

Burrendong Wind Farm



Photomontage of what the wind farm would look like from Wallawaugh Rd, Hargraves.

Burrendong Wind Farm is a utility-scale wind energy project proposed to be located on properties to the east of Lake Burrendong and south of Yarrabin in central western New South Wales. The project design currently involves 70 wind turbines.

Planning and assessment

Utility-scale wind farm developments in New South Wales are considered State Significant Development and subject to a rigorous assessment process managed by the Department of Planning and Environment (DPE).

In September 2022, following changes to the project's design, Ark Energy lodged a revised Scoping Report and DPE issued updated Secretary's Environmental Assessment Requirements (SEARs) for the project. SEARs outline the general and technical assessment requirements for the Environmental Impact Statement (EIS).

The project's Scoping Report and SEARs are available on the Burrendong Wind Farm page in the NSW Government's Major Projects Planning Portal (SSD-8950984):

planningportal.nsw.gov.au/major-projects/projects/burrendong-wind-farm or scan the QR code right.



The updated proposal was also referred to the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) for review under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which protects Matters of National Environmental Significance (MNES).

DCCEEW determined the proposal to be a 'controlled action' that will require approval under the EPBC Act before it can proceed.

The project's EPBC documentation is available from the project's page in the EPBC Act Public Portal (Ref 2022/09268):

epbcpublicportal.awe.gov.au or scan the QR code right.



Over the past year work for the various technical assessment reports required for the EIS has progressed and as findings have become available the design has been modified accordingly.

Key matters to be addressed in the EIS include landscape and visual impact, noise and vibration, biodiversity, traffic and transport, hazards and risks, heritage, water and soils, waste, and social and economic impacts and benefits. It will also include the assessment documentation required for the project's assessment under the EPBC Act.

The assessment will be done by the DPE under the bilateral agreement between the NSW and Commonwealth Governments.

Location



The project area is east of Lake Burrendong, within the Dubbo Regional Council and Mid-Western Regional Council areas, in the Central West region of New South Wales.

It has an excellent wind resource and is within the Central-West Orana Renewable Energy Zone, an area that has identified by the Australian Energy Market Operator and NSW Government as optimal for new renewable energy projects due to the natural resources and proximity to existing or planned network infrastructure.

New renewable energy projects are required to help the NSW Government meet its targets to halve emissions by 2030 and achieve net zero by 2050.

The Burrendong Wind Farm proposal involves up to 70 wind turbines with a generation capacity of approximately 400 to 500 megawatts (MW).

Landscape and visual impact

Assessment of the wind farm's visual impact on the landscape is an important requirement for the EIS. The approach and technical requirements for the assessment are outlined in DPE's *Wind Energy: Visual Assessment Bulletin*.

One of the tools used for a visual assessment are photomontages, which show what the wind farm would look like from representative public viewpoints where it can be seen. Photomontages are produced by technical specialists and involve combining location photographs with a digital representation of the wind farm called a wireframe. Wireframes are produced using specialist industry software and based on precise locations and dimensions of the proposed wind turbine model to give an accurate and correctly scaled representation.

The landscape and visual impact assessment will also include a Shadow Flicker Assessment.

The assessment has been done by specialist visual consultants and will be available when the EIS is placed on public exhibition by the DPE.

Aboriginal cultural heritage

Ark Energy recognises the continuing connection that Aboriginal and Torres Strait Islander Peoples have to their land and Traditional Custodians are important project stakeholders.

The project team is engaging with the project area's Traditional Owners to ensure the protection and maintenance of cultural heritage on the site and respect to traditional values and culture are upheld.

Ecology

Avoiding and minimising impacts to fauna species that might utilise the project area is a priority, and comprehensive and thorough assessment of potential ecological impacts is required by both the NSW and Australian governments.

Key ecology matters that must be included in the EIS are identified by the SEARs, which incorporates the assessment requirements under EPBC Act.

The ecological assessment work has been done by ecologists and site survey teams over multiple seasons. As findings from the ecology work have become available the project's design has been refined and modified accordingly.

The project team is committed to collaborating with stakeholders and host landowners to implement responsible strategies to mitigate construction impacts and a key aim of the project will be to achieve net positive outcomes for biodiversity in the area over the longer term.

Noise

Technological advances have reduced operational wind turbine noise and current models are much quieter than most people generally expect. Noise output from a wind farm can be predicted using acoustic modelling, and the EIS requires a technical noise impact assessment by a suitably qualified acoustic specialist.

Operational noise limits for wind farms in New South Wales, and the technical criteria and methodologies for noise assessment are outlined in DPE's *Wind Energy: Noise Assessment Bulletin*.

The noise limits have been established to ensure the health and safety of individuals and the community. They are designed to preserve peoples' amenity including the ability to sleep at night when background noise is usually low.

The NSW Government has adopted the most stringent noise limit criteria for wind farms. The predicted equivalent noise level at a non-involved residence cannot exceed 35 dB(A) or the ambient background noise by more than 5 dB(A), whichever is greater. The diagram below shows the decibel (dB) level of various familiar sounds for reference.

The purpose of the noise limit "is to retain noise levels that are compatible with surrounding land uses and to ensure that noise levels do not significantly affect the living experience of people residing in the area".

Compliance with the noise limits must be demonstrated before approval is granted and via a noise monitoring program during operation. The noise impact assessment for the EIS is based on the characteristics of the candidate wind turbine. After the specific wind turbine model has been selected the noise assessment must be repeated and demonstrate again that the wind farm will comply with the prescribed noise limits.

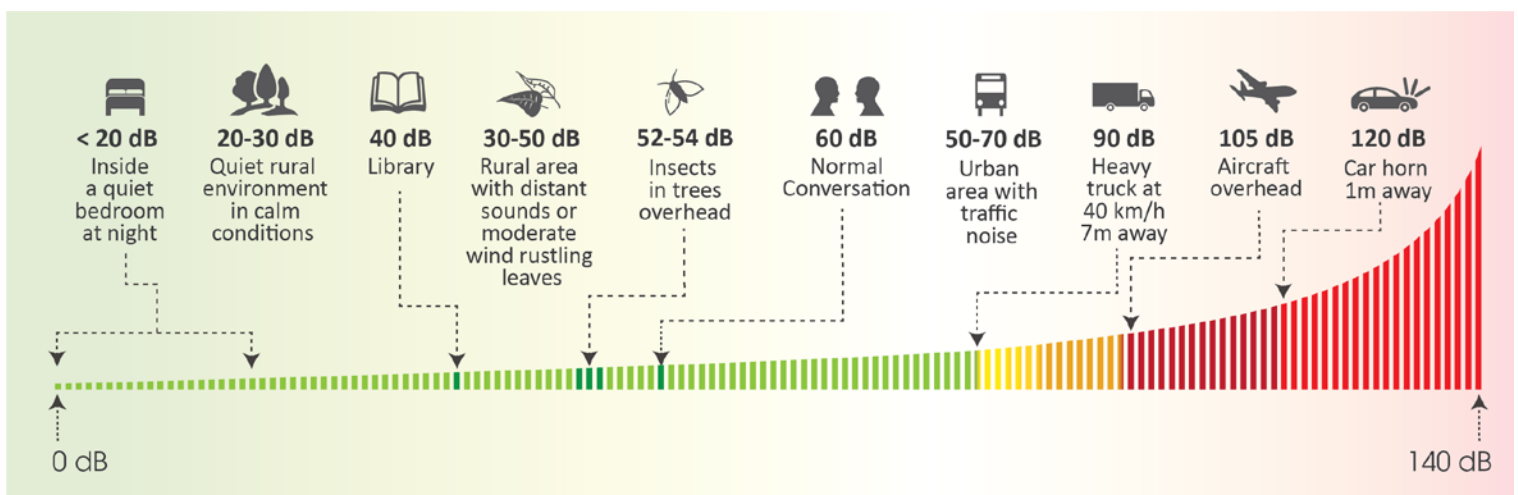
Wind turbine noise and health

The relationship between noise from operating wind turbines and health effects has been the subject of extensive review by independent medical and research organisations including the Australian Medical Association (AMA) and the National Health and Medical Research Council (NHMRC).

To date there is no evidence of a causal relationship between wind turbine noise and adverse health effects.

Both the AMA and NHMRC have published statements on wind farms and health that conclude there is no consistent evidence that wind turbine noise causes adverse health effects in humans.

The Australian Energy Infrastructure Commissioner (AEIC) also provides observations and recommendations around health matters. The AEIC notes that the majority of complaints relate to proposed rather than operating wind farms, and complaints about human health impacts from operating wind farms are in the main anecdotal and without evidence.





Livestock

Hosting wind farm infrastructure can provide a reliable supplementary income stream for farmers as wind farms and grazing are complementary land uses.

There is no evidence that wind turbines have any adverse effects on domestic animals and livestock. Livestock appear to be unaffected by wind turbines and will often graze beneath them and use the posts for shelter and shade.

Roads and construction traffic

Preparing for construction will require upgrades to access roads.

The project will involve comprehensive construction management and traffic management plans, compliant with Occupational Health & Safety legislation and the local government planning scheme. They will cover all aspects of construction and traffic management including working hours, noise, traffic and dust.

Construction can only commence after the detailed engineering design has been completed. A detailed Construction Environment Management Plan will include measures to mitigate and manage biosecurity risks and the spread of weeds or pathogens between infected areas and non-infected areas during construction.

This will include measures such as cleaning of vehicles and construction equipment prior to entering the project site and crossing property boundaries. There will be a particular focus on weeds listed under the *NSW Biosecurity Act (2015)*.

Property values

Property prices are influenced by many factors however there is no evidence to suggest that proximity to a wind farm or the visibility of wind turbines has a measurable negative impact on land values and property sale prices.

The potential for wind farms to impact the value of properties in the surrounding area has been the subject of two separate studies by the NSW Government, one by the NSW Valuer General (2009) and one by Urbis on behalf of the NSW Office of Environment and Heritage (2016).

The studies reviewed property transactions before, during and after the construction of nearby wind farms and analysed sale prices in the context of broader market trends. They did not find a negative impact on property prices from nearby wind farms.

More recently property market researchers suggest that new renewable energy development is likely to have a positive effect on regional property markets, including in the NSW Central-West Orana Renewable Energy Zone.

Fire safety and management

Wind turbines are designed to mitigate fire risk. They are constructed with fire resistant materials and operated by sophisticated monitoring systems that follow automatic shutdown procedures in response to operational issues and can be remotely shut down in the event of fire in the area.

Wind turbines also provide a safe path for lightning strikes to the ground and access tracks serve as natural fire breaks.

A comprehensive bushfire management plan for the site would be developed in consultation with the NSW Rural Fire Service. Fire services would manage firefighting on the site in the same way as any other area, using ground and air-based resources, subject to prevailing weather conditions and avoiding wind turbines in the same manner as any obstruction such as buildings or powerlines.

End of operation

Wind turbines have an operational life of approximately 25 years.

Options at the end of this period include extending the life of the wind farm via refurbishment, repowering the site with new infrastructure or decommissioning.

If the operator decides not to extend or refurbish the wind farm it will be decommissioned, within 12-18 months of ceasing operation.

Decommissioning would involve the establishment of a decommissioning fund by the operator and the removal of above ground infrastructure including wind turbines, electrical infrastructure and maintenance buildings. The site would be returned to its former state where practicable.

Wind turbines are predominantly made of recyclable materials and approximately 85-94% of today's wind turbines are recyclable. Research and developments in technology continue to advance recyclability of wind turbine components. Most – if not all – of the materials would be reused, repurposed, recycled and recovered.

Key benefits

CLEAN ENERGY - Renewable sources of energy are the most efficient and cheapest sources of bulk energy generation. More is urgently needed to replace fossil fuel sources and meet growing electricity demand. Growth in renewable energy capacity will put downward pressure on wholesale electricity prices and deliver affordable, clean, reliable electricity to households and businesses. Burrendong Wind Farm would have an output capacity of 400-500 megawatts and is expected to generate 1,200 GWh of clean energy annually.

COMMUNITY BENEFIT PROGRAM - The project will involve a program to provide meaningful and lasting benefits for the local community. It will be designed in collaboration with local stakeholders and provide funding annually from the start of construction and for the life of the project.

JOB - The project is expected to generate 250+ jobs during the construction period and ~10 full time jobs for operation.

ECONOMIC BOOST - Construction would generate significant expenditure within the local and regional economy including work for contractors and increased patronage for surrounding accommodation, retail, service and hospitality businesses.

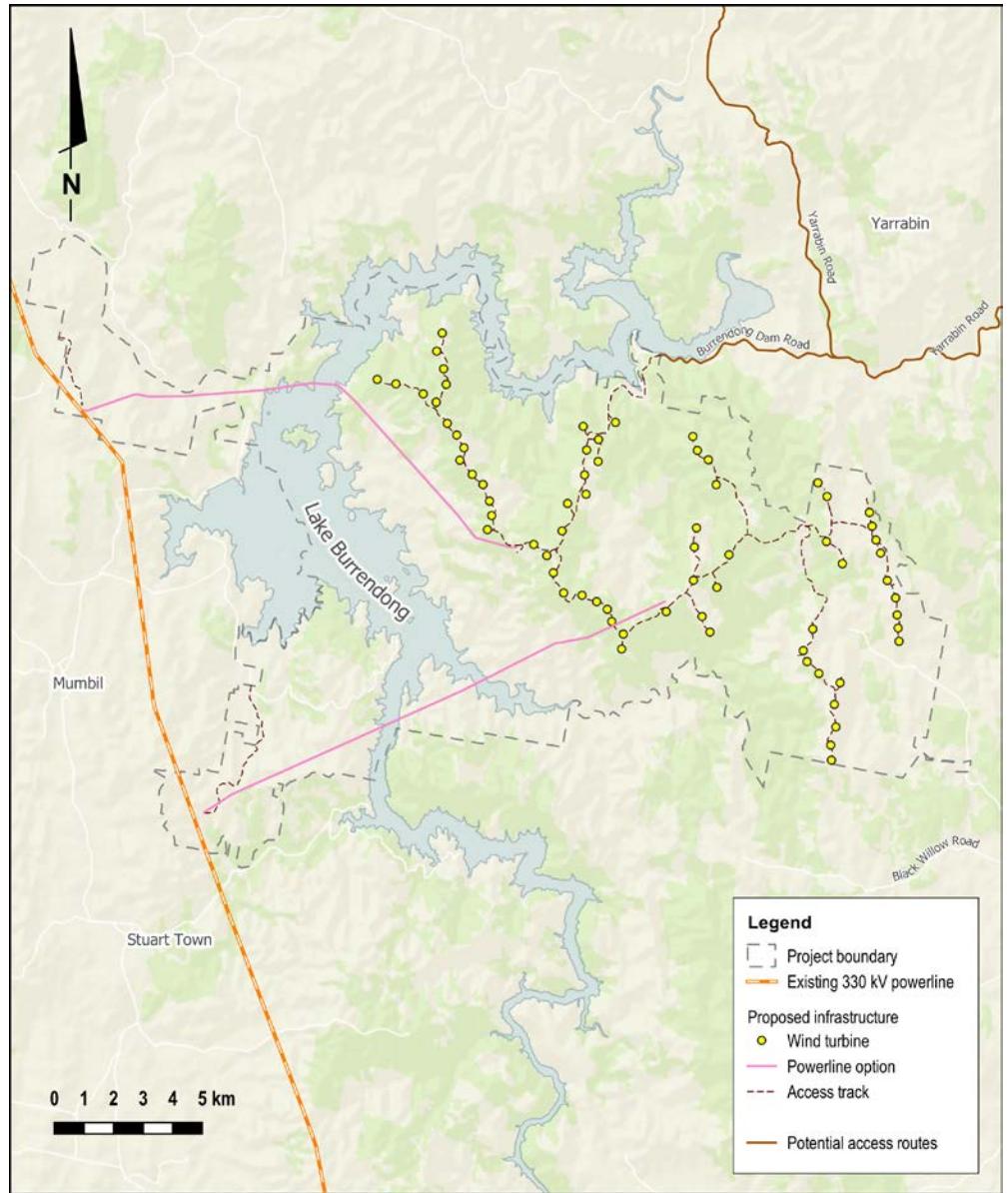
NET GAIN FOR BIODIVERSITY - A goal of the project will be to achieve a net gain for biodiversity in the project area over the longer term. This might involve various initiatives including rehabilitation of the construction disturbance and environmental offsets with improved land management regimes.

Planning & assessment

Utility-scale wind farms in NSW are considered State Significant Development and assessed by the NSW Department of Planning and Environment.

- 1 Site selection and preliminary investigations ✓
- 2 Initial concept and consultation ✓
- 3 Referral (updated) to the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) for review under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). ✓
- 4 Scoping Report (updated) submitted to the NSW Department of Planning and Environment (DPE) ✓
- 5 Determination on EPBC Act referral by DCCEEW - controlled action with assessment under bilateral agreement (Ref 2022/09268) ✓
- 6 Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Impact Statement (EIS) issued by DPE ✓
- 7 Studies, assessments, design ✓
- 8 **Finalising EIS for lodgment** **WE ARE HERE**
- 9 Development application (DA) and EIS lodged with DPE
- 10 DA and EIS on exhibition for public comment
- 11 Responses to submissions and requests for further information (if required)
- 12 Assessment by DPE
- 13 DPE assessment report and recommendation
- 14 Determination by DCCEEW

Burrendong Wind Farm indicative layout – 70 wind turbines



The project is located in an area east of Lake Burrendong and involves 70 wind turbines.

Project updates

Ark Energy is keen to keep interested members of the community up to date on project developments and opportunities to participate. See below details for newsletters.

Thank you

Thank you to everyone who has engaged with us for this project to date. Input from community members is valued. Questions and feedback are welcome at any time and can be sent directly to the project team via the details below or the online feedback form under the 'Feedback' tab on the website. Ark Energy will continue to work with members of the local community and where practicable incorporating local input to improve project outcomes and local benefits.

More information

Tel - 1800 731 296

Email - info@burrendongwindfarm.com.au

Newsletters – register at arkenergy.com.au/mailling-list-details for email news, or to receive newsletters by post, email your postal address and a request to be added to the mail (post) list.

Website - burrendongwindfarm.com.au or scan QR code right



Scan QR code to visit the project website