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Subject: Proposed Temporary Sound Level Standards for Vermont Wind Turbine Installations
Date: Tuesday, July 05, 2016 10:42:59 PM
Attachments: [url.png](#)

To: Members of the Vermont Public Service Board, Chairman Volz, Board Member Cheney and Board Member Hofmann
From: Christopher Fisher, Diane Fisher, John Fisher, Holly Fisher - Joint Home Owners of 1247 Abbott Road, Windham, Vermont
Date: July 5, 2016
Subject: Proposed Temporary Sound Level Standards for Vermont Wind Turbine Installations.

Dear Board Members,

It is our hope that, as members of the Vermont Public Service Board, your primary interest is reflected in your name - serving the public. We are writing to you as 4 retired teachers who over the past 25 years have built our home entirely ourselves. We chose the spot because of the rural beauty and quiet of Vermont.

We have reviewed the many letters which you have already received and it seems unnecessary here to repeat many of the very thoughtful comments that have been made by most of these writers. Instead, we will try to summarize and perhaps add to points that seem to be important to keep in mind from both these letters and in much of the literature that is NOT produced by the wind companies or firms they have hired.

You, of course, are aware of the project which is proposed for Windham by Iberdrola. Since this is where our home is located, we would like to first mention a couple of points regarding potential noise issues that will be unique to this project, and thus make it important for you to consider as you determine these new temporary standards.

First - no other project in Vermont has had nearly the number of very large (500 - 600 foot) turbines within such a close range of such a large percentage of homes in the town. For this reason alone, noise made by these turbines will impact town residents to a degree that will be unprecedented in the state, and in fact, in New England.

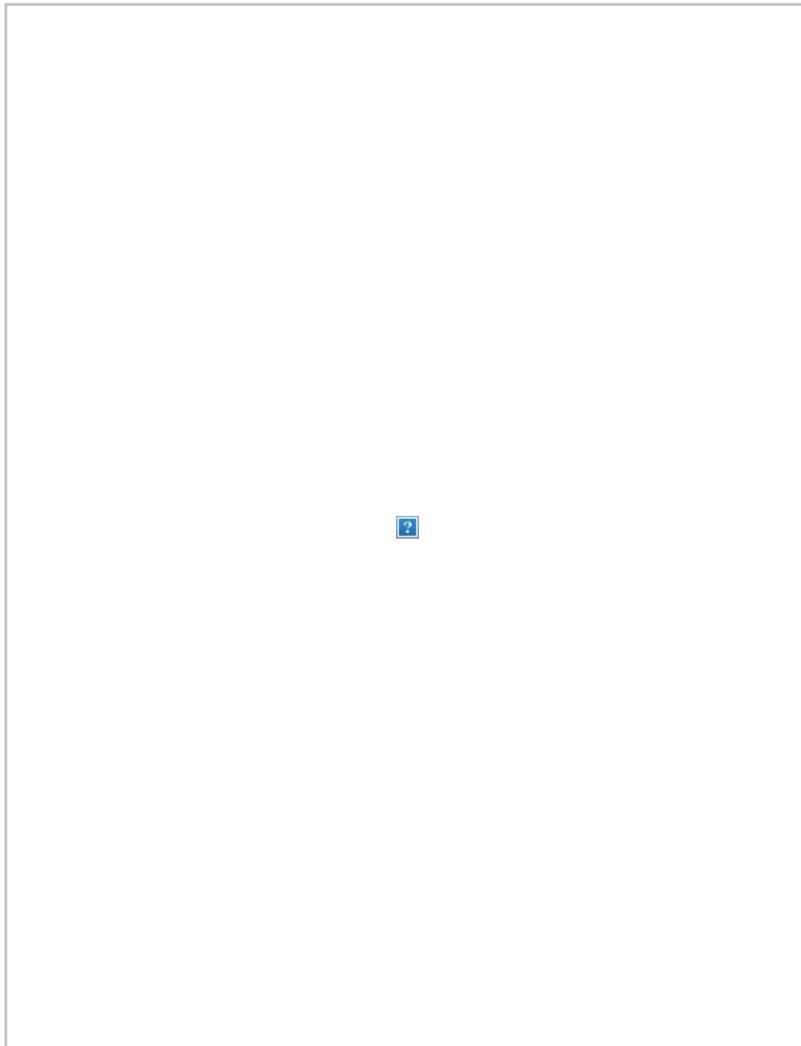
Second - Windham is a VERY rural community. It is virtually entirely residential and as such has an extremely low level of ambient noise. We are used to an occasional brief and distant chain saw or snowmobile, but otherwise it is a very quiet spot. We enjoy sitting on our deck on a summer night and looking at the Milky Way with nothing being heard but an occasional coyote call. We don't hear traffic noise! The largest "industry" in the town is Meadowsend Timberlands - the very folks who are leasing their land (that was supposed to be in forest management) to Iberdrola for this Industrial Scale Wind Project. Of course, while they are the landowners who will benefit financially, no one from Meadowsend Timberlands is a town resident and therefore has to deal with the impact of the project on those who live close to it.

Third - A point which has only been briefly alluded to in other letters, but will be a major concern in Windham, is the proximity of not just ONE Turbine, but multiple turbines. For example, we are enclosing a map which shows the location of all homes in Windham (blue dots) and the location of the proposed wind turbines (gold stars). There are black lines indicating distances from .5 miles to 2.5 miles from at least one turbine. However, we have added something else. You will see a red dot at the location of our home. This is surrounded by circles of 1 mile (yellow), 1.5 miles (red) and 2 miles (blue). This allows us to see not just how far we are from ONE turbine, but how many turbines will be impacting us within these distances.

It turns out that we have 6 turbines within one mile of our home. We have an additional 4 in the area to 1.5 miles and an additional 11 in the area out to 2 miles. This is a TOTAL of 21 wind turbines within 2 miles of our house. Similar maps (not included here for brevity, but available if you wish) show that there would be 19 turbines within 2 miles of the Windham Elementary School and 19 within 2 miles of the Windham Community Church at the center of town. Looking at the map and mentally moving that set of circles will show even the most casual observer that most of the homes along the main road and roads closer to the turbines will have many turbines within those circles. So residents of Windham will be dealing with noise, not from a single turbine, but from many turbines at the same time.

A basic knowledge of physics suggests that sound waves from different sources meet and combine to increase or decrease in amplitude in ways that a single sound source would not produce. As several other writers noted, the topography of the land can also have a significant effect on how the sound travels. Windham, the highest town center in Vermont, lies in a trough

between two ridge lines. It is all but certain that the sound produced by these wind turbines will bounce around in unexpected ways. We are not excited about being at the center of full scale industrial TEST PROJECT.



So much for thoughts specific to Windham.

Regarding other points which have been mostly made well by other writers, let us add our voices.

1. The folks to whom you should be listening to most carefully are those who have actually lived with this noise. They know better than any of us what they have experienced. Testimony by companies associated with the Wind Industry should really not even be part of this discussion. They have a vested interest in the unhindered production of capital! The quality of life for Vermonters who live near the turbines is not a particularly important issue to them as is clearly demonstrated in these letters by the people who have appealed to both the developers and to you for relief and have found nothing but a regulatory nightmare. It is appalling to think that someone in the United States, much less in the independent state of Vermont should have to leave their home after being promised that the turbines would not have any impact on them.
2. The following chart was referenced by a couple of the writers and struck me as especially important to your present task. We found a copy that seemed to be slightly clearer, so we include it here. It clearly suggests that the noise level limits currently in place are inadequate for a QUIET, RURAL COMMUNITY. Please study this chart carefully and think about what it may mean to you if you fail to implement noise standards that are reasonable for the people LIVING in the community, not for the wind developer. Remember - PUBLIC SERVICE!

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3. Many writers mentioned, but we will reiterate, that the present noise standards are so weak and unenforceable as to be laughable except that this is no laughing matter. Can you imagine how anyone could pretend to write a noise standard, but then let the people who have to meet it choose when and where to do the measurements?? It reminds us of the scene in Guys and Dolls when Big Jule from Chicago brings out his own dice to roll. When questioned about the fact they have no spots, he assures them not to worry, he remembers where they were. Iberdrola - Big Jule??

4. Another problem with the present noise standards is allowing them to be AVERAGED over an hour. Aside from the technical difficulties of doing this without other noises impinging and thereby invalidating the measurement (an excuse which has apparently been used more than once), is the pretty obvious fact that as a statistical tool, averages are pretty useless. If you have a room filled with 10 people who are 7 feet tall, and another 10 people who are 4 feet tall, the average height of those 20 people is 5.5 feet tall. But that's a very poor description of any of the people or of what the room full of 20 people look like. Clearly, noise standards must be based on MAXIMUM levels, not averaged. If you wanted to fudge, you could do something like "a maximum noise level of greater than 35 decibels may not be exceeded more than once in a 12 hour period and then, not for a period of longer than 5 minutes." Maximums are much more easily measured and make a far clearer standard.

5. Noise standards should be at the property lines, not inside or outside the home! We should have the right to enjoy our entire piece of property. Tales of wind turbine neighbors being told to close their windows, turn on a fan to cover the noise or pull the blinds should be an embarrassment, yet they are all too common. Measurement sites should be determined jointly by the home owner, the town, and perhaps an independent third party - perhaps a state agency. The wind turbine company should have no involvement other than the right to make a request in that choice. Its job is to comply with the regulations - period!

6. INFRASOUND must be included in the measurements! The larger the windmills, the lower the frequencies of sounds emitted, and the proposed turbines for Windham are among the largest proposed in New England. These 500 - 600 foot towers would be anchored in the bedrock of the mountain ridge lines. Everyone knows that sound travels more easily and faster through solids, than through a gas (air). The homes in Windham also have basements which are anchored in that bedrock. The speed of sound in granite (which composes much of our bedrock) is 19,635 feet per second. As shown in the first diagram, our house has 21 turbines in different directions all less than 11,000 feet (2 miles) away from us. So the vibrations will be reaching our basement, blasted into the bedrock at varying times within about half a second or less, some adding amplitudes, and others subtracting amplitudes. That doesn't sound promising!!

7. Permitted noise levels should not be more than 10 decibels above the ambient noise level as measured AT THE

PROPERTY LINES. Decibels are a logarithmic scale. An increase of 10 decibels is not just some set linear amount, it means that the noise has 10 times the intensity or power level. So a noise of 30 decibels is TEN TIMES as powerful as a noise of 20 decibels. A noise of 40 decibels is ONE HUNDRED TIMES as powerful and 50 decibels is ONE THOUSAND TIMES as powerful. This is very important to understand!

8. There must be prompt and adequate enforcement mechanisms when violations are found to occur. The fact that violations now occur and nothing happens makes the present standards even more of a joke.

Thank you for taking the time (we hope) to read and consider this letter. Please - be our PUBLIC SERVICE Board!!

Respectfully submitted

Christopher Fisher
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