

MEMORANDUM

To: Judith Whitney, Clerk, Public Service Board

From: Paul Brouha

Date: May 11, 2017

Re: Rule 5.700 on Sound Levels from Wind Generation Facilities

Paul Brouha, together with Les Blomberg, respectfully submit the following comments to the Public Service Board in connection with the Rule 5.700 Wind Generation Facility Sound Rulemaking. These comments are in addition to those made during the Workshop on May 4, 2017. They include three main points. One, the most important comment is that the proposed rule will not end wind power development in Vermont. VPIRG's own GIS study proves this. The land available for wind power under the proposed rule, even with VPIRG's overly restrictive assumptions, would allow for more wind power than the grid can absorb. Two, the Board should not allow Noise Reduced Operation ("NRO") modes or the shutting down of turbines to be used to show compliance with the noise criteria. Three, the 35 dBA limit is less protective than the limits imposed by existing CPG's and, that being the case, the proposed rule approaches but does not meet the legislative intent of Act 174.

1. Not the End of Wind Energy in Vermont.

VPIRG and REV have implied that the proposed rule will be the end of wind power in Vermont. In particular, VPIRG undertook a GIS study that showed 0.2% of Vermont would be available for wind facilities due to the setbacks in the proposed rule. There are two problems with VPIRG's analysis--its premise is wrong and the conclusion does not follow from its data.

VPIRG's premise that no turbine can be sited within a distance equal to 10 times turbine height of a home is wrong for two reasons. One reason is that VPIRG failed to take into account the fact that the criterion does not apply to participating neighbors. Participating neighbors could greatly expand the available land. The second reason the premise is wrong is that VPRIG assumed projects have to utilize very large turbines. Smaller, but still industrial scale wind turbines, have a smaller setback VPIRG did not consider. Consequently, VPIRG did not "model" the proposed rule. Much more land than 0.2% of Vermont is available for wind development under the proposed rule.

The most important flaw in VPIRG's analysis is that its conclusion (the end of wind power) does not follow from its data. Even if one were to assume that VPIRG's calculations are correct, and that "only 0.2% of Vermont land is available for wind power in Vermont," an assumption that is clearly wrong because of problems described above, that land is more than enough land to increase wind power in Vermont by an order of magnitude.

VPIRG never really supported its conclusion that 0.2% of the land is not enough to permit wind turbine development in the future. VPIRG merely relied on the small value (0.2%) to appear insufficient for future turbine development. What it didn't tell the Board is that 0.2% of land at the scale of a state is still quite a lot of land. In Vermont's case, it is 19.232 square miles.¹

Moreover, it is critical to remember this land is the land available for the footprint of the turbines, as the setback would be measured from the turbines. The footprint of the turbines at the existing facilities is actually quite small. GIS software was used to calculate the footprint of the Sheffield, Lowell, and Georgia Mountain Projects (depicted on photos attached hereto) and is given below:

Sheffield=0.537 square miles
Lowell=0.122 square miles
Georgia Mountain=0.021 square miles

The 19.232 square miles is enough land for 36 Sheffields, 158 Lowells, or 916 Georgia Mountains.

Obviously, new developments will have different turbine footprints. But VPIRG's *implied argument* that 0.2% of the land (even if the 0.2% value were correct) does not support its conclusion that the proposed rule will end wind power in Vermont.

The Board should remember that the land available for turbine development under the proposed rule is actually much greater than 0.2% of Vermont, because participating neighbors are exempt from the setback requirements and smaller turbines have a smaller setback than VPIRG assumed. Nevertheless, even if only 0.2% of the land were available, wind energy development isn't dead. Development can still occur. Under the new rule, it will simply occur in areas where it is a better fit.

Finally, we think the proposed rule allows for a better fit, not an appropriate fit. We are not suggesting that the proposed rule is sufficiently protective. Its greatest flaw, as we have pointed out before, is that the setback is not from adjacent property lines. Had the proposed rule, even with this flaw, been in place before the Sheffield, Lowell, and Georgia Mountain Projects, however, it would have resulted in improvements to those Projects that likely would have avoided many of the noise issues and the bad press that has accompanied them. It would have avoided making wind power unattractive to some other prospective communities. The proposed rule would have been better for the neighbors and for wind power's future in Vermont. Ironically, it is previous siting problems, which this rule would have partially corrected, that have caused the most damage to the prospects for wind power in Vermont.

2. The Dual Daytime/Nighttime Standard, NRO, and Turbine Curtailment.

The dual daytime/nighttime standard, as well as the potential use of NRO modes and shutting down turbines in order to meet the proposed noise criteria could change the Board's role from

¹ According to the US Census, there are 9,616 square miles of land in Vermont. (<https://www.census.gov/geo/reference/state-area.html>) 9,616 square miles x 0.2%=19.232 square miles.

one of *regulating the physical properties of the wind turbines* to one of *regulating the behavior of the wind turbine project operator*. It is not in the DPS's or the Board's interest to regulate the operator's behavior in order to ensure compliance with the noise criteria. The noise monitoring and complaint resolution processes are not robust enough to regulate the operator's behavior. In particular, they do not include continuous monitoring and cannot be easily adapted to include continuous monitoring.

To avoid these problems, the 35 dBA standard should apply 24 hours a day. At the very least NRO mode and shutting down turbines cannot be used in either pre-construction modeling or post-construction compliance testing to show compliance with the noise criteria. The one exception is that, if a facility is built and unexpectedly does not comply with the noise criteria (a violation has occurred), then NRO modes and curtailments shall be used to meet the noise criteria.

Specifically, 5.705 Pre-Construction Sound Modeling, should be modified with the additional text in red below:

“All petitions to construct and operate a wind generation facility, except for those for a wind generation facility with a capacity of 50 kW or less, shall include a sound model developed for the proposed facility that reports the expected maximum project sound levels, without using NRO mode **or turbine curtailment**, experienced out to a distance where such levels are no greater than 30 dBA. **Moreover, the petitioner must show that the facility complies with the noise criteria in 5.703 General Rule without relying on NRO modes or turbine curtailment.** A petitioner must submit the following information with its petition:”

3. The 35 dBA Limit is Less Protective Than Those in the Current CPGs.

The Board has based the proposed rule on direction provided by Act 174 of 2016, Section 12 (a). As the video record <https://youtu.be/zgc8QF9GRdY> of the Conference Committee documents, SNRE Chair Bray said it was their intention, to craft legislation that **"helps try to assure people that they're not going to face emissions less agreeable to them than what has already happened in current CPGs."** He was not speaking about a temporary situation, but the new rules. The fact that the language wound up in Section 12 (a) (3) (which addresses the temporary rule) was a drafting error that was overlooked in the Committee's rush to bring the bill to the floor for a vote. Neither the temporary rule nor this proposed final rule codifies the stated intent. The proposed 35 dBA/42 dBA maximum sound pressure levels at a distance of 100 feet from the residences of non-participating landowners and the elimination of the windows-open interior measurement standard in winter both assure that these landowners will face emissions less agreeable to them than what has already happened in current CPGs.

This point can be illustrated by the Sheffield Project. Condition 8 of the CPG for Docket 7156 (Sheffield Project) provided that "8. UPC shall construct and operate the Project so that it emits no prominent discrete tones pursuant to the American National Standards Institute (ANSI) standards at the receptor locations, and indoor sound levels at any King George School structure

and any surrounding residences do not exceed 30 dBA (Ldn).” The PSB Order (10/1/2007) modified the sound level requirement in CPG Condition 8 to 30 dBA (1-hr Leq).

Subsequently on September 25, 2015, Acentech, under contract to the DPS, confirming measurements taken and reported to the PSB on March 27, 2014 by Noise Pollution Clearinghouse, reported the outside-to-inside noise reduction (“OILR”) value at the Brouha house to be 1-3 decibels for a windows-open condition.

One cannot reconcile the 42 dBA daytime standard, or even the 35 dBA nighttime standard, in the proposed rule with the Docket 7156 permitted level, which is essentially a 31 dBA exterior standard (when the outside-to-inside correction is applied to the interior standard). As such the proposed rule is not responsive to Legislative intent of Act 174.

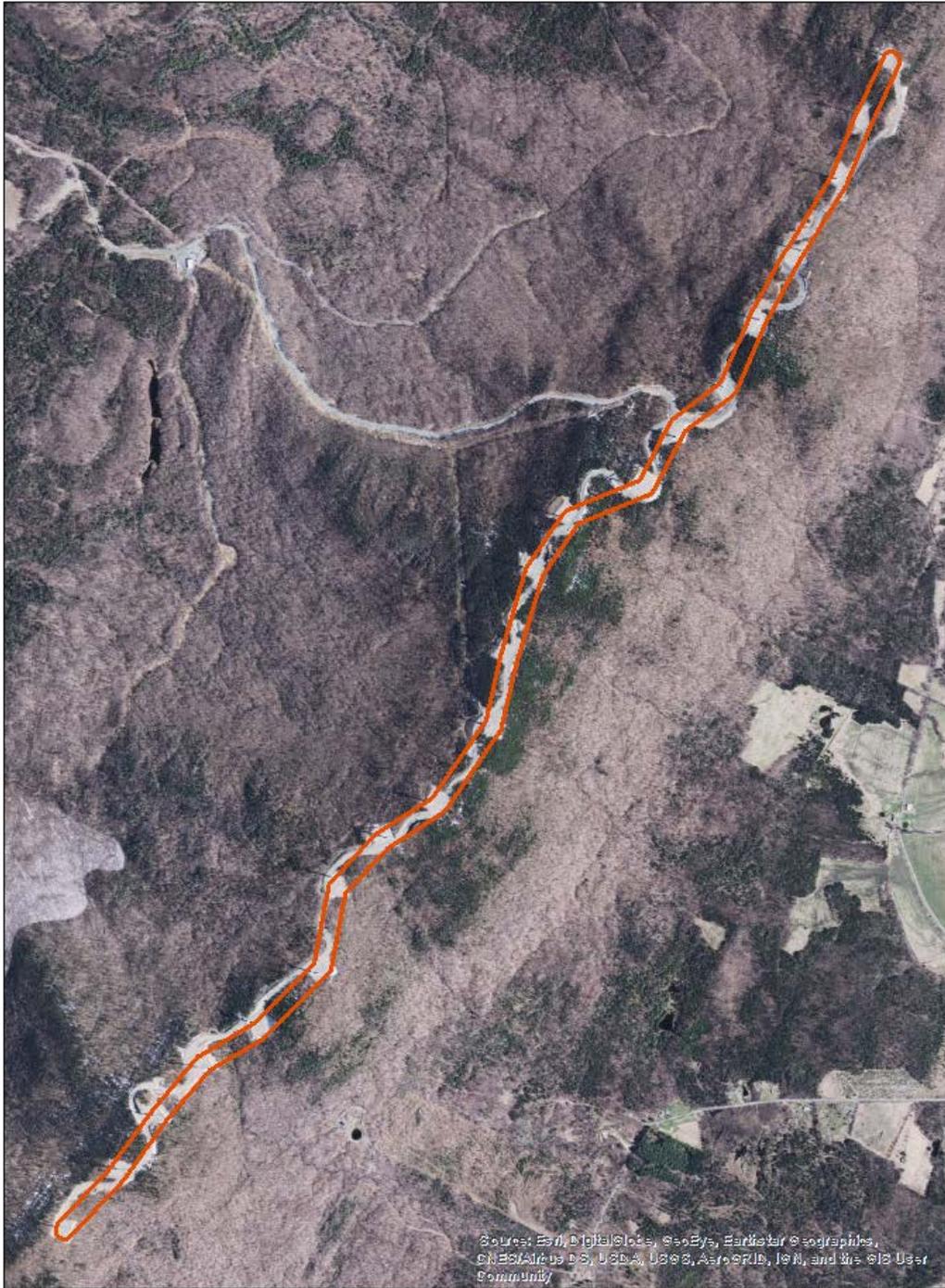
Sheffield, Vermont



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User
Community

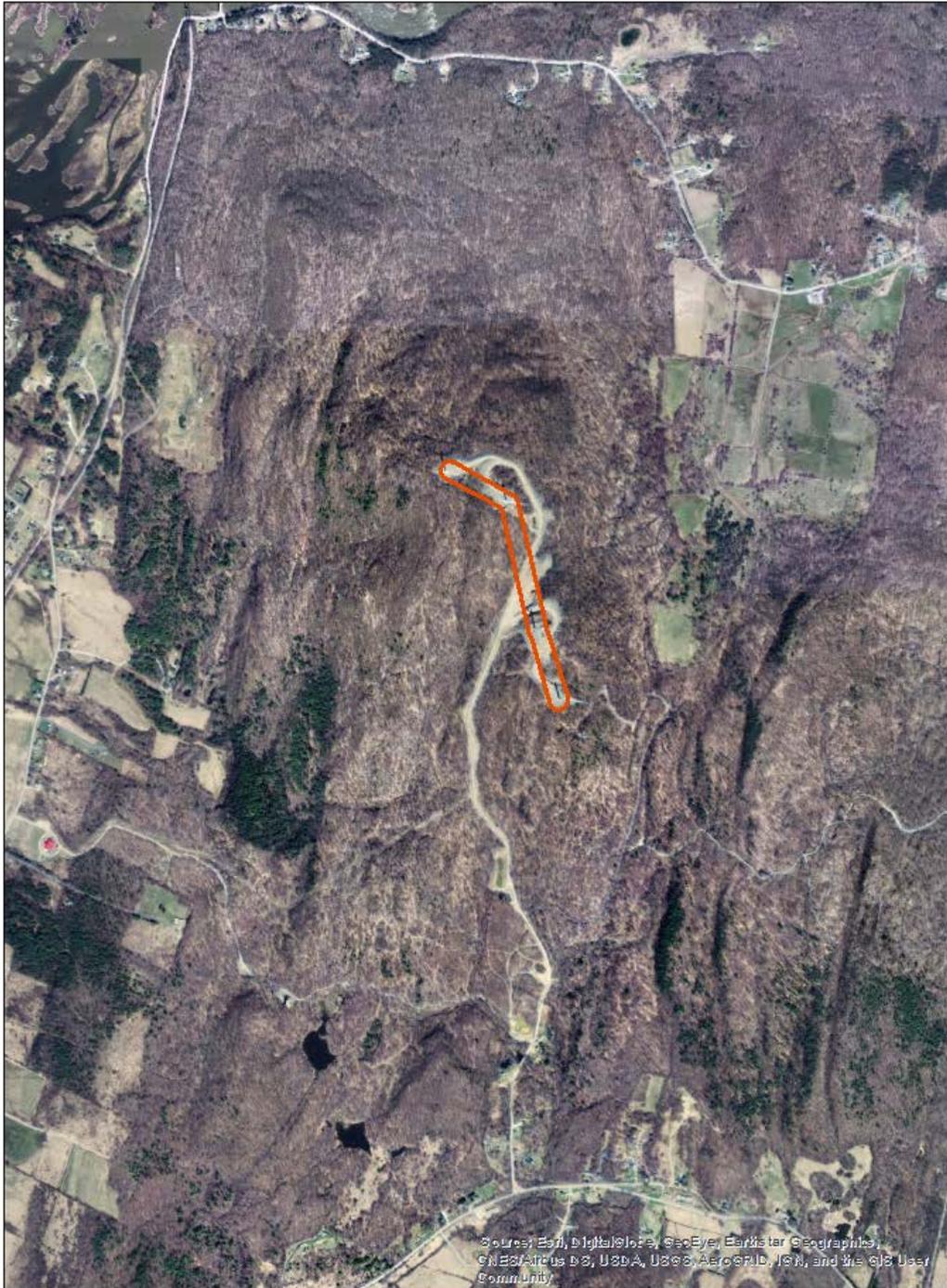
0 0.25 0.5 1 Miles

Lowell, Vermont



0 0.25 0.5 1 Miles

Milton, Vermont



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User
Community

