

June 27,2016

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

To: Judith Whitney, PSB Clerk

The Town of Windham is being targeted for the largest wind installation to date in Vermont. The wind developer and land owner declare the site to be good for a development – for them. Those of us who moved here or remained here did so in part because of the remote quiet of Windham and do not think it is a good location for development. The map below was developed using the layout proposed by the wind developer and shows the number of homes that will be in close proximity to at least one turbine. How surrounding towns are affected can also be seen on the map. Note the closeness of buildings in Windham and Grafton:

Distance	Number of buildings	Windham	Grafton
.5 to 1 mile	103	94	9
1 to 1.5 miles	151	129	22
1.5 to 2 miles	112	87	25
2 to 2.5 miles	178	81	97
2.5 to 3 miles	120	35	85
Total	664	426	238

The developer plans to compensate for the marginal (intermittent and gusty) wind resource by using taller, larger, and louder turbines. Windham and Grafton residents will suffer so the developer can make a larger profit. This is clearly an inappropriate site for such a densely populated area. If Vermont does wish to include wind energy in the mix much, much better planning and protections for citizens will be needed. Many well documented complaints about wind turbine noise are on file here in Vermont and from around the world and better sound standards, monitoring and enforcement are needed. This letter is in response for a request for comments about new noise standards and those proposed by Ambrose are included and I encourage their adoption.

Cordially,



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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.

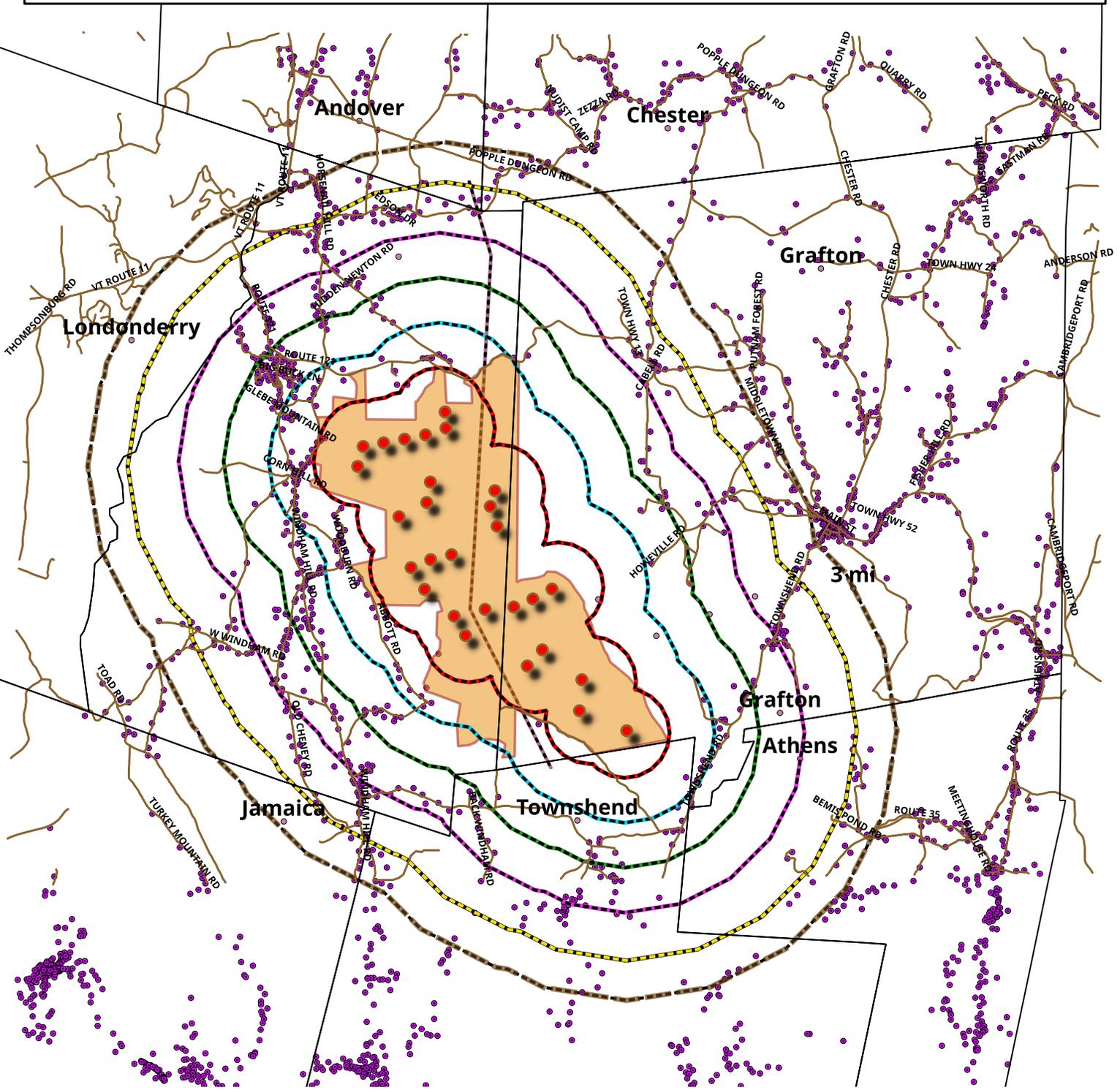
Compliance: Noise measurements are the financial responsibility of the project owner and shall be independently performed by a qualified professional when directed by the Vermont PSB or Town officials. Compliance noise measurements shall not exceed outdoor noise levels of 35 dBA (LAeq10min), 50 dBC (LCeq10min),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

Windham/Grafton and surrounding towns Proximity to wind turbine Shown by .5 mile wide impact zones



(No.buildings Windham/Grafton)

- | | | | |
|----------|-------------------|-------------------|--------------------|
| boundary | .5 mi | 1.5 to 2 mi (112) | stiles brook tract |
| turbine | .5 to 1 mi (103) | 2 to 2.5 mi (178) | VELCO |
| road | 1 to 1.5 mi (151) | 2.5 to 3 mi (120) | building |

turbine locations - Iberdrola data
 buildings - Vermont e911 data
 roads - VT Ctr for Geographic Info
 Map by MF Seawright July 5, 2016