

# SENATE HEALTH CARE COMMITTEE TESTIMONY ( WIND TURBINES AND HEALTH )

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Good morning. My name is Sandy Reider ..... since graduation from Harvard Medical School in 1971 and completion of a medical internship at the Medical Center in Burlington, I have practiced medicine here in Vermont in various capacities, and since 1994 in a primary care setting in Lyndonville.

I do appreciate the opportunity to speak about some of my clinical observations regarding the health impacts of living too close to large wind turbines. I have already spoken about this issue before the Senate Natural Resources Committee and the Governor's Siting Commission. Your willingness today to hold this hearing in the busy final days of your legislative session gives me some hope that these adverse effects, which have been largely dismissed thus far by our health department, might finally receive some of the attention they deserve.

In my small private practice I have seen a half dozen or so patients who are suffering from living in proximity to these turbines. For the sake of brevity, I'd like to describe just the patient I saw in my office who first alerted me to this problem, and whom I had known well for several years. He was a healthy, 33 year old man living about 1800 feet from an NPS 100Kw turbine sitting atop a tower 162 feet in height on the top of Burke Mountain. Within a few weeks of its start up in the fall of 2011, he began to experience increasingly severe insomnia, waking multiple times at night with severe anxiety and heart palpitations, and experiencing during the daytime pressure headaches, nausea, ringing in his ears, and difficulty concentrating ... all this in a person who regularly had enjoyed 8-9 hours of uninterrupted restful sleep his entire life and was otherwise quite healthy. The diagnosis eluded us both for 6-8 weeks, until finally he and his wife returned from a 2 week vacation during which all his symptoms disappeared, but slowly reappeared within 3-4 days of his return to their home in Burke. Being a very bright guy, he discovered through his own research that the very same symptoms had been reported by thousands of others living close to industrial sized wind turbines. This phenomenon of resolution of all his symptoms when spending his nights away from home was confirmed over the ensuing 9 months dozens of times, and he became able to predict the severity of his

symptoms depending on wind direction, wind speed, and relative humidity. His wife experienced some headaches but not nearly the degree of sleeplessness that he did. He was fortunate that he could afford to abandon his home and now, to his relief, enjoys excellent health far from any industrial wind turbine.

There several points worth mentioning in this illustrative case:

First, he had paid little or no attention to the turbine while it was being installed and after it began generating electricity (indeed, the turbine was barely visible from his home and not at all obtrusive in his viewscape). His attitude toward renewable energy was not negative in the least. Naturally, when it became clear to him (and myself) that the turbine was related to his distress, his attitude changed considerably, even approaching a feeling of dread when the wind was up and coming out of the west or northwest.

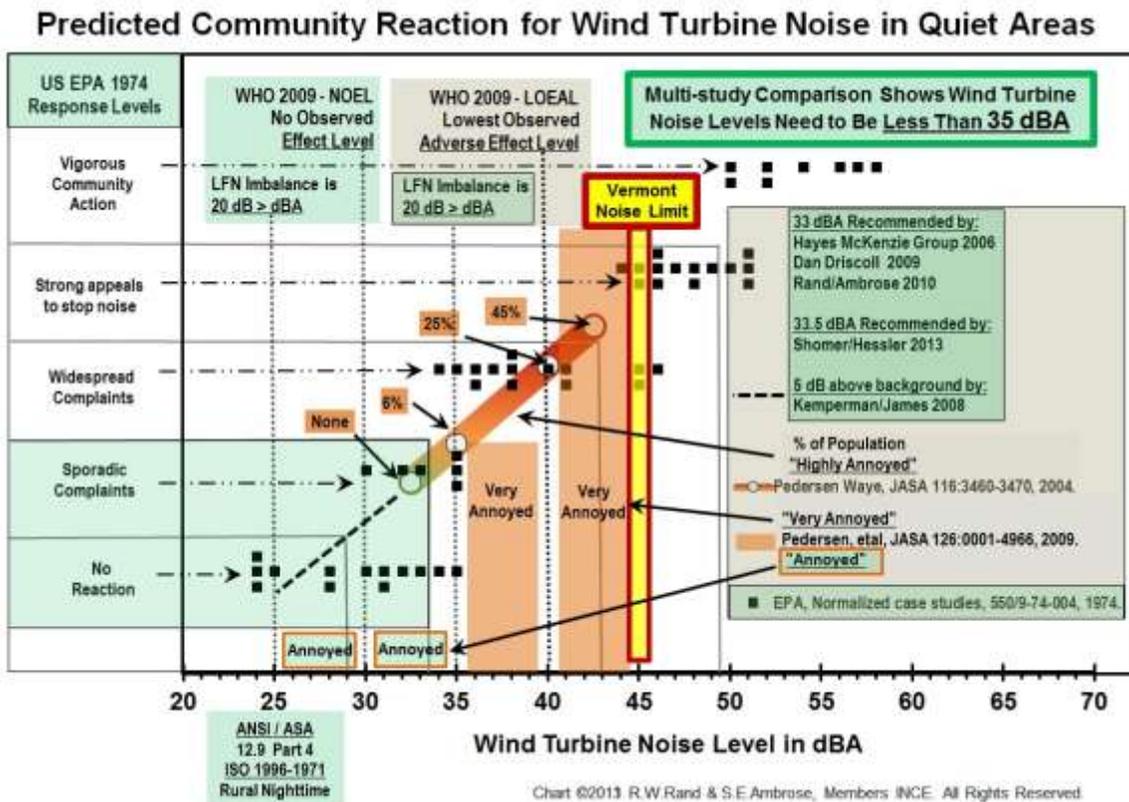
Second, at no time did he actually hear any noise or sound. Where he lived the turbine was inaudible. As subsequent patients have described it, the sound is often felt more than heard, a phenomenon typical of low and very low frequency sound pressure waves, perhaps somewhat akin to what big bass speakers in the trunk of a teenager's car may sound, or feel, like as they drive past your house.

Third, the 100Kw NPS turbine on its 162 foot tower in this case is quite small in comparison to the 450 foot towers in Sheffield and Lowell, and certainly in comparison to the 500 foot 3 MW turbines proposed for the Seneca Mountain Project in Newark, Brighton, and Ferdinand. The sleeplessness and other adverse effects related to this relatively small NPS turbine are similar to those described by people living in proximity to larger turbines

I have reviewed much of the current literature, and while I am not an expert in the science of acoustics, I have become quite familiar with the controversies surrounding the alleged health impacts related to these large wind turbines. There is an old adage among physicians that patients are our best teachers, and that certainly applies here. I have to tell you that from my clinical perspective, no amount of hype or spin will convince me that the adverse effects of persons living too close to a large wind turbine are simply psychosomatic, though the stress resulting from the realization that the turbines are creating sleeplessness, etc. certainly adds an additional layer of dis-ease, which even by itself is recognized to cause physical disease via the autonomic nervous system and its cascading effects through the endocrine and immune systems.

That the wind industry refuses to acknowledge that low and very low frequency sound warrants attention is, of course, understandable given the logistical, economic, and even political fallout such acknowledgement would likely create. ... this in the face of the fact that the science around the acoustic effects of these turbines is incomplete and, as time goes on, gives more weight to the need to assess

low frequency sound in addition to safer protective thresholds for audible sound. The adage “absence of evidence does not mean evidence of absence” comes to mind. It is generally accepted that the larger the turbine the greater the production of audible as well as low frequency pressure waves, and that low frequency sound travels farther than audible frequencies. Engineers need to take this into account when establishing protective setbacks. It is also recognized that groups of turbines can generate mutually reinforcing pressure sound waves that can exceed those generated by a single turbine ..... factor in variations in topography and atmospheric conditions and the safe siting of these large projects becomes difficult indeed. It is worth noting here that the current Public Service Board threshold of 45 dBA of audible sound has never been proven safe or protective, and that most studies agree that audible sound should not exceed 35 dBA, or 5dBA above normal background sound levels. (this is especially important in rural areas where background noise is minimal). Above 35 dBA there are likely to be significantly more complaints, particularly difficulty sleeping.



I have spoken to the VT DOH on several occasions to try to encourage their more active involvement in what, in the opinion of myself and others, already is a public health problem, and for sensitive individuals a lot more than just an “annoyance”. And these problems will only become more common with the proliferation of large scale ridgeline wind projects in our state. The response from the health dept. has always been that the evidence to date the from available peer reviewed literature does not support direct physical effects from turbines, rather individuals are told “it

is all in your head” ... this position is perhaps advantageous for the pharmaceutical industry and mental health professionals, as well as for the wind industry, but certainly not for affected individuals. The fact that the reported symptoms, known somewhat euphemistically as Wind Turbine Syndrome, have been so consistent over time and across continents argues against a simplistic psychosomatic explanation.

As an example, are we supposed to take at face value the oft-cited statistic that 70% of Vermonters favor industrial ridgeline wind development? If that's true, then there should be no concern whatsoever that most towns might oppose these projects, but the opposite seems to be the case. Statistics cannot be the sole guide to the truth, no surprise there... during my 40 odd year career in medicine I have witnessed more than my share of misleading “studies” published by the pharmaceutical industry.

Even assuming, for the sake of argument, that the sleeplessness and other symptoms are all annoyance or stress related (this is the position taken by the health department), could this not also be viewed as a valid public health concern which should prompt their involvement? Whether one is ill due to direct vestibular / acoustic effects or prolonged stress really is an academic distinction for the person who is affected, and I'm particularly concerned about effects on children whose nervous systems are uniquely vulnerable and already under considerable stress (note the epidemic of autism spectrum disorders, now seen in 1 out of 50 births nationwide). It seems to me the VT DOH is standing on thin ice by downplaying or ignoring these adverse effects, and I encourage this committee to recommend that the health dept. adopt a more proactive, precautionary role in determining safer guidelines for setbacks in the siting of these turbines. A very minimal first step in this direction would be to reduce the allowable threshold for audible noise from 45 dBA to less than 35 dBA in order to minimize sleep disruption, and to take seriously the reports of those unfortunate Vermonters who have already been affected.