

What sounds are made by wind farms?

Wind turbines make sound in two ways: aerodynamically, as the rotor blade spins through the air; and mechanically, as moving parts rotate within the turbine. The blades spinning through the air creates the 'swishing' and this is the main source of sound.

How is sound measured and what is dBA?

The sound made by wind turbines can be measured in real terms using a decibel 'A' rating (dBA). dBA is an adjustment made to measuring sound that captures the human range of hearing, and excludes sound outside that range. The diagram on the right lists some everyday examples of different noises measured within the dBA rating.

The relevance of 40 decibels (dBA)

In South Australia, Tasmania and Victoria, the limit for continuous wind farm sound outside a dwelling is 40 dBA. This is stricter than the World Health Organization's recommended limit for continuous noise outside dwellings of 45 dBA, and stricter than the limits of 50 dBA in Germany, the USA and the Netherlands..

Noise produced by wind turbines may vary

The loudness of a wind farm as heard by a person nearby will depend on a number of factors including the number and type of turbines, the sensitivity of the listener, how far they are from the wind farm, the wind direction and speed, the presence of any barriers, the topography of the landscape, and the level of background noise.

Noise level examples

- extreme

130 dBA
threshold of pain
- very loud

105 dBA
jet aircraft from 50 metres
- loud

95 dBA
jackhammer drill from 15 metres
- moderate

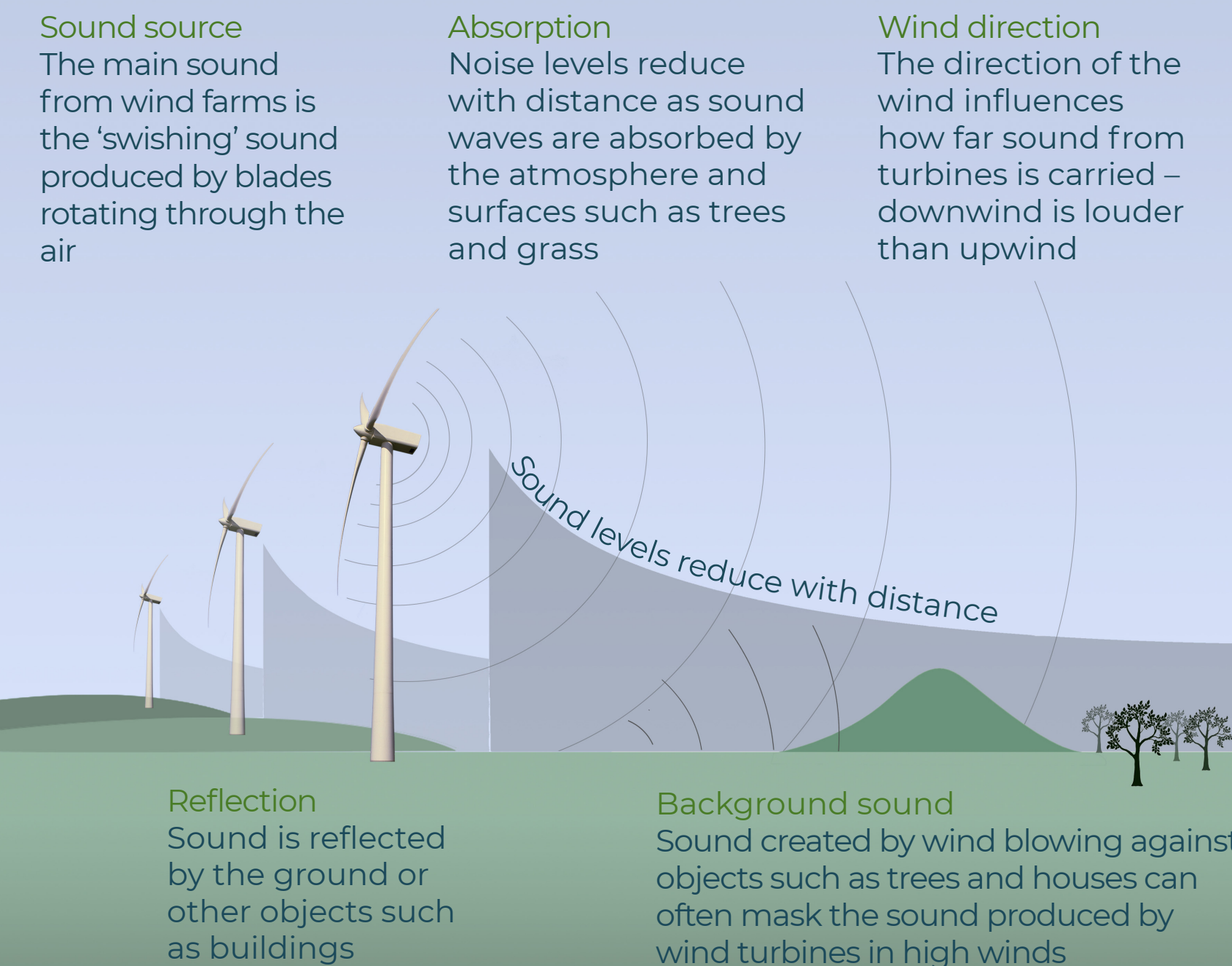
55 dBA
car moving at 64 kilometres per hour from 100 metres
- quiet

35-40 dBA
sound of typical wind farm from 1 kilometre with moderate breeze
- very quiet

20 - 40 dBA
rural night-time background
- almost silent

0 -10 dBA
quiet breathing

Wind Farm Noise and Surrounding Environment



Predicted Noise Contours for Mt Fyans

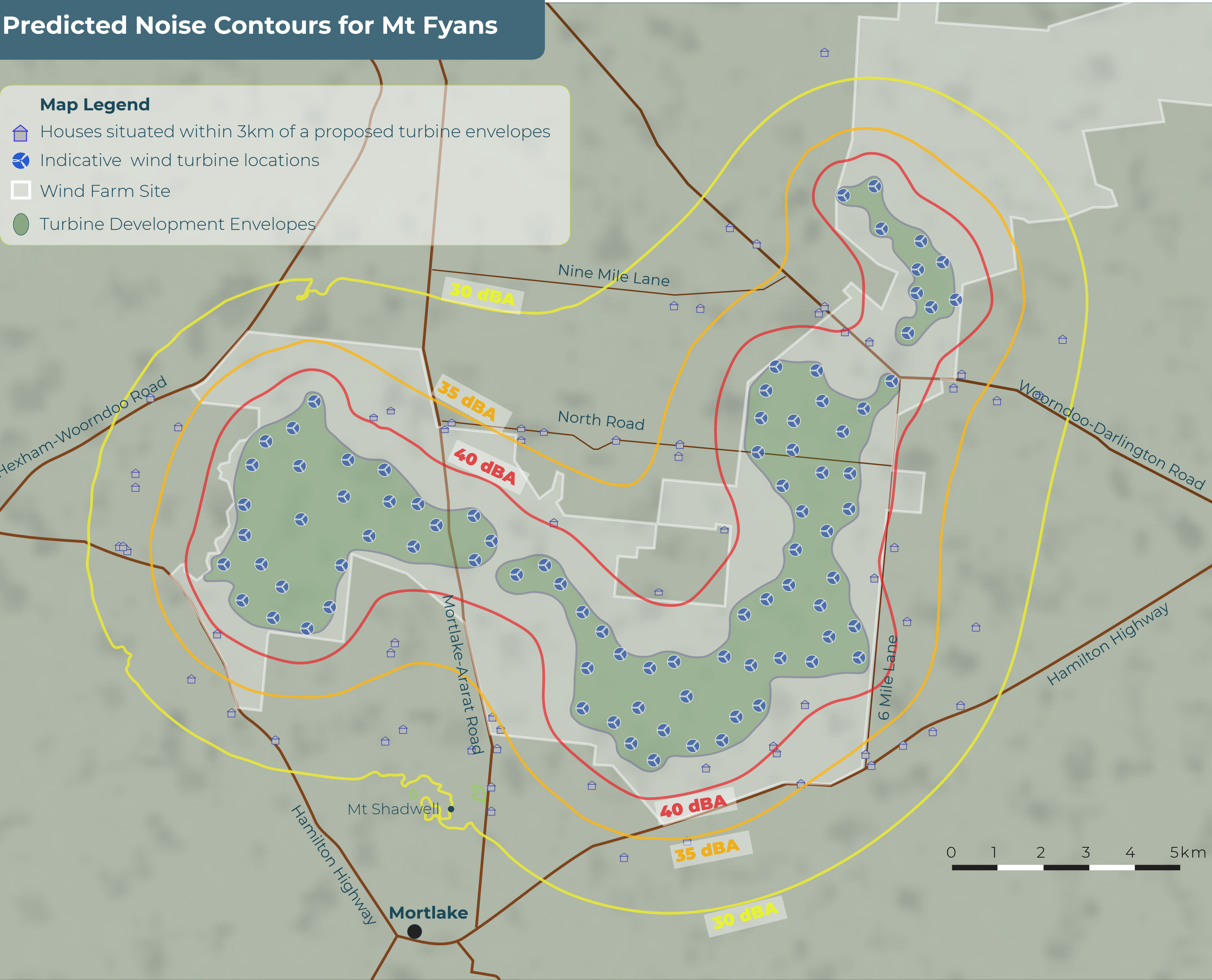
Map Legend

Houses situated within 3km of a proposed turbine envelopes

Indicative wind turbine locations

Wind Farm Site

Turbine Development Envelopes



Sources: State Government of Victoria Department of Health 2013, Wind Farms, Sound and Health: Technical Information, p. 8
Pembina Institute 2009, Wind Power Realities

How loud are wind farms in real terms?

To give a rough idea of how loud a wind turbine might sound, the diagram above shows how the sound level of a wind farm may be experienced compared with other day-to-day noises. The sound level of a typical wind farm (operating at moderate wind speed) from 500 to 1000 metres away is about 35–45 dBA, which is lower than many other common sources of sound (similar to the sound in a quiet room, or the sound of a fridge).

What is the Noise contour map showing (image on left)?

This map shows the noise contours (measured in dBA) for the Mt Fyans Wind Farm. It also shows houses that are within 3km of a proposed wind turbine and some of the local and state roads. The noise contours are modelled by Marshall Day Acoustics and are based on worst case scenario wind conditions.

How is compliance with noise limits managed?

In Australia, environmental noise thresholds are generally set by state government environmental agencies, and managed through state and local planning processes. If noise limits are exceeded, the wind farm operator becomes legally obliged to take action to reduce sound levels to the limits. This may mean making changes at the source (e.g. managing the wind farm differently at particular times or during specific wind regimes) or making changes at the receiver to reduce the exposure of residents to noise (e.g. modifications to or near dwellings to provide a greater sound barrier).

QUICK FACTS

The sound level of a typical wind farm from 500 to 1000 metres away is about
35 – 45 dBA
similar to a quiet room, or the noise a fridge makes.

If noise limits are exceeded, wind farm operators are **legally required to act**



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