

Section
4

NOISE

4.0 NOISE

4.1 SUMMARY – NOISE

- Setback is the wind industry’s mitigation strategy for Wind Turbine Generator (WTG) noise.
- Setback is also the proponent’s mitigation strategy for WTG noise – however their setback solely utilizes Article 97 properties, protected from excessive noise.
- The Commonwealth’s Department of Environmental Protection (DEP) provides for no more than a 10 dB gain above ambient noise at an abutting property line. Of this the proponent should be required to have independently analyzed for feasibility, and to meet.
- PMLD (the project proponent) has failed to research, test, assess, map and mitigate the noise levels, to the Article 97 protected Wachusett Reservation environment that their proposed WTGs will present.
- Of such, the proponent should be comprehensively required, using an independent agency – before any sanction of this filing is conditionally or permanently granted, by any agency of the Commonwealth – for the unencumbered exercise of its citizen’s rights

4.2 PROPONENT _ ASSESSEMNT & COMMENT – BRIEF

Comment-Section	EENF ASSESSMENT	COMMENT
4.4.1	Sounds from new turbines are similar to “trees rustling in the wind.	What is the basis for this statement?
4.4.2	Noise generated by proposed WTGs will be 50-55 dB at 122-feet.	PMLD consultant -PB Power’s- <i>Noise Impact Assessment</i> shows a higher noise level at that distance.
4.4.3	The noise level at 2,200-feet will be 36 dB (background noise level).	By what basis is 36 dB the background noise level? This means that 350-acres of state park will be subject to noise greater than background noise.
4.4.4	Statements: “Noise level at 1,640-feet will be completely masked by background noise” AND “noise at 2,200 feet will be...similar to background noise”	These are contradictory statements.
4.4.5	Noise level of proposed turbines is significantly less than noise level of existing units.	Of what origin and basis is this assessment formed?

4.3 PROPONENT – MITIGATION & COMMENT – BRIEF

Comment-Section	EENF MITIGATION	COMMENT
4.5.1	2,200 feet -- until the turbine noise equals the background noise	Proponent's setback for noise <i>is</i> the Commonwealth's property.

4.4 PROPONENT ASSESSMENT of IMPACTS OF NOISE (EENF SECTION 3.2.3 NOISE)

1. **EENF Assessment:** “The sound from a new turbines that is perceptible is a low regular background sound similar to trees rustling in the wind.”
Comment: This is quaint but unsubstantiated and placating.

Is there anyone who wouldn't be able to discern among the sound of rustling leaves and a wind turbine if they were presented with an audio recording of both? Let me play you my tapes of both of these.

Analytically, trees yield random sounds; a windmill's sound is a repetitive.

2. **EENF Assessment:** “...the noise generated by proposed units will be approximately 50-55 dB at approximately the same location [122-feet].”
Comment: There's too many “approximately's” here ...
This is statement contradicts with the preliminary acoustical assessment done by PMLD consultant PB Power, which has noise level at ~57dB at this distance.

A clothes dryer emanates noise at ~55dB – is this appropriate for the Wachusett Reservation?

A real study is in order -- not a “preliminary assessment” (which is a noise-curve taken from a turbine brochure).

3. **EENF Assessment:** “...relative to the nearest private property 2,200 feet away. The assessment indicates...the level of the noise at 2,200-feet will be 36 dB...”
Comment: This means that all the property between the turbines and the private property 2,200 feet away, will be noisier than the natural background sounds. Too bad for 350-acres of the state park...

The proponent is clueless about the noise rights in Article 97?

4. **EENF Assessment:** ‘Noise level at 1,640-feet will be completely masked by background noise’ simultaneous with ‘noise at 2,200 feet will be...similar to background noise.’

Comment: These statements are contradictory and show that the proponent is shooting from the hip, and needs to employ an agency for an independent acoustical study and report – with relative assessments and mitigations.

5. **EENF Assessment:** “Noise level from the turbines proposed at the existing windfarm site is significantly less than noise level of existing units.”

Comment: What are the quantitative noise levels of the new units at specific distances from the turbines until the sound dissipates?

From the present contradictory noise figures, it appears as if the proponent is replacing a noisy boom-box, with a boom-box. “Quieter” or “less noise” is relative and may not be appropriate for a state reservation. Let the proponent show otherwise.

4.5 PROPONENT MITIGATION of IMPACTS OF NOISE (EENF SECTION 3.2.3 NOISE)

There really isn’t a mitigation of noise offered. The following is subtle.

1. **EENF Mitigation:** Noise at 2,200 feet equals the background noise. 36 dB.
Comment: There is no empirical basis for the Wachusett background noise level that was cited. This is focused on private property distances, only. Evidently the 350-acres of the state park is not getting the equal respect as are private landowners. The proponent is oblivious to the Wachusett Reservation – as if it didn’t exist?

4.6 WACHUSETT – HISTORY OF NOISE

The Wachusett Mountain State reservation's southwest side is quiet – not quieter. The present windmills in that environment make a lot of noise. Maybe the new ones are quieter. But will they be quiet? Will they accommodate the noise rights afforded under Article 97.

I, on many occasions and under many conditions, have made video/audio tapes of the present WTGs and their noises. They are both mechanical – from the turbines, and aerodynamic – from the blades cutting the wind.

The present WTGs are unnatural in their noise – so that levels equal to the environmental background would be annoying and stand out. In music, setting two vocalists' voices to equal volumes in no way eliminates either one; they have the same amplitude. Neither is masked. In fact the unnatural one (the turbine) in the case of the Wachusett reservation would stick out – as it is unusual in that environment. It would be as obvious as a sour note amongst a group of vocalists.

Simply the idea is to provide an opportunity for the unwanted sound to dissipate with distance. This is particularly indeterminate in environments such as Wachusett where the sound source is above the receivers who sit in the rises and valleys below.

As such the present turbines offer strange acoustical patterns. They go unheard at 1/2 mile; but in the same direction at 1 mile away they are heard. Today they are heard 1-mile away from the WWS on Rhodes Road to the west, and in the opposite direction, 1 mile away on Mountain Road to the southeast (at the Fernside, on the National Historic Register).

The above is confirmed for the WWS, although tentatively, in the following quote by the AWEA -- wind industry advocates.

“...background noise of the wind tends to mask any sounds that might be produced by operating wind turbines... The only occasional exception to this general rule occurs when a wind plant is sited in hilly terrain where nearby residences are in dips and hollows downwind that are sheltered from the wind – in such a case the noise may travel further than on a flat terrain.”

(Facts About Wind Energy and Noise; American Wind Energy Association)

4.7 NOISE – WINDMILL AT HULL

In Hull, Massachusetts, there is a windmill about 1/2 the size of the proposed WWS WTGs. This single windmill is noisy. I've seen it and videotaped it. This is subjective as is the view of people who consider it quiet.

One thing that is for sure is that Wachusett isn't Hull – when it comes to background noise. The windmill there is amidst and masked by surf sounds, the sounds of the high school ball field, the densely populated beach-town noises, the sounds of the diesel motors of the boats in the harbor and the jets overhead in this landing flyway for Logan

International Airport. Compared this to Wachusett? Don't take my word or anyone's word for it – find out with proper noise measuring equipment, operated by an independent audio professional.

4.8 NOISE – INDUSTRY ASSESSMENTS AND MITIGATIONS

“Strategies for addressing or mitigating noise from turbines should consider the different tonal frequency of the sounds emanating from wind turbine, not just the overall decibel level. Background noise should also be considered. Most local requirements use some form of exceedance over measured background levels as a threshold. The exceedance level can vary from 5 to 8 decibels.

Distance is the most effective mitigating measure in addressing noise from wind turbines. Utilizing setbacks that specify a certain sound level at a certain distance from the turbine is also effective.”

(Wind Energy Development: A Guide for Local Authorities in New York; page 30; New York State Energy Research & Development Authority, Albany, NY October 2002)

“If noise is an aspect which is required to be remedied or mitigated through a plan or in a consent condition, it is most appropriate to do this by setting a level not to be exceeded at a receiving point, rather than by determining turbine location, distance or type. This leaves a developer free to make choices in respect of the means of achieving the performance requirement.”

(Guidelines for Renewable Energy Developments; New Zealand Government; 1995)

“ a change in sound level of 5 dB will typically result in a noticeable community response; and

“ a 10 dB increase is subjectively heard as an approximate doubling in loudness, and almost always causes an adverse community response.”

(Wind Energy Development: A Guide for Local Authorities in New York; page 30; New York State Energy Research & Development Authority, Albany, NY October 2002)

“The Department has established a Noise Level Policy for implementing this regulation. The policy specifies that the ambient sound level, measured at the property line of the facility or at the nearest inhabited buildings, shall not be increased by more than 10 decibels weighted for the “A” scale [dB(A)] due to the sound from the facility during its operating hours.

(DEP Bureau of Waste Prevention Noise Policy; Massachusetts Department of Environmental Protection; 310 CMR 7.10 – U Noise; 1990)

4.9 WACHUSETT WIND SITE NOISE – THE BOTTOM LINE

The messages from this Section 2, on icing, are:

- Noise will be generated by the proposed Wachusett Wind Site (WWS) turbines
- Noise will emanate non-linearly based on industry findings and WWS experience of 20-years.
- Estimates are that noise level at the Wachusett Reservation boundary will be equal to that of a clothes dryer (57 dB at 150-feet per PB Power)
- No noise study has been done by the proponent
- Industry recommends setback – as a proven mitigation of noise
- Mass DEP limits noise to 10dB gain at property line
- Article 97 grants rights to “freedom from excessive and unnecessary noise”
- Due to proximity of the WWS (proposed turbine locations) and the Wachusett State Reservation *reasonable setback*, based on industry findings, will ensure on the citizen’s Article 97 rights
- PMLD (the project proponent) has failed to research, test, assess, map and mitigate the noise levels, to the Article 97 protected Wachusett Reservation environment that their proposed WTGs will present.
- Of such, the proponent should be comprehensively required, using an independent agency – before any sanction of this filing is conditionally or permanently granted, by any agency of the Commonwealth – for the unencumbered exercise of its citizen’s rights