



WIND TURBINE NOISE

Wind farms in Queensland are required to meet strict approval conditions set by the Queensland Government. These include making sure noise stays within set limits to protect nearby homes and properties. This fact sheet addresses some frequently asked questions about wind turbine noise, including how it is assessed, monitored and managed during the wind farm's operations.

What rules does Wambo Wind Farm have to follow for noise?

Noise from Wambo Wind Farm is regulated through the project's Development Approval and Queensland planning requirements for wind farms.

The Queensland Government planning code 'State Code 23: Wind farm development' sets the requirements for how wind farms are designed, assessed and operated. It covers a range of matters including amenity, environmental impacts, safety and community impacts, including noise.

The code sets clear performance standards that projects must meet, which are then enforced through a wind farm's Development Approval.

Compliance with State Code 23 is shown through detailed assessments, monitoring and reporting to the Queensland Government, helping to ensure wind farms operate responsibly and in line with approved conditions. You can find it online at www.planning.qld.gov.au.

Contact Us

✉ info@wambowindfarm.com.au

☎ 1800 490 475

🌐 www.wambowindfarm.com

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What are the noise limits for wind farms?

The planning requirements for wind farms in Queensland set clear limits for how much noise is allowed at surrounding residences.

Different limits apply to properties that host turbines and those that do not, with stricter limits for non-host residences. These requirements are legally enforceable and designed to protect the local community.



Night: During operations, noise from the wind farm is not permitted to exceed 45 dB for host residences, or 35 dB for non-host (neighbouring) residences.



Day: During operations, noise from the wind farm at non-host (neighbouring) residences must not exceed 37 dB (or the background noise level plus 5 dB whichever is the greater).

Was noise considered before the wind farm was built?

Yes. As part of the development approval process, Wambo Wind Farm engaged an independent acoustic specialist to carry out a detailed Noise Impact Assessment.

This included identifying nearby homes, measuring existing background noise across the area and using established modelling techniques to predict the noise the turbines would create at various locations both within the wind farm area, and nearby. The modelling used conservative assumptions to make sure the wind farm could meet its obligations under a range of conditions.

Who carries out these assessments?

Acoustic assessments must be undertaken by suitably qualified professionals. This includes engineers or consultants who meet recognised industry standards, such as Registered Professional Engineers of Queensland or members of professional acoustic organisations.

This ensures the work is carried out using accepted scientific and technical methods.



What types of sound do wind turbines make?

Wind turbines generally produce two types of sound.

Aerodynamic sound



This is the most common and comes from the blades moving through the air. It is often described as a rhythmic whooshing sound and varies with wind speed.

Mechanical sound



This comes from internal components such as the gearbox and generator. Modern turbine design reduces this sound through specialised design and fabrication techniques, so it is usually less noticeable.

How is noise monitored once turbines are operating?

The development approval requires Wambo Wind Farm to carry out noise monitoring once the wind farm commences operating to confirm that the actual 'real world' noise levels comply with the limits in the development approval. This noise monitoring is carried out in accordance with an approved noise monitoring plan prepared by independent, qualified acoustic specialists.

Once the wind farm is operating, noise is measured at selected host and neighbouring (non-host) properties where higher noise levels are predicted, as well as at additional locations closer to the turbines to help distinguish wind farm noise from other background sounds.

Monitoring is undertaken over extended periods and assessed against the strict daytime and night-time noise limits set under Queensland planning requirements. The monitoring process includes careful checks to remove the influence of weather, farming activity or other non-wind farm noise, and specific assessments for tonal noise where required.

Results of this monitoring are reported to the Queensland Government to confirm compliance, and if issues are identified, further investigation or management measures may be implemented to ensure noise remains within approved limits. This can include adjusting how the turbines are operated to bring levels back into compliance.

Where can I see the development approval conditions that apply to Wambo Wind Farm?

All documents provided as part of the planning development approval process, along with the development approval and conditions, are published by the State Assessment and Referral Agency (SARA) on its webpage.

You can view these documents by searching for 'White Wind' (the original name for Wambo Wind Farm) on the SARA decision page: **SARA application material | Planning**.

Is the sound from turbines noticeable?

How noticeable the sound is can depend on a number of factors that influence how sound travels. These include:

- Distance from the turbines
- Wind speed and direction
- The shape of the land and surrounding terrain
- Vegetation such as trees or shelterbelts
- Weather conditions, including temperature and humidity

Some conditions can carry sound further, while others can reduce it. In general, the further away you are from the turbines, the quieter the sound becomes.

The experience of noise can also differ greatly from one person to another. The same decibel level of sound may seem loud to one person, but barely noticeable to someone else. Equally, a sound might be highly irritating to one person but neutral or even pleasant to someone else.

How loud are wind turbines?

Wind turbine noise is relatively quiet compared to many everyday activities. For example:



Whispering is about
30 decibels



A refrigerator is about
60 decibels



Traffic from 100 metres away is about
70 decibels



A lawnmower is about
90 decibels

At times, turbine sound may be masked by natural background noise such as wind in trees, birds or rural activity.



What is done to manage noise over time?

Noise management is built into both the design and operation of Wambo Wind Farm. Some of these measures include:

- Strategic placement of turbines to manage potential impacts
- Using modern turbine technology designed to reduce sound
- Operational controls to reduce turbine speed during certain times or conditions
- Ongoing monitoring and maintenance of wind turbines to ensure equipment performs as expected

How should noise data be interpreted?

Noise measurements are expressed in decibels, which provide a technical indication of sound levels. However, time of day, background noise, wind conditions and weather can all influence how sound is experienced. For this reason, measured data is always assessed in context and compared against the approved limits.

What if I have a question about noise from Wambo Wind Farm?

At Wambo Wind Farm, we value open and positive communication with our neighbours and the wider community. We welcome questions and feedback and encourage you to reach out to us at any time.

Noise complaints are handled according to our Complaints Investigation and Response Plan, which is available on our website. Anyone can submit a complaint via email, phone, letter, or in person. For noise issues, we'll request specific details to assist our investigation:

- Address where the noise was observed
- Time(s) of day the noise was observed
- Duration of the noise, and whether it is still occurring
- Whether the noise was observed indoors, outdoors or both
- Description of the noise (how loud it was, and what it sounded like)
- Weather conditions at the time of the observation

If a noise complaint is received, the Wambo team will perform a number of checks to quickly identify any issues that may be causing an unusual noise. This includes reviewing the turbine operating data and corresponding wind data, checking any recent operational noise monitoring data from nearby locations, and physically inspecting the turbine/s likely to be the source of the noise to check for any abnormal noise.

In some cases, further noise monitoring or review by a qualified acoustic consultant may be required.

All complaints are acknowledged by our team when they are received, and responded to within ten business days.

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Stanwell and Cubico acknowledge the Western Wakka Wakka and Barunggam people as the Traditional Owners of the land in which Wambo Wind Farm is located. We recognise their continuing connections to lands, waters and communities and pay our respects to Elders past and present.