Wind Wise Massachusetts is a statewide alliance of grass roots organizations and individuals who are concerned about the negative health, environmental and economic impacts of poorly-sited wind turbines.

Wind Turbine Syndrome and Vibroacoustic Disease

Industrial Wind Turbines Pose Public Health and Safety Concerns

By Thomas A. Jones, BSME, MSME

Industrial wind turbine development is being strongly supported by private interests due largely to government subsidies and artificial financial incentives, making wind turbine development possible, whereas otherwise it would fail on financial grounds alone. Neither the Commonwealth of Massachusetts nor the Federal Government has performed a comprehensive assessment of the public health and safety concerns associated with the design and operation of industrial wind turbines. Yet both continue to support wind turbine development through tax subsidies and other monetary incentives. There are currently no government regulations affecting placement of industrial wind turbines (setback) in Massachusetts. However, many concerns have been expressed by medical doctors around the world regarding the harmful effects to humans of operating industrial wind turbines.

Recently published peer reviewed comprehensive information prepared by medical doctors, pathologists and engineers strongly warn of major physiological consequences of living too close to industrial wind turbines. These have been classified into two categories according to two different phenomena associated with wind turbine noise. One is Wind Turbine Syndrome (WTS), Reference (1), which produces several symptoms related to the vestibular system's (balance) organs: disturbed sleep, headaches, tinnitus (ear ringing), and sense of quivering or vibration, nervousness, rapid heartbeat, nausea, difficulty with concentration, memory loss, irritability and anger. The other is Vibroacoustic Disease (VAD), Reference (2), which causes direct tissue or organ damage. WTS symptoms discontinue when the person moves away from the source; however, VAD symptoms continue long after the source of infrasound is turned off. Both WTS and VAD can be very harmful and debilitating and possibly deadly.

(https://windwisema.files.wordpress.com/2011/10/noise_diagram.jpg)
Components of noise, from low frequency to ultrasound

Wind turbine noise is comprised of two different frequency sets. The so-called whooshing noise (which is audible) is at approximately 300 Hz. Infrasound (which is inaudible) occurs at frequencies from 0 to 15 Hz (see enclosed diagram). WTS is caused by the former and the latter; VAD is caused by the latter.

WTS is a term coined by Dr. Nina Pierpont. Her book, Reference (1), is an excellent resource regarding health effects wind turbine generated WTS on the vestibular system. It provides an excellent summary in medical terms and laymen's language of the dangers of WTS and no attempt is made to expand on her presentation here.

VAD, however, is less well known to the public, but has been proven that man-made machines can cause VAD and can kill, Reference (3). The main question is whether there is sufficient amplitude (energy) in wind turbine infrasound to cause VAD. The following supports this possibility:

Reference (4): *"These results* [comparison of infrasound levels contained in a residence in close proximity to wind turbines to a known VAD case caused by a nearby port grain terminal – the former being much larger] *irrefutably demonstrate that wind turbines in the proximity of residential areas produce acoustical environments that can lead to the development of VAD in nearby home-dwellers."*

Reference (5): *"...another source of ILFN has appeared: wind turbines...ILFN levels contaminating the home of Case 2 [situated near wind turbines] are amply sufficient to cause VAD...widespread statements claiming no harm is caused by in-home ILFN produced by wind turbines are fallacies that cannot, in good conscience, continue to be perpetuated. In-home ILFN generated by wind turbines can lead to severe health problems, specifically, VAD."*

All things in life have natural frequencies, e.g., buildings, bridges, guitar strings, our internal organs. If the frequency of a forcing function, e.g., noise, happens to match the natural frequency of an object, the object will react at that same frequency and motion of the object will be amplified. Most people recall from high school the films of the infamous Tacoma Narrows Bridge ("Galloping Gertie") which was built in 1940, and collapsed four months later due to large harmonic (synchronous) oscillations caused by wind. VAD can cause similar catastrophes within our bodies. The resonant frequencies of our body organs happen to be low. Industrial wind turbines happen to produce low frequency noise (1-2 Hertz – the blade passage frequency) with overtones of up to about 20 Hz, Reference (2). This noise is transmitted through every medium between the turbine and your body. It is well documented that infrasound generated by certain machines can cause VAD. References (4) and (5) claim that industrial wind turbines can do likewise.

Reference (5) also firmly states that *"...real and efficient zoning for wind turbines must be scientifically determined, and quickly adopted, in order to competently and responsibly protect Public Health."* Potential dangers to the health and safety of the public cannot be ignored, and clearly there are well researched and published papers that conclude that wind turbines can cause WTS and VAD. Infrasound has the nasty characteristic of traveling great distances and shielding of infrasound is ineffective. Until we have a determination of required setbacks to avoid health effects from wind turbine generated infrasound, erection of wind turbines should be halted. The establishment of such setbacks should not be a burdensome request:

"Existing evidence is not sufficient to make several important quantifications, including what portion of the population is susceptible to the health effects from particular exposures, how much total health impact wind turbines have, and the magnitude of exposure needed to cause substantial risk of important health effects. However, these are questions which could be answered if some resources were devoted to finding the answer. It is not necessary to proceed with siting so that more data can accumulate, since there is enough data now if it were gathered and analyzed," Reference (7).

The State Department of Public Health of the Commonwealth of Massachusetts is responsible for ensuring public health and safety. Development of wind turbine technology has progressed more rapidly than our knowledge of the potential consequences to human health and safety. The Commonwealth needs to place a moratorium on this development until conservative setback limits (2-3 miles) consistent with medical findings are established for proximity to homes, industries, schools, hospitals, etc. For proximity to wild animals, no practical setback can be established.

Definitions:

(1) cycles per second = frequency = Hertz (Hz)

(2) Infrasound = noise from 0 to 15 Hz

(3) ILFN = infrasound and low frequency noise from 0 to 500 Hz

(4) WTS = Wind Turbine Syndrome

(5) VAD = Vibroacoustic Disease

(6) Noise Components (see enclosed figure)

References:

(1) Dr. Nina Pierpont, Wind Turbine Syndrome. Santa Fe, NM: K-Selected Books, 2009.

(2) Mariana Alves-Pereira and Nuno A A. Castelo Branco, "Vibroacoustic Disease: Biological effects of infrasound and low-frequency noise explained by mechanotransduction cellular signaling," *Progress in Biophysics and Molecular Biology, Volume 93, Issues 1-3, January-April 2007, Pages 256-279.*

(3) "A Short History of Sound Weapons Pt2: Infrasound," January 14, 2008 **(http://crab.wordpress.com/2008/01/14/a-short-history-of-sound-weapons-pt2-infrasound/ (http://crab.wordpress.com/2008/01/14/a-short-history-of-sound-weapons-pt2-infrasound/))**

(4) M. Alves-Pereira and N. Castelo Branco, "Industrial Wind Turbines, Infrasound and Vibro-Acoustic Disease (VAD)," Press Release, May 31, 2007 **http://www.wind-watch.org/documents/industrial-wind-turbines-infrasound-and-vibro-acoustic-disease-vad/print/ (http://www.wind-watch.org/documents/industrial-wind-turbines-infrasound-and-vibro-acoustic-disease-vad/print/)**

(5) M. Alves-Pereira and N. Castelo Branco, "In-Home Wind Turbine Noise [that is, noise in the home caused by wind turbines] is Conducive to Vibroacoustic Disease [VAD]," September 20-21, 2007

(6) J. Punch, et al, "Wind Turbine Noise – what audiologists should know," Audiology Today, July 2010. **http://docs.wind-watch.org/AudiologyToday-WindTurbineNoise.pdf (http://docs.wind-watch.org/AudiologyToday-WindTurbineNoise.pdf)**

(7) C. Phillips, "Analysis of the Epidemiology and Related Evidence on the Health Effects of Wind Turbines on Local Residents," July 20, 2010

17 Comments leave one →

1. **kelvinsdemon PERMALINK**
   September 26, 2018 10:46 pm

About the German Energiewende:
This is a clear victory, not for true environmentalists, but for the fossil carbon industry.
Since 1948, owners of coal and fossil hydrocarbons (petroleum and "natural" gas) have known that civilian nuclear power can put them out of business.
What was the declared intention of Energiewende? It was to replace ***nuclear power plants*** with "renewable energy". It has been a huge and expensive "success".
How does Germany's gaseous emissions record compare with France? ***Dismally!***
France's leaders are, thank goodness, backing away from the promise to cut back on their nuclear production.
I believe that wind turbines have directly killed more humans already than the so-called disaster at Chernobyl. The loss of that reactor was from a quite spectacular stupidity, akin to deliberately crossing a busy road without looking, or ignoring a red traffic light.

REPLY

2. **kelvinsdemon PERMALINK**
September 26, 2018 10:30 pm
The Greenhouse Gas (GHG) effect is far simpler to prove than the pusillanimous "Climate Change" term. It is a simple thermodynamic inequality.
Wind "turbines" are totally inadequate to deal with it.
Climate and weather models are very difficult, but net biosphere global warming is far easier.
Solar radiation bathes this planet with over 8000 times the "total daily energy" rate that is recorded by the US EIA and corresponding agencies world wide . But that is only the industrial and domestic convenience energy. In a day, the entire planet has to radiate outwards as much energy as it has received, or get hotter. By definition, any surface not visible in the dark emits only infrared radiation, made up of fairly weak photons.
GHGs are molecules that can capture such weak photons, and turn the energy into motion, first as vibrations, then sharing it by collisions with other molecules. The effect was known and measured more than a century ago.

Up until the Industrial Revolution, the chief GHG was the persistent gas carbon dioxide. Carbon tetrahydride, CH4, is far stronger, but evanescent. It oxidises to mere CO2.
GHGs on average trapped enough low energy infrared photons to keep the various regions of the Earth comfortable for the organisms that had evolved to be successful there.
But there is now 400 ppm of CO2, whereas it used to be 280 ppm.
So every day, at a discrepancy of slightly more than 0.02% of the incoming solar energy, the energy content, i.e. the average temperature of the entire biosphere, is going up. Note also that the change of state of a mere kilogram of ice to water, or of ocean water to vapour, is a huge amount of energy, even before the water or vapour gets any warmer.

REPLY

3. **kelvinsdemon PERMALINK**
September 26, 2018 9:54 pm
It is true that carbon dioxide emissions from fossil carbon (and oxygen) overwhelm the photosynthetic capacity of the biosphere. It is true that this excess has both thermal and chemical adverse consequences — biosphere net warming, and oceanic acidification.
It Is Not True *that wind turbines are of any use to prevent this*

REPLY

4. **Juan PERMALINK**

March 12, 2018 3:52 pm

Wind turbine syndrome or wind farm syndrome is a psychosomatic disorder primarily caused by anxiety generated by heightened awareness of turbines[1] – the "nocebo effect"[2] – prompted by proponents of the idea that wind turbines have adverse health effects. While proponents claim that a number of effects including death, cancer and congenital abnormality have been caused by wind farms, the distribution of recorded events correlates with media coverage of wind farm syndrome itself, and not with the presence or absence of wind farms.[3] It is not recognised by any international disease classification system and does not appear in any title or abstract in the United States National Library of Medicine's PubMed database.

REPLY

5. **Sue PERMALINK**
   October 17, 2017 12:23 pm

   I too live within the foot print of industrial turbines. We have been existing this way since the fall of 2012. Like so many others I have suffered the negative effects of these monstrosities for the greater "good", i.e. cities.
   I did a number of things in my home to help elevate the negative effects that help but do not completely neutralize the effects.
   First get grounded. I do this using a grounding mat & bed sheets from http://www.earthing.com or similar. I also added a home device & wear a pendant & sanctuary band from http://www.earthing.com to help protect me from EMF's. I did all this in stages & have to say that each stage I felt some relief.
   Unfortunately we still spend a lot of time in our basement which seems to give us the most relief. We've even have beds down there for when it is really bad. Good luck I hope this helps.

   REPLY

6. **Joe Cobb PERMALINK**
   October 10, 2017 7:28 am

   This has been studied and looked at for many years and the people who are getting all the money will not acknowledge any of the proven issues associated with wind turbines. They simply ignore you or worse they claim (without any scientific data or medical data) those who claim damage from infrasound are psycosamatic. This claim cannot be proven due to the fact that animals such as horses do not have the ability to think themselves sick. There are many documented cases that support the negative effects on humans and animals and even structures. All or this information is out there and available for anyone to review. But it is all about the money.

   REPLY

7. **K Irving PERMALINK**
   April 2, 2016 2:54 pm

   I am the 40 yr old mother of two girls ages 13 and 11.

   We moved into a newly built home two years ago in Belwood, Ontario, Canada and I noticed lots of signs all over the small town saying "stop the wind farm" I inquired and found out that there was a plan to build a "wind farm" of wind turbines in Belwood. The only thing I know about wind power is that it is "green" energy which is good. I figured anyone opposing it probably just didn't want to look out their window and see a big wind tower. I really didn't give it too much thought or bother and noticed soon that the towers started going up.

In September of 2015 I started getting sick. It started with ringing in my ears and then felt like a pain in my sinuses and constant headache. I always felt tired and sluggish and for the fall and winter felt like I was always fighting a cold or flu or something. Finally one day after becoming fed up with it I went to my doctor and she said it must be allergies and put me on a (one year!) wait list to see an Allergist. I was given allergy meds to help my symptoms but they did absolutely nothing.

Then my eldest daughter started complaining of headaches and a general achy body feeling. She had a couple of nosebleeds, I took her into the doctor and she was put on a wait list to see an ENT (ear/nose/throat) specialist at McMaster Hospital.

Then my youngest daughter started to feel sick too and was put on the same list for the ENT.

Before we moved to Belwood we were all fine. I thought it was maybe something in our house that was making us sick but the wood floors have been checked and are formaldehyde free and the house is mold free. We have dogs and a cat but we have had them for years and my children have been raised around dogs, cats and horses (as have I).

It was suggested to me today that perhaps the wind farm might have affected our health. I honestly never thought of this before. I don't even know if it's possible? We are surrounded by about 30 or 40 of the turbines now I think? They have plans to build many more I have been told.

If anyone, who is knowledgeable in this kind of thing has any comments that could give me insight into "yes" these are affecting your health or "no" these symptoms don't sound typical, then it would be much appreciated.

We are pretty stumped!

Thank you.

REPLY

- **Lea PERMALINK**
  February 11, 2017 7:34 pm
  Yes it's affecting your health. Last fall in 2015 they put up a 185 wind tower farm around our 640 acres. There are three within a half a mile of me. Since they turned them on my ears ring constantly with a headache every day and two migraines per month. My chest aches and every night when the sun goes down I feel like I might swallow my tongue. Our youngest child who is 5 complains of plugged ears. It's real and we are trying to move. I have heard of people needing pace makers from them. They are not as green as one thinks when you do the research of how many species of wildlife they kill as well. It's a hoax on the people for power.

  REPLY

- **Paul PERMALINK**
  June 3, 2017 11:45 am
  It sounds like a reasonable possibility. If other possibilities have been ruled out, the only way to really know is to spend time away from the area and see if matters improve.

  REPLY

8. **Terry James PERMALINK**
   February 24, 2015 4:10 am

What I read here is the dealing of vibroacoustic problems associated with just ONE generator..and no one touches on the "wind farm" of multiple 'fans', and the problem of phasing, or the synchronising/out of sync fans, where the resultant output is increasing/decreasing, (woka-woka effect), thus changing frequency 'harmonics', which compound the vibroacoustics of the resultant energy.

A easy demonstration is to fly in a twin engined propeller aircraft where the pilot has to sync both propellers, and more out of sync..introduces vibration..which literally shakes the plane apart.

So I see a wind farm has the potential to shake our body/organs..apart!

Definately a health risk, the severity of which finishes with distance away from source

REPLY

- **kelvinsdemon PERMALINK**
  September 26, 2018 10:49 pm
  Terry James, I reckon there should be no wind turbines within 12,500 km of any residence on Earth. The radius of the planet is about 6,000 km.

  REPLY

Trackbacks

1. Infrasound & Low Frequency Noise Heard in Boston | Smart Meter News
2. Infrasound & Low Frequency Noise Heard in Boston | Wind Wise ~ Massachusetts
3. Wind Turbine Syndrome Review
4. Wind Turbine Syndrome Book
5. Is Wind Turbine Syndrome Real - Green Energy Efficiency
6. Wisconsin Wind Turbine Regulations

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