

A Lay Persons Critique of the recent CanWEA/AWEA Health Report

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There is no evidence that the audible or sub-audible sounds emitted by wind turbines have any direct adverse physiological effects.

There are many victims in Ontario demonstrating evidence.

The ground-borne vibrations from wind turbines are too weak to be detected by, or to affect, humans.

From what distances?

The sounds emitted by wind turbines are not unique. There is no reason to believe, based on the levels and frequencies of the sounds and the panel's experience with sound exposures in occupational settings, that the sounds from wind turbines could plausibly have direct adverse health consequences.

The sounds are very unique if you live in rural areas.

1-1

The mission of the American Wind Energy Association (AWEA) is to promote the growth of wind power through advocacy, communication, and education. Similarly, the mission of the Canadian Wind Energy Association (CanWEA) is to promote the responsible and sustainable growth of wind power in Canada.

Exactly – promoting the growth of windpower – what conclusions would you expect from such a self-proclaimed mandate.

Both organizations wish to take a proactive role in ensuring that wind energy projects are good neighbors to the communities that have embraced wind energy.

North Gower and other communities have not embraced windpower.

1-2

A-weighted sound pressure level (dBA) The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.

The definition of dBC is missing under 'definitions.' This seems to be a deliberate omission.

1-3

The panel conducted a search of Pub Med under the heading "Wind Turbines and Health Effects" to research and address peer-reviewed literature.

This does not seem to be scientific-based research by Googling 'Pub Med.'

In addition, the panel conducted a search on "vibroacoustic disease." The reference section identifies the peer and non-peer reviewed sources that were consulted by the panel.

So the wind industry can include non-peer reviewed sources in a scientific report, but the organizations for the ethical placement of wind turbines are ridiculed if they cite anything other than peer-reviewed sources.

3-5

The origin of this amplitude modulation is not fully understood. It was previously assumed that the modulation was caused when the blade went past the tower (given the tower disturbed the airflow), but it is now thought to be related to the difference in wind speed between the top and bottom of the rotation of a blade and directivity of the aerodynamic noise (Oerlemans and Schepers, 2009).

Amplitude Modulation is a very important contributing factor for the annoyance cause by WT. This scientific report admits they do not understand the cause of AM.

Wind may also cause the sound level to be greater downwind of the turbine—that is, if the wind is blowing from the source towards a receiver—or lower, if the wind is blowing from the receiver to the source.

Another telling sign of what the industry thinks about people.

3-7; 3-16; 3-17; 4-2; 4-3; 4-9; 4-10;

Levanthall self-cited 10 times in document.

3-7

Low frequency sounds may be irritating to some people and, in fact, some low frequency sound complaints prove impossible to resolve (Leventhall et al., 2003).

Self-admitting and true.

3-8

However, there is no evidence for direct physiological effects from either infrasound or low frequency sound at the levels generated from wind turbines, indoors or outside.

The study DID NOT interview actual victims or their doctors.

3-11

At high levels of exposure to low frequency sound, nausea and changes in respiration and blood pressure may occur. Studies have shown, however, that for these effects to occur, considerably high noise levels (greater than 140 dB, similar in sound level of a jet aircraft heard 80 feet away) are necessary (Berglund et al., 1996).

The study did not account for amplitude modulation that would exacerbate the effects of low frequency sound?

3-13

Noise from airports, road traffic, and other sources (including wind turbines) may annoy some people, and, as described in Section 4.1, the louder the noise, the more people may become annoyed.

Agreed, but how many people (%) and how far away from the noise source?

3-13

The U.S. Environmental Protection Agency (EPA) document titled Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (1974) recommends that indoor day-night-level (DNL) not exceed 45 dBA. DNL is a 24-hour average that gives 10 dB extra weight to sounds occurring between 10p.m. and 7 a.m., on the assumption that during these sleep hours, levels above 35 dBA indoors may be disruptive.

This reference to EPA is misleading and outdated. The WHO and ISO have recommended rural sound pressure levels at night of 30 and 25 dBA respectively. To even mention a 24-hr average is ludicrous. The report is saying that the sound pressure levels can be 100 dBA or greater for 10 hrs/day but as long as the remaining 14 hours bring the average down to 45 dBA all is good and fair.

3-14

“Epidemiological evidence on noise exposure, blood pressure, and ischemic heart disease is still limited.” (Babisch, 2004), and “contradictory” (Babisch, 1998),

Yes, I agree – that is why these studies are required.

but “there is some evidence...of an increased risk in subjects who live in noisy areas with outdoor noise levels of greater than 65 - 70 dBA.” (Babisch, 2000)

Based on a 24-hr average of 45 dBA you may get sound pressure levels of this intensity and greater.

3-14

There is no scientific evidence to suggest that modern wind turbines cause perceptible vibration in homes or that there is an associated health risk.

Scientific evidence begins with interviewing actual victims and their doctors and initiating an epidemiological study.

3-15

To date, three studies in Europe have specifically evaluated potential health effects of people living in proximity to wind turbines (Pedersen and Persson Waye, 2004; Pedersen and Persson Waye, 2007; Pedersen et al., 2009).

Why were these three studies selected? Are they peer-reviewed? What are the size of the turbines? How far are the setbacks? Are these community owned? Are they family related? How many gag orders are in place? Etc.

These studies have been primarily in Sweden and the Netherlands. Customarily, an eligible group of people are selected for possible participation in the study based on their location with respect to a wind turbine. Control groups have not been included in any of these reports.

What does an eligible group refer to? It seems that the authors of this report are fine with including evidence from non-control groups but Nina Pierpont and others are chastised for doing the same.

Subjective responses were obtained through a survey. The calculation of the sound levels (dose) in Sweden and the Netherlands were similar. A dose response relationship was observed between calculated A-weighted sound pressure levels and annoyance.

What survey protocols were followed?

Sounds from wind turbines were found to be more annoying than several other environmental sources at comparable sound levels.

Exactly.

The study results suggest that wind turbine sound is easily perceived and, compared with sound from other sources, is annoying to a small percentage of people (5 percent at 35 to 40 dBA).

Depends on the power of the turbines and the relationship between the wind company and the resident. Note 35 dBA – the percentage would go up if it was 40 dBA or above. Ontario is currently recommending 40 dBA.

3-16

About 5 percent of respondents were annoyed at noise levels between 35 to 40 dBA and 18 percent at 40 to 45 dBA.

Is this not significant – 23%??

Approximately 10 percent of over 1000 people surveyed via a questionnaire reported being very annoyed at sound levels of 40 dB and greater.

Precisely!

Among those who could hear wind turbine sound, annoyance with wind turbine noise was highly correlated to the sound characteristics: swishing, whistling, resounding and pulsating/throbbing (Pedersen, 2008).

Hello!

A similar study in Sweden evaluated 754 people living near one of seven sites where wind turbine power was greater than 500 kilowatt (kW) (Pedersen and Persson Waye, 2007).

I'm sorry but what does greater than 500 kW mean? How about 2 -2.5 MW??

Although some people may be affected by annoyance, there is no scientific evidence that noise at levels created by wind turbines could cause health problems (Pedersen and Höskolan, 2003).

And this is called a scientific report. My goodness, what do they think annoyance leads to – yes, sleep deprivation – and then – guess what – health problems. I think a grade 9 science student could figure this one out!

In extreme cases, sleep disturbance may occur. Wind speed at the hub height of a wind turbine at night may be up to twice as high as during the day and may lead to annoyance from the amplitude modulated sound of the wind turbine (van den Berg, 2003).

Ok, this is getting really dumb. First what sort of study states, “In extreme cases...” Define what this means. They did not perform a sleep deprivation study as has been done by Christopher Hanning.

3-17

In a Swedish study, 84 out of 1,095 people living in the vicinity of a wind turbine in 12 geographical areas reported being fairly or very annoyed by wind turbines (Pedersen, 2008).

OK – 8%.

An earlier study in Sweden showed that the proportion of people “annoyed” by wind turbine sound is higher than for other sources of environmental noise at the same decibel level (Pedersen and Persson Waye, 2004).

OK.

No scientific studies have specifically evaluated health effects from exposure to low frequency sound from wind turbines.

We are asking for one.

The U.S. Food and Drug Administration (FDA) has approved the use of infrasound for therapeutic massage at 70 dB in the 8 to 14 Hz range (National Toxicology Program, 2001). In light of the FDA approval for this type of therapeutic use of infrasound, it is reasonable to conclude that exposure to infrasound in the 70 dB range is safe.

What a very unscientific conclusion. What are the effects of therapeutic use of infrasound for 24/7/365?

4-1

There is a consensus among acoustic experts that the infrasound from wind turbines is of no consequence to health.

I thought that no such study existed to determine this conclusion yet? Since when did acoustic experts turn into medical experts?

...low frequency sound can be produced by wind turbines under conditions of unusually turbulent wind conditions, but the actual sound level depends on the distance of the listener from the turbine, as the sound attenuates (falls off) with distance.

What is the safe distance then?

The low frequency sound emitted by spinning wind turbines could possibly be annoying to some when winds are unusually turbulent, but there is no evidence that this level of sound could be harmful to health.

Evidence? They haven't contacted victims or conducted an epidemiological study to reach this conclusion.

4-2

This fluctuating aerodynamic sound is the cause of most sound complaints regarding wind turbines, as it is harder to become accustomed to fluctuating sound than to sound that does not fluctuate.

Yes it is.

Annoyance is a broad topic on which volumes have been written. Annoyance can be caused by constant amplitude and amplitude modulated sounds containing rumble (Bradley, 1994).

Yes, and annoyance can lead to sleep deprivation.

4-3

There is no evidence of harmful effects from the low levels of sound from wind turbines, as experienced by people in their homes. Studies have shown that peoples' attitudes toward wind turbines may affect the level of annoyance that they report (Pedersen et al., 2009).

This has not been proven – an epidemiological study will determine this issue.

Protracted annoyance, however, may undermine coping and progress to stress related effects.

Which leads to adverse health effects.

The main health effect of noise stress is disturbed sleep, which may lead to other consequences.

Halleluiah!

There is no evidence that sound at the levels from wind turbines as heard in residences will cause direct physiological effects.

No evidence. The victims are the evidence and they were not interviewed. Is sleep deprivation then an indirect physiological effect?

4-4

In this way, anti-wind farm activists may be creating with their publicity some of the problems that they describe.

Insulting to the victims. Who is the psychiatrist on this panel?

There are seven somatoform disorders in the Fourth Edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association, 2000).

Mentioning mental disorders as a reason for victims leaving their homes??

4-5

An annoyance factor to wind turbine sounds undoubtedly exists, to which there is a great deal of individual variability. Stress has multiple causes and is additive.

Annoyance again which can lead to sleep deprivation which can lead to.....

Associated stress from annoyance, exacerbated by the rhetoric, fears, and negative publicity generated by the wind turbine controversy, may contribute to the reported symptoms described by some people living near rural wind turbines.

Is this a scientific discovery or simply the panels opinion?

Some reports have suggested a link between low frequency sound from wind turbines and certain adverse health effects. A careful review of these reports, however, leads a critical reviewer to question the validity of the claims for a number of reasons, most notably (1) the level of sound exposure associated with the putative health effects, (2) the lack of diagnostic specificity associated with the health effects reported, and (3) the lack of a control group in the analysis.

The studies quoted by the panel in this reviewed used non-controlled groups. Using non-controlled groups is the first step in furthering the research and is the normal first step in any scientific or medical investigation.

4-10

The symptoms are common in cases of extreme and persistent annoyance, leading to stress responses in the affected individual and may also result from severe tinnitus, when there is no external sound. The symptoms are exhibited by a small proportion of sensitive persons and may be alleviated by a course of psychotherapy, aimed at desensitization from the sound (Leventhall et al., 2008).

I didn't know that Leventhall was an expert in anything other than acoustics.

The collective symptoms in some people exposed to wind turbines are more likely associated with annoyance to low sound levels.

Correct.

4-12

...without control subjects. For these reasons, case reports and case series cannot prove that an exposure is really harmful, but can only help to develop hypotheses that can then be tested in controlled studies (Levine et al., 1994; Genovese, 2004; McLaughlin, 2003).

Yes, that is what an epidemiological study will provide.

Multiple case-control studies were necessary before the link between smoking and lung cancer could be proved.

Exactly, how long do we have to wait. In the tobacco issue, hundreds of thousands of lives could have been saved if we started the studies sooner based on the results of anecdotal and non-control group studies.

These reports can do no more than suggest hypotheses for further research. Nevertheless, if additional and independent investigators begin to report adverse health effects in people exposed to wind turbine noise, in excess of those found in unexposed groups, and if some consistent syndrome or set of symptoms emerges, this advice could change.

We are asking for more research. How about studies by Michael Nissenbaum of Maine, Amanda Harry, WCO survey, Japan, Australia, Queens University?? When will enough be enough to form the basis for an independent epidemiological study?

4-13

While the primary purpose of this study was to evaluate the potential for adverse health effects rather than develop public policy, the panel does not find that setbacks of 1 mile are warranted.

This is a very revealing statement. The mention of one mile has not been based on any evidence presented in this document. CanWEA and AWEA just could not help themselves and felt compelled to add this statement. A very ill-conceived move on their part.

4-14

It is important to bear in mind that the WHO guideline values, like other WHO guidelines, are offered to policymakers as a contribution to policy development. They are not intended as standards in a formal sense but as a possible basis for the development of standards.

This also is very revealing, neither the 30 dBA or 25 dBA sound pressure levels are referenced in this section of the report – why?

5-2

In the area of wind turbine health effects, no case-control or cohort studies have been conducted as of this date.

We are asking for them to be done. Studies exist from all parts of the world.

Accordingly, allegations of adverse health effects from wind turbines are as yet unproven.

The victims have not been interviewed.

Panel members agree that the number and uncontrolled nature of existing case reports of adverse health effects alleged to be associated with wind turbines are insufficient to advocate for funding further studies.

Convenient and predictable conclusion. Many uncontrolled studies exist, the panel simply refused to review them.