

Acoustic pollution- The Bald Hills Precedent

These notes are as a result of the **The Bald Hill Judgement**:

JUDGE: Richards J. Dates: 6–10, 13–17, 20–23 September, 12 October 2021. date of judgment: 25 March 2022 cited as: Uren v Bald Hills Wind Farm Pty Ltd. Medium neutral citation: [2022] VSC 145

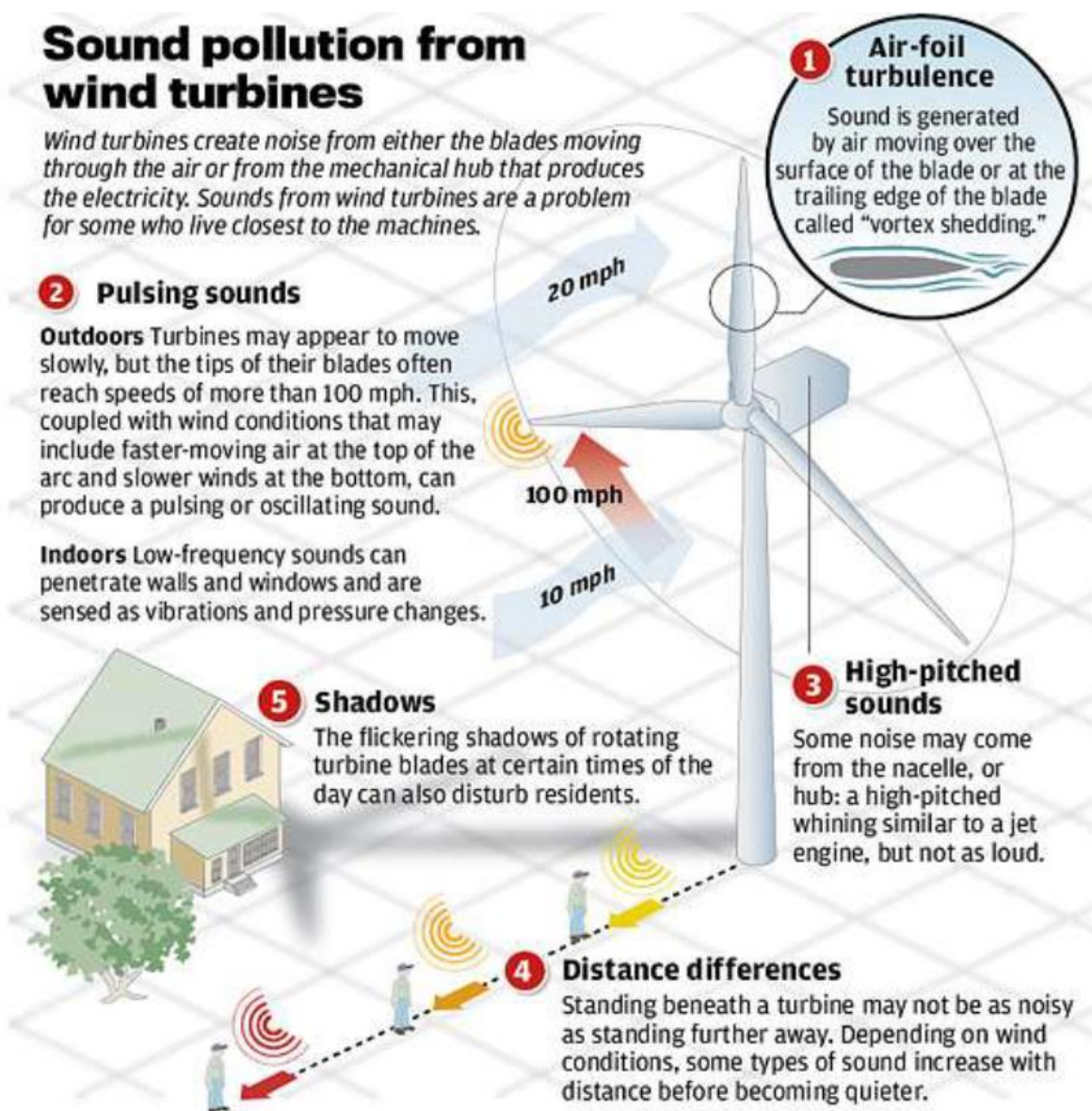
[The judgement can be found here](#)

For help with Wind Turbine Noise Issues in Scotland and the UK:

contact@citizensinitiativeuk.org.uk

grosvenorconsultancy@gmail.com

1. Turbines noise, vibrations and infrasonic pulsations cause turbine sickness and sleep disturbance.



2. Turbines are alien to a rural environment.

Turbines are distinctively noisy in rural areas, particularly during certain times of the year when the atmospheric conditions increase noise transfer. In the Bald Hills case, The Bald Hills Judge did not consider the industrial wind development as one of the established uses in the locality.

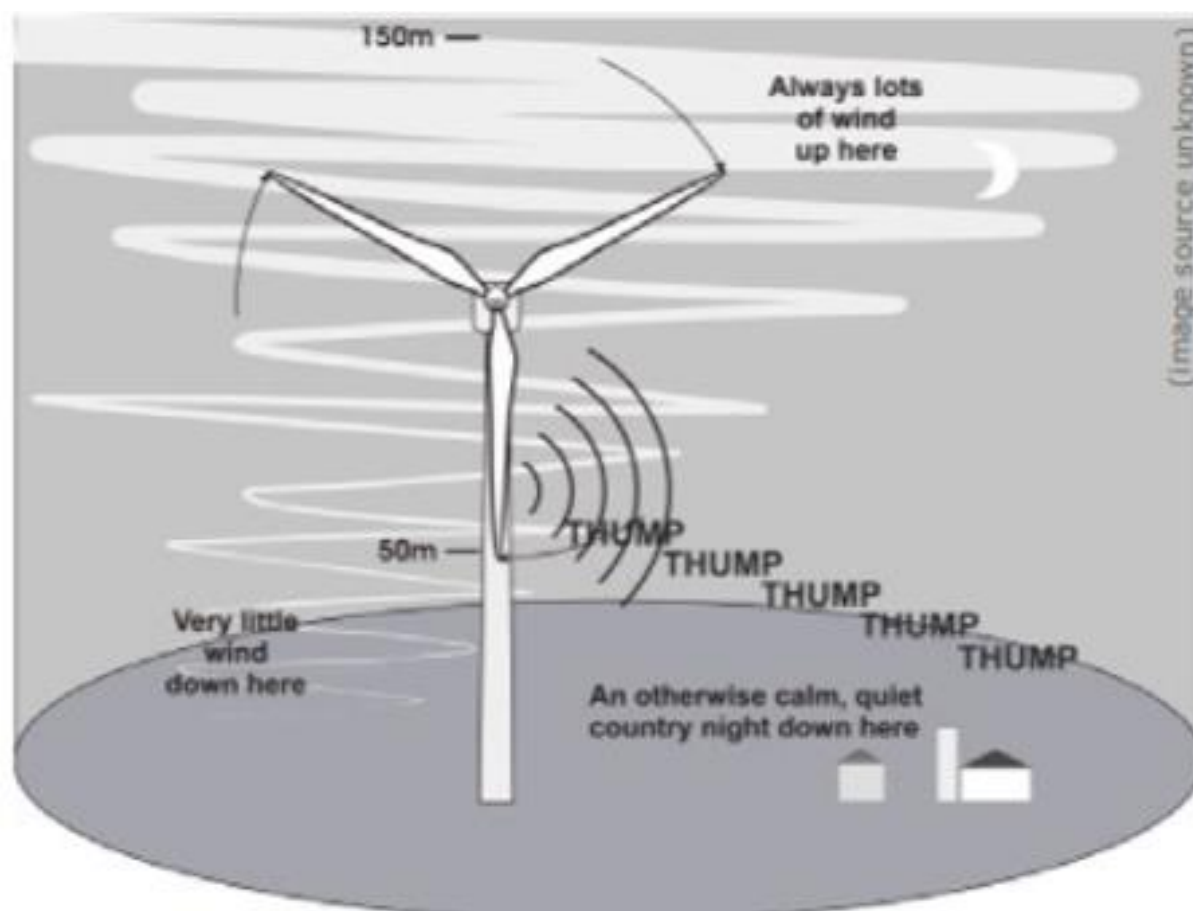
“The locality is rural, relatively quiet, and remote..... The rural activities of stock grazing and farm activities do not cause intrusive noise at night”

The grinding sounds of the gear boxes adjusting the blade angles, and the screeching of the brakes controlling the yaw, wake people up at night – And people often can’t get back to sleep. Even when the blades are not moving, the fans in the turbines cooling the equipment in the nacelle continue to produce an annoying humming noise.

In some bedrooms the humming is amplified by room resonances.

Turbines also vibrate in the ground. The long blades leveraged off the towers cause the towers to vibrate and shudder. The propagation of vibration is dependent on the geology of the area.

These vibrations can be transmitted through the ground to the houses, up through the foundations, walls, and floors, into the bedroom and through the pillows.



3. ETSU R 97 is not written to readily identify short periods of noise nuisance that may impact sleep.

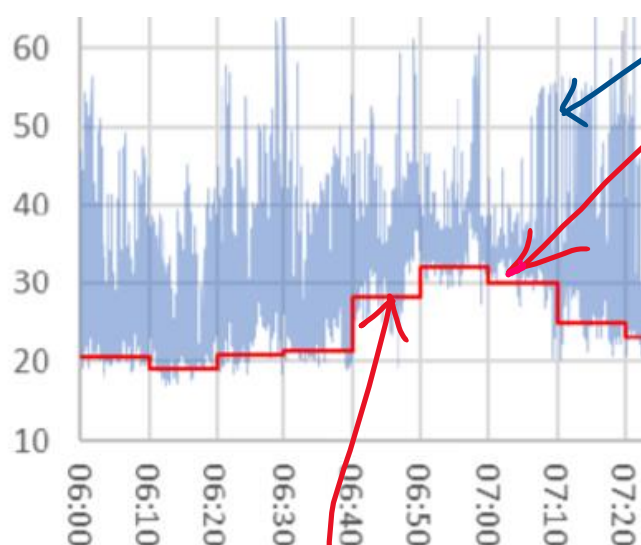
Demonstration of compliance does not necessarily establish that noise from time to time does not cause a nuisance. ETSU assumes wind farm noise is constant – it is not – it is intermittent.

From a distance, smaller turbines were heard as a constant low hum, like the hum of road traffic noise from a distant highway. Now modern turbines are six times the size and located at distances of only 1-2 kms from homes.

The LA90 statistical calculation is used in ETSU-R-97 as a proxy that minimises short term noise events from certain types of extraneous noise such as bird song or occasional passing local traffic but assumes that wind turbine operational noise is constant. Unfortunately, wind turbine noise from a wind farm is not constant.

ETSU was not written to analyse intermittent noise or noise on individual nights. This is due in part by the use of LA90 and in part by the use of averaging through trend analysis of scatter charts covering survey periods of weeks that averages out high impact periods on particular days or nights. Intermittent noise on individual nights is a major cause of nuisance.

Here is a graph of noise from a wind farm monitor



Noise Recordings - *These are the Noise Levels you hear.*

The LA90(10min) level - *This is the Noise they say you hear.*

The LA90 (10min) statistical level is the lowest 10% level of the noise measured for that 10 minute period.

The LA90(10min) statistical level hides 90% of the noise.
It hides the high noise you hear.

- * This hidden noise occurs in each 10 minute period.
- * This is the noise that wakes people up at night.
- * This is the noise that causes the nuisance.

The LA90(10min) statistical level is plotted as a data point (dot) on a graph.

A data point is the quietest 10% of noise in a 10 min period of noise monitoring.

90% of the noise in any 10minute period is hidden behind every data point.

The noise you hear is hidden in every data point.

How is it possible from this data to ensure wind turbine neighbours are protected from noise nuisance?

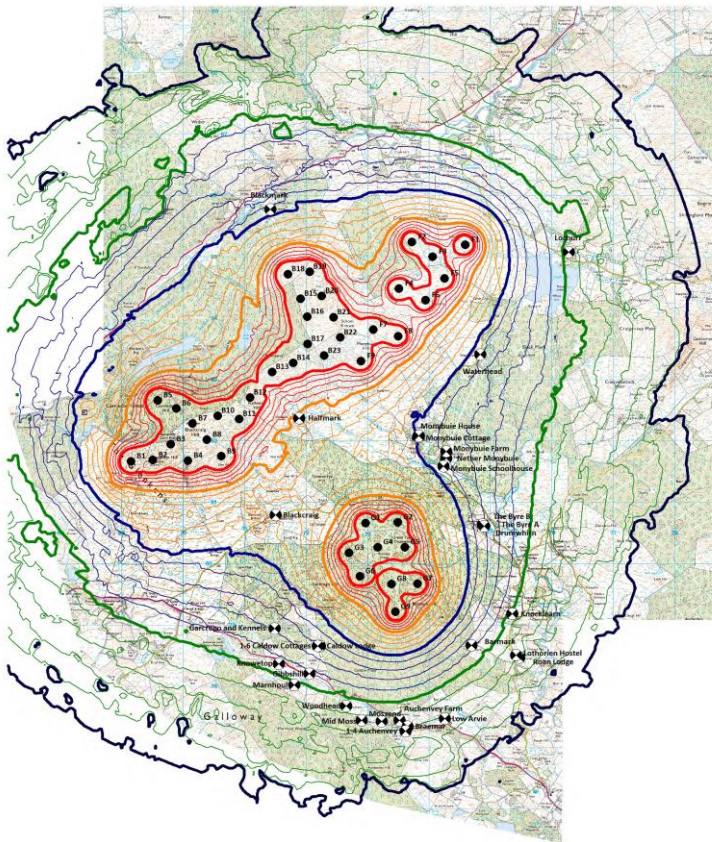
ASSUMPTIONS.

Contour maps represent LAeq values not LA90 values. However, the LAeq values are predicted based upon test results data from single wind turbines in idealised operating conditions and do not consider site effects or the influence on increased noise emissions due to wake turbulence from neighbouring wind turbines. Furthermore, predicted contour sound levels are derived from optimistic inputs into noise modelling software.

Bullseye maps are used to pacify neighbours. Conditions are set and wind turbines are built on this false theory. When the noise predictions are wrong – it's too late, the turbines are up, and the noise nuisance starts.

5. Designed to Deceive

The contour lines in the diagram below are minimum noise levels NOT maximums.



Intermittent noise is not shown in the contour maps. It is recognised that amplitude modulation, for example, cannot be reliably predicted so these contour charts do not indicate how much amplitude modulation will be experienced by neighbours.

Predictions are LAeq, not LA90 on the assumption that the noise from a wind farm is constant. In reality this is not the case and the LA90 proxy to relate to LAeq does not account for intermittent noise events such as when a wind turbine rotates with different incoming wind directions. Such intermittent sounds are not a part of the noise models used to generate the noise contour maps.

- Living on a 40dB contour line, a neighbour may hear noise levels of 41dB – 60dB (and even higher) at times that is not accounted for when using the LA90 measurement over 10-minute periods.
- There is no maximum limit for short duration sounds from wind turbines.
- 40 dB is the lowest optimistic constant noise level they will hear.
- 40dB can be exceeded from short term noise events that can occur for 90% of the time.
- For a 10 hour period of sleeping, 9 hours of noise will be above the 40dB level and only 1 hour of noise will be below 40dB.
- The high spikes of noise are NOT recognised in a LA90 statistical calculation.
- There is no maximum limit of noise for any contour line.

6. Bullseye Contour maps are based on the false assumption that noise radiates out like a light bulb.

- How noise is propagated is very dependent on wind speed, direction, topography and the layout of adjacent turbines.
- Noise from turbines has direction like a TORCH BEAM. It does NOT spread out like a radiating sphere (light bulb) around the point source (turbine).
- The noise contour levels relate to the minimum noise and do not identify the variation in the noise levels or make correction for airflow disturbance and directivity of the sound patterns.
- The torch beam noise pattern and levels of the pulsations are dramatically affected with changes in wind speed and direction.

7. Justice Richards reaffirms within the Bald Hills judgement: 20220325 Uren v Bald Hills WF [2021] VSC 145ix , the significance of the planning balance between the protection of affected residents residential amenity and the deployment of wind turbines by commenting:

“(6) What is the social and public interest value in operating the turbines to generate renewable energy?”

The generation of renewable energy by the wind farm is a socially valuable activity, and it is in the public interest for it to continue. However, there is not a binary choice to be made between the generation of clean energy by the wind farm, and a good night's sleep for its neighbours. It should be possible to achieve both.”

Acknowledgement: Extracts from Educating Lawyers series by Viv-Alyn Lenehan transposed to UK standards.