

Opening Statement of Dr Christopher Hanning MB, BS, MD

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Thank you for giving me the opportunity to testify to the adverse effects of wind turbine noise on sleep. I am sorry that I can not be with you in person.

I do not think that there is any dispute that adequate sleep is essential for human health and well being. There is a vast literature on the effects of sleep loss on brain function, the heart and circulation, metabolism to name but a few. Any thing that causes sleep loss will lead to ill health.

I do not think that there is any dispute either that wind turbine noise emissions can disturb sleep and that this is the principle reason for requiring a separation distance between turbines and homes.

The separation distance is determined either as an actual minimum distance or by reference to a calculated noise level that has been deemed to be acceptable. The acceptable noise level is derived from a variety of sources, in particular studies of the effects of traffic noise.

It must be remembered that the acceptable noise levels used in regulations and guidelines relating to wind turbines have only been derived from theoretical considerations and not from experiment at actual wind turbine sites with actual people. Until recently, there has been no experimental verification that the recommended noise levels are in fact safe and have no discernable impact on human sleep.

In my expert opinion, there is now more than sufficient evidence to conclude that wind turbine noise impairs the sleep and health of residents living at distances greater than those proposed in the project under consideration. There is a real risk to the sleep and health of any resident living within 1.5km of a turbine.

I base this opinion on three main strands of evidence. Firstly, the anecdotal evidence. Dr Phillips has dealt with this so I will not deal with further except to state that I find it convincing.

Secondly, the various general surveys taken around wind turbine installations including those of Pedersen and van den Berg in Europe and more recently by Morris and Schneider in Australia, all of which point to problems with sleep but did not use any specific test instruments for sleep quality. Again, I find the weight of evidence convincing as it all points in the same direction.

Thirdly, those studies that have used control groups and specific test instruments for sleep. Dr Shepherd's peer-reviewed study used the WHO Quality of Life test instrument which includes elements related to sleep and shows unequivocally that those living within about 1.4km of the turbines had a lower quality of life than those living several kilometres away.

Dr Nissenbaum's peer-reviewed study, to which I contributed and am an author, showed convincingly that those living within about 1.5km of wind turbines had worse sleep than those living several kilometres away. This study looked at two different wind turbine facilities.

Dr Bigelow's study, sponsored by the Ontario Government at 8 wind turbine sites, used similar sleep specific test instruments to the Nissenbaum study. The results are very similar and confirm that the closer one lives to a wind turbine installation, the more likely you are to have poor sleep. This study is complete and the results have been presented as a poster. Dr Ollson has, most unfairly, characterised this as a student study. It is not. The poster presents the results of the largest study thus far to examine the effects of wind turbine noise on sleep using test instruments specific for sleep conducted by experienced investigators who consulted widely in designing the study including with myself.

BluEarth's witnesses claim that there is insufficient evidence to prove a causal link between wind turbine noise and sleep disruption. The only study of wind turbine noise and well being which does not demonstrate harm is that of Mroczek. The study group included subjects not exposed to turbine noise and the conclusions are not justified by the data. Every other study shows harm. There is no single, well conducted, controlled and reliable piece of original research which shows that wind turbines do not cause harm at the distances proposed here., not one.

With respect to causality, affected subjects improve when exposure ceases and relapse when exposure restarts. This is prima facie evidence of causality. The studies of Pedersen as well as those of Nissenbaum and Bigelow show a clear dose-response relationship. This too is prima facie evidence of causality.

I am not a lawyer but my work with the United Kingdom General Medical Council gives me a good understanding of standards of proof. In a situation such as this where the consequence of the wrong decision is highly likely to be harm to the nearby residents, the civil standard of proof is appropriate, the balance of probabilities. In my expert opinion, the scientific evidence more than meets this evidentiary test.

Wind turbine noise from turbines of the size proposed in the project under consideration has a high risk of disturbing the sleep and impairing the health of those living within 1.5km. There are at least 25 occupied properties meeting this criterion and I advise that the proposal be refused to safeguard the occupants.