (Ct. App. 1990). But even considering all the factors and evidence which Tuscola relies on, the company has at best shown that the ordinance could reasonably be interpreted in several different ways.

To begin with, Tuscola's assertion that the SLUP application denial was premised solely on a finding that the language of § 1522(C)(14) is unambiguous, as opposed to an interpretation of what the language should be construed as requiring, is inaccurate. Admittedly, the written resolution which the Township Board provided in conjunction with its on-the-record denial of the application does assert that "using an L_{eq} standard is inconsistent with the plain and unambiguous language of the Zoning Ordinance." Res. Deny SLUP at 7. But Tuscola's implicit assertion that the Township Board refused to consider the Ordinance's context and any extraneous information that might inform their interpretation of the language is manifestly inconsistent with the record. During the hearing, several members of the Board discussed the language of § 1522(C)(14) and explained why they believed that it was incompatible with an L_{EQ} standard. *See* Jan. 17, 2017m Tr. at 19, 21.[11] Likewise, in the written resolution the Township Board expressly relied on, and quoted, the testimony provided by acoustician Kerrie Standlee. Because of its significance, that testimony will be quoted, again, here:

> Without having access to any information regarding the ordinance author's intentions relative to the wording used in the ordinance, I would conclude that the 45 dBA limit specified in the ordinance is addressing a "maximum" noise level

[11] And, of course, the Township Board's decision was informed by the Planning Commissions' recommendation, which was made only after hearing extensive testimony by Tuscola representatives and sound engineers regarding the best interpretation of the provision.

> limit and not a limit associated with some other noise descriptor. Model noise ordinances written over the past 50 years have shown that noise ordinances can be written with a maximum noise level limit or they can be written with some other noise metric limit. However, in each case where a metric other than the maximum noise level is included, the noise metric was specified in the ordinance. When a noise limit is specified in an ordinance without reference to any specific noise metric, it is generally understood by acousticians that the limit is intended to be a "maximum" noise level limit and not a limit for a noise descriptor other than the maximum noise level.

Acoustics by Design Memo. at 3.

Tuscola challenges Standlee's opinion by asserting that his interpretation of the ordinance is simply "an improper legal conclusion." Appellant Br. at 21. But Standlee clearly premises his opinion on both his own experience in the industry and what he understands industry standards to be. Tuscola argues elsewhere in its brief that those factors are relevant for properly interpreting the ordinance, and so it cannot reasonably discount Standlee's opinion for discussing industry standards. Tuscola appears to fault Standlee for relying upon generalizations, but Standlee provided very specific examples in his testimony before the Planning Commission. At the November 10, 2016, public hearing, Standlee testified "when something is not specified, you take the normal interpretation, which would be Lmax." Nov. 10, 2016, Hearing Tr. at 130. Standlee continued:

> [T]he limit is stated in there that the level shall not exceed 45 dBA. It doesn't give any descriptor, is it supposed to be the Lmax or – and as was mentioned, an L90 or an L10 at 50, an Leq, it doesn't specify. Mr. James is correct in that when something is not specified, you take the normal interpretation, which would be Lmax. I'm with – I'm on the City of Portland Noise Review Board and we have an Lmax standard. It's not specified as the Lmax it's just – like yours it says it shall not exceed this level. And that is an absolute level, not – not an equivalent energy level.

Id. at 131.

Thus, Standlee provided an expert opinion regarding how most acousticians would read the Almer Township Zoning Ordinance language, opined that the ordinance imposes an L_{max}

standard, and provided an example of another city ordinance (which uses the same language) that has been interpreted to mean L_{max}. Tuscola attempts to undermine Standlee's testimony by pointing to "the numerous concrete examples provided by TWIII's experts of sound provisions in wind ordinances, both in the Thumb and elsewhere, that either marry 'shall not exceed' language with an L_{eq} metric . . . or recognized L_{eq} as the appropriate metric in the absence of a specific metric." Appellant Br. at 22. Tuscola has not provided the language of the ordinances it refers to, and so it is difficult to ascertain the extent to which the statutory language is analogous.

The Township does provide the statutory language in the Akron Township and Huron County ordinances (which Tuscola cites for the proposition that "shall not exceed" language can be combined with an L_{EQ} standard), but both those ordinances expressly define the metric as L_{EQ}. It goes without saying that if the Zoning Ordinance specifically identified the metric, then no more interpretation would be needed. But the Almer Township Zoning Ordinance does not clearly identify the metric (or, at least, Tuscola repeatedly argues that the ordinance is ambiguous). The Akron Township and Huron County zoning ordinances utilize noise emission standards with materially different language and thus are of minimal relevance.

Ultimately, however, Tuscola's argument obfuscates the underlying analysis which must be conducted. The question is not whether the Zoning Ordinance could reasonably be interpreted as creating an L_{EQ} standard (though, as discussed above, the plain language of § 1522(C)(14) suggests that it could not). Rather, the question is whether the Township Board's interpretation was so unreasonable as to justify departure from the deference normally given to a municipality's interpretation of its own ordinance. As such, the language of other noise emission ordinances provides context, but is far from determinative.

Tuscola (and its experts) repeatedly, and perhaps accurately, assert that the industry standard is to measure wind turbine sound emissions using L_{EQ}, not L_{max}. But Tuscola's noise emission expert admitted that use of an L_{max} standard is not patently unreasonable:

> [Planning Commission Member Tussy:] Are you saying that dBA max is never used?
>
> [Tuscola Expert Lampeter:] There are instances where Lmax could be appropriate to evaluate, and Kerry Stanley indicated that in his experience in Portland they used an Lmax, so it's not – I'm not going to say that it's never used, but an leq has been determined in other instances to be a reasonable approach *as well* for a similar type worry."

Dec. 7, 2016, Hearing Tr. at 72 (emphasis added).

Later in the hearing, Mr. Lampeter again addressed the reasonableness of alternative interpretations. A Planning Commission member stated: "I guess our charge we've got to interpret what our ordinance says." *Id.* at 77. Mr. Lampeter agreed:

> I think the decision is what's reasonable and also what are we bound to in the ordinance, and I would say that jurisdictions have interpreted it as an leq, and I'd also say that's reasonable based on other standards . . . . I think it's an interpretation of what's reasonable. Is it meant to be a one-second exceedence? And if you feel that then that's an Lmax. If you feel that it's reasonable for some other duration, what's the reasonable way to apply this? I think that's the determination you have to make. I'm just giving you what I've seen in other jurisdictions in my experience, and that's the leq.

Id. at 78–80.

Thus, Tuscola's own expert appeared to concede that both L_{EQ} and L_{max} could reasonably be used. Mr. Lempeter's arguments (and the arguments Tuscola now makes) are fundamentally premised on the assertion that an L_{EQ} standard is a better choice. And that may be true. If this Court were making an independent determination of what metric is best suited for measuring wind turbine noise emissions, it might well select the L_{EQ} standard. But, for purposes of this review, it is not relevant whether L_{EQ} is the best way to measure noise emissions or whether the ordinance

could reasonably be construed as imposing that standard. Rather, Tuscola must demonstrate that the Township Board's adoption of the L_{max} standard *was not reasonable*.

Tuscola's expert agreed that the L_{max} standard is a valid metric which is used in certain municipal noise ordinances and that the Almer Township Zoning Ordinance could be interpreted in several reasonable ways. The Township's noise expert opined that most sound experts would read the Almer Township Zoning Ordinance as imposing an L_{max} standard, confirmed that the L_{max} standard is a valid metric, and identified a specific municipality where the noise emissions ordinance utilizes an L_{max} standard. Against this factual background (and considering the plain language of the statute), the Township Board's conclusion that § 1522(C)(14) imposes an L_{max} standard was reasonable. That conclusion was consistent with principles of statutory interpretation and supported by substantial evidence in the record. Reasonable minds might have arrived at a different conclusion. But the fact that several reasonable alternatives exist does not constitute a "cogent reason" to disregard a municipality's interpretation of its own ordinance. *See Macenas*, 446 N.W.2d at 112. To the contrary, that fact provides a persuasive rationale for deferring to the Municipality's decision. *See Alcona Cty.*, 590 N.W.2d at 596 n. 8 ("Although an agency's construction of a statute cannot be used to overcome a statute's plain meaning, . . . given that the position adopted by the MDEQ is plausible and is consistent with the language of the statute, it is entitled to reasonable deference."). The Court will do so here.

iii.

Tuscola's final argument regarding § 1522(C)(14) is that the Township Board's interpretation would result in exclusionary zoning, which is prohibited by Michigan law. Specifically, Tuscola argues that "[u]sing an L_{max} metric would make development of commercial wind energy in the Township impossible because a single wind turbine could not be sited within

at least a half-mile of a nonparticipating line." Appellant Br. at 24–25. This conclusory argument has no merit. Under Michigan, "a zoning ordinance may not totally exclude a land use where (1) there is a demonstrated need for that land use in the township or surrounding area, (2) the use is appropriate for the location, and (3) the use is lawful." *Eveline Twp. v. H & D Trucking Co.*, 448 N.W.2d 727, 730 (Mich. Ct. App. 1989). *See also* M.C.L. 125.3207. Even assuming that the Township Board's interpretation of the ordinance completely excludes wind energy development in the Township, Tuscola cannot prevail.[12]

Tuscola has made no attempt to show that there is a "demonstrated public need" for wind turbines in Almer Township, and the Court cannot comprehend why such a need would exist. "Presumably any entrepreneur seeking to use land for a particular purpose does so because of its perception that a demand exists for that use. To equate such a self-serving demand analysis with the 'demonstrated need' required by the statute would render that language mere surplusage or nugatory, in contravention of usual principles of construction." *Outdoor Sys., Inc. v. City of Clawson*, 686 N.W.2d 815, 819 (Mich. Ct. App. 2004). Further, "the public need must be more than mere convenience to the residents of the community." *DF Land Dev., LLC v. Charter Twp. of Ann Arbor*, No. 291362, 2010 WL 2757000, at *6 (Mich. Ct. App. July 13, 2010).

Wind turbines produce energy, which is, of course, needed by the Almer Township community. But Tuscola cannot reasonably argue that the Township will have inadequate access to energy absent the wind energy project. The Michigan Court of Appeals has explained that, to

[12] And that assumption is questionable. Tuscola asserts that application of an L_{max} standard would prevent the company from siting a turbine within 2,775 feet from a nonparticipating property line. *See* Dec. 22, 2016, Supp. Info. at 1. Thus, Tuscola would be forced to reach agreements with a significantly larger number of property owners in order to build the turbines as currently planned. But it seems plausible that Tuscola might be able to enter into more land use contracts with property owners and/or site a fewer number of turbines in Almer Township. Both of those alternatives would undoubtedly impact the profitability of the project, but Tuscola has not demonstrated that it is entitled to deferential or economically favorable conditions. Perhaps application of an L_{max} standard creates such an economic hardship that it constitutes de facto exclusionary zoning. But Tuscola's conclusory briefing on this point falls far short of showing that to be true.

show demonstrated public need, the plaintiff must do more than show that "residents of the township would *benefit* from" the excluded use. *Id.* (emphasis in original). Tuscola has not carried that burden here.

C.

The Township Board reasonably interpreted its Zoning Ordinance and, under that reasonable interpretation, Tuscola was undisputedly in noncompliance with the Zoning Ordinance. Because at least one of the bases on which the Board premised its denial was lawful, the remaining four bases need not be examined. The Township Board's denial will be affirmed.

IV.

Accordingly, it is **ORDERED** that Defendant Almer Township Board's denial of Plaintiff Tuscola Wind III, LLC's, SLUP application is **AFFIRMED.**

Dated: November 3, 2017

s/Thomas L. Ludington
THOMAS L. LUDINGTON
United States District Judge

PROOF OF SERVICE

The undersigned certifies that a copy of the foregoing order was served upon each attorney or party of record herein by electronic means or first class U.S. mail on November 3, 2017.

s/Kelly Winslow
KELLY WINSLOW, Case Manager

EXHIBIT C

IN THE COURT OF COMMON PLEAS OF CARBON COUNTY, PENNSYLVANIA
CIVIL DIVISION

PHILLIP C. MALITSCH and CHRISTOPHER MANGOLD,	:	
Plaintiffs/Appellants	:	
v.	:	No. 17-1011
PENN FOREST TOWNSHIP ZONING HEARING BOARD,	:	
Defendant/Appellee	:	
and	:	
ATLANTIC WIND, LLC, PENN FOREST TOWNSHIP, and BETHLEHEM AUTHORITY,	:	
Intervenors	:	

Theodore R. Lewis, Esquire	Counsel for Philip C. Malitsch
Bruce K. Anders, Esquire	Counsel for Christopher Mangold
Michael S. Greek, Esquire	Counsel for Penn Forest Township Zoning Hearing Board
Debra A. Shulski, Esquire	Co-Counsel for Atlantic Wind, LLC
Edward J. Greene, Esquire	Co-Counsel for Atlantic Wind, LLC
Thomas S. Nanovic, Esquire	Counsel for Penn Forest Township
James F. Preston, Esquire	Counsel for Bethlehem Authority

MEMORANDUM OPINION

Serfass, J. - April 21, 2020

Phillip C. Malitsch and Christopher Mangold (hereinafter collectively "Appellants") initiated this case on May 22, 2017, when they filed a land use appeal concerning the "Notice of Deemed Approval" published by Atlantic Wind, LLC, on May 5, 2017 in The Times News, a newspaper of general circulation in Carbon County. In response to Atlantic Wind's notice, on May 25, 2017, the Penn

Forest Township Zoning Hearing Board filed a "Motion to Strike Notice of Deemed Approval Published May 5, 2017." Atlantic Wind then intervened in this action on June 5, 2017, followed, on June 7, 2017, by Penn Forest Township in support of Appellants, and by Bethlehem Authority on June 20, 2017. The "Motion of Atlantic Wind, LLC to Strike Motion of Appellee Penn Forest Township Zoning Hearing Board to Strike Notice of Deemed Approval Published on May 5, 2017 for Lack of Standing" was filed on July 5, 2017. Following briefing and oral argument, this Court issued a memorandum opinion dated December 29, 2017 holding that Atlantic Wind's zoning application was deemed approved and that the Penn Forest Township Zoning Hearing Board lacked standing to strike the notice of deemed approval.

Atlantic Wind and Penn Forest Township filed separate motions to "Present Additional Evidence Pursuant to MPC § 1005-A". After oral argument thereon, both motions were granted and, on February 28, 2018, this Court appointed William G. Schwab, Esquire, as Referee to receive additional evidence in this matter. After two (2) hearings were held to take additional evidence, the parties submitted to Referee Schwab proposed findings of fact and conclusions of law and the Referee then submitted to this Court his recommended proposed findings of fact and conclusions of law. Thereafter, oral argument was scheduled and held before this Court on the merits of the zoning appeal.

Upon consideration of the record in this case, including additional evidence heard by Referee Schwab, the proposed findings of fact and conclusions of law submitted by the parties and the Referee, and the oral argument of counsel, we make the following

FINDINGS OF FACT

1. Penn Forest Township (hereinafter the "Township") is a township of the second class situated in Carbon County, Pennsylvania.

2. The Township has a duly enacted zoning ordinance known as the "Penn Forest Township Zoning Ordinance of 2011" (hereinafter the "Zoning Ordinance").

3. The Township has a zoning hearing board created pursuant to 53 P.S. §10901 and known as the "Penn Forest Township Zoning Hearing Board" (hereinafter the "Board").

4. Bethlehem Authority is a municipal authority organized and existing under the laws of the Commonwealth of Pennsylvania.

5. Atlantic Wind, LLC (hereinafter "Atlantic Wind") is an Oregon limited liability company and a wholly owned subsidiary of Iberdrola Renewables.

6. Iberdrola Renewables is the world's largest wind energy owner and the second largest wind energy owner within the United States operating fifty-nine (59) wind energy projects in eighteen (18) states as of the date of the first hearing on the instant zoning application.

7. Atlantic Wind submitted a complete zoning application to the Board via correspondence from its legal counsel dated April 1, 2016, seeking a special exception for a proposed Wind Turbine Project to be erected on property owned by Bethlehem Authority located north and south of Hatchery Road also known as Reservoir Road.

8. The majority of the project area is located in the R-1-Rural Residential Agricultural (hereinafter "R-1") zoning district and the remainder of the project area is located in the R-2-Low Density Residential (hereinafter "R-2") zoning district.

9. On or about March 6, 2013, Atlantic Wind entered into a "Wind License and Wind Energy Lease Agreement" (hereinafter "Lease Agreement") with Bethlehem Authority, pursuant to which Atlantic Wind was authorized to submit the special exception application to the Board for the proposed Wind Turbine Project.

10. Bethlehem Authority owns real estate in Penn Forest Township identified by the following Carbon County tax parcel numbers: 37-51-A7.04; 51-51-A8.01; 23-51-A3; 12-51-A5; 37-51-A9; 37-51-A2; 52-51-A8; 37-51-A3; 23-51-A1; 37-51-A7; 13-51-A1; 25-51-A5; 25-51-A2; 37-51-A1; 38-51-A1.02; 38-51-A4; 25-51-A3; 38-51-A1.01; 25-51-A1; 12-51-A5; 37-51-A4; 24-51-A1; 24-51-A3,4; 12-51-A6; 25-51-A4; and 37-51-A6 (hereinafter the "Project Area").

11. The application treats the separate tax parcels as one parcel for land development purposes.

12. The Project Area comprises approximately nine thousand nine hundred thirty-eight (9,938) acres of real estate.

13. Atlantic Wind's special exception application proposes the construction of up to thirty-seven (37) wind turbines on Bethlehem Authority property and all pertinent infrastructure including, but not limited to, permanent meteorological towers, electrical substations, overhead and underground electrical and data cables, access roads, and an emergency service station/operations and safety building (hereinafter "Wind Energy Facility").

14. The proposed maximum wind turbine height is five hundred twenty-five (525) feet.

15. The overall scope of the site improvements is 0.86% of impervious coverage and the proposed disturbance area is 2.72%.

16. Atlantic Wind's application requests two (2) special exceptions as follows:

(i.) A special exception pursuant to Zoning Ordinance section 306.B.1 to permit a wind turbine use in the R-1 Zoning District along with appurtenant infrastructure including, but not limited to, roads, permanent meteorological towers, electrical substations, overland and underground electrical and data cables and transmission lines; and

(ii.) A special exception pursuant to Zoning Ordinance section 105.B to permit an operations and safety building as

a use not specifically provided for (and not prohibited) in any of the zoning districts.

17. Section 306.B.1 of the Zoning Ordinance permits the construction of wind turbines in R-1 zoning districts by special exception.

18. Atlantic Wind also seeks an interpretation of the Zoning Ordinance that the permanent meteorological towers are:

(i.) permitted as an integral part of the wind turbine use and necessary for the operation of the wind energy conversion system; or

(ii.) permitted as an accessory use or structure that is customary and incidental to the wind turbine use and/or permitted as an accessory structure to the wind turbine use pursuant to Zoning Ordinance section 402.A.54(n) which permits accessory electrical facilities.

19. In the alternative, Atlantic Wind requests a special exception pursuant to Zoning Ordinance section 105.B to permit the permanent meteorological towers as a use not specifically provided for (and not prohibited) in any of the zoning districts.

20. Pursuant to the Pennsylvania Municipalities Planning Code (hereinafter "MPC"), 53 P.S. § 10101, et seq., the Board advertised a public notice that the first hearing on Atlantic Wind's zoning application would take place on May 12, 2016, at the

Penn Forest Township Volunteer Fire Company No. 1, 1387 State Route 903, Jim Thorpe, Pennsylvania.

21. At the first zoning hearing on May 12, 2016, Atlantic Wind called Craig Poff, Mark Bastasch, P.E. and Michael Kissinger, P.E. as witnesses, introduced ten (10) exhibits, and rested its case.

22. Craig Poff is the director of business development for Iberdrola Renewables and is responsible for all aspects of obtaining permits for wind energy projects.

23. Mark Bastasch, a professional acoustical engineer licensed in the State of Oregon, is employed at CH2M Hill Engineers, Inc. as a principal acoustical engineer and was retained by Iberdrola Renewables to review and analyze the proposed wind turbine project for compliance with the requirements of the Penn Forest Township sound ordinance.

24. Michael Kissinger is employed as a service engineer at Pennoni Associates in charge of all land development in Southern Pennsylvania and serves as the lead project engineer/project manager relative to zoning matters for the proposed wind turbine project.

25. A total of seven (7) hearings were scheduled before the Board at the Penn Forest Township Volunteer Fire Company No. 1 on the following dates: May 12, 2016; June 26, 2016; July 14, 2016;

July 21, 2016; August 25, 2016; September 20, 2016; and May 17, 2017.

26. By agreement, neither the parties nor their counsel appeared for the zoning hearing scheduled on September 20, 2016 and the proceedings were stayed by the Board pending this Court's disposition of Atlantic Wind's petition for special relief seeking to have further hearings held at the Carbon County Courthouse based upon security concerns with the fire company venue.

27. The zoning hearing of May 17, 2017, was ultimately stricken as a result of this Court's December 29, 2017, memorandum opinion and order upholding the deemed decision.

28. Section 402.A.54 of the Zoning Ordinance lists the specific requirements for wind turbines as a principal use.

29. Principal use is defined in the Zoning Ordinance as "A dominant use(s) or main use on a lot, as opposed to an accessory use."

30. Section 801.B.2 of the Zoning Ordinance provides, "A lot within a residential district shall not include more than one (1) principal use and shall not include more than one (1) principal building unless specifically permitted by this Ordinance."

31. There is a large reservoir located within the Project Area commonly known as the Penn Forest Reservoir.

32. The Penn Forest Reservoir watershed contains eight thousand seven hundred eighty-three (8,783) acres of real property

of which Bethlehem Authority owns seven thousand two hundred twenty-two (7,222) acres.

33. The majority of the Project Area is located within the Penn Forest Reservoir watershed.

34. The Penn Forest Reservoir watershed is owned by Bethlehem Authority and kept in an undeveloped state for the purpose of maintaining the quality of the water flowing into the Penn Forest Reservoir.

35. The Penn Forest Reservoir drains into the Wild Creek Reservoir, both of which are sources of water for the City of Bethlehem.

36. On or about April 14, 2011 Bethlehem Authority entered into a "Term Conservation Easement" with the Nature Conservancy.

37. The Lease Agreement between Atlantic Wind and Bethlehem Authority provides that the "primary mission of [Bethlehem Authority is] to produce potable water" and one of the "primary uses" of the Project Area is "for the production of potable water".

38. Both the Lease Agreement and the Term Conservation Easement provide that there are no real estate taxes or other assessments levied against the Project Area.

39. In a letter dated February 25, 2015, from the Bethlehem Authority to the Federal Energy Regulatory Commission, the Chairman of the Bethlehem Authority stated, "The city's water comes entirely from surface sources around two (2) reservoirs in the

Pocono Mountains. The two (2) major components of the water supply system which the Authority controls and has a duty to protect are the reservoirs holding water, including the head waters and the streams feeding those reservoirs."

40. In that same letter, the Bethlehem Authority Chairman stated, "Protecting the authority's reservoirs necessarily requires protecting the surface waters feeding those reservoirs. To that end the authority not only owns the reservoirs, it also owns the land containing the headwaters and the streams feeding the reservoirs. To protect the headwaters and feeder streams, the authority has placed significant portions of its land in a conservation easement."

41. As required by section 116.B.2 of the Zoning Ordinance, the Penn Forest Township Zoning Officer issued the first zoning compliance review determination by correspondence dated April 19, 2016, referencing eight (8) items that required further clarification.

42. Atlantic Wind subsequently provided the requested clarification, and the Zoning officer issued a second zoning compliance review determination letter dated June 23, 2016, advising that all of her prior comments had been addressed.

Specific Standards Governing Wind Turbine Use under § 402.A.54 of the Zoning Ordinance

43. In compliance with section 402.A.54.a of the Zoning Ordinance, the wind turbine setback is at least three (3) times the maximum height to the top of the turbine from any adjacent property line not owned by the Bethlehem Authority.

44. The proposed minimum distance from the closest turbine to the closest occupied dwelling property is two thousand three hundred (2,300) feet whereas the Zoning Ordinance requires only one thousand five hundred seventy-five (1,575) feet for a maximum turbine height of five hundred twenty-five (525) feet.

45. Atlantic Wind and Mr. Bastasch acknowledged that the locations of the wind turbines could be "materially changed" and could be closer to residences.

46. According to the testimony of Mr. Poff, it is "almost certain" that the location of some of the wind turbines will vary from the proposed site map.

47. In addressing section 402.A.54.b of the Zoning Ordinance, no part of any of the proposed wind turbines are located within or above the front, side, or rear setback that would apply to a principal building.

48. In addressing section 402.A.54.c of the Zoning Ordinance, Mr. Poff testified that to the extent the proposed use would cease in the future, all wind turbines and associated infrastructure would be removed within twelve (12) months after terminating operation as a wind energy facility.

49. Mr. Poff testified that the removal provision is also a requirement of the Wind License and Wind Energy Lease Agreement with the Bethlehem Authority.

50. Pursuant to Paragraph 13.3 of the Wind License and Wind Energy Lease Agreement between Atlantic Wind and Bethlehem Authority, Atlantic Wind is required to remove all "wind power facilities" within eighteen (18) months after termination of the Agreement.

51. In addressing section 402.A.54.d of the Zoning Ordinance, Mr. Poff testified that the height of the lowest position of the wind rotors is eighty-five (85) feet above the ground which is well above the twenty-five (25) feet minimum height requirement set forth in the ordinance.

52. In addressing section 402.A.54.e of the Zoning Ordinance, Mr. Poff testified that the turbines shall meet the applicable requirements of the Uniform Construction Code ("U.C.C.") and the National Electrical Code ("N.E.C.") and shall be certified by Underwriters Laboratories or an equivalent organization.

53. Mr. Poff testified that the U.C.C. and N.E.C. requirements will be complied with at the time of building permit issuance and any new electrical wiring would be proposed underground to the maximum extent feasible.

54. In addressing section 402.A.54.f of the Zoning Ordinance, Mr. Poff testified that the proposed use will conform to all applicable industry standards, including those of the American National Standards Institute.

55. Atlantic Wind agreed to submit a Certificate of Design Compliance for the proposed turbines and agreed to supplement said submission at the time of building permit issuance if the turbine manufacturer changes.

56. In addressing section 402.A.54.g of the Zoning Ordinance, and when questioned as to whether the wind turbines will be outfitted with braking systems and overspeed protection that "meets or exceeds the industry's standards", Mr. Poff replied, "Yes", while providing no specific information concerning either the braking systems or applicable industry standards.

57. In addressing section 402.A.54.h of the Zoning Ordinance, Mr. Poff testified that the color of the turbines will be non-obtrusive such as white, off-white, or gray.

58. In addressing section 402.A.54.i of the Zoning Ordinance, Mr. Poff testified that the proposed wind turbine facility will meet all lighting requirements of the Federal Aviation Administration.

59. In addressing sections 402.A.54.j and k of the Zoning Ordinance, Mr. Poff testified that there will be signage at access points but no signage whatsoever on the wind turbines.

60. In addressing section 402.A.54.l of the Zoning Ordinance, Mr. Poff testified that no guy wires are proposed.

61. In addressing section 402.A.54.m of the Zoning Ordinance, Mr. Poff testified that any interference with surrounding radio or telephone signals was unlikely but that Atlantic Wind would make efforts to avoid any interference initially, and to the extent any interference occurred, Atlantic Wind would make reasonable efforts to mitigate any such interference.

62. Mr. Poff also testified that the turbine locations were designed to avoid Federal Communications Commission transmission routes and microwave beam paths as shown on the constraints map.

63. In addressing section 402.A.54.n of the Zoning Ordinance, the Site Plan and the testimony of Mr. Kissinger confirmed that any accessory electrical facilities are compliant with the principal building setback requirements.

64. In addressing section 402.A.54.o of the Zoning Ordinance, the Site Plan introduced depicts the proposed driveways, turbines, and wooded area proposed to be cleared or preserved.

65. All aspects of the proposed wind turbine project would be accessible from Hatchery Road.

66. Atlantic Wind has agreed that no wind turbines will be closer than two thousand three hundred (2,300) feet from the

closest existing home on Lipo Drive, three thousand six hundred seventy (3,670) feet from the closest existing home on East Creek Drive, and three thousand six hundred (3,600) feet from the closest existing home on Hatchery Drive.

67. The proposed meteorological towers, operations and safety building, and the substation are necessary for the safe and efficient operation of a wind turbine project.

68. The operations and safety building is proposed to be located in an R-2 zoning district which does not allow such a support building.

69. Atlantic Wind has agreed not to erect the operations and safety building in the R-2 zone.

70. Atlantic Wind's site plan, which was offered as Applicant's Exhibit A-5-12, provides no dimensions for the proposed operations and safety building and no improvements for parking.

71. Although Mr. Poff testified that the wind turbine project would conform to applicable industry standards, no specific testimony was offered as to what those standards entail or how Atlantic Wind's proposed wind turbine project would comply.

72. Mr. Poff testified that there are several wind turbine manufacturers and that Atlantic Wind has not determined the model of wind turbine it intends to use for the project.

73. No testimony or evidence was presented as to the specific wind turbines being considered for the project or whether each type of wind turbine is certified by the Underwriters Laboratories or an equivalent organization.

74. Atlantic Wind has failed to submit any certificates or other design compliance documentation from the Underwriters Laboratories, Det Norske Veritas, Germanischer Lloyd WindEnergie, or other similar certifying organizations.

75. Although Mr. Poff agreed that the wind turbines would be outfitted with braking systems and overspeed protection that "meets or exceeds industry standards", no specific testimony or evidence was presented with regard to whether the wind turbines would be equipped with a redundant braking system to address high winds, aerodynamic speed controls, or mechanical brakes nor was any specific information provided as to what type of braking systems are utilized on wind turbines from different manufacturers or what industry standards necessitate for braking systems.

76. Atlantic Wind provided no testimony or evidence as to what efforts would be taken to avoid the disruption or loss of radio, telephone, or similar signals or how such harm would be mitigated if it occurred.

77. Atlantic Wind submitted no evidence as to how it would comply with the lighting requirements of the Federal Aviation Administration.

78. Atlantic Wind was unable to present testimony or evidence as to which wind turbines would require lighting or whether there would be any exterior lighting visible from beyond the property.

79. According to Mr. Poff, in the event of a wind turbine tower fire, the proposed response is that the local EMS secure the area and stand back.

80. When there is no one on site, the wind turbine project is to be monitored by Iberdrola's national control center in Portland, Oregon which monitors fifty-nine (59) separate sites.

81. Wind turbines are susceptible to ice accumulation.

82. Mr. Poff testified that, in his experience, melting ice chunks thrown from wind turbines can travel approximately one hundred thirty percent (130%) of the total height of the wind turbine.

83. Section 402.A.54(p) of the Zoning Ordinance provides that "The audible sound from the wind turbine(s) shall not exceed forty-five (45) A-weighted decibels, as measured at the exterior of an occupied dwelling on another lot unless a written waiver is provided by the owner of such building."

84. Mr. Bastasch prepared a technical memorandum/acoustical analysis entitled "Penn Forest Wind Project Sound Modeling" to demonstrate that the proposed wind turbine project would comply with the sound requirements of the Zoning Ordinance.

85. Mr. Bastasch's memorandum states that "The predicted results are subject to both negative and positive variance, the level of which depends on a number of factors, including timescale, metric, and methods of evaluation. As shown in Figure 1, the expected long-term average project sound level is not anticipated to exceed 45 dBA at any identified occupied dwelling. As the overall sound level is the sum of both Project and non-Project sounds, the assessment of Project-only sounds during periods of substantial non-Project sounds may require statistical or engineering methods to minimize the undue influence of non-Project sounds."

86. Based upon the testimony presented, there are two (2) standards that are accepted by the industry to measure noise from wind turbines: (i) the LEQ method which measures the average noise over an unspecified period of time; and (ii) the LMAX method which measures instantaneous maximum sound during any given time period.

87. Mr. Bastasch used the wind industry standard, called the ISO 9613-2, to model the sound level generated by the proposed wind turbines.

88. The stated accuracy for the ISO 9613-2 model is vertically between zero (0) and thirty (30) meters and horizontally one-thousand (1000) meters, or approximately three-thousand two-hundred eighty-one (3,281) feet.

89. Beyond those distances, the ISO 9613-2 model is only reasonably accurate.

90. As applied to wind turbines, the ISO 9613-2 model is only valid over a short time period between ten (10) seconds and one (1) hour and is not used to model long-term sound level over weeks or months.

91. The variance in the ISO 9613-2 standard ranges from three (3) to five (5) decibels.

92. Mr. Bastasch testified that the anticipated average sound level is not expected to exceed forty-five (45) A-weighted decibels under the LEQ metric at any identified occupied dwelling.

93. The LEQ standard measurement can vary from three (3) to eleven (11) decibels at any given time.

94. The measurement of decibels is logarithmic in nature and not linear.

95. Mr. Bastasch based his opinions on a Gamesa model wind turbine.

96. Atlantic Wind and Mr. Bastasch acknowledged that the specifications of the wind turbines actually used by Atlantic Wind could be "materially different".

97. Mr. Kissinger testified that the plan submitted by Atlantic Wind does not depict the height of the proposed meteorological towers.

98. Mr. Kissinger testified that the submitted plan does not depict the setbacks from property lines of the proposed meteorological towers.

99. Mr. Kissinger testified that the submitted plan does not depict or describe proposed lighting pursuant to Section 401.A.54.i of the Zoning Ordinance.

100. Mr. Kissinger testified that black lines on the site plan show the areas of woods proposed to be cleared or preserved.

101. Mr. Kissinger testified that the black lines referred to on the site plan depict the limited disturbance area.

102. The site plan attached to Atlantic Wind's application offers little detail concerning the wooded areas to be cleared or preserved.

103. Mr. Kissinger testified that there would be two hundred ninety-two (292) acres disturbed pursuant to the proposed plan.

104. The Bethlehem Authority objected to the construction of the PennEast Pipeline Project in the Wild Creek watershed because the project would have required the deforestation of forty (40) acres.

Objectors' Presentation Before the Zoning Hearing Board

105. During the course of the zoning hearings, Appellants Phillip Malitsch and Christopher Mangold were made parties over Atlantic Wind's objections as to standing.

106. Phillip Malitsch testified in opposition to the application on June 23, 2016.

107. Mr. Malitsch lives at 80 Ridge Circle, Lehighton, Pennsylvania, which abuts the property subject to the zoning application and is approximately three thousand seven hundred (3,700) feet from the closest proposed wind turbine.

108. Mr. Malitsch testified that pursuant to Mr. Bastasch's statements he will be able to hear the proposed wind turbines.

109. Mr. Malitsch will be able to see the wind turbines from his property.

110. Mr. Malitsch testified that he believes the proposed wind turbine project will have a direct impact upon him as a homeowner.

111. Mr. Malitsch is employed by Hanover Engineering as a licensed civil engineer.

112. Mr. Malitsch serves as municipal engineer for Lehigh Township, Pennsylvania.

113. Without objection, Mr. Malitsch was recognized and testified as a professional civil engineer.

114. Mr. Malitsch testified that based upon his review of the lease agreement between Bethlehem Authority and Atlantic Wind, the subject property already has a principal use for the production of potable water.

115. Alvin Christopher Mangold testified in opposition to the application on August 25, 2016.

116. Mr. Mangold has lived at 96 Lippo Way, Albrightsville, Pennsylvania for the last twenty (20) years.

117. Mr. Mangold's property abuts the proposed project and is approximately two thousand three hundred (2,300) feet from the nearest proposed wind turbine.

118. Mr. Mangold is concerned about the noise the wind turbines will generate, flickering and ice throws.

119. Mr. Mangold is concerned about potential health effects, including sleep deprivation, which he may experience if the wind turbines are constructed as proposed.

120. Mr. Mangold is concerned about possible fire hazards since dry spells occur within the area and wind turbine fires have been reported.

121. Dr. Pamela Crownson Dodds testified on behalf of the Objectors on July 14, 2016 as an expert in the field of hydro geology.

122. Dr. Dodds has a Ph.D. in geology from the College of William and Mary Virginia Institute of Marine Science.

123. Hydrogeology is the interrelationship between surface water and groundwater.

124. Dr. Dodds prepared a hydrogeological assessment of the impacts of the proposed wind turbine project to the water resources of the Bethlehem Authority.

125. In preparing her hydrogeological assessment, Dr. Dodds reviewed Atlantic Wind's site map, the geologic map of Pennsylvania, the Carbon County soil survey, the National Resources Conservation Service's photos website pertaining to the project site, the Carbon County Comprehensive and Greenway Plan, the Carbon County natural areas inventory, the Penn Forest Township Zoning Ordinance, the Penn Forest Township Subdivision and Land Development Ordinance and Pennsylvania law pertaining to Wild Creek.

126. Dr. Dodds also conducted on-site inspections of the project area.

127. Atlantic Wind neither prepared nor provided any hydro geological studies of the area where the proposed wind turbines are to be constructed.

128. Dr. Dodds testified that the site area is considered a very significant natural feature in Pennsylvania for a variety of reasons, including, from a hydrogeological viewpoint, that it has expansive areas or cinnamon ferns and other plants that require hydric soils.

129. Based upon Dr. Dodds' review, approximately twenty percent (20%) of the soils in the area where the access roads and wind turbines are planned are hydric.

130. Hydric soils are capable of supporting wetlands and typically occur in areas with seeps and springs.

131. Based upon a reasonable degree of hydrogeological certainty, the proposed wind turbine project will result in a decrease in ground water recharge.

132. Dr. Dodds testified that when tree lines are deforested, recharge to ground water does not occur and that the velocity of water from storm water drainage is increased, resulting in an increase in the amount of discharge that goes into rivers and creeks, and ultimately a degradation to the stream quality.

133. The construction of the wind turbine project will jeopardize the exceptional value classification of the Wild Creek due to increased discharge causing downstream and stream bed erosion, as well as the construction of an access road across the upper portion of the Wild Creek, which can cause degradation to the creek as a continuum and damage to the headwater areas where organisms break down organic components for downstream organisms to live.

134. The Wild Creek, a portion of which traverses the proposed site plan, is considered by Pennsylvania Code Title 25, Chapter 93 as being of exceptional value.

135. The Wild Creek is considered a first order stream, because it forms at the top of the highest elevation within the watershed.

136. First order streams are very important because they have actual headwaters, which is where organic materials are broken down by the aquatic species that then allow those materials to be used by more species downstream.

137. Using a terrain navigator pro topographical map, Dr. Dodds testified that pursuant to Atlantic Wind's proposed site plan, approximately sixteen (16) miles of access roadways will be constructed.

138. The Carbon County Comprehensive and Greenway Plan identify the proposed project area as a top priority natural feature.

139. The proposed project area is considered a top priority natural feature because of the exceptional value of water standing from the Wild Creek.

140. Based upon a reasonable degree of hydrogeological certainty, Dr. Dodds opined that the proposed project will conflict with the conservation of the natural resources that are defined as wetlands, mountainsides, high steeply sloped areas, seeps and springs and aquatic habitats along creeks preserving groundwater recharge.

141. Dr. Dodds opined that the proposed site is not suitable for wind turbines because the property's natural features could not be preserved.

142. Tammy McKenzie offered testimony on behalf of the Objectors on June 14, 2016.

143. Mrs. McKenzie lives in Somerset County, Pennsylvania near the Twin Ridges wind turbine project.

144. The Twin Ridges wind turbine project became operational on December 24, 2012.

145. The wind turbines located at the Twin Ridges project are five hundred twenty-five (525) feet in height.

146. Mrs. McKenzie's home is located approximately one thousand six hundred forty (1,640) feet from the nearest wind turbine at Twin Ridges.

147. Mrs. McKenzie testified that she has experienced flashing light, which she described as a strobe light, in her home since the construction of the wind turbines.

148. Mrs. McKenzie described the flickering light she experienced affecting her within inside her home and occurs from approximately February to May and then from August to November.

149. Mrs. McKenzie testified that she can hear noise inside her home emanating from the wind turbines.

150. Mrs. McKenzie described the noise inside her home as "thump[s]" and "thrust[s]".

151. Mrs. McKenzie and her husband's sleep has been greatly affected as a result of the noise from the wind turbines emanating inside her home.

152. During the winter months, Mrs. McKenzie testified that the noise generated from the wind turbines increases greatly when ice accumulates on the blades, which she described as sounding like an "airport or truck coming through our house".

153. Since the construction of the wind turbines, Mrs. McKenzie experiences frequent headaches as a result of fatigue or pressure in her ears.

154. Following testing at Mrs. McKenzie's home, an acoustical engineer determined that there were high levels of infrasound within the home which could have adverse effects on a person.

155. Don Paul Shearer is a certified real estate appraiser in Pennsylvania.

156. Mr. Shearer is a member of both the Society of Real Estate Appraisers and the Appraisal Institute.

157. Mr. Shearer testified on July 21, 2016 on behalf of the Objectors as an expert in real estate and real estate appraisals.

158. In order to review and analyze the effect of the proposed wind turbine project on real estate surrounding the proposed project area, Mr. Shearer reviewed the zoning

application, site maps, and inspected three neighborhoods surrounding the area.

159. There are one hundred ninety-six (196) homes within one-half mile of the proposed wind turbine project.

160. There are one thousand four hundred seventy-three (1,473) homes within one mile of the proposed wind turbine project.

161. There are two thousand nine hundred fifty-four (2,954) homes within one and one-half miles of the proposed wind turbine project.

162. There are four thousand eight hundred thirty (4,830) homes within two miles of the proposed wind turbine project.

163. In determining how property values may be diminished as a result of the proposed construction, Mr. Shearer testified that there are several factors he examines: 1) increased noise; 2) proposed or perceived health hazards; 3) loss of privacy; 4) environmental impact; and 5) effects on views.

164. Mr. Shearer testified that, in his opinion, he did not feel there would be much impact upon the values of properties located beyond two miles from the proposed wind turbine project.

165. Mr. Shearer testified that homes located within two miles of the proposed wind turbine project could experience a minimum diminution of value of twenty percent (20%) up to a maximum of forty percent (40%).

166. Richard R. James of E-Coustic Solutions, LLC, testified on behalf of the Objectors on July 21, 2016 as an expert in the measurement of noise and the impact of noise on people and communities.

167. Mr. James is an acoustician and noise control engineer certified by the Institute of Noise Control Engineering (INCE).

168. Mr. Jones has served as an adjunct instructor in the department of speech and communication services at Michigan State University and is an adjunct professor at Central Michigan University.

169. Mr. James has published peer-reviewed articles concerning wind turbines and their acoustical effect.

170. Mr. James reviewed Section 402.A.54.p. of the Zoning Ordinance which provides that the audible sound from the wind turbine(s) shall not exceed 45 A weighted decibels (dBA).

171. Mr. James testified that the opinion of Mr. Bastasch, Atlantic Wind's acoustical engineer, that the long-term average project sound level is not expected to exceed 45 dBA at any dwelling, does not demonstrate compliance with the zoning ordinance which sets forth a "not to exceed" standard.

172. Mr. James testified that Mr. Bastasch's opinion does not take into consideration measurement tolerances and model tolerances.

173. Mr. James testified that when measurement and model tolerances are combined, a margin of safety/margin of error of at least four (4) to five (5) decibels should be added to Mr. Bastasch's forty-five (45) dBA long-term average.

174. Mr. Bastasch's report contains no reference to a margin of error.

175. At night time, wind turbines can produce what is called whooshing and thumping, which studies have shown can have peaks as high as eighteen (18) dBA higher than average.

176. Mr. James testified that had Mr. Bastasch applied a safety margin of five (5) dBA, the lines on the contour map would move north and affect a greater number of homes.

177. For every six (6) dBAs, there is a doubling of the distance from the noise sources.

178. Mr. James testified that the proposed project could never be in compliance with the "not to exceed 45 dBA" requirement.

179. Mr. James testified that based upon research by the World Health Organization, by Canada Health and other organizations there is a high probability that particularly the northern ridge of the proposed wind turbines will create risks to the public health and welfare.

180. Low frequency sound emissions travel further and do not diminish as rapidly with distance as do high frequency sound emissions.

181. Wind turbines dominantly produce low frequency sound emissions.

182. Low frequency noise can disturb rest and sleep even at low sound levels.

183. The World Health Organization reports that sound levels in a home should not exceed thirty (30) dBA because, at that point, sleep interference may occur.

184. Wind Turbine Syndrome is a term used to identify symptoms associated with wind turbines such as sleep disturbance, headache, dizziness, tinnitus, and ear pressure.

185. Symptoms associated with Wind Turbine Syndrome increase dramatically when sound levels are between forty (40) to forty-six (46) dBA.

186. Dr. Wayne C. Spiggle testified on behalf of the Objectors on August 25, 2016 as an expert on the effects of commercial wind turbines on persons.

187. Dr. Spiggle earned his undergraduate degree from Berea College and his medical degree from the Medical College of Virginia in Richmond.

188. Within a reasonable degree of medical certainty, Dr. Spiggle opined that it is inevitable that some persons residing within three thousand five hundred (3,500) feet from the proposed wind turbine project will experience adverse health effects.

189. Dr. Spiggle referenced various reports and studies that found people living near wind turbines experience adverse health effects.

190. Dr. Spiggle personally interviewed over thirty (30) persons that live within one thousand six hundred (1,600) to two thousand (2,000) feet near wind turbines.

191. Dr. Spiggle testified that a lack of sleep was the most common complaint amongst those he interviewed.

Atlantic Wind's Rebuttal Testimony Before the Referee

192. On February 28, 2018, this Court appointed William G. Schwab, Esquire, to serve as Referee to receive additional evidence in this matter pursuant to section 1005-A of the Pennsylvania Municipalities Planning Code, 53 P.S. §11005-A.

193. Evidentiary hearings were held before Referee Schwab at the Carbon County Courthouse on June 15, 2018 and July 10, 2018.

194. Dr. Robert J. McCunney, a staff physician in the center for chest diseases at the Brigham and Women's Hospital in Boston, Massachusetts, testified on behalf of Atlantic Wind on June 15, 2018.

195. Dr. McCunney earned his bachelor's degree from Drexel University and his medical degree from Thomas Jefferson University in Philadelphia.

196. Dr. McCunney was qualified, recognized and testified as an internist board certified in occupational and environmental

medicine with a particular expertise in the potential health implications of noise exposure.

197. Dr. McCunney testified that he does not anticipate any adverse health effects from the operation of the proposed wind turbines.

198. Dr. McCunney testified that infrasound, or low frequency noise, produced by wind turbines does not adversely affect human health.

199. In referencing the Health Canada Study, Dr. McCunney stated that the findings revealed no adverse impact on sleep or the quality of life among people living in the vicinity of wind turbines.

200. Dr. McCunney's 2009 white paper titled "Wind Turbine Sound and Health Effects" was funded by the American Wind Energy Association (AWEA) and the Canadian Wind Energy Association (CWEA) both of which organizations are registered lobby groups for the wind industry.

201. The technical advisor to the authors of the aforesaid 2009 white paper was Mark Bastasch who previously testified before the Penn Forest Township Zoning Hearing Board on behalf of Atlantic Wind in this matter.

202. Mr. Bastasch assisted the AWEA and the CWEA in selecting the authors of the 2009 white paper.

203. Dr. McCunney has previously testified ten (10) or twelve (12) times concerning the topic of industrial wind turbines on behalf of the proponent of the wind energy facility.

204. Dr. McCunney admitted that there are people who have complained of adverse health effects as a result of living near wind turbines.

205. Dr. McCunney has not interviewed anyone who lives in the area surrounding the proposed Penn Forest Township wind turbine project.

206. Dr. McCunney was a speaker at the webinar forum "Wind Turbine Noise and Health: Fact vs. Fiction Simulcast" hosted by Cape and Islands Renewable Energy Collaborative on July 15, 2010.

207. While participating in the aforesaid webinar forum, Dr. McCunney recognized that sleep disruption or deprivation is one of the major complaints of people living near wind turbines.

208. While participating in the aforesaid webinar forum, Dr. McCunney stated "I have no doubt whatsoever that there are people who are annoyed by various levels of noise associated with wind turbines. That's for sure. The study shows that. Makes sense to me that humans cannot live close to wind forms; I guess the operative question is what is close?"

209. Robert O'Neal of Epsilon Associates, Inc. testified on July 10, 2018 on behalf of Atlantic Wind.

210. Epsilon Associates, Inc. is an environmental engineering consulting firm which is a principal consultant for the wind energy industry.

211. Mr. O'Neal has been doing noise impact evaluations for over thirty (30) years and is board certified by the Institute of Noise Control Engineers (INCE).

212. Mr. O'Neal was qualified, recognized and testified as an expert in the area of sound impact modeling and sound assessment.

213. Mr. O'Neal testified that IEC 61400-11 is an international standard used as a measurement method of sound for a wind turbine and the data is collected using IEC61400-11 in the LEQ metric.

214. Mr. O'Neal confirmed that the LEQ method of sound modeling is best described as an integrated average over a period of time.

215. Mr. O'Neal confirmed that the LMAX method of sound modeling represents the instantaneous maximum sound level during a given period of time.

216. Mr. O'Neal testified that the ISO 9613-2 sound propagation standard is an international standard recognized by the acoustics community to take a source of sound and predict or calculate what that source of sound would be at some distance away in the community.

217. Mr. O'Neal reviewed Mark Bastasch's technical memorandum concerning the Penn Forest Township Wind Turbine Project and testified that the analysis contained in the memorandum was prepared consistent with the standards of the industry.

218. Based upon his experience and review of the Bastasch sound modeling, Mr. O'Neal agrees with Mr. Bastasch that the expected project sound levels are not anticipated to exceed forty-five (45) A-weighted decibels at the exterior of any identified occupied dwelling on another lot.

219. Mr. Bastasch used the ISO 9613-2 standard for modeling the sound level generated by the proposed wind turbines.

220. The stated accuracy for the ISO 9613-2 is between zero (0) and thirty (30) meters vertically and one thousand (1000) meters horizontally.

221. Beyond those distances, the ISO 9613-2 standard is only "reasonably accurate".

222. As applied to wind turbines, the ISO 9613-2 standard is only valid if a short-term (e.g. less than one (1) hour and perhaps as little as ten (10) seconds) is used.

223. The LEQ long-term average could be weeks or months.

224. The variance using the ISO 9613-2 standard is anywhere from three (3) to five (5) decibels.

225. The testimony of Mr. Bastasch and Mr. O'Neal that the audible sound of the wind turbines will not exceed forty-five (45)

A-weighted decibels at the exterior of any identified occupied dwelling on another lot in compliance with Zoning Ordinance section 402.A.54.p. is not credible.

226. Mark Bahnick, a licensed professional engineer in the states of New Jersey and Pennsylvania and branch manager with Van Cleef Engineering Associates, testified on July 10, 2018 on behalf of Atlantic Wind.

227. Mr. Bahnick was qualified, recognized and testified as an expert in the field of professional and civil engineering with a specialty in public water supply engineering.

228. Van Cleef Engineering Associates was hired by the Bethlehem Authority to evaluate Atlantic Wind's application and to provide feedback relative to the potential impact on the Authority's facilities.

229. Mr. Bahnick has never designed nor been involved in any wind turbine construction projects.

230. According to Mr. Bahnick, none of Bethlehem Authority's undeveloped Penn Forest Township property is being utilized for the production of potable water.

231. Mr. Bahnick testified that the proposed project would have a de minimis impact on the Penn Forest Reservoir.

232. Mr. Bahnick testified that the proposed wind turbine project would not degrade the water resources of the Bethlehem

Authority or the quality of water going into the Penn Forest Reservoir.

233. Mr. Bahnick testified that the proposed wind turbine project would neither jeopardize the exceptional value watershed nor degrade the headwaters and streams feeding the reservoirs.

234. Mr. Bahnick testified that Bethlehem Authority maintains the Penn Forest Township property as an undeveloped state to prevent development occurring on that property because such development could have an adverse impact on the quality of water that drains into the Penn Forest Reservoir.

235. Bethlehem Authority maintains the subject property as pristine to further a government purpose which is to protect the watershed.

236. Bethlehem Authority agreed to allow the proposed wind turbine project because its evaluation of the potential impact from the project on the Penn Forest Reservoir was thought to be acceptable and because the Authority had the potential to earn revenue from the lease agreement with Atlantic Wind if the wind turbines were developed.

237. The testimony of Mr. Bahnick that none of Bethlehem Authority's undeveloped Penn Forest Township property is being utilized for the production of potable water is not credible.

238. Michael Samuels, principal and owner of Clarion Samuels Associates, testified on July 10, 2018 on behalf of Atlantic Wind.

239. Clarion Samuels Associates is a real estate appraisal and consulting firm with offices in Philadelphia, Denver, Cincinnati and Chapel Hill, North Carolina.

240. Mr. Samuels was qualified, recognized and testified as an expert in the field of real estate evaluation and appraisal.

241. Mr. Samuels was hired by Atlantic Wind to analyze what effect the proposed wind turbine project would have on real estate values of the surrounding communities.

242. Mr. Samuels testified that the proposed wind turbine project would have no adverse impact on real estate values of the homes in the surrounding communities.

243. Mr. Samuels has not prepared any real estate appraisals for property in Carbon County.

244. Mr. Samuels has not transacted any real estate sales in Carbon County.

245. Mr. Samuels has never acquired any real property near a wind turbine.

246. Mr. Samuels has not prepared any impact studies with regard to wind turbines other than the proposed Penn Forest Township wind turbine project.

247. Mr. Samuels did not interview anyone who lives in Carbon County for his impact study.

248. Mr. Samuels has never performed any analysis as to the effect, if any, of wind turbines on people's buying habits relative to real estate.

249. Mr. Samuels testified that any home located more than one-half mile from a wind turbine would not be negatively impacted as to property value.

The Limit of One Principal Use under § 801.B.2 of the Zoning Ordinance

250. Section 801.B.2 of the Zoning Ordinance limits lots within a residential district to one (1) principal use.

251. A wind turbine, other than those allowed as an accessory use under section 403 of the Zoning Ordinance, is defined as a principal use under section 301.B.1.g of the Zoning Ordinance.

252. The proposed wind turbines would constitute a principal use on the property owned by Bethlehem Authority.

253. The Bethlehem Authority property is located in R-1 and R-2 residential zoning districts and only one (1) principal use is permitted thereon.

254. Bethlehem Authority currently uses the property as a Government Facility, Other than Township - Owned Use, which is a principal use under the Zoning Ordinance.

255. In the February 25, 2015, letter from Bethlehem Authority to the Federal Energy Regulatory Commission, the Chairman of Bethlehem Authority stated that Bethlehem's water

comes entirely from surface sources and two (2) reservoirs in the Pocono Mountains. The Authority controls and has a duty to protect two (2) major components of the water supply system: (1) the reservoirs holding the water including the headwaters and streams feeding those reservoirs; and (2) the pipeline conveyance system that carries the water from the reservoirs to more than fifteen-thousand (15,000) customers.

256. The purpose of the Conservation Easement is to ensure that the protected property, including the wind turbine project area, will be retained predominantly in its natural, scenic, forested, and open-space condition, free of forest fragmentation or additional development.

257. Bethlehem Authority's Penn Forest Township property was acquired so as to prevent other exploitative or destructive uses that may jeopardize the mission of the Bethlehem Authority in its production of potable water.

258. While Atlantic Wind's application proposes that the operations and safety building be located in the R-2 zoning district, representatives of Atlantic Wind indicated that they are willing to move the building to the R-1 zoning district.

259. A wind turbine is not a permitted use in an R-2 zoning district.

260. The substation is proposed to be located next to the existing transmission lines and will connect to the existing

electrical facility. As such, it is accessory to the existing utility line use.

261. The Zoning Officer determined that the operations and safety building is permitted by special exception pursuant to section 105.B of the Zoning Ordinance.

262. Atlantic Wind agreed to remove the operations and safety building from the plan if this Court finds that it is not permitted.

263. Atlantic Wind is agreeable to moving the substation to the R-1 district in compliance with all area and bulk requirements if it is not permitted in the R-2 district.

Upon consideration of the foregoing findings of fact, our review of the briefs of counsel and our application of the relevant legal authority, we enter the following

II. CONCLUSIONS OF LAW

1. The zoning hearings held in this matter before the Penn Forest Township Zoning Hearing Board on May 12, 2016, June 26, 2016, July 14, 2016, July 21, 2016, August 25, 2016 and September 20, 2016 were duly advertised and posted pursuant to the Pennsylvania Municipalities Planning Code, 53 P.S. §10101, et seq., and the Penn Forest Township Zoning Ordinance.

2. Section 908(3) of the Pennsylvania Municipalities Planning Code, 53 P.S. §10908(3), provides that the following persons shall be afforded standing before the zoning hearing board:

Any person affected by the application who has made a timely appearance of record before the board.

3. Any objector who is located in close proximity to the land involved in a zoning application normally has standing to contest the application. Active Amusement Co. v. Zoning Board of Adjustment, 479 A.2d 697 (Pa.Cmwlth. 1984).

4. The objector, Philip C. Malitsch, has standing in this matter as his property abuts the property on which the proposed wind turbines would be constructed, he will be able to hear the wind turbines from his property, he will be able to see the wind turbines from his property and he believes that the proposed project will directly impact him as a homeowner.

5. Although the closest proposed wind turbine is approximately three thousand seven hundred (3,700) feet from Mr. Malitsch's property, Craig Poff testified that the proposed location of the wind turbines was subject to change based upon various factors, which could result in the wind turbines being constructed no less than one thousand five hundred seventy-five (1,575) feet from Mr. Malitsch's property.

6. The objector, Alvin Christopher Mangold, has standing in this matter as his property abuts the subject property, and is approximately two thousand three hundred (2,300) feet from the nearest proposed wind turbine.

7. Mr. Mangold may be affected by continual noise issues, flickering of light, ice throws, possible fires and health problems.

8. The timely appeal of a deemed approval is an appeal of the merits of a special exception in the same manner as an appeal of a timely board decision approving a special exception application. Ulsh v. Zoning Hearing Board of Lower Paxton Twp., 22 A.3d 244 (Pa.Cmwlth. 2011).

9. When considering a timely appeal of a deemed approval, the trial court is required to review the merits of the application and issue its own findings of fact and conclusions of law. Nextel Partners, Inc. v. Clark Summit Borough/Clark Summit Borough Council, 958 A.2d 587 (Pa.Cmwlth. 2008).

10. As the finder of fact and the sole judge of credibility, the trial court is free to reject even uncontradicted testimony it finds lacking in credibility. Costa v. City of Allentown, 153 A.3d 1159, 1168 (Pa.Cmwlth. 2017).

11. A special exception is neither special nor an exception; it is a use expressly contemplated that evidences a legislative decision that the particular type of use is consistent with the zoning plan and presumptively consistent with the health, safety and welfare of the community. Greth Development Group, Inc. v. Zoning Hearing Bd. of Lower Heidelberg Twp., 918 A.2d 181, 188 (Pa.Cmwlth. 2007).

12. An applicant for a special exception has both the duty of presenting evidence and the burden of persuading the zoning hearing board that its proposed use satisfies the zoning ordinance's objective requirements for the grant of a special exception. Allegheny Tower Assocs., LLC v. City of Scranton Zoning Hearing Bd., 152 A.3d 1118, 1123 (Pa.Cmwlth. 2017).

13. Once the applicant meets its burden of proof and persuasion, a presumption arises that it is consistent with the health, safety and general welfare of the community, and the burden shifts to the objectors to present evidence and persuade the board that there exists a high probability that the use will generate adverse impacts not normally generated by this type of use and that these impacts will pose a substantial threat to the health and safety of the community. *Id.*

14. However, where the applicant for a special exception cannot meet the requirements of the zoning ordinance relative to the use intended, and does not challenge the validity of the ordinance or seek to have the property re-zoned, the burden does not shift and the application must be denied. See Ralph & Joanne's, Inc. v. Neshannock Twp. Zoning Hearing Bd., 550 A.2d 586, 589 (Pa.Cmwlth. 1988).

15. To be entitled to receive special exceptions, it is incumbent upon Atlantic Wind to come forward with evidence detailing how it is going to be in compliance with the requirements

necessary to obtain the special exceptions to construct and operate thirty-seven (37) wind turbines in an R-1 zoning district and to permit the construction of an operations and safety building.

16. Evidence is not a "promise" that the applicant will comply because that is a legal conclusion the Board makes once it hears what the applicant intends to do and then determines whether it matches the requirements set forth in the ordinance. Edgemont Twp. v. Springton Lake Montessori School, Inc., et al., 622 A.2d 418, 419 (Pa.Cmwlth. 1993).

17. A self-serving declaration of a future intent to comply is not sufficient to establish compliance with the criteria contained in the ordinance. Appeal of Baird, 537 A.2d 976, 978 (Pa.Cmwlth. 1988).

18. "The applicant shall establish by credible evidence that the application complies with all applicable requirements of this [Zoning] Ordinance" (Penn Forest Township Zoning Ordinance [hereinafter "Zoning Ordinance"], Section 116.C.1).

19. The principal use of wind turbine(s) is permitted in the R-1 Zoning District as a special exception (Zoning Ordinance, Section 306.B.1).

20. The specific requirements for wind turbines as a special exception are enumerated in section 402.A.54 of the Zoning Ordinance (Zoning Ordinance, section 402.A.54).

21. For wind turbines to be permitted as a special exception use, the applicant must comply with all of the specific requirements enumerated in section 402.A.54 of the Zoning Ordinance (Zoning Ordinance, section 402.A).

22. Section 402.A.54.p of the Zoning Ordinance provides that: "The audible sound from the wind turbines(s) shall not exceed forty-five (45) A-weighted decibels, as measured at the exterior of an occupied dwelling on another lot, unless a written waiver is provided by the owner of such building."

23. While it is true that zoning ordinances are to be liberally construed to allow the broadest possible use of land, it is also true that zoning ordinances are to be construed in accordance with the plain and ordinary meaning of their words. Zappala Grp., Inc. v. Zoning Hearing Board of Town of McCandless, 810 A.2d 708, 710 (Pa.Cmwlth. 2002).

24. The LMAX standard of sound measurement measures the instantaneous maximum sound at any given time and matches the plain-language meaning of the Zoning Ordinance's requirement that sound from the wind turbines shall not exceed forty-five (45) A-weighted decibels.

25. The LEQ standard of sound measurement measures the average sound level over time, has a variance of three (3) to eleven (11) decibels, and may include sounds greater than the average value.

26. The testimony of Mark Bastasch that the anticipated long-term average project sound level is not expected to exceed forty-five (45) A-weighted decibels under the LEQ method at the exterior of any occupied dwelling on another lot is not responsive to the Zoning Ordinance's requirement that the sound shall not exceed a maximum of forty-five (45) A-weighted decibels.

27. Section 402.A.54.p. of the Zoning Ordinance should be read to require any wind turbine to comply with the LMAX standard as it is a "not to exceed" standard consistent with the plain meaning of the Zoning Ordinance's sound requirement as opposed to an "average" sound level standard such as the LEQ standard.

28. Atlantic Wind has failed to produce sufficient evidence and failed to sustain its burden to show that the proposed Wind Turbine project will comply with section 402.A.54.p of the Zoning Ordinance.

29. As Atlantic Wind has failed to meet its burden of proof and persuasion regarding the specific requirements of the Zoning Ordinance for wind turbines, no presumption has arisen that Atlantic Wind's proposed use is consistent with the health, safety and general welfare of the community.

30. Although we find that no burden has shifted to the Objectors to present evidence and persuade this Court that the proposed use will generate adverse impacts not normally generated by such use and that these impacts would pose a substantial threat

to the health and safety of the community, the Objectors presented credible expert testimony and scientific evidence that the proposed use will have a detrimental effect on the health, safety and welfare of the community.

31. Section 801.B.2 of the Zoning Ordinance provides that "A lot within a residential district shall not include more than one (1) principal use and shall not include more than one (1) principal building unless specifically permitted by this Ordinance."

32. The proposed project area is within the R-1 and R-2 zoning districts.

33. Both the R-1 and R-2 zoning districts are residential zoning districts.

34. The Zoning Ordinance permits a "Government Facility" in the Project Area (both in the R-1 and R-2 zoning districts) as a special exception use.

35. The Zoning Ordinance defines a "Government Facility, Other than Township-Owned" as: "A use owned by a government, government agency or government authority for valid public health, public safety, recycling collection or similar governmental purpose, and which is not owned by Penn Forest Township. This term shall not include uses listed separately in the table of uses in Article 3, such as 'publicly owned recreation.' This term shall not include a prison." (Zoning Ordinance, section 202).

36. The Zoning Ordinance defines "use" as: "The purpose, activity, occupation, business or operation for which land or a structure is designed, arranged, intended, occupied or maintained. Uses specifically include but are not limited to the following: activity within a structure, activity outside of a structure, any structure, recreational vehicle storage or parking of commercial vehicles on a lot." (Zoning Ordinance, section 202).

37. Bethlehem Authority's use of the proposed Project Area as a purposefully undeveloped source of public water flowing into the Penn Forest Reservoir to provide the City of Bethlehem with potable water meets the definition of a Government Facility under the Zoning Ordinance as a use owned by a government authority for a valid public health, public safety or similar governmental purpose.

38. The current principal use of the proposed Project Area is for the production of potable water.

39. The proposed wind turbine project would be an additional principal use in the Project Area. (Zoning Ordinance, section 306.B.1).

40. Unless Bethlehem Authority ceases to use the Project Area for the production of potable water, the Wind Turbine Project would constitute a second principal use within a residential district in violation of section 801.B.2 of the Zoning Ordinance.

41. As Atlantic Wind does not meet the requirements of the Zoning Ordinance relative to the proposed use and does not challenge the validity of the Zoning Ordinance nor seek to have the property re-zoned, the application for a special exception to permit wind turbines in an R-1 zoning district must be denied.

42. Having failed to meet its burden of production and persuasion concerning its request for a special exception to permit wind turbines in an R-1 zoning district, Atlantic Wind's second request for a special exception to permit an operations and safety building as a use not specifically provided for (and not prohibited) in any of the zoning districts is rendered moot and denied.

43. Having failed to meet its burden of production and persuasion concerning its request for a special exception to permit wind turbines in an R-1 zoning district, Atlantic Wind's request for an interpretation of the Zoning Ordinance relative to the proposed permanent meteorological towers being permitted as either integral parts of the wind turbine use or as accessory uses or structures which are customary and incidental to the wind turbine use is rendered moot and denied.

44. Having failed to meet its burden of production and persuasion concerning its request for a special exception to permit wind turbines in an R-1 zoning district, Atlantic Wind's request for a special exception to permit the permanent meteorological

towers as a use not specifically provided for (and not prohibited) in any of the zoning districts is rendered moot and denied.

III. DISCUSSION

As an initial matter, we note that where, as here, a deemed approval occurs because a municipality failed to timely act on a land use application, a zoning hearing board's findings are rendered irrelevant. See Nextel Partners, Inc. v. Clark Summit Borough/Clark Summit Borough Council, 958 A.2d 587 (Pa. Cmwlth. 2008). Moreover, the Pennsylvania Commonwealth Court has held that "a deemed zoning board approval no more cuts off the right to an appeal on the merits than would a timely board decision approving an application." Gryshuk v. Kolb, 685 A.2d 269, 631 (Pa. Cmwlth. 1996), aff'd after remand, 724 A.2d 1010 (Pa. Cmwlth. 1998). Therefore, the timely appeal of a deemed approval is an appeal of the merits of a special exception in the same manner as an appeal of a timely board decision approving a special exception application. See Ulsh v. Zoning Hearing Board of Lower Paxton Twp., 22 A.3d 244 (Pa. Cmwlth. 2011). In such situations, the trial court is required to review the merits of the application and issue its own findings of fact and conclusions of law. See Nextel Partners.

A. ATLANTIC WIND HAS FAILED TO PRESENT SUFFICIENT EVIDENCE AND FAILED TO SUSTAIN ITS BURDEN TO DEMONSTRATE THAT THE PROPOSED

WIND TURBINE PROJECT WOULD COMPLY WITH SECTION 402.A.54.p OF THE PENN FOREST TOWNSHIP ZONING ORDINANCE.

"An applicant for a special exception has both the duty of presenting evidence and the burden of persuading the Zoning Hearing Board that its proposed use satisfies the zoning ordinance's objective requirements for the grant of a special exception". Allegheny Tower Associates, LLC v. City of Scranton Zoning Hearing Board, 152 A.3d 1118 (Pa.Cmwlth. 2017). Section 402.A.54.p. of the Zoning Ordinance provides that "[T]he audible sound from the wind turbine shall not exceed forty-five (45) A-weighted decibels, as measured at the exterior of an occupied dwelling on another lot, unless a written waiver is provided by the owner of the buildings." In order to prove compliance with this requirement of the Zoning Ordinance, Atlantic Wind called Mark Bastasch as a professional acoustical engineer. In modeling the sound level, Mr. Bastasch used the "LEQ method" which averages sound over a period of time. Mr. Bastasch testified that "the expected long-term average project sound level is not anticipated to exceed forty-five (45) DBA." According to his report, "The expected long-term average project sound level is not anticipated to exceed forty-five (45) DBA at any identified occupied dwelling." Therefore, the evidence produced by Atlantic Wind (a long-term average sound level) to show compliance with section 402.A.54.p. of the Zoning Ordinance was not responsive to the express

requirement of that section which mandates a "shall not exceed" standard. On its face, the Zoning Ordinance specifies that a certain noise level shall not be exceeded but does not provide that noise emissions shall be averaged.

Clearly, the LEQ standard is not the appropriate method of sound measurement. The LEQ standard averages sound over a period of time which could be calculated over seconds, weeks, months or years. There is no such time period referenced in the Zoning Ordinance. In his testimony, Mr. Bastasch stated that he used a "long-term average" in calculating the noise level when the Zoning Ordinance specifically requires a "shall not exceed" standard. Moreover, the standard used by Mr. Bastasch for modeling the sound level generated by the wind turbines is the ISO 9613-2. The variance using the ISO 9613-2 is anywhere from three (3) to five (5) decibels. Therefore, applying these tolerances to the evidence presented by Mr. Bastasch, the average audible sound could be anywhere from forty (40) to fifty (50) A-weighted decibels.

We also note that the stated accuracy for the ISO 9613-2 is vertically to a height of thirty (30) meters and horizontally to a distance of one hundred (100) meters. Beyond that height or that distance, the ISO 9613-2 standard is only "reasonably accurate". The proposed wind turbines are five hundred twenty-five (525) feet high.

In its presentation, Atlantic Wind acknowledged that it has not determined the model of wind turbine it intends to use. While all of Mr. Bastasch's opinions were based on the Gamesa model wind turbine, the failure of Atlantic Wind to identify the exact model of wind turbine to be used for the project calls into serious question the accuracy of any sound generation measurement. Further, Atlantic Wind acknowledged that the locations of the wind turbines could be "changed materially" and could be closer to certain residences.

On the basis of the foregoing, we conclude that the evidence presented by Atlantic Wind is insufficient to determine that the audible sound level would not exceed forty-five (45) A-weighted decibels at the exterior of an occupied dwelling on another lot, as required by section 402.A.54.p. of the Penn Forest Township Zoning Ordinance.

B. UNLESS THE BETHLEHEM AUTHORITY CEASES TO USE THE PROJECT AREA FOR THE PRODUCTION OF POTABLE WATER, THE PROPOSED WIND TURBINE PROJECT WOULD CONSTITUTE A SECOND PRINCIPAL USE WITHIN A RESIDENTIAL ZONING DISTRICT IN VIOLATION OF SECTION 801.B.2 OF THE PENN FOREST TOWNSHIP ZONING ORDINANCE.

Section 801.B.2 of the Zoning Ordinance provides that "a lot within a residential district shall not include more than one (1) principal use and shall not include more than one (1) principal building unless specifically permitted by this Ordinance." The

Zoning Ordinance defines "Principal Use" as "A dominant use(s) or main use on a lot, as opposed to an accessory use." Pursuant to section 301.B.1.g of the Zoning Ordinance, the proposed wind turbines would be a principal use in the Project Area. If a "dominant use" or "main use" currently exists in the Project Area, permitting the Wind Turbine Project proposed by Atlantic Wind would constitute a second principal use in the Project Area in violation of section 801.B.2 of the Zoning Ordinance.

The majority of the Project Area is located in the Penn Forest Reservoir watershed which contains eight thousand seven hundred eight-three (8,783) acres, of which seven thousand two hundred twenty-two (7,222) acres are owned by the Bethlehem Authority. The Penn Forest Reservoir watershed is kept in an undeveloped state for the purpose of maintaining the quality of water flowing into the Penn Forest Reservoir which drains into the Wild Creek Reservoir, both of which are sources of water for the City of Bethlehem, the Borough of Fountain Hill, the Borough of Freemansburg, and portions of eight (8) surrounding municipalities in Northampton and Lehigh Counties with a total population of over one hundred fifteen thousand (115,000) persons consuming approximately twelve million (12,000,000) gallons of water per day.

On or about April 14, 2011, Bethlehem Authority entered into a "Term Conservation Easement" (hereinafter "Conservation

Easement") with the Nature Conservancy, a non-profit public charity organized to preserve natural areas for scientific, charitable, educational and aesthetic purposes. The Conservation Easement provides that the Project Area is "currently utilized for the production of potable water" and that it has been kept in an undeveloped state for that purpose. Furthermore, the Conservation Easement addresses the subdivision and transfer of the subject property "to related entities under the control of the [Bethlehem Authority] who will utilize the Protected Property for the production of potable water" and that the Authority reserves the right, without limitation, to maintain, replace and/or construct structures and facilities that are reasonable, customary and necessary for the collection, production and distribution of drinking water."

On or about March 6, 2013, Bethlehem Authority entered into a "Wind License and Wind Energy Lease Agreement" (hereinafter "Lease Agreement") with Atlantic Wind, LLC, pursuant to which Atlantic Wind was authorized to make application to the zoning hearing board for the Wind Turbine Project. The Lease Agreement provides that the "primary mission of [Bethlehem Authority] is to produce potable water" and that one of the "primary uses" of the Project Area is "for the production of potable water." Both the Lease Agreement and the Conservation Easement provide that there are no real estate taxes or other assessments levied against the

Project Area. While certainly not conclusive, we find that the tax-exempt status of the Project Area is an additional factor for the Court's consideration in determining whether or not there is an existing use in the Project Area.

In a letter dated February 25, 2015 from the Bethlehem Authority to the Federal Energy Regulatory Commission, John Tallarico, chairman of the Bethlehem Authority, stated, "The city's water comes entirely from surface sources around two (2) reservoirs in the Pocono Mountains. The two (2) major components of the water supply system which the Authority controls and has a duty to protect are the reservoirs holding the water, including the headwaters and the streams feeding those reservoirs." Chairman Tallarico continued:

> Protecting the authority's reservoirs necessarily requires protecting the surface waters feeding those reservoirs. To that end the authority not only owns the reservoirs, it also owns the land containing the headwaters and feeder streams, the authority has placed significant portions of its land in a conservation easement.

Upon careful consideration of the testimony presented, review of the Zoning Ordinance, the Conservation Easement, the Lease Agreement and the Bethlehem Authority correspondence to the Federal Energy Regulatory Commission, we find that the production of potable water is the current "Principal Use" in the Project Area and that the Wind Turbine Project would constitute a second

"Principal Use" within a residential zoning district in violation of section 802.B.2 of the Zoning Ordinance.

IV. CONCLUSION

As Atlantic Wind has failed to demonstrate that the sound produced by the proposed wind turbines will not exceed forty-five (45) A-weighted decibels and that there will be only one (1) principal use on the proposed project area, Atlantic wind has failed to meet its burden of persuasion that the proposed wind turbine project will comply with all the objective requirements for a special exception to be granted under the Penn Forest Township Zoning Ordinance. Therefore, the deemed approval of Atlantic Wind's application for a special exception must be vacated and we will enter the following

IN THE COURT OF COMMON PLEAS OF CARBON COUNTY, PENNSYLVANIA
CIVIL DIVISION

PHILLIP C. MALITSCH and CHRISTOPHER MANGOLD,	:	
Plaintiffs/Appellants	:	
v.	:	No. 17-1011
PENN FOREST TOWNSHIP ZONING HEARING BOARD,	:	
Defendant/Appellee	:	
and	:	
ATLANTIC WIND, LLC, PENN FOREST TOWNSHIP, and BETHLEHEM AUTHORITY,	:	
Intervenors	:	

Theodore R. Lewis, Esquire	Counsel for Philip C. Malitsch
Bruce K. Anders, Esquire	Counsel for Christopher Mangold
Michael S. Greek, Esquire	Counsel for Penn Forest Township Zoning Hearing Board
Debra A. Shulski, Esquire	Co-Counsel for Atlantic Wind, LLC
Edward J. Greene, Esquire	Co-Counsel for Atlantic Wind, LLC
Thomas S. Nanovic, Esquire	Counsel for Penn Forest Township
James F. Preston, Esquire	Counsel for Bethlehem Authority

ORDER OF COURT

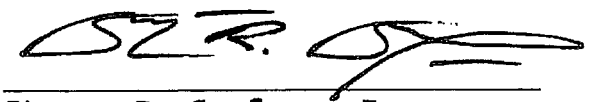
AND NOW, to wit, this 21st day of April, 2020, upon consideration of Appellants' land use appeal and the oral argument of counsel thereon, our review of the record created before the Penn Forest Township Zoning Hearing Board and the Referee appointed by this Court, the briefs of the parties, and the report of the Referee, and in accordance with our Memorandum Opinion bearing even date herewith, it is hereby **ORDERED and DECREED** as follows:

1. The land use appeal of Phillip C. Malitsch and Christopher Mangold is **GRANTED**;

2. The deemed approval of the application of Atlantic Wind, LLC, for a special exception under the Penn Forest Township Zoning Ordinance is **VACATED**; and

3. The application of Atlantic Wind, LLC for special exceptions under the Penn Forest Township Zoning Ordinance is **DENIED**.

BY THE COURT:



Steven R. Serfass, J.