February 25, 2020

Pamela G. Monroe, Administrator
New Hampshire Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: Antrim Wind Energy Third Party Sound Measurement Protocol in Response to Post-Construction Noise Complaints

Dear Ms. Monroe:

Thank you for providing a copy of the proposed Antrim Wind Energy Third Party Sound Measurement Protocol ("Protocol") for post-construction noise complaints. We carefully reviewed the Protocol and have identified a number of areas where the Protocol fails to meet the requirements for noise measurements as detailed in NH Site 301.18. Further, in several instances the Protocol introduces measurement criteria which have no foundation in the rules. This letter lists the issues we identified categorized by sections in the Protocol.

SOUND LEVEL LIMITS

This section of the Protocol correctly cites the sound standard in NH Site 301.14(f)(2)a. The claim in the Protocol that the Certificate is also conditioned upon AWE's compliance with the agreement between the Town of Antrim and Antrim Wind Energy LLC ("Agreement") is incorrect.[1]

The SEC's March 17, 2017 Order and Certificate of Site and Facility orders that the Agreement dated March 8, 2012 be amended to be consistent with the terms and conditions of the Certificate. (Certificate at 5) The amended Agreement (effective January 16, 2018) shows that Paragraph 11.1 is inconsistent with NH Site 301.14(f)(2)a. In the event of such conflict "*the Certificate shall control*." [Emphasis added] (Certificate at 6)

Any reference to Paragraph 11.1 in the Protocol is irrelevant and should be stricken from the Protocol. At no time should sound monitoring at the Antrim Wind Energy facility attempt to accommodate Paragraph 11.1.

RESPONSE TO COMPLAINTS

NH Site 301.18(i) requires compliance testing in response to complaints be conducted "under the same meteorological conditions as occurred at the time of the alleged exceedance." There is no information in the Protocol to suggest any attempt was, or will be made to confirm and match the meteorological conditions as occurred at the time of the complaint.

Every attempt should be made to confirm hub-height wind speeds and direction and turbine power output at the time of the complaint in order to match these conditions. Ground-level airport conditions miles away are not a reliable proxy for operating conditions at hub height.

MEASUREMENT SCHEDULING

Contrary to NH Site 301.18(i), the Protocol identifies a preset measurement scenario with predicted hub

[1] In 1.d and 4 under the Measurements section of the Protocol, there is reference to the Agreement. These references should be removed.

height wind speeds of 7.0 m/s or higher during the period from 6:00 PM to 10:00 PM. There is no basis for this approach in the rules. The timing of the measurement window cannot be assumed to adequately represent the conditions when the complaint was made. The undersigned complainants, the Berwick's and Janice Longgood, have each stated that the times with the most noise were at night.

Further, there is no information to suggest the Siemens SWT 3.2-113 turbine produces full sound power levels when hub height winds are 7.0 m/s. In fact, Antrim Wind Energy's own data show hub height wind speeds would typically be 10 m/s to nearly 15.0 m/s before maximum noise emissions might occur.[2]

Selecting a four-hour window (6:00 PM to 10:00 PM) that spans the daytime-nighttime change-over is not meaningful when evaluating post-construction noise complaints. This type of testing might be more appropriate during the seasonal compliance monitoring. It appears the Protocol may be conflating the two approaches.

MEASURMENTS

1. Sound measurements (w/ background measured):

In accordance with NH Site 301.18(e)(6), "all sound measurements during post-construction monitoring shall be taken at 0.125-second intervals measuring both fast response and Leq metrics." There are no other directives in the rules that suggest measurements will be reported at any other interval but Leq 0.125 second.

The Protocol appears to invent an entirely different standard using reported levels on the A- and C-weighted scales of Leq 1-hour with Leq 5-minute subintervals. There is no foundation in the rules that supports a Leq that differs from Leq 0.125-second.

For the purposes of transparency and repeatability, sound logs and audio waveform data will be made available to the parties as requested. The rules also call for Supervisory Control and Data Acquisition SCADA system data including hub height wind speed and turbine power output to be reported for the purposes of validating operating conditions and whether the turbines are operating at full power.

2. Wind Speed:

Please explain the process for correcting for microphone wind noise in this statement: "These measurements will be used to determine whether wind speeds at the microphones are within specified operating ranges for the sound level meter and windscreen, and if not may be used to correct for microphone wind noise."

3. Observer Monitoring:

As stated above, each of the complainants have confirmed that the noise is worst at night. Selecting a four-hour window (6:00 PM to 10:00 PM) that spans the daytime-nighttime change-over is arbitrary and not meaningful in the context of post-construction noise complaint testing.

4. Background Sound Measurements:

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[2] State of New Hampshire Site Evaluation Committee Docket No. 2015-02 Antrim Wind Energy Project Sound Level Assessment Report February 17, 2016 at 7-1.

An on-off test of the turbines as defined in NH Site 301.18(e)(4) requires that *all* turbines be turned off. The plain language of the rule is clear and offers no provision whereby some or part of the turbine array remains operating during the test. Again, the Protocol appears to invent a method for the test with no justification. Leaving some of the turbines operational will result in inflating background noise levels above the L90.

Mr. Tocci should be aware from his own testimony in Docket 2012-01 that L90 background noise levels in decibels at the Antrim monitored sites were as low as the mid-teens. These levels were reaffirmed at the same locations by Antrim Wind LLC in 2016. Since the turbines are not operational at all times, permitting a portion of the turbines to remain operating during a background test would be contrary to letter and intent of the rule.

Given the very low background sound levels, and the potential dominance of the turbine noise, we see no instance during compliance testing where background noise levels would need to be subtracted from measured levels because the difference between background and noise source levels are high during the complaint conditions we've documented.

5. *Tone Assessment:*

The Protocol appears to ignore the requirement that NH Site 301.18(h) that all project noise emissions be free of audible tones. It is only the presence of a 'pure' tone where a 5 dB penalty will apply.

Thank you for the opportunity to be heard on this important matter. As written, the Protocol violates the basic requirements NH Site 301.18. If left as written, the Protocol will not properly capture turbine noise emissions. Instead, the deviations from the rules will bias the outcome of any test in favor of finding compliance where, in fact, the turbines may be operating with exceedances.

We look forward to a conference call with you and Mr. Tocci to discuss this matter in greater detail in order to ensure the rules are followed. If you have any questions regarding the letter, please contact Lisa Linowes at (603) 838-6588 or by email at llinowes@windaction.org

Respectfully submitted,

/s/ Barbara Berwick
For the Berwick's

/s/ Janice Longgood
For herself

Lisa Linowes

Cc: Mr. Gregg Tocci
Mr. Robert Rand