

WILLATOOK

Wind Farm



INFORMATION BOOKLET



August 2019

CONTENTS

KEY FACTS	03
PROJECT BENEFITS	04
WIND PROSPECT	05
THE EES PROCESS	06
STUDIES	07
FLORA AND FAUNA	08
VISUAL IMPACT	09
NOISE	10
TRANSMISSION LINE	11
ON SITE QUARRY	12
FIRE PREVENTION AND MITIGATION	13
HEALTH	14
PROPERTY VALUES	15
SHARING THE BENEFITS	16
THE WIND FARM LIFE CYCLE	17
NOTES	18-19





KEY FACTS

Turbines

Up to 86

Turbine height

Up to 250 metres

Site area

About 7600 hectares

Rates payable

Estimated at \$500,000 per year, for 25 years

Local Government

Moyne Shire

Responsible Authority

Victorian Minister for Planning

Landholders

23

Installed capacity

Up to 400 megawatts (MW)

Power generation

About 1500 gigawatt hours (GWh) per year

Homes powered

About 300,000

Transmission Line

Up to five kilometres within the site, connecting to the Tarrone Terminal Station

Battery storage

Yes

Emission savings

About 1.7 million tonnes of CO₂ per year

Project status

Undertaking Environment Effects Statement

Construction

About two years

Project lifespan

25 years plus

Construction

If the wind farm secures planning permit approval, construction could begin in 2022 and take about two years. Up to 150 employees would be required for this process.



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PROJECT BENEFITS

ENVIRONMENTAL

- Will generate as much electricity each year as is used by about 300,000 homes - the equivalent of a city the size of Warrnambool about 19 times over
- Save about 1.7 million tonnes of CO² emissions per year

EMPLOYMENT

An estimated:

- 150 staff over the two-year construction period
- 10 ongoing staff for the project's 25-30 year lifespan

ECONOMIC

- An estimated 150 construction staff will each spend \$25,000 per year in the local area (\$3.75m per year into the local economy during construction*)
- About 10 ongoing staff will spend \$250k per year in the local economy*
- Community benefit fund of up to \$86,000 per year (\$2.15m over 25 years)
- Individual neighbour payments of up to \$1.4m per year (\$35m over 25 years)
- Rate payments to the Moyne Shire of up to \$500,000 per year (\$12.5m over 25 years)

* SKM (2012) Wind Farm Investment, Employment and Carbon Abatement in Australia



WIND PROSPECT

Wind Prospect has been developing renewable energy projects in Australia since 2000.

We have achieved planning approval for 20 wind farms and two solar farms, totalling more than 3000 megawatts of electricity generating capacity. Of these projects, more than 1850 megawatts are either operating or under construction.

Wind Prospect uses this experience to identify, design and develop projects that minimise long-term generation costs while working closely with the local community to optimise the project design and minimise local impacts.

We have a substantial development pipeline of Australian projects, including Willatook and also the proposed Hexham Wind Farm.

We are passionate about creating a better future for Australians by developing clean, green energy projects and engaging with local communities to ensure they are involved in every step of the journey.

Further information about Wind Prospect can be found at www.windprospect.com.au.



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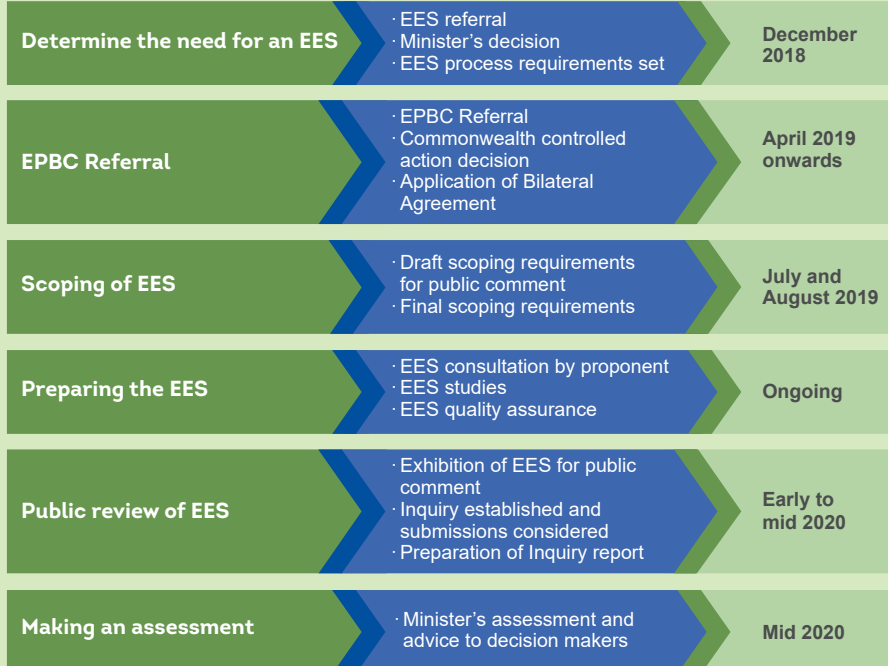
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THE EES PROCESS

The Willatook Wind Farm is currently going through an Environment Effects Statement (EES) Process. The EES process is managed by the Victorian Government's Department of Environment, Land, Water and Planning (DELWP) on behalf of the Minister for Planning.

The EES process occurs under the Environment Effects Act 1978 with the primary role of informing statutory decision-making (Ministers, local government and statutory authorities) with respect to the acceptability of potentially significant environmental effects. The output of the EES process is a Minister's Assessment, which is provided to decision-makers.

Consultation is a key aspect of the EES process in Victoria. It helps build an understanding around the issues and implications of projects and enables stakeholders' knowledge and views to be considered in both project planning and formal decision making.



Feedback from consultation can influence the project design and encompasses both informal consultation during the development of an EES and formal opportunities for public input into both the scoping requirements for an EES and the review of an exhibited EES.

Further information on the EES process can be found at: <https://www.planning.vic.gov.au/environment-assessment/what-is-the-ees-process-in-victoria>

Documents relating to the EES will be uploaded to DELWP's website at: <https://www.planning.vic.gov.au/environment-assessment/browse-projects/projects/willatook-wind-farm>



STUDIES

A variety of independent studies are being undertaken to inform the Environment Effects Statement and planning application. These are being undertaken by a range of expert specialist consultants and cover topics including:

FLORA AND FAUNA

You can read more about these assessments on page 8 of this booklet.

CULTURAL AND HISTORICAL HERITAGE

An independent cultural heritage advisor has been engaged to assess Aboriginal and non-Aboriginal heritage. A preliminary Cultural Heritage Review has been completed, indicating that areas of sensitivity can be avoided.

A complex Cultural Heritage Management Plan (CHMP), is being prepared and an Historic Heritage Assessment is also being undertaken.

NOISE

You can read more about this assessment on page 10 of this booklet.

AVIATION

An Aviation Impact Assessment and Qualitative Risk Assessment will analyse the potential impacts of the wind farm on a variety of factors including flight routes, the operational airspace of any nearby airports, aircraft flying heights and aeronautical communication systems. Specific importance is also given to analysing potential impacts to aerial firefighting and agricultural aviation.

GEOLOGY AND HYDROGEOLOGY

Separate studies are being undertaken on geology and landforms, as well as underground water supplies. These studies will assess potential impacts of the wind farm on geological and hydrogeological assets.

VISUAL AND LANDSCAPE

You can read more about this assessment on page 9 of this booklet.

COMMUNICATIONS

Detailed studies are being undertaken on the potential of electromagnetic interference on emergency services communications, TV reception, phone reception and radio.

SHADOW FLICKER

Detailed modelling is being undertaken for all neighbouring dwellings to ensure no neighbouring dwellings experience more than 30 hours of shadow flicker per year, as per the Development of Wind Energy Facilities in Victoria Policy and Planning Guidelines (March 2019).

TRAFFIC AND TRANSPORT

A detailed Traffic Impact Assessment will identify appropriate construction traffic routes to site, assess potential impacts and propose mitigation measures to reduce the impacts of over-dimensional and construction traffic.

FLORA AND FAUNA

Targeted flora and fauna surveys have been undertaken to assess the site and provide recommendations on how to avoid or minimise impact to significant species and habitats listed in relevant State and Commonwealth legislation.

These surveys assess all State and Commonwealth listed species, with an emphasis on migratory birds and species such as Brolga and Southern Bent-wing Bat.

While flora and fauna surveys are an important part of any wind farm development, they are a significant and critical component of the Environment Effects Statement (EES) process. The aim of the EES process is to develop a site design that preferably avoids but otherwise minimises potential impacts on significant species. Offsets may be required to mitigate residual impacts.

Wind Prospect has actively sought knowledge of flora and fauna from local residents. If you have local knowledge that has not already been shared with Wind Prospect, please contact the Wind Prospect team via the contact details on the last page of this booklet.

Key findings of the targeted flora and fauna studies include:

FLORA

- Eight Ecological Vegetation Classes (EVCs);
- 202 hectares of native vegetation EVC is Plains Grassy Wetland;
- 48 hectares of native vegetation EVC is Stony Knoll Shrubland;
- Proposed removal of about eight hectares of native vegetation;
- Swamp Everlasting species present (species will be avoided);
- Threatened ecological community Seasonal Herbaceous Wetlands of the Temperate Lowland Plains (less than 0.25 hectares proposed to be removed).

FAUNA

- Listed Fauna species include the Growling Grass Frog and two species of fish, Yarra Pygmy Perch and the Dwarf Galaxias;
- Listed bird species include the Brolga and migratory species including the Fork-tailed Swift - Latham's Snipe, Common Greenshank and the Sharp-tailed sandpiper;

- No Brolga flocking sites (i.e. sites where there are 10 or more Brolga overnight in wetlands) are known or were recorded within 10 kilometres of the proposed wind farm;
- A number of Brolga breeding locations are recorded within 10 kilometres of the proposed wind farm including Pallisters Reserve, near Macarthur Wind Farm, within the site boundary, and to the west of the site. Detailed investigations are underway to understand the Brolga's use of the site and area around the wind farm;
- Listed bat species recorded in low numbers were the Southern Bent-wing Bat and the Yellow-bellied Sheathtail Bat;
- The Southern Bent-wing Bat was mainly recorded to the east of the wind farm near the Moyne River and to the west near to the eucalypt plantations. There was limited Southern Bent-wing Bat activity across the site where wind turbine locations are proposed.



VISUAL IMPACT

Landscape and visual impact assessments are an important part of any wind farm development and a key element of the feasibility assessment of the proposed Willatook Wind Farm. An experienced expert landscape architect, Green Bean Design, has been engaged to complete an assessment of the potential visual and landscape impacts of the proposed Willatook Wind Farm. **An important component of this will be an assessment of potential cumulative visual impacts in the context of other existing operational and approved wind farms in the area.** This assessment will be peer reviewed by another independent and experienced expert landscape architect.

Green Bean Design is currently working on the report and has visited the site and nearby area on several occasions. They will be exploring visual screening options for neighbouring residents as part of the assessment.

The process is based on existing best practice in landscape and visual impact assessment, using two key methodological tools:

1. A quantitative assessment which considers how much of the proposed development is visible from particular viewpoints;
2. A qualitative assessment which considers visual prominence, or how prominent the proposed development is within the landscape of the surrounding setting.

This qualitative assessment considers factors such as:

- Existing topography and vegetation that may provide natural screening;
- The scenic quality of the landscape setting;
- Cumulative impact; and,
- The sensitivity of viewers to the proposed development.

Visual assessments will be undertaken at a variety of viewpoints and will adhere to best practice guidelines in landscape and visual impact assessment with reference to:

- Relevant provisions within the state planning policy framework and the local planning policy framework of Moyne Shire Council;
- Development of Wind Energy Facilities in Victoria - Policy and Planning Guidelines (March 2019);
- Best Practice Guidelines for Implementation of Wind Energy Projects in Australia (Clean Energy Council, 2018);
- The Planning and Environment Act 1987; and
- The Environment Effects Act 1978.

Should you have any concerns about visual impacts from your dwelling, please contact the Wind Prospect team via the contact details on the last page of this booklet.

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NOISE

Like almost anything in motion – the ocean, tractors, cars, the wind itself – wind turbines do create sound. Wind turbines in Australia must adhere to strict noise level guidelines.

Victorian guidelines require the proposed Willatook Wind Farm to comply with stringent, internationally-recognised noise standards, namely the New Zealand Standard: Acoustics – Wind farm noise (NZS 6808:2010). The standard provides methods for the prediction, measurement and assessment of sound from wind turbines.

This standard specifies that wind farm sound levels at noise sensitive locations (residential dwellings) should not exceed the background sound level by more than 5 dB or a level of 40 dB L90, whichever is greater. The symbol L90 is the sound level exceeded for 90% of the measurement period. For example, if sound measurements are taken over 10 minutes, L90 will be the noise level which is exceeded for nine minutes of that time. L90 is used for assessing wind farm sound, as it registers the steady, continuous sound typically generated by the turbines, but excludes short peaks in sound levels such as those resulting from gusts of wind.

Wind Prospect has engaged experienced acousticians Sonus to undertake an environmental noise assessment in this area.

The assessment has included background noise monitoring at a number of noise sensitive locations (residential dwellings) around the project to assess the project against NZS 6808:2010. The assessment report will be audited and peer reviewed.

Pre-construction modelling and post construction noise testing would be undertaken to ensure compliance with NZS 6808:2010. Compliance with the standard is the responsibility of the wind farm operator and would be strictly enforced by the Moyne Shire Council to protect the amenity of local residences.

You can find out more in the Victorian Government's Department of Health publication *Wind Farms, Sound & Health*, which you can find at <https://www2.health.vic.gov.au/about/publications/policiesandguidelines> if you enter the keyword sound.

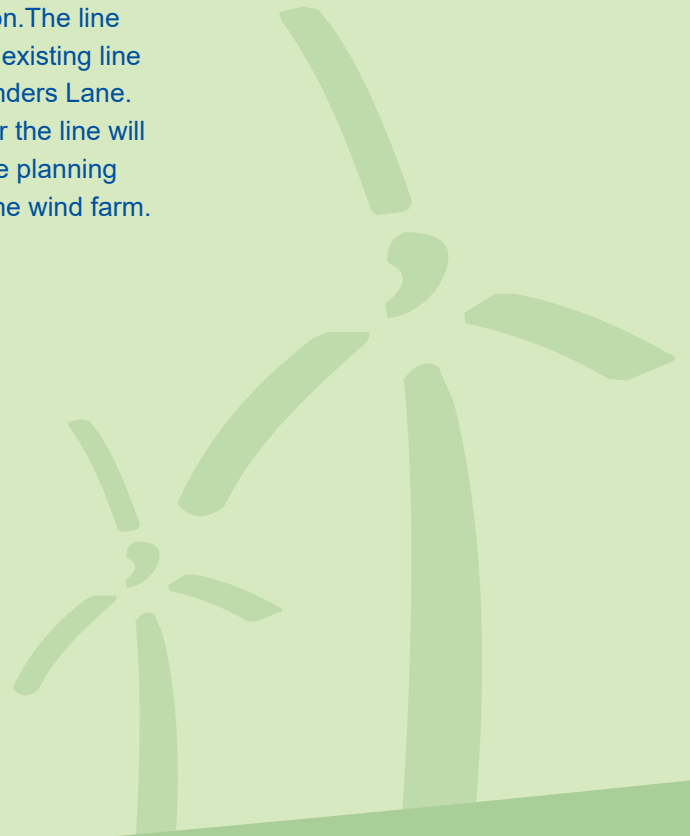




TRANSMISSION LINE

Connection to the grid is a critical component of any wind farm development. A grid connection feasibility assessment has been undertaken and Wind Prospect is also working closely with Ausnet Services as the Transmission Network Services provider and the Australian Energy Market Operator (AEMO) to determine the best grid connection options and alternatives.

The project would connect to the existing 500kV transmission line. The plans at this stage involve five kilometres of transmission line within the site connecting at the existing Tarrone Terminal Station. The line would be similar to the existing line that runs alongside Landers Lane. Planning permission for the line will be sought as part of the planning permit application for the wind farm.



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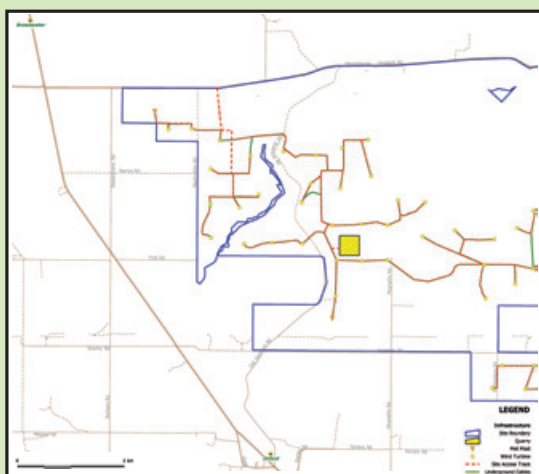
ON SITE QUARRY

Wind Prospect is investigating the possibility of establishing a temporary on-site quarry as part of the wind farm infrastructure.

The approvals process for the quarry requires the preparation of a draft work plan, that is exhibited with the EES.

This draft work plan would allow government department Earth Resources Regulation (ERR) to assess whether the plan should be approved and any conditions that need to be applied. It would set out the scope of the works and any requirements such as monitoring and reporting obligations.

There are a number of factors to consider when identifying a suitable location for a temporary quarry including a suitable quality and quantity of resource, depth of ground water and potential impacts to local residents. The location indicated in the map below is currently being investigated for suitability and feedback from local residents is welcome.



The draft work plan would describe all elements of the quarry, including:

- Internal access tracks;
- Top soil and overburden stockpile;
- Blasting operations; and,
- Crushing plant.

This quarry description would be followed by identification and assessment of all risks associated with the quarry during construction, operation and site rehabilitation, along with a risk management plan to describe the treatment of risks.

Specialist technical assessments underpinning the risk assessments would include:

- Noise and vibration;
- Air quality;
- Groundwater and surface water;
- Cultural heritage;
- Native vegetation;
- Land use and planning;
- Landscape and visual; and,
- Traffic.



FIRE PREVENTION AND MITIGATION

Wind farms can assist in the event of a fire emergency, with access tracks creating natural firebreaks that can be used by firefighters for safe access routes. The Country Fire Authority is consulted as part of the development of wind farms.

The CFA's 2019 Guidelines for Renewable Energy Installations state that when wind turbines are located 300 metres or more apart, there is 'adequate distance for aircraft to operate around a wind energy facility, given the appropriate weather and terrain conditions. Fire suppression aircraft operate under visual flight rules. As such, fire suppression aircraft only operate in areas where there is no smoke and can operate during the day or night.'*

There is no recorded instance of lightning strikes to wind turbines or monitoring masts causing a bushfire in Australia**.

Wind turbines are fitted with comprehensive lightning protection systems that safely transfer any high voltages or currents directly to the earth in the event of lightning strike.

Wind turbines are also fitted with automatic shut down systems that will switch off turbines if temperatures reach a set level.

All high voltage connections between turbines run underground, meaning the risk of electricity-related fire is extremely low.

In the event of a fire at the wind farm, the wind farm owner will switch off the turbines. This can be done remotely and in a matter of minutes.

* Guidelines for Renewable Energy Installations (CFA, February 2019), and p12
** Wind Farms, A guide for communities, Clean Energy Council SKM
(2012) Wind Farm Investment, Employment and Carbon Abatement in Australia



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HEALTH

Several peak medical organisations have undertaken studies to determine if there is a link between wind farms and health issues. Several of these findings are listed below.

AUSTRALIAN MEDICAL ASSOCIATION (2014)

'The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity.'

The infrasound and low frequency sound generated by modern wind farms in Australia is well below the level where known health effects occur, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects'

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL (2010 & 2015)

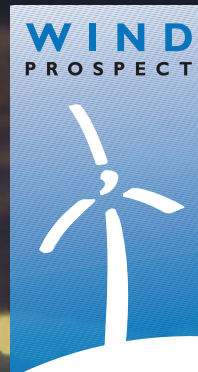
'This review of the available evidence, including journal articles, surveys, literature reviews and government reports, supports the statement that: There are no direct pathological effects from wind farms and that any potential impact on humans can be minimised by following existing planning guidelines' (2010)

'There is no direct evidence that exposure to wind farm noise affects physical or mental health. While exposure to environmental noise is associated with health effects, these effects occur at much higher levels of noise than are likely to be perceived by people living in close proximity to wind farms in Australia.'

The parallel evidence assessed suggests that there are unlikely to be any significant effects on physical or mental health at distances greater than 1,500m from wind farms' (2015)

VICTORIAN DEPARTMENT OF HEALTH (2013)

'The evidence indicates that sound can only affect health at sound levels that are loud enough to be easily audible. This means that if you cannot hear a sound, there is no known way that it can affect health. This is true regardless of the frequency of the sound'



PROPERTY VALUES

Research indicates that wind farms do not negatively impact property prices. Over the past decade, multiple major studies by respected and independent organisations in countries across the world have failed to find any correlation between wind turbines and declining property values. In fact, some of these studies found positive impacts.

The Pyrenees Shire Council in Western Victoria is home to one of Australia's largest wind farms, the Waubra Wind Farm. A land evaluation report presented to council in August 2012 showed that from 2010 to 2012, residential properties in the Waubra area increased in value by 10.1 per cent. This was the largest increase of any town in the shire.¹

It is important to note that the time period represented within the land evaluation report occurred after construction of the project finished in 2009.

A separate study by the NSW Department of Lands in the second half of 2009 looked at properties located near eight wind farms and found no evidence that wind turbines caused property values to drop.

The report found that wind farms 'do not appear to have negatively affected property values in most cases'. The report also found that 'no reductions in sale price were evident for rural properties or residential properties located in nearby townships with views of the wind farm'.²

A 2006 study by Henderson and Horning Property Consultants looked at wind farms and property values over a 15-year period. The study assessed 78 property sales around the operating Crookwell Wind Farm between 1990 and 2006, and found no reductions in property values.

The study concluded that there was no measurable reduction in values of properties that have a line of sight to the Crookwell Wind Farm and soils, improvements and access to services were more important drivers of property values than visual impacts.³

A 2016 report commissioned by the NSW Office of Environment and Heritage (OEH) undertook six case studies across NSW and Victoria. These studies included analysing sales data of properties near wind farms, to identify differences between these properties and the broader sales market over the previous 15 years. The case studies 'did not identify any conclusive trends that would indicate that wind farms have negatively impacted on property values'.⁴

¹ Pyrenees Shire Council Meeting minutes: http://www.pyrenees.vic.gov.au/Your_Council/Councillors/Council_Meetings/21082012

² NSW Department of Lands report: http://www.lpi.nsw.gov.au/__data/assets/pdf_file/0018/117621/t0L51WT8.pdf

³ Henderson & Horning (2006): 'Land Value Impact of Wind Farm Development: Crookwell NSW', Henderson & Horning Property Consultants, Sydney.

⁴ Urbis (2016) report: <https://www.environment.nsw.gov.au/resources/communities/wind-farm-value-impacts-report.pdf>, p20

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SHARING THE BENEFITS

Wind Prospect is committed to working with the communities where our projects are based. That's why we have developed a Benefit Sharing Proposal for the Willatook Wind Farm, which will see numerous initiatives implemented to share the benefits of the wind farm across a broad geographic base. These initiatives are subject to ongoing consultation.

NEIGHBOUR BENEFITS PROGRAM

The Neighbour Benefits Program is intended to provide an annual financial benefit to neighbours who have a property near to operational wind turbines. This program would begin at the commencement of construction and continue for the life of the project.

Eligible dwellings would receive payments (indexed with CPI) of **\$3500** per year for each turbine constructed within two kilometres of their dwelling, a further **\$1000** per year for each turbine constructed within two to three kilometres of their dwelling and **\$100** for each additional turbine that is constructed between three and six kilometres of their dwelling. Each eligible dwelling within six kilometres of a turbine will receive a minimum payment of \$1000 per annum.

COMMUNITY CO-INVESTMENT PROGRAM

The Community Co-Investment Program would, subject to sufficient interest, allow those in the local and broader community to invest in the project and share the financial benefits. The initial stages of assessing community interest in the Community Co-Investment Program would occur following completion of construction.

ENERGY COST OFFSET PROGRAM

The Energy Offset Program is intended to assist neighbouring residents that live near operating turbines to combat rising energy costs.

The program would begin within six months of the commencement of project construction.

Inhabited dwellings, community groups, sporting groups and education facilities up to six kilometres from an operating turbine would be eligible to offset their cost of electricity up to the usage level of the average Victorian home.

COMMUNITY BENEFIT FUND

Established prior to the project becoming operational and continuing for the project's 25-year plus lifespan, the Community Benefit Fund would provide long-term financial support to local community groups for a range of community-based initiatives, projects, major capital works and events.

The Community Benefit Fund would incorporate **\$1000 per operational turbine per year** (up to \$86,000 per year), indexed with CPI.

While the fund would be overseen by the project operator, the intention is that it will be administered by a formally established community group.

There will be extensive consultation with the Moyne Shire Council and the local community to see what shape this fund should take.



THE WIND FARM LIFE CYCLE

Developing a wind farm is a long and complicated process that often involves many years of assessment prior to applying for a planning permit. There are a range of factors that need to be considered, from the available wind resource to heritage, grid connection and environmental impacts, prior to an investment decision being made.

There are six steps in the wind farm life cycle: site selection; project feasibility; planning and approvals; construction; commissioning and operations; decommissioning. Community and stakeholder engagement will commence in Stage 2 and continue through to Stage 6.



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NOTES

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