

Wind Fact Sheet #7: Low Frequency Sound and Infrasound

Noble Environmental Power, LLC



Myth: Wind turbines produce low-frequency sound and infrasound, which negatively impact human health.

Fact: The important question isn't whether wind turbines produce low-frequency sound or infrasound – they do. The *real* question is whether modern wind turbines produce either of these types of sounds at levels that pose a risk to human health. **The medical community's answer in both cases is "NO".**

Currently, there are some 68,000 wind turbines in operation worldwide. Some of these turbines have been producing clean energy since the 1980s! There is no medically-documented evidence of wind turbines having a negative effect on peoples' health or well-being for any reason, including low-frequency sound or infrasound.

How does sound work, and are there different types of sound?

All sounds – birds chirping, dogs barking, children laughing – travel through the air as vibrations (sound waves). When these vibrations reach our eardrums, we hear them as sounds. The human ear can only detect a certain range of sounds. If the sound is too high, like a dog whistle, we can't hear it. If a sound has a low enough frequency, it can cause vibration that we can feel as well as hear, like the rumbling of thunder. Very low-frequency sound is called "infrasound", and it cannot be heard at all.

What are some sources of infrasound? Do wind turbines produce infrasound?

Everything in the universe produces infrasound at some level (including you). The level of infrasound produced by most things is so low it can barely be detected. Other sources of infrasound that can be measured include volcanic eruptions, ocean waves, explosions, and some types of machinery. The level of infrasound produced by wind turbines is extremely low, and scientists are in agreement that it cannot possibly affect human health.

What are some sources of low-frequency sound? Do wind turbines produce low-frequency sound?

Low-frequency sound is all around us, and can be generated by natural and man-made sources. Natural sources of low-frequency sound include ocean waves, wind, thunder, and vibrations from movements of the earth.

Man-made sources of low-frequency sound include machinery such as pumps, compressors, diesel and combustion engines, as well as refrigerators and fans.

Wind turbines also produce very low levels of low-frequency sound, but here too scientists are in agreement that the levels are nowhere near the threshold that can pose a risk to health.





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Has there been much research on this issue?

Yes! With more than 68,000 wind turbines installed around the world, countries such as the U.S., Germany and England have conducted numerous studies on wind turbines and low-frequency sound and infrasound.

Dr. Geoff Leventhall, a British scientist who has done internationally-recognized research in the field of low-frequency sound and infrasound, has said:

“The levels of low-frequency sound and infrasound produced by current designs of wind turbines do not even come near to the levels that could present a risk to human health. Unfortunately, the issue is poorly understood by the general public, and some opponents of wind energy have seized upon it as a way to frighten people. This is unfortunate, because it has caused unnecessary distress for many.”

“Objectors have eagerly grasped the media hype on infrasound and low-frequency sound and used it to engender concerns about wind turbine developments. In this they have, possibly, done a disservice to the communities they were established to help, through raising false concerns and diverting attention from more important aspects of the development.”

“Objectors’ uninformed and mistaken use of these terms, which have acquired a number of anxiety-producing connotations, has led to unnecessary fears and to unnecessary costs (resulting from decisions to re-measuring what was already known, in order to assuage complaints).”

In the U.S., a 1987 National Renewable Energy Laboratory (NREL) report found that low-frequency sound did occur with some earlier models of wind turbines that operate with the blades downwind of the tower. Modern wind turbines operate with the blades upwind of the tower, and as a result, they do not produce significant levels of low-frequency sound.

The German Wind Energy Association (GWEA) has also done studies that confirm that there are no human health impacts from low-frequency sound from wind turbines. Specifically, these studies showed that the low-frequency sounds produced by modern turbines are too low to be perceived by the human ear, and as a result, the sounds are harmless.

Helpful Sites/Additional Reading:

AWS Truwind - *Wind Energy and Low Frequency Noise* - March 2006

http://www.powernaturally.org/Programs/Wind/toolkit/WIND_LowFrequencyNoise.pdf

BWEA - *Low Frequency Noise and Wind Turbines* - Feb. 2005

<http://www.bwea.com/ref/lowfrequencynoise.html>

BWEA - *Low Frequency Noise and Wind Turbines: Technical Annex* - Feb. 2005

<http://www.bwea.com/pdf/lfn-annex.pdf>

BWEA - *Low Frequency Noise and Wind Turbines: Keele University's Rebuttal* - Aug. 2005

http://www.bwea.com/ref/lfn_keele.html

