

Summary

Wind turbines should be held to existing sound ordinance standards with exceptions for unscheduled events such as utility outages and storms.

Is it Noise or is it Sound?

All wind turbines create sound and are part of an environment that is already full of sound. The complaint that distributed wind systems might create disruptive levels of noise is sometimes intentionally prejudicial. In the course of our daily lives, we commonly encounter sounds in the 40 – 90 dB range. Distributed wind turbines might add 1 – 3 dB to existing background sound under normal conditions, or less than a residential air conditioner. It is more appropriate to think of noise as “unwanted” sound than “excessive” sound. “Noise” is typically perceived of as being offensive, but sound is what we measure and sound is not necessarily or always offensive. “Noise” is a subset of sound, but sound is not necessarily noise.

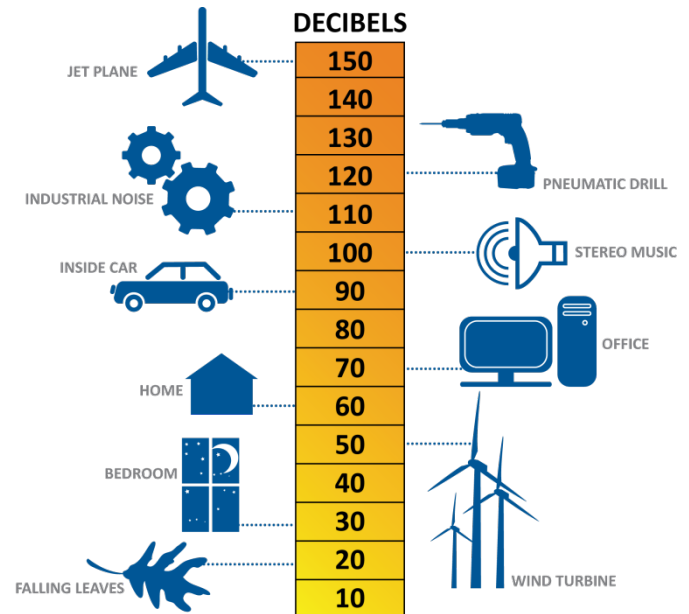
The Sound from a Distributed Wind Turbine

Sound is produced by the blades and the machinery of a wind turbine. The amount of sound produced will vary between products, but is most influenced by rotor speed and the aerodynamic properties of the blades. Careful engineering can significantly cut sound production. Most of the leading products are extremely quiet. The level of sound generated also varies with wind speed, with the highest levels of sound produced during high winds, the very time when environmental sound is greatest.

Sound diminishes with distance, by roughly 25% at a distance of 100 ft and more at greater distances. Neighbors should never experience sound levels higher than those heard by the wind system owner.

Hardly an Annoyance

The wind itself generates sound. The typical background sound level in a 20 – 25 mph wind is 50 dB. A distributed wind turbine 200 ft away might raise this to 53 dB, which is barely perceptible above the background sound level. During severe storm conditions, a distributed wind turbine might add 4 – 6 dB above background levels, but these situations are rare and people are seldom outdoors during severe conditions. Distributed wind systems typically cannot be heard inside homes. Compared to other broadly accepted sound sources in neighborhoods, such as air conditioners, lawn mowers, leaf blowers, traffic, and children playing, a distributed wind system is considerably less obtrusive.



Use Existing Rules in a Smart Way

Most communities have noise nuisance ordinances and complaint procedures. DWEA recommends that distributed wind turbines be held to existing standards, with a few special considerations. First, there should be some exemption during instances of severe weather or the rare utility outage, when wind systems may, but not necessarily will, make additional sound. Second, any sound testing should only be done due to a legitimate complaint and should be conducted at the closest neighboring inhabited dwelling rather than the less-appropriate property line. The cost of this independent 3rd-party professional sound testing should be borne by the complainant. If the testing at the complainant's inhabited dwelling shows sound levels exceeding allowable limits, the wind turbine owner should have a reasonable opportunity to address and remedy the situation.