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January 27, 2007

Dear JT,

Thank you for your interest in noise levels and the 4 charts you forwarded to me (copied at the end of this letter). I've summarized below what they say about noise in the 20-60 dB range:

20 dB	1) Rustle of leaves, Whispering 3) Whisper at 1 meter 4) Leaves rustling
30 dB	1) Country dwelling (indoors) 2) Soft whisper
40 dB	1) City dwelling (indoors) 4) Crickets at 5 meters
50 dB	1) Quiet auto at low speed 2) Rainfall, Electric toothbrush (50-60)
60 dB	1) Ordinary conversation at 3 feet, Office interior 2) Normal conversation, Washing machine (50-75), dishwasher (55-70) 3) Normal conversation at 1 meter 4) Conversational speech at 5 meters

In other words, contrary to the seriously flawed noise studies Mr. Hessler has done for UPC Wind, 20-30 dB is what you would expect the sound to be at night in the country, perhaps with a soft ambient "white noise" in the background. During the day there would be some additional noise from animals, birds, or human activity.

In the city the ambient noise level rises to about 40 dB due to street noises and ongoing human activity, also getting louder with more activity in the daytime.

By the time you get to 50 dB the noise has risen to what you hear while driving a car, running an electric toothbrush, or listening to the rain.

Up in the 60 dB area it's as loud has people having a conversation in the same room, being in an office with several people, or running a washing machine or dishwasher.

OK, most of this is fine during the day. The problem with wind turbines is that they're more active at night; they run for stretches at a time; their noise rises and falls with wind speed; they're high above any groundcover; the noise they produce is pulsatile or softly thumping in nature; and you can't stop it. So let's imagine someone sitting quietly in your bedroom at night near the window and all they're doing is whispering softly. What they say – ever so quietly at 35-40 dB – is "whup,

whup, whup, whup…" about 51 times a minute (the pulse of wind turbine sound synchronizes with the time each blade passes the tower = 3 blades times 17 rotations a minute = 51). Sometimes the "whups" drop to 30 dB when the wind has tapered down at nacelle height (262 feet), and sometimes they surge to 40 dB when the wind is up, but the relentless "whupping" goes on for hours at a time, then stops, then starts again just like Chinese water torture.

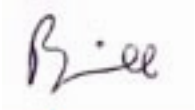
But suppose you're one of those who waived the setback for your house and the turbine noise goes up to 50 dB. Now it's more like having your bedroom visitor go from just whispering to speaking "whup, whup, whup…" out loud.

Now, let your intelligent imagination carry you even further. Suppose the noise of Clipper 2.5 MW Liberty turbines carries much farther and turns out to be significantly louder at property lines and dwellings than Mr. Hessler's report has suggested. Recognize that even Mr. Hessler has admitted that these turbines are so new that they've actually never been tested in the field, so we don't really know how much noise they generate. But let's assume, as he has, that they're going to put out 103-106 Db each. Then let's compare that with something we're more familiar with. In Figure 3.9.1 in the very same report Mr. Hessler indicates that noise in the 85-92 dB range generated by heavy construction equipment on the ground carries 3400-5500 feet before it drops down to 40 dB. At 1000 feet it's still in the 56-63 dB range. In other words, it takes nearly a mile to drop 50 dB, from 90 to 40 dB. Distances like this are consistent with my experience with farm equipment noise on Lent Hill. But we are supposed to believe that the sound of wind turbines – each generating, high above the masking effects of ground cover, about 15-20 dB more noise than any piece of construction equipment – is going to drop all the way down to 50 dB, a total of 55 dB, within 1500 feet. Mr. Hessler has even gone so far as to predict on his graphic charts that turbine noise will drop to 50 dB within 500 feet! It looks like UPC has found their expert.

OK, so we're probably really dealing with intermittent turbine "whupping" up to 60 dB or more on some nights. Tough to document with the Town Noise Officer who would have to set up his equipment in your bedroom and take a lot of measurements over a period of time to try to figure out if the numbers he got broke any of the intricate rules set up in Local Law #2. But you know what you're hearing, and it's like having one or more washing machines running just outside your bedroom window on and off through the night, a "whup, whup, whup…" that rises and falls with some "whooshing" here and there. Some nights are blissfully quiet, and then there are the others… night after night, year in, year out. Wonderful!

This is the time for our Town Boards to be taking the "hard look" at UPC's project that New York State's SEQR process requires, for all of our protection. At a minimum, the background noise studies done by Mr. Hessler are so inadequate and his analysis is so filled with internal inconsistencies that his reports should be put aside entirely and redone by an expert hired by the Town. Thank you for your input.

Sincerely yours,



References:

Bolton Noise Evaluations (See Turbine Noise on www.cohoctonfree.com/updates)
Hessler REPORT NO. 1755-051206-A, 10/17/06 (Appendix K1 on www.dutchhillwind.com)
Hessler REPORT NO. 1755-010606-D, 11/15/06 (Directory I2 on www.cohoctonwind.com)

1)

Sound level comparison: Here are the real-world equivalents of various decibel levels.

Note: The following chart is based on a Wisconsin State Journal article which included noise level analysis prepared as part of an environmental impact statement for the new runway at the Dane County Regional Airport.

Decibel Level	Sound Level	Real-World Equivalents
0	VERY FAINT	Threshold of Hearing
10		
20		Rustle of leaves, Whispering
30	FAINT	Country dwelling (indoors)
40		City dwelling (indoors)
50	MODERATE	Quiet auto at low speed
60		Ordinary conversation at 3 feet, Office interior
70	LOUD	Department store interior
80		Busy street
90	VERY LOUD	Motorcyle at 25 feet, Stereo music
100		DC-10 at 300 feet on approach, Industrial noise
110	DEAFENING	Rock band
120		Turbo-fan aircraft takeoff at 200 feet, Pneumatic drill
130		Military jet takeoff at 50 feet
140		Threshold of pain

http://www.renewwisconsin.org/windfarm/decibel.html

2)

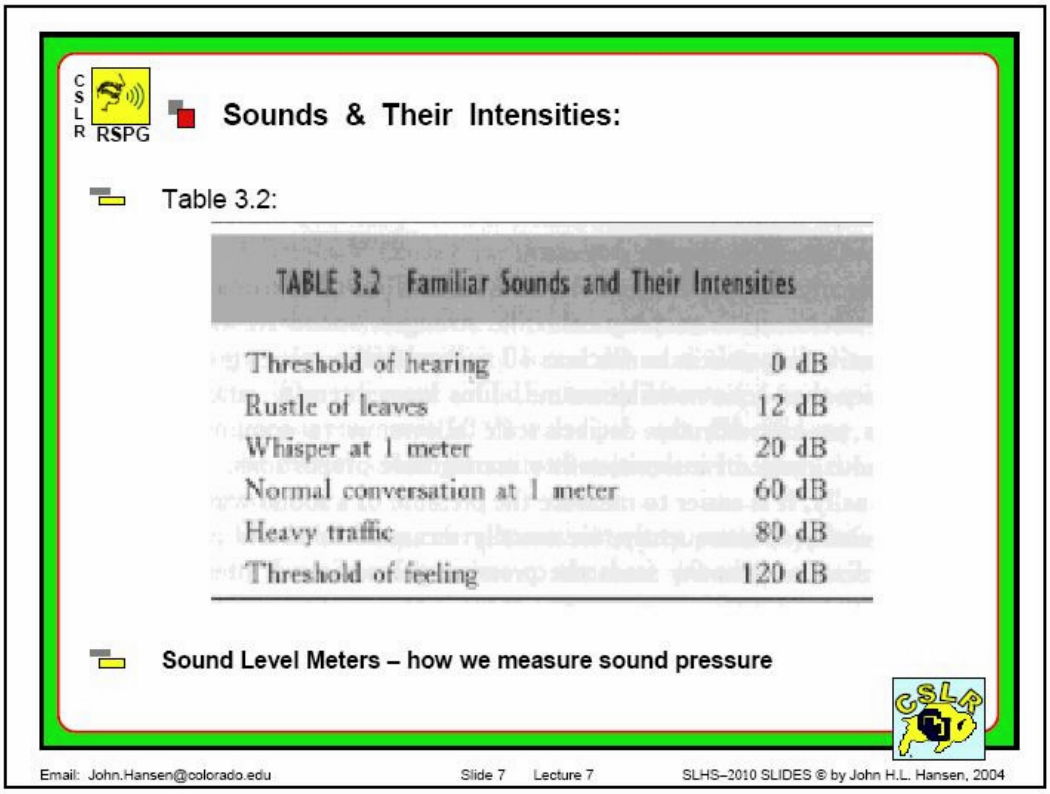
Decibel equivalents

30: soft whisper50: rainfall50-60: electric toothbrush50-75: washing machine55-70: dishwasher60: normal conversation60-85: vacuum cleaner60-95: hair dryer65-80: alarm clock70: TV audio80-90: blender90-115: subway95: electric drill110: shouting in ear110: symphony110: car horn120: ambulance siren130: jackhammer

- from the League of Hard of Hearing

http://radio.ksl.com/index.php?nid=104&sid=243639

3)



http://cslr.colorado.edu/classes/SLHS2010/PPlectures_04/Lecture7-04-2perPg.pdf

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