

Predicted sound levels as a general estimate

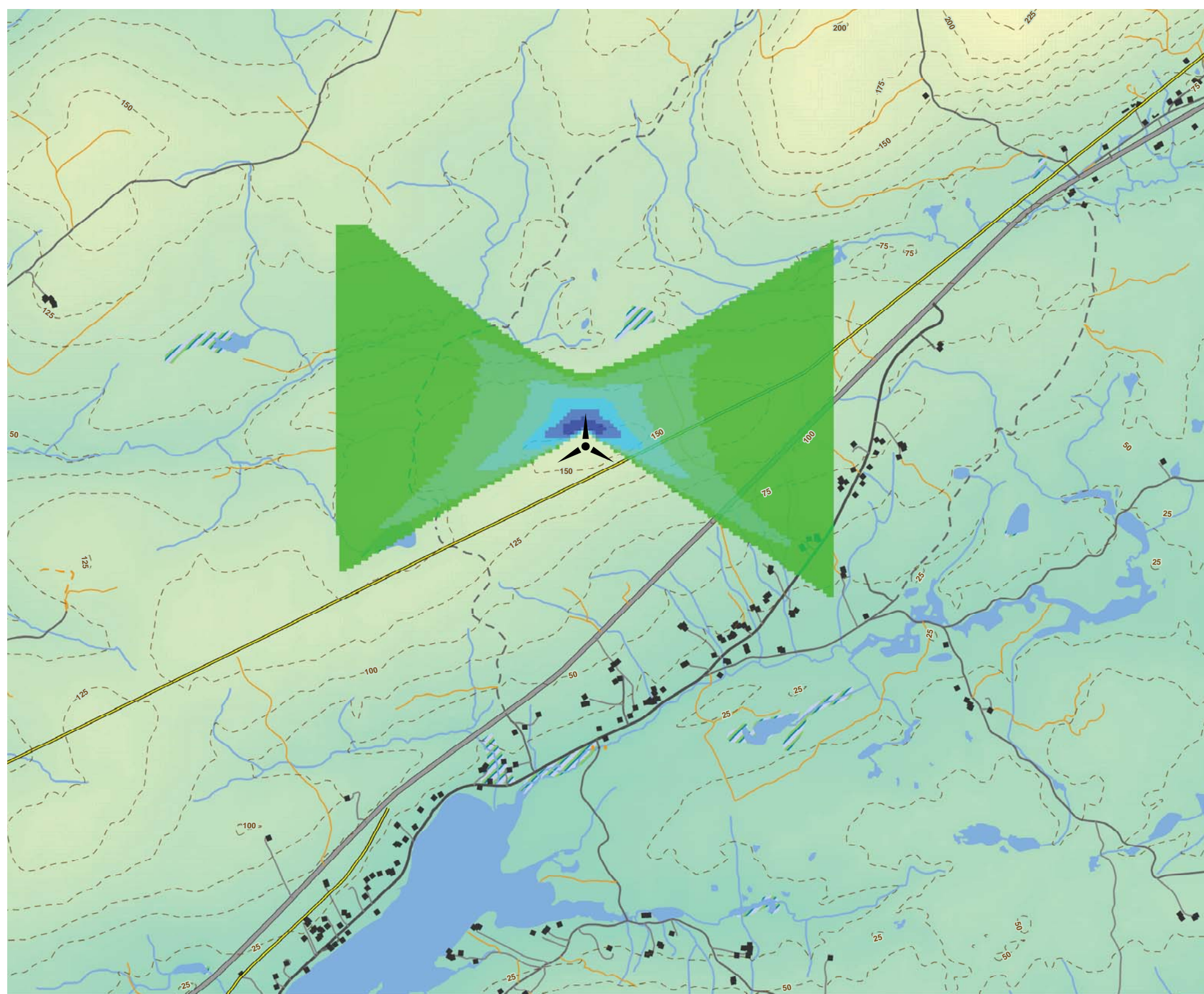
Decibels - db(A) 25 40 45 50 55

1120m to nearest home - to scale

Predicted shadow flicker as a general estimate

Shadow Flicker - Hours/Year

< 5 5 - 15 15 - 35 35 - 65 65 - 105 > 105



Sound

One of the most common concerns about a proposed wind energy project is the question of how the turbine will sound, and how noticeable it will be. All turbines produce sound if they're producing electricity. Operating turbines are often described as producing an audible "woosh" sound as the blade passes in front of the tower.

The most common method of ensuring wind turbine sound does not adversely affect quality of life is simply by locating them away from sensitive land uses, such as residences. Nova Scotia Environment stipulates a maximum of 40 db(A) at the outside wall of a dwelling. The distance sound travels depends on factors such as the forest cover, topography, and the local weather conditions. A general rule of thumb is that a large scale wind turbine will not be audible above background noise at a distance of 500m.

In Nova Scotia, set-back distances from houses vary by municipality, from around 600m up to 1000m for large scale turbines. The County of Victoria has a minimum setback of 1000m from dwelling; the Baddeck turbine will be 1130m from the nearest home.

| Source | Decibels |
|------------------|----------|
| Jet Airplane | 150 |
| Industrial noise | 140 |
| Inside car | 130 |
| Home | 120 |
| Bedroom | 110 |
| Falling leaves | 100 |
| Pneumatic drill | 90 |
| Stereo music | 80 |
| Office | 70 |
| Wind turbine | 60 |
| Whisper | 50 |
| | 40 |
| | 30 |
| | 20 |
| | 10 |

Typical sound levels; wind turbines are regulated to be 40 decibels at the nearest dwelling.

Health Canada, in collaboration with Statistics Canada and other external experts launched a multi-year research study in July 2012 to explore the relationship between exposure to sound levels produced from wind turbines and the extent of health effects reported by, and objectively measured in, those living near wind turbines.

In 2014 they published the study and found **No link** between wind turbine noise and: illness and chronic disease, stress, or sleep.

Shadow Flicker

Another common concern with large scale wind energy projects is the potential for flickering shadows to be cast on neighbouring houses if the sun is shining directly through the rotating blades.

The graphic to the left shows an estimate of the maximum shadow zone; modeled for the winter solstice (approx Dec. 21) which is the day when the sun is lowest, and shadows are longest. This model does not take obstructions such as trees into account.

The outer stretches of the shadow zone may overlap a small number of residential areas, but due to the limited time shadows are cast at that distance, the impact will be far below established provincial criteria of 30h/year.

Environmental

Environmental Assessments are not required for projects of this size. However, an Environmental Impact Statement is being prepared. The EIS studies the biophysical features of the area and identifies any specific Species of Conservation Interest (SOCI). If any SOCI are identified, we are able to mitigate the project's impact.

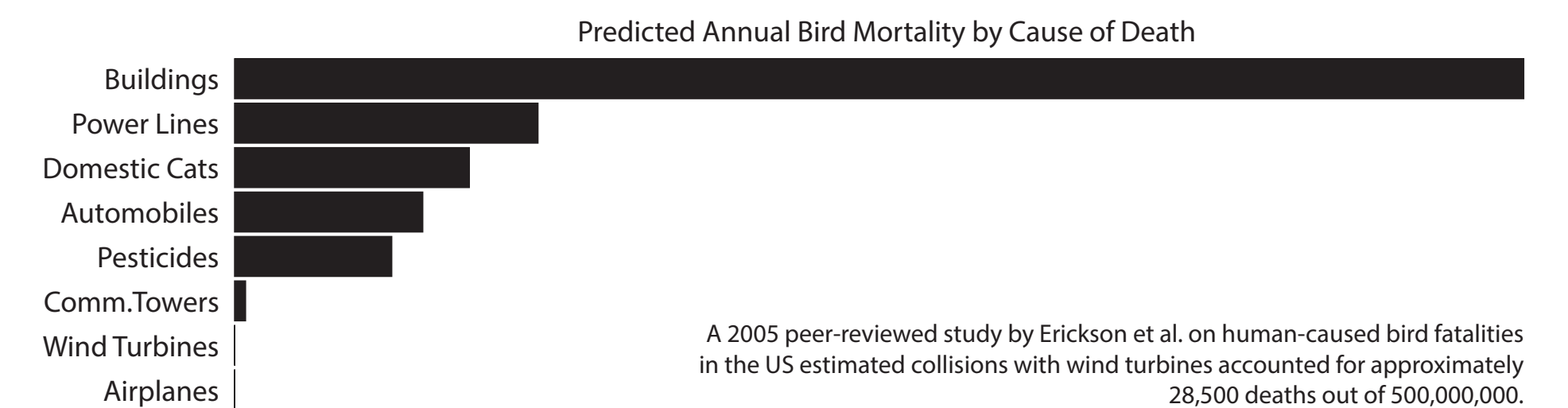
As the detailed design of the roads and powerlines is finalized, necessary watercourse crossings will be reviewed and approved by NS Dept. of Environment. We do not anticipate having to alter any wetlands through careful avoidance and use of existing roads where possible.



Visual impact assessment

Impacts in Context

No development is without its adverse impacts. While we are trying our best to ensure this project is carried out in an environmentally sensitive way, any time people alter the natural world, there are going to be negative impacts. It is important to consider the context of those impacts. For example, wind turbines are known to be a cause of bird and bat kills, but the degree to which they affect bird populations is comparatively small to many other human activities. All things considered, wind energy is still among the most environmentally friendly forms of power generation.



A 2005 peer-reviewed study by Erickson et al. on human-caused bird fatalities in the US estimated collisions with wind turbines accounted for approximately 28,500 deaths out of 500,000,000.

IMPACT MITIGATION

Baddeck
Community Wind Project

