



Health Canada's Preliminary Results Indicate Wind Turbine Noise Exposure is Annoying, But Not Linked to Self-Reported Illnesses and Conditions

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On November 6, 2014, Health Canada and Statistics Canada released the highly anticipated preliminary findings from their wind turbine noise and health study, the Community Noise and Health Study. The study was launched in 2012 to understand if there is a relationship between exposure to wind turbine noise and the health effects for people living near wind turbines. The results indicate that wind turbine exposure is associated with annoyances but that there is no direct connection between exposure to wind turbine noise and self-reported illnesses, chronic disease, stress or quality of sleep.

The results will assist decision makers by strengthening the peer-reviewed scientific evidence necessary to support decisions regarding wind turbine proposals, approvals, installations and operations. In particular, the study will provide evidence for adjudicative bodies (such as the Ontario Environmental Review Tribunal) to consider when determining whether wind turbine noise will cause "serious harm to human health" on appeals of Renewable Energy Approvals in Ontario.

The Study of Wind Turbine Noise

The Health Canada and Statistics Canada study examined 1,238 adults from Ontario and Prince Edward Island who lived varying distances from wind turbines. The results came from self-reported questionnaires, objectively measured responses and noise measurements and calculations. The study monitored the participants' heart rate, blood pressure and the level of the stress hormone cortisol in hair samples. The study has received criticism for neglecting to account for those people who lived near wind turbines but moved prior to the study due to serious concerns about health, environmental impacts and property values.

The Results

The study found no evidence to support a direct link between exposure to wind turbine noise and any of the self-reported illnesses and chronic diseases examined. Nor did the study indicate that noise from wind turbines has any measurable effect on stress and quality of sleep. However, the study did find "statistically significant exposure-response relationships between increasing wind turbine noise levels and the prevalence of reporting high annoyance". Essentially, the louder the noise the more the participants were bothered by other annoyances as well, such as the blinking aircraft warning lights, associated shadow flickers and vibrations.

Wind Turbines Noise and Serious Harm to Human Health

Ontario has a special approvals regime for renewable energy, through the *Green Energy Act, 2009*.¹ To generate wind power in Ontario, proponents must obtain a Renewable Energy Approval under the *Environmental Protection Act* from the Ministry of the Environment and Climate Change. Any concerned Ontario resident may appeal a Renewable Energy Approval. To succeed, concerned residents must prove that, on a balance of probabilities, the wind project will cause “serious harm to human health”, or “serious and irreversible harm to plant, life, animal life or the natural environment”.²

To date, concerned residents have not been able to overcome the evidentiary burden of proving that the subject wind project will cause “serious harm to human health.” The threshold is high and scientific evidence is uncertain. The study will likely find its way into the evidence before the Environmental Review Tribunal in future Renewable Energy Approval appeals. Those opposed to wind turbine projects may choose to focus on the statistically significant relationship between wind turbine noise and annoyance. Proponents will likely focus on the lack of evidence to support a link between wind turbine noise and self-reported illnesses, chronic disease, stress or quality of sleep.

It will be interesting to see how the Environmental Review Tribunal will interpret future parties’ arguments related to the “serious harm to human health” in light of these preliminary results.

The study is subject to a 60-day public consultation and peer review process. The [preliminary results](#) can be found on Health Canada’s website.

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¹ SO 2009, c 12, Sch A,

² See s. 145.2.1(2) of the Ontario *Environmental Protection Act*.