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Health Impacts of Wind Projects: Myths and Facts

MYTH: Wind turbine sound inevitably causes health problems.

FACT: Residents living close to wind farms will sometimes hear the turbines. Loud noise from any source can cause health problems, but acceptable sound levels that protect the public health are easily achieved with wind development.

Perception of sound varies based upon numerous factors including atmospheric conditions, distance from the source, topography, and particular characteristics of the sound.¹ The table below shows average sound levels for common sources of noise as well as regulatory and health impact guidelines.

Typical Sounds & Regulatory Guidelines	Sound (dBA)*
Background noise in a rural area ²	30
Quiet whisper ³	40
World Health Organization's lowest observed adverse effect level for environmental noise (LOAEL) for the most vulnerable populations ⁴	40
US average nighttime sound ordinance ⁵	47.7
Background noise in a suburban area ⁶	50
World Health Organization's interim target for outdoor night noise guidelines to protect the public health ⁷	55
At occupied buildings on a nonparticipant's property, the NC Model Wind Ordinance recommends a setback of 2.5 times the total height of a turbine (approximately 1,250 to 1,500 feet for commercially available turbines) & a 55 decibel (dBA) sound limit ⁸	55
Classroom chatter ⁹	70
Active construction site ¹⁰	100

Multiple literature reviews conclude that there are no direct adverse health effects caused by wind turbine sound, but annoyance and sleep disturbance are reported near turbines.^{11,12,13,14} At distances of 1300 feet or more, sound from modern wind turbines is usually less than 40 dBA, which is below the sound level associated with annoyance in studies reviewed by an expert panel for the Massachusetts Department of Public Health. As noted above, sound emission and perception varies widely based upon a number of factors, so software is used to predict sound levels at particular sites.¹⁵

Myth: Infrasound generated by turbines is harmful to health.

FACT: We are exposed to infrasound every day with no detectable negative health effects.

It is often claimed that infrasound below the human audibility range of 20 and 20,000 hertz¹⁴ can lead to health problems. Infrasound is generated by natural phenomena such as wind, waves, and seismic activity as well as from large machines such as cars, trains, planes, appliances, and wind turbines.¹⁴ Multiple literature reviews conclude that there are no negative health effects caused by inaudible infrasound from wind turbines.^{16,17,18}

MYTH: Shadow flicker from turbines causes health problems.

FACT: Shadow flicker is a rare and safe event.

Shadow flicker is the intermittent shadow of turbine blades on a building that can occur when the sun passes behind the hub of a wind turbine.¹⁹ It is an infrequent event that can occur at dawn or dusk²⁰ and can be accurately modeled before construction.²¹ The NC Model Wind Ordinance recommends a 30 hour per year limit for all occupied buildings within 2,500 feet of a turbine.²²

Some people may find the occasional flicker to be annoying, but it can be easily mitigated.²³ Shadow flicker has been raised as a possible health concern for photosensitive epileptics (around .009 percent of the population).^{24,25} However, large turbine blades do not rotate at speeds sufficient to induce seizures.^{26,27}

MYTH: Wind projects cause chronic psychological stress-induced health problems.

FACT: Annoyance and stress are reported but not scientifically linked to wind turbines.

A small proportion of people living very close to wind turbines report negative stress-related symptoms sometimes characterized as Wind Turbine Syndrome. An expert panel convened by the Massachusetts Department of Public Health concluded that there is no evidence that such health effects are caused by turbines.²⁸ Factors such as attitude toward turbines and their visual effect, personality traits, self-reported noise sensitivity, and duration of turbine operations have been correlated with increased self-reported annoyance and stress attributed to turbines, while financial benefits have been correlated with decreased self-reported annoyance and stress.^{29,30,31,32}

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*A-weighted sound pressure levels. For more information about sound, noise, and measurement, visit Health Canada's Primer on Noise: <http://www.hc-sc.gc.ca/ewh-semt/noise-bruit/turbine-eoliennes/noise-bruit-eng.php>

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