



RIDGE PROTECTORS
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June 27, 2016

Vermont Public Service Board
112 State St. 4th flr
Montpelier, VT 05620-2701
Dockets: 8167, 7893, 8550

To: Judith Whitney, PSB Clerk

Ridge Protectors is a 501(c)(3) non-membership organization. It is governed by a Board of Directors, representing the towns most affected and involved with the Lowell wind project. Ridge Protectors (RP) was the fund-raising entity for joint Interveners: the Towns of Albany and Craftsbury in Docket # 7628, Green Mountain Power's CPG petition for Kingdom Community Wind.

It is in the best interest of Vermonters to learn from neighboring states and other countries that have more experience with wind turbine noise, and that have similar topography, vegetation, and weather.

Broadly, **Ridge Protectors supports the sound standards recommended by S.E. Ambrose & Associates (see below).**

A noise standard must also include sufficient monitoring and timely response to 'what if' scenarios that protect project neighbors in the event noise modeling does not affirm actual conditions. These options include guaranteed buyout (Denmark), shutting turbines down (varying conditions based on wind speed or time of day) and set backs. **Ridge Protectors supports continuous monitoring protocols that provide the most accurate data collection, and; explicit, timely (within the hour) response protocols when the noise standard is exceeded.**

While setbacks offer a definitive and less expensive approach to managing noise impacts, Vermont's hilly terrain makes establishing 'cookie cutter' setbacks more challenging. As a temporary rule, and given the unknowns about the long term effects of infrasound, **Ridge Protectors recommends a minimum set back of two miles, from the property line for siting industrial scale turbines, adjusted for local topography and features.**

(EG. Proposed Swanton project, with prevailing wind and location of Fairfield Pond require greater distance to achieve the same buffering effects.)

There are now dozens of examples of setbacks around the world. The increasing size of turbines is reason to focus on the most recent. For example:

In February 2014, Newport, North Carolina, established a 5,000-ft (1.5-km) setback from property lines, a 35-dB limit for noise at the property lines, and a total turbine height limit of 275 feet.

The latter two conditions were also established by Carteret County, North Carolina, **in February 2014**, as well as a 1-mile setback from property lines.

Ridge Protectors' support for setback similar to Newport, NC is *only* for the purpose of the temporary rule. Developing a matrix of noise levels and setbacks adjusted for hilly terrain and water bodies may be a useful step for the board to develop permanent noise standards. **Absent significant technology changes in the noise emitting elements of industrial turbines, larger turbines with longer blades will require correspondingly greater setbacks.**

Green Mountain Power's willingness to purchase homes within one(1) mile of the Lowell turbines is indicative that the installation's permitted noise standard for 3MW turbines could not be met within one mile.

Based on the monitoring at the Brouha property in Sheffield, we now know that attenuation outside to inside a building can be far less than the 'assumed/modeled' 15-dB. Without a better understanding of how different construction practices can influence the outside to inside attenuation, the temporary rule should rely on the "precautionary principle": **When an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.**

<http://www.sehn.org/ppfaqs.html>

Vermont has a long history of property rights – the right to do what you want with your land. Implicit in this law is that impacts are contained within the property's physical boundary. This is not the case with noise from wind turbines. Countries, states, and townships have found ways to address the consumer protection concerns with problematic noise that can be two miles or more from the source, including setbacks and turning the turbines off.

Vermont has some of the weakest consumer protection laws in the country, (https://www.nclc.org/images/pdf/udap/report_50_states.pdf). **This adds urgency and need to protect Vermonters in their home.** The option to use the court system to resolve problems after the fact – as Rep. Tony Klein offered to concerned project neighbors – is further limited without adequate consumer protection law.

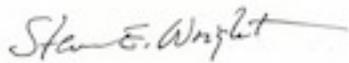
The PSB must consider the 'public good' in issuing a CPG. The overarching public good for large wind turbines is fuel switching to something other than fossil fuels. The balance sheet for a claim of public good that assumes emissions reduction must therefore also include a cost to reduce those emissions. The Lowell installation, for example, reduces a ton of carbon at a cost of \$200+/Ton (PSB 2015 data). A carbon tax does the same for \$25/Ton¹. This state supported, embarrassingly poor, return on investment in the guise of 'public good' is further reason to site industrial turbines *only* when project neighbors are *assured* protection: the right to the enjoyment and economic value of their property.

Vermonters want a say in how energy projects are sited, and the impacts from industrial scale energy development. 150+ signatories on the Rutland Resolution, and results of the 2016 Doyle Town Meeting Day Survey – 90% of 11,000 + survey respondents want Towns to have a say in siting energy projects – are indicative of Vermonters' concerns about the PSB's historic siting decisions.

Accordingly, we add our voice to those of Vermonters for a Clean Environment, victims of Vermont's current noise standards, and the growing number of Vermonters who understand the draconian injustice the current standards ignore.

Thank you for the opportunity to comment on **Dockets: 8167, 7893, 8550**.

Respectfully,



Steve E. Wright
President
Craftsbury
802-586-7705

¹ Krupnick AJ, Parry IWH, Walls M, Knowles T, Hayes K. "Toward a New National Energy Policy: Assessing the Options," National Energy Policy Institute and Resources for the Future, November 2010.

Acoustics, Environmental Sound & Industrial Noise

Date: June 21, 2016

Ref: Proposed Noise Regulation Recommendation

Preface: The Vermont Legislature and Public Service Board understand that the 45 dBA (LAeq1hr) noise limit does not protect public health, safety and wellbeing. Therefore, a lower noise limit for wind turbines is warranted with direct connections to the human response at night.

Applicability: All noise generated by industrial wind turbines located in rural and remote environments. These noise limits are applicable at all property lines or 500-ft from the residence, whichever is closer.

Intent: The noise limits are to preserve quality of life, peace and tranquility, and protect natural environments from excessive noise(s) by limiting the noise level increase and objectionable sound quality. This regulation does not address infrasound.

Ambient: This Regulation establishes 30 dBA as the nighttime sound level baseline for design purposes, in lieu of measurements. The 30 dBA baseline noise level excludes “wind on microphone” contamination, warm weather contributions from natural sounds (insects and tree frogs) and traffic. It is also understood that rural and remote area sound levels can be up to 15 dB quieter than the baseline (30 dBA).

Limits: Wind turbine projects shall not produce outdoor noise levels greater than 35 dBA (LAeq10min), 50 dBC (LCeq10min), and indoors 30 dBA (LAeq10min). The indoor test requires; 1) all house noise devices and systems off, 2) presence of one-measurer and one-witness, if required. This test is applicable for windows open or closed.

Predictions: The project owner and consultants are responsible for predicting wind turbine noise levels using un-weighted sound power level octave bands. Noise predictions shall include wind turbine measurement uncertainty of at least +2 dB, prediction noise model uncertainty of +3 dB, 0 dB for both ground and vegetation attenuation, and +3 dB for high wind shear conditions.

Compliance: Noise measurements are the financial responsibility of the project owner and shall be independently performed by a qualified professional when directed by the Vermont PSB or Town officials. Compliance noise measurements shall not exceed outdoor noise levels of 35 dBA (LAeq10min), 50 dBC (LCeq10min), and 30 dBA (LAeq10min) indoors (windows open or closed). Noise measurements shall prevail over noise model predictions.

Measurements: Locations shall be away from roads or other localized sound sources including short-duration (such as traffic) and seasonal events. All noise measurements shall exclude “wind on microphone”, tree/leaf rustle, flowing water, and natural sounds such as birds, tree frogs, and insects. Natural sounds are excluded from measurements or calculations when dBA is derived from frequency bands lower than 1250 Hz.

References: *This noise regulation requires that all acoustic terminology, noise predictions and sound measurements shall comply with recognized international standards (ANSI, IEC & ISO) including:*

1. ANSI/ASA S3/SC1.100-2014 (ANSI/ASA S12.100-2014) Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas
2. ANSI/ASA S12.9-2013/Part3 Quantities and Procedures for Description and Measurement of Environmental Sound-Part 3: Short-term Measurements with an Observer Present
3. ANSI-ASA_S12.62 (ISO9613-2) Acoustics-Attenuation of sound during propagation outdoors - Part 2: General Method of Calculation