

The Federal Administrative Appeals Tribunal has identified annoyance caused by wind farm noise as a pathway to adverse health outcomes, including hypertension and cardiovascular disease. A detailed discussion of that finding has been provided to Deputy Secretary Marcus Ray. The AAT also found that the means commonly used to measure wind farm noise is inappropriate.

A copy of the letter to Deputy Secretary Ray is attached in case it has not found its way to the planners for this project.

Research has also found that increasing rotor size is likely to increase the characteristics which lead to annoyance to people subject to the noise. For instance, see the following quote from H. Møller and C. S. Pedersen, ‘Low-frequency wind-turbine noise’, *J. Acoust. Soc. Am.*, Vol. 129, No. 6, June 2011, p. 3742.

However, several studies have shown that actual wind-speed profiles vary a lot and often deviate substantially from the assumed logarithmical profile.^{76–79} In a stable atmosphere, which often exists at night, variations with height can be much larger than assumed with high wind speed at turbine height and little wind at ground. A large variation of wind speed across the rotor area increases the modulation of the turbine noise, and the normal “swish–swish” sound turns into a more annoying, “thumping,” impulsive sound as reported by, e.g., van den Berg^{27,80,81} and Palmer.⁸² The effect is more prominent with large wind turbines, where the difference in wind speed between rotor top and bottom can be substantial. The effect is usually not reflected in noise measurements, which are mainly carried out in the daytime, when the logarithmic profile is more common.

Another consequence of large wind speed variation with height is that the turbine may emit noise corresponding to a high wind speed—and much higher than assumed from the wind speed measured at 10 m—while it is all quiet at the ground. Thus, there is more turbine noise than expected and less wind; hence, the turbine noise will not be masked with natural wind-induced sound, as it might have been with the assumed logarithmic wind profile.

The proposed increase in blade length would involve a big difference in distance between top and bottom of the rotors and thus potentially a large increase in the annoyance level caused by emitted noise.

The AAT decision also includes a number of references to annoyance being caused or exacerbated by the visual impact of wind farms and quoted Professor Wittert, who gave evidence to the tribunal, to the effect that “The respondents’ attitude to the visual impact of wind turbines on the landscape scenery has been found to influence noise annoyance in a number of studies.”

Since the proposed change would involve a huge increase in visual impact, if Professor Wittert is correct, that will also mean a big increase in annoyance experienced by residents in the area.

The tribunal was very clear that annoyance is an established pathway to adverse health outcomes, including hypertension and cardiovascular disease. It is also clearly established that wind farm noise causes annoyance and that the tendency to emit annoying noise is increased with blade length. Further, some experts, such as Professor Wittert, claim there is strong evidence that annoyance is related to visual impact. Doubling the rotor area and also increasing turbine height by another 50m to 200m will certainly increase visual impact.

Thus, through both noise impact and visual impact the proposal appears highly likely to substantially increase annoyance experienced by members of the community. On the findings of the Federal AAT, that is a pathway to increased adverse health outcomes in the community.

The proposal should be summarily rejected.