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SUBMITTAL VIA E-MAIL

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Re: Case No. 17-F-0282 | All-Catt Wind Energy LLC
Revised Pre-construction Noise Impact Assessment (PNIA) August 25, 2026

Per your request, below please find comments in reference to a revised Preconstruction Noise Impact Assessment (PNIA) dated August 25, 2026 prepared by Hankard Environmental, Inc ("HEI"). for filing with the New York State Public Service Commission (Commission).. The comments in this letter build on, and should be read together with, my previous comments filed on May 6, 2026, April 2, 2026, December 15, 2025, April 23, 2025, March 28, 2025, and December 17, 2024. These comments also consider the Order Denying Amendment and Providing Clarification issued by the Board on June 23, 2026 ("Order").

Certificate Condition 68(d)(vi) sets an annual Lnight design goal of 40 dBA outside non-participating residences. These comments confirm that the design goal is exceeded at 14 residences under the August 25, 2026 PNIA. However, the PNIA is not sufficiently conservative and therefore the number of exceedences is likely substantially higher. The PNIA does not reasonably assure that non-participating residents will be protected from unwanted noise, and that complaints during operations will be minimized.

1. The PNIA omits valid Category 3 receptors.

The August 25, 2026 PNIA Section 4.2 includes Alle-Catt's "Category 1 and 2 structures", but omits "Category 3" properties.

"In contrast, Category 3 in Alle Catt's survey are structures that may be used for short stays but are not used as full-time residences, such as hunting camps and short-term rentals, and are not considered to be noise-sensitive."

In the June 23, 2026 Order, the Board explicitly includes Category 3 in its description of non-participating residences, pp.4-5, Footnote 3:

"Residences come in three categories: Category 1, which are year-round residences; Category 2, which are seasonal homes; and Category 3, which are infrequently inhabited and not suitable for long-term use. Case 17-F-0282, Receptor Analysis Summary (filed December 12, 2024), p. 2."

and Footnote 7:

"These are receptors 69, 417, 1565, 1974, 1980 (Category 1 permanent residences); 1981 (a Category 2 seasonal residence); and 2727, 2728, 2739, 2740, and 2741 (Category 3 infrequently inhabited residences not suitable for long-term use). These receptors would experience 39 dBA average annual nighttime noise. April 10 PNIA, Table C.1."

2. The PNIA G = 0.7 correction is non-conservative and under-estimates sound levels

The Siting Board's June 23, 2026 Order considers "whether or not the proposed modeling methodology is sufficiently 'conservative.'" (June 23, 2026 Order at 22 & n.46, quoting Bluestone Certificate Order at 58.) The Board adopted a methodology "that tends to overstate actual noise levels" because doing so is more protective of human health. (Id. at 22 & n.47.) It applied that approach when granting ACWE a Certificate, selected from "equally reasonable" parameters a conservative methodology for the L(night) Design Goal, and in the June 23, 2026 Order "makes no changes to the methodological parameters mandated in the Certificate." (Id. at 22.)

The August 25, 2026 PNIA Section 4.5 (short-term Leq) uses ISO 9613-2 with $G = 0.5$, receptor height 1.5 m, and 2 dBA uncertainty for propagation settings. Section 4.6 (annual Lnight), while labeled the "van den Berg method," changes the propagation settings to $G = 0.7$, receptor height 4 m, and 0 dBA uncertainty. $G = 0.5$ is already established as the conservative ground factor in the Bluestone and Deer River matters the Order treats as precedent. Bluestone Exhibit 19, Section 19(d), modeled with a G-factor of 0.5 throughout. Deer River followed Bluestone. Robert D. O'Neal, in Rebuttal Testimony filed November 22, 2019 (Case 16-F-0267), in discussing $G = 0.7$ referred to "the more conservative $G = 0.5$ used for Deer River." (O'Neal Rebuttal p.8.) The applicant industry's own comparison is that $G = 0.7$ is less conservative than $G = 0.5$.

Independent ISO 9613-2 Agr screening by Rand Acoustics for review of the August 2026 Alle-Catt layout (NP Categories 1,2,3; G changed only) shows $G = 0.7$ underpredicts relative to $G = 0.5$ by about 1.0 to 1.3 dB at 1.5 m receptor height (mean ≈ 1.2 dB) and about 0.6 to 0.7 dB at 4 m. Annual use of $G = 0.7$ therefore under-predicts Lnight relative to the established $G = 0.5$ and increases modeling uncertainty. The higher $G = 0.7$ assumes more ground attenuation and therefore lower predicted levels. That is not a methodology that tends to overstate impacts.

As with the prior shift to $G = 1.0$ in the March 24, 2026 PNIA Section 4.5, the new shift to $G = 0.7$ in the August 25, 2026 PNIA is novel relative to the Bluestone-approved methodology and to accepted practice. The June 23, 2026 Order states that sound compliance methodologies are "highly input dependent" and that "[c]hanging even one of these inputs, as both CCC and ACWE indicate, can materially impact modeling." (June 23, 2026 Order at 20 & n.41, citing Bluestone Order at 58–59.)

3. Concavity assures PNIA as submitted under-estimates sound levels

The $G = 0.5$ value is non-conservative where turbine-receptor noise paths have "concavity" - the ground drops away underneath the straight line noise path to the receptor. As documented by DPS Staff review of Evans and Cooper 2019, where concavity is present, "*with completely reflective ground ($G=0$), predicted*

wind farm noise levels are generally conservative .. " Yet with $G = 0.5$, "The ISO 9613-2 method with 50% absorptive ground is typically within ± 1 dB(A) of the measured noise levels at Wind Farms C, D, E and F where the topography between the turbines and house was best described as flat. Yet at Wind Farm B, where the topography is concave between the nearest turbines and receivers, this method can under-predict noise levels by up to 4 dB(A) at a distance of 1500 m. This is despite topographical information being included in the computer noise models .." (emphasis added). The PNIA's ground absorption correction guarantees larger modeling errors.

O'Neal affirmed the requirement to adjust the model "in cases of "concave" topography between the wind turbine and receptor. In that case an additional 3 dBA is recommended to be added to the modeling results." (O'Neal Deer River Rebuttal p.12.)

Rand Acoustics analyzed concavity in comments dated March 28, 2025. ISO 9613-2 with $G = 0.0$ provides reasonably good sound level estimates for concave source-receiver paths. Models run with $G = 0.5$ grossly underestimate sound levels by 2.4 to 3.8 dB in the range of 800 to 1500 meters. See notated Evans and Cooper Table 1 below which resummarizes the Evans and Cooper conclusions.

Table 1 – Difference between predicted and measured wind farm noise levels

Site	Approximate distance to nearest turbine, m	Topography description	Predicted – measured, ISO 9613-2 $G=0$	Predicted – measured, ISO 9613-2 $G=0.5$	
A1	1000	Steady downward slope	5.8	2.2	
A2	800	Steady downward slope	5.4	2.2	
A3	800	Concave downward slope	-0.4	-3.5	
B1	1500	Concave downward slope	-0.7	-3.8	
B2	1000	Slight concave slope	1	-2.4	
B3	1000	Concave downward slope	-0.4	-3.4	
B4	3000	Concave downward slope	-0.3	-4.8	
C1	600	Flat	2.9	1	
C2	300	Flat	2.9	0.1	
C3	700	Flat	2.6	-0.6	
D1	300	Flat	3.2	0	
E1	1200	Flat	2.5	-1.2	
F1	700	Flat	2.1	-1	

Good accuracy

Poor accuracy

Table 1. Concavity for Category 1, 2 and 3 receptors with highest predicted sound levels.

The ground absorption correction $G = 0.5$ supports good sound level estimates for flat terrain. The $G = 0.0$ supports good sound level estimates for concave slope. Analysis run by Rand Acoustics in March 2025 found some 535 source-receiver paths in the Alle-Catt project with concave slope ratios exceeding 1.5, consistent with a 3-dB terrain slope factor that would be entered as an adjustment at the head of the ISO 9613-2 model, per Bass, Bullmore, and Sloth (1998). Concavity was documented in my comments March 28, 2025, and was not rebutted or disproven by HEI. The $G = 0.7$ would worsen prediction accuracy for concave source-receptor paths, and is unsupported.

Concavity is listed in Table 2 below for the August 2026 PNIA Category 1, 2 and 3 receptors with the highest predicted sound levels with Leq(8hour) 43 dBA or higher. Concave slope ratios exceeding 1.5 are checked, consistent with requiring an additional 3-dB terrain slope factor, for 22 of the 42 receptors listed.

Receptor ID	Category	Leq (8-hour) (dBA)	Annual Nighttime Leq (dBA)	Concavity	Concavity > 1.5
1974	1	45.0	40	2.356	✓
1980	1	45.0	40	2.466	✓
2741	3	44.6	41	1.885	✓
2727	3	44.5	41	1.903	✓
1981	2	44.4	40	3.019	✓
2728	3	44.4	41	1.858	✓
2739	3	44.4	40	1.807	✓
2740	3	44.3	40	1.711	✓
66	1	44.1	40	1.656	✓
1567	2	44.1	40	1.575	✓
1994	1	44.1	40	2.132	✓
2467	1	44.1	40	1.678	✓
2744	3	44.1	40	1.545	✓
759	1	44.0	40	1.355	
412	1	43.9	40	1.43	
720	1	43.9	40	< 1.05	
758	1	43.9	40	1.3	
2726	3	43.9	40	1.696	✓
2746	3	43.9	40	1.616	✓
410	1	43.8	40	1.616	✓
722	1	43.8	40	< 1.05	
1209	1	43.8	40	1.292	
2743	3	43.7	40	1.497	
2230	2	43.6	40	2.148	✓
354	1	43.5	40	< 1.05	
2630	1	43.5	40	1.119	
2729	3	43.5	40	1.493	
70	1	43.4	40	1.345	
413	1	43.4	40	1.46	
414	1	43.4	40	1.444	
1964	1	43.4	39	2.113	✓
3461	1	43.4	40	1.424	
72	1	43.3	39	1.202	
77	1	43.3	39	1.171	
416	1	43.3	40	1.441	
2742	3	43.3	39	1.475	
2745	3	43.3	39	1.417	
7	1	43.1	39	1.203	
1978	1	43.1	39	2.206	✓
2222	3	43.1	39	2.822	✓
3691	1	43.1	39	1.922	✓
1194	1	43.0	39	1.871	✓

Table 2. Concavity for Category 1, 2 and 3 receptors with highest predicted sound levels.

In order to use ISO 9613-2 ground absorption $G = 0.5$, HEI must show the terrain is flat and there is no significant concavity in the project area. Where there is concavity, $G = 0.0$ provides a conservative and reasonable estimate. $G = 0.5$ is associated with an under-estimate of 2.4 to 3.8 dB from 800 to 1500 meters. The use of $G = 0.7$ is non-conservative.

In my professional opinion, annual $G = 0.7$ is not a conservative methodology in the project area nor under the terms of the June 23, 2026 Order and is unsupported by analysis on record. It underestimates facility L_{night} relative to the Bluestone/Deer River $G = 0.5$ methodology. Changing this contested input also increases the modeling uncertainty the Order identified at page 20. A non-conservative ground factor $G = 0.7$ does not avoid or minimize noise impacts; it understates them. The Section 4.6 calculation should be re-run with $G = 0.5$ applied uniformly with the short-term ground factor $G = 0.5$, consistent with Bluestone Section 19(d) and Deer River. Concavity effects must be addressed during modeling as concave source-receiver slopes are present for all receptors with the highest predicted sound levels.

4. Order Condition 68.d (v), 72.a L_{night} limit breached at multiple residences

I noted in April 9, 2025 that the PNIA utilized whole-decibel values for L_{night} while using tenth-decibel values for all other data. Subsequent to our request, tenth-decibel L_{night} values were listed in the November 5, 2025 PNIA Table C.1, and in the March 24, 2026 PNIA Table C.1. The August 25, 2026 PNIA returns to the use of whole-decibel values for L_{night} , but uses tenth-decibel values for all other predicted values. I conducted a linear regression of printed L_{night} versus L_{eq} for all non-participating Category 1, Category 2, and Category 3 residences in August App C Table C.1 ($n = 1237$). The regression produced a robust equation for L_{night} as a function of L_{eq} (Eq. 1, $R^2 = 0.9832$). The equation supports the calculation of L_{night} values to the nearest one-tenth dB.

$$L_{night,calc} = 0.9735(L_{eq}) - 2.7710, \text{ dB} \quad R^2 = 0.9832 \quad (1)$$

Table 3 lists the L_{night} values calculated to one-tenth-dB precision for receptors that print $L_{night} = 40$ in App C. Three receptors L_{night} values are listed at 41 dBA. All receptors exceed 40.0 dBA.

ID	Category	Leq (8-hour)	L_{night}	$L_{night,calc}$
1974	1	45.0	40	41.0
1980	1	45.0	40	41.0
2741	3	44.6	41	40.6
2727	3	44.5	41	40.5
1981	2	44.4	40	40.5
2728	3	44.4	41	40.5
2739	3	44.4	40	40.5
2740	3	44.3	40	40.4
66	1	44.1	40	40.2
1567	2	44.1	40	40.2
1994	1	44.1	40	40.2
2467	1	44.1	40	40.2
2744	3	44.1	40	40.2
759	1	44.0	40	40.1

Table 3. L_{night} values calculated to one-tenth-dB precision.

With Lnight calculated at one-tenth-dB precision using Eq. 1, the Lnight 40 dBA goal is exceeded at 14 non-participating Category 1, 2, and 3 residences. Eleven of those are listed in App C with Lnight = "40". Three Category 3 receptors (2741, 2727, 2728) in App C are shown with Lnight = "41".

As noted in 2025, the whole-decibel reporting is problematic because a modeled yearly Lnight sound level of 40.1 dBA and above clearly exceeds the Condition noise limit, and it is hidden by the use of whole decibels. A complete review of Lnight requires the input data so we can reproduce the noise level estimates. The Lnight data provided to one-tenth-dB precision, the same precision as the other data, are needed to perform a complete compliance evaluation.

5. Cumulative Noise Impact exceeds Leq and 16 Hz dBZ noise limit

HEI has not addressed cumulative noise level exceedances. PNIA Table C.1 shows five receptors with noise levels below 45 dBA (Noble Bliss only) and cumulative noise levels with Alle-Catt that exceed 45 dBA.

Receptor ID	Category	Leq (8-hour) Alle-Catt Only (dBA)	Leq (8-hour) Noble Bliss Only (dBA)	Cumulative Alle-Catt + Noble Bliss (dBA)
2621	2	42.2	44.5	46.5
2630	1	43.5	42.2	46.0
3338	1	36.3	44.8	45.4
2626	1	41.1	43.3	45.3
1974	1	45	27.9	45.1
1980	1	45	28.3	45.1

Table 4. Cumulative Leq Noise Levels exceed Leq(8hour) noise limits at 6 receptors.

Similarly, PNIA Table C.1 shows four receptors with cumulative noise levels that exceed 65 dBZ and 16 Hz dBZ noise levels (Noble Bliss only, derived) below 65 dBZ.

Receptor ID	Category	16 Hz dBZ Alle-Catt Only	16 Hz dBZ Noble Bliss (derived)	Cumulative 16 Hz dBZ Alle-Catt + Noble Bliss
2621	2	59.6	64.5	65.7
3338	1	55.9	64.9	65.4
1987	1	56.4	64.6	65.2
2630	1	60.7	63.1	65.1

Table 5. Cumulative 16 Hz Noise Levels exceed 65 dBZ noise limits at 4 receptors.

The Noble-Bliss-only 16 Hz sound level was derived from Table C.1's two 16 Hz columns:

$$L_{NB} = 10\log_{10}(10^{L_{cum}/10} - 10^{L_{AC}/10}), \text{ dBZ} \quad (2)$$

where L_{cum} is Alle-Catt + Noble Bliss and L_{AC} is the Alle-Catt-only 16 Hz sound level.

6. Conclusions and Requested Action

The August 25, 2026 PNIA's use of $G = 0.7$ for the long-term L_{night} calculation in Section 4.6, while retaining $G = 0.5$ for the short-term L_{eq} calculation in Section 4.5, is not authorized by the Order's reference to "Van den Berg corrections as approved in Bluestone Wind and Deer River matters." Bluestone Exhibit 19(d) used $G = 0.5$, $C_{met} = 0$, $T = 10^\circ\text{C}$, and $RH = 70\%$ throughout. Deer River followed Bluestone. The empirical literature DPS Staff and the Bluestone applicant rely on $G = 0.5$ for short and long term modeling.

The presence of concave source-receiver slopes for the receptors with the highest predicted sound levels requires conservative modeling to assure that if the facility is built, non-participating residents will be protected from unwanted noise, and that complaints during operations will be minimized. The August 25, 2026 PNIA is non-conservative and does not provide that assurance.

I respectfully request:

1. That the Section 4.6 long-term calculation be re-run using the propagation parameter set approved in Bluestone Section 19(d), specifically $G = 0.5$, $C_{met} = 0$, $T = 10^\circ\text{C}$, and $RH = 70\%$, applied uniformly with the Section 4.5 calculation.
2. That the model is run applying conservative modeling corrections consistent with Evans and Cooper, and Bass, Bullmore, and Sloth (1998), where source-receiver slopes have significant concavity.
3. That the model input files for the Section 4.5 and Section 4.6 calculations be made available, including the estimated L_{Wnight} , so the model may be reviewed for completeness. If additional undisclosed parameter changes are present, the corrected L_{night} predictions may be higher still.

The remedy for an applicant unable to satisfy the long-term noise design goal under valid modeling assumptions is project redesign. The applicant should be directed to revise the project design through some combination of noise-reduced operation, turbine relocation, or other mitigation as set forth in Certificate Condition 7.

7. Summary

INCE Rules of Practice require approving only noise control engineering studies, reports, or work which, to the best of the reviewer's knowledge and belief, are safe for public health, property, and welfare and in conformance with accepted practice. Best practices include designing to prevent noise complaints and impacts on sleep and amenity, and assuring that facilities comply with regulatory requirements with an adequate design margin.

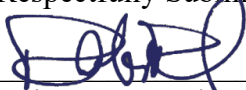
The most recent Alle-Catt PNIA dated August 25, 2026 fails to demonstrate compliance for the following reasons:

- 1) The PNIA Section 4.2 omits "Category 3" properties which are expressly included by the Order. Three Category 3 receptors in Appendix C list Lnight sound levels at 41 dBA which exceeds the Lnight design limit.
- 2) The PNIA uses $G = 0.7$ which is non-conservative, under-predicts sound levels by 0.6 to 1.3 dB compared to the established $G = 0.5$, and does not assure that if the facility is built, non-participating residents will be protected from unwanted noise, and that complaints during operations will be minimized. However the $G = 0.5$ is non-conservative when source-receiver paths are concave.
- 3) ISO 9613-2 under-predicts sound levels on concave source-receiver slopes by several dB unless $G = 0.0$ is used. The presence of concave source-receiver slopes for the receptors with the highest predicted sound levels requires conservative modeling adjustment to assess exceedance. The August 25, 2026 PNIA uses $G = 0.7$ which guarantees under-estimates of sound levels by several dB where there are concave source-receiver slopes. All receptors with the highest predicted sound levels have concave source-receiver slopes and require additional modeling and project design review to prevent exceedance of the design goal and the short term noise limits.
- 4) Low frequency (16 Hertz) noise levels due to cylindrical propagation, and significant icing noise increases previously identified by Hankard in sworn testimony, have not been addressed. (Rand December 17, 2024, pp.1,2,4.)
- 5) The Lnight 40 dBA noise limit is exceeded at 14 non-participating residences.
- 6) The PNIA has not addressed cumulative noise level exceedances. Cumulative Noise Levels exceed $Leq(8\text{hour})$ 45 dBA noise limits at 6 receptors who currently have noise levels below 45 dBA. Similarly, cumulative 16 Hz dBZ levels are exceeded at 4 receptors who currently have 16 Hz noise levels below 65 dBA. A noise control design using non-degradation would have ensured Leq and dBZ noise levels stay under noise limits at receptors.

These issues are substantive and raise significant doubts as to whether HEI's methods are sufficiently conservative to assure the Siting Board that non-participating residents will be protected from unwanted noise, and that complaints during operations will be minimized.

Thank you for your consideration of this letter. If you have any questions, please contact me.

Respectfully Submitted,



Robert W. Rand, ASA, INCE (Member Emeritus)

References

Bluestone Wind, LLC. *Pre-Construction Sound Level Impact Assessment*. Prepared by Epsilon Associates, Inc. Case 16-F-0559, filed September 7, 2018.

<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B0F0B824D-1F92-4E3A-843F-1C75191A0E30%7D>

Bluestone Wind, LLC. *Exhibit 19, Noise and Vibration*. Case 16-F-0559.

<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B435DF38A-A333-473A-B6CD-F995C9FD2BC3%7D>

Cooper, J., Evans, T., and Alamshah, V. (2014). "Influence of non-standard atmospheric conditions on turbine noise levels near wind farms." *Inter-noise 2014*, Melbourne, November 16-19, 2014.

INCE Canon of Ethics. <https://www.inceusa.org/pub/?id=A31057F9-EFA6-9D27-572B-1754C2BF6BC7>

Section II.1 "b. Approve only noise control engineering studies, reports, or work which, to the best of their knowledge and belief, is safe for public health, property, and welfare and in conformance with accepted practice."

Section II.1 "INCE members shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties and shall: a. Notify their client and such other authority as may be appropriate, if their professional judgment is overruled under circumstances where the public safety, health, property, or welfare are endangered."

Note: Best practices were acquired during a decade of work in the Noise and Vibration Control Group in the Environmental Engineering Division at Stone & Webster Engineering Corporation. Design safety margins were approved conservative project investments to prevent much higher costs of noise control if noise levels exceeded regulatory limits or generated complaints once facilities were in operation.

International Organization for Standardization (1996). *Acoustics, Attenuation of Sound during Propagation Outdoors, Part 2: General Method of Calculation*. ISO 9613-2:1996, Geneva.

Maria, Rutheravan. (2016). Summary Of Safety Criteria In Design. 10.13140/RG.2.1.1501.5285.

Note: Factors of Safety are a part of engineering design.

Moreno-Caballero, J. *Direct Testimony of Jose Moreno-Caballero on Behalf of the Department of Public Service Trial Staff*. Case 17-F-0282, prepared October 4, 2019, corrected November 26, 2019, Exhibit MMC-33.

New York State Board on Electric Generation Siting and the Environment. *Order Granting Certificate of Environmental Compatibility and Public Need, with Conditions*. Case 16-F-0559 (Bluestone Wind, LLC), issued December 16, 2019.

New York State Board on Electric Generation Siting and the Environment. *Order Granting Certificate of Environmental Compatibility and Public Need, with Conditions*. Case 16-F-0267 (Atlantic Wind LLC, Deer River Wind Farm), issued June 30, 2020.

O'Neal, R.D. *Rebuttal Testimony of Robert D. O'Neal on Behalf of Atlantic Wind LLC*. Case 16-F-0267, filed November 22, 2019.

<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BC8C93998-B594-4323-8F39-237C81E9D17F%7D>

RSG (2016). *Massachusetts Study on Wind Turbine Acoustics*. Prepared for the Massachusetts Clean Energy Center and the Massachusetts Department of Environmental Protection.