

# Hexham Wind Farm

## Abbreviations and glossary





## Abbreviations

Abbreviation	Expanded form
ABS	Australian Bureau of Statistics
AC	Advisory Circular
AEIC	Australian Energy Infrastructure Commissioner
AEMO	Australian Energy Market Operator
AEP	Annual Exceedance Probability
AGRД	Austroads Guide to Road Design
AGTM	Austroads Guide to Traffic Management
AIP	Aeronautical Information Publication
ANZECC	Australian and New Zealand Environment and Conservation Council
AQMP	Air Quality Management Plan
BAMP	Bat and Avifauna Management Plan
BAI	Broadcast Australia Infrastructure
BESS	Battery Energy Storage System
BMO	Bushfire Management Overlay
CAMBA	China – Australia Migratory Bird Agreement
CASA	Civil Aviation Safety Authority
CEC	Community Engagement Committee
CEMP	Construction Environmental Management Plan
CFA	Country Fire Authority
CFA Guidelines	Design Guidelines and Model Requirements for Renewable Energy Facilities (CFA, 2025)
CHMP	Cultural Heritage Management Plan
CMA	Catchment Management Authority
CNVG	Construction Noise and Vibration Guideline
CNVMP	Construction Noise and Vibration Management Plan
COVID-19	Coronavirus
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAWE	Department of Agriculture, Water and the Environment
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DEECA	Department of Energy, the Environment and Climate Action
DELWP	Department of Environment, Land, Water and Planning
DEPI	Department of Environment and Primary Industries
DEWHA	Department of the Environment, Water, Heritage and the Arts
DISR	Department of Industry, Science, Energy and Resources
DJPR	Department of Jobs, Precincts and Regions
DoE	Department of the Environment
DoEE	Department of the Environment and Energy
DOH	Department of Health
DPCD	Department of Planning and Community Development
DSE	Department of Sustainability and Environment
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
DTP	Department of Transport and Planning
DTPLI	Department of Transport, Planning and Local Infrastructure

Abbreviation	Expanded form
EES	Environment Effects Statement
EES scoping requirements	Final Scoping Requirements for Hexham Wind Farm Environment Effects Statement
EMF	Environmental Management Framework
EMAC	Eastern Maar Aboriginal Corporation
EMI	Electromagnetic interference
EMM	Environmental Management Measure
EP Act	Environment Protection Act 2017
EPA Victoria	Environment Protection Authority Victoria
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERS	Environment Reference Standard
EVC	Ecological Vegetation Class
FFG Act	Victorian <i>Flora and Fauna Guarantee Act 1988</i>
FOV	Field of View
FTE	Full-Time Equivalent
GED	General Environmental Duty
FP-SR	First Peoples – State Relations
GDE	Groundwater Dependent Ecosystem
GHG	Greenhouse Gas
GIS	Geographic Information System
GPS	Global Positioning System
GEWVVP	Grassy Eucalypt Woodland of the Victorian Volcanic Plain
GIS	Geographical Information System
GW	Gigawatts
HO	Heritage Overlay
HV	High Voltage
IEA	Independent Environmental Auditor
HSE	Health, Safety, and Environment
Interim Brolga Guidelines	Interim Guidelines for the Assessment, Avoidance, Mitigation and Offsetting of Potential Wind Farm Impacts on the Victorian Brolga Population 2011 (DSE, 2012)
JAMBA	Japan – Australia Migratory Bird Agreement
kV	Kilovolts
LCOE	Levelised Cost of Energy
LDAD	Low Density Artefact Distribution
LDAR	Leak Detection and Repair
LGA	Local Government Area
LiDAR	Light Detection and Ranging
µg	Microgram
MRSD Act	Victorian <i>Mineral Resources (Sustainable Development) Act 1990</i>
the Minister	Minister for Planning
MNES	Matters of National Environmental Significance
MSA	Minimum Safe Altitude
MSC	Moyne Shire Council
MNES	Matters of National Environmental Significance
MW	Megawatts

Abbreviation	Expanded form
NASF	National Airports Safeguarding Framework
MWh	Megawatt hour
NEM	National Electricity Market
NGER	National Greenhouse and Energy Reporting
NVCR	Native Vegetation Credit Register
NVMP	Noise and Vibration Management Plan
NSW DPI	New South Wales Department of Primary Industries
NSW DPIE	New South Wales Department of Planning, Industry and Environment
NSW Guidelines	Cumulative Impact Assessment Guidelines for State Significant Projects (NSW DPE, 2022)
OEMP	Operations Environmental Management Plan
OSOM	Oversize and Overmass
the project	Hexham Wind Farm
NTGVVP	Natural Temperate Grassland of the Victorian Volcanic Plain
New Zealand Standard	New Zealand Standard 6808:2010 Acoustics – Wind Farm Noise
Noise Protocol	EPA Victoria Publication 1826.4: Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues
NO <sub>x</sub>	Nitrogen Oxides
PEM	EPA Victoria Publication 824: Protocol for Environmental Management: Greenhouse gas emissions and energy efficiency in industry
Planning Guidelines	Policy and planning guidelines for development of wind energy facilities in Victoria (DTP, 2023a)
PM	Particulate matter
PTV	Public Transport Victoria
Project proponent	Hexham Wind Farm Pty Ltd
QA	Quaternary Aquifer
RAP	Registered Aboriginal Party
RCS	Respirable Crystalline Silica
RCP	Representative Concentration Pathway
REZ	Renewable Energy Zone
SBV	Strategic Biodiversity value
RAP	Registered Aboriginal Party
ROKAMBA	Republic of Korea – Australia Migratory Bird Agreement
SEC	State Electricity Commission
STP	Shovel Test Pit
SWMP	Sediment, Erosion and Water Quality Management Plan
SWREZ	South West Renewable Energy Zone
TDS	Total Dissolved Solids
TEC	Threatened Ecological Communities
TfNSW	Transport for New South Wales
TP	Test Pits
TRG	Technical Reference Group
UTB	Upper Tertiary / Quaternary Basalt
VAHR	Victorian Aboriginal Heritage Register
VCAT	Victorian Civil and Administrative Tribunal
VHI	Victorian Heritage Inventory

Abbreviation	Expanded form
VHR	Victorian Heritage Register
VICSES	Victoria State Emergency Service
VRET	Victorian Renewable Energy Target
VWI	Victorian Wetland Inventory
WBPGW	Western Basalt Plain (River Red-gum) Grassy Woodland
W(B)PGC	Western (Basalt) Plains Grassland Community
WSP	WSP Australia Pty Ltd

# Glossary

Term	Definition
A-weighting	Frequency adjustment representing the response of the human ear, devised to attempt to take into consideration that human response (or sensitivity) to sound is not consistent across all frequencies.
Acid sulfate soil	<p>Naturally occurring soils, sediments and peats that contain iron sulfides, predominantly in the form of pyrite materials. Without oxygen, these materials remain and do not pose a significant risk to human health or the environment. However, if acid sulfate soil is disturbed and exposed to oxygen, the iron sulfides in the material produces sulfuric acid. The acidification of the soil from this process can impact the environment, land use, infrastructure and human health.</p> <p>See also '<b>Potential acid sulfate soil</b>'.</p>
Aerodrome categories	<p>Aerodromes fall into three categories:</p> <ul style="list-style-type: none"> <li>• Military (or combined military and civilian): operated by the Department of Defence, suitable for the operation of military aircraft.</li> <li>• Certified: regulated under Civil Aviation Safety Regulations 1998.</li> <li>• Uncertified: any other aerodrome, aeroplane landing area or airstrip, which can range in capability and size (e.g., sealed runway or grass paddock).</li> </ul>
Affected parties	<p>Those directly affected by the project, typically (but not always) within (nominally) 6 kilometres of a wind turbine.</p> <p>See also '<b>Interested parties</b>'.</p>
Airblast (overpressure)	Sub-audible, low frequency (1–20 Hertz) change of air pressure that radiates from blast sites
Annual Exceedance Probability	<p>The probability or risk of a flood of a given size occurring or being exceeded in any given year.</p> <p>A flood with a 1% Annual Exceedance Probability (AEP) has a one in a hundred chance of being exceeded in any year, whereas a flood with a 10% AEP has a ten in a hundred chance of being exceeded.</p>
Aquifer	Permeable rock which collects water that seeps into the ground (i.e., groundwater).
Area of Aboriginal Cultural Heritage Sensitivity	Areas (defined in the Aboriginal Heritage Regulations 2018) that potentially retain Aboriginal cultural heritage. This includes land within 200 metres of named waterways and within 50 metres of registered Aboriginal cultural heritage places.
Artefact scatters	In relation to Aboriginal cultural heritage, places consisting of more than one stone artefact related to activities such as stone tool production, hunting and gathering or domestic places associated with campsites. Isolated scatters refer to a single artefact.
Australia's National Greenhouse Accounts	A series of reports published by the Commonwealth Department of Industry, Science, Energy and Resources that detail annual reported GHG emissions, track progress towards Australia's emission reduction commitments, inform future emission reduction commitments, and support the creation of domestic reduction policies.
Barrier effects	Effects occurring when wind farms disrupt the movement of animals by creating physical or behavioural obstacles that prevent them from accessing important habitats or migration routes. This can cause habitat isolation and reduce the ability of species to move through the landscape.
Bat detector nights	Monitoring sessions (typically dusk to dawn) where acoustic recorders are deployed to capture the vocalisations of bats during their active periods.

Term	Definition
Batters	<p>The sloped sides of an excavation or embankment. A cut batter is created when material is removed to lower the surface level, while a fill batter is created when material is added to raise the surface level.</p> <p>The angle of the batter is determined by the type of soil and the project's requirements, and is expressed as vertical/horizontal (e.g., 1V:2H). That is, for every two units moved horizontally, the slope height increases/decreases by one unit.</p>
Batteries	<p>Batteries store electrical energy in chemical form. There are a range of battery technologies that enable large-scale energy storage such as lithium-ion and zinc-hybrid.</p> <p>See also '<b>Large-scale batteries</b>'.</p>
Bilateral agreement	<p>An agreement between the Australian Commonwealth and Victoria that allows the Commonwealth Minister for the Environment to rely on environmental impact assessments (undertaken in accordance with Victorian legislation) to assess actions under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>.</p>
Biodiversity	<p>Refers to the variety of ecosystems, communities, and flora and fauna populations within a defined area.</p>
Blade feathering	<p>Refers to the act of preventing the turbine blades from free-spinning below the cut-in speed, which is achieved by locking turbine blades or angling the blades to be parallel to the wind.</p>
Blade glint	<p>The reflection of sunlight from wind turbine blades.</p>
Broader community	<p>The broader regional community within the entire Moyne Shire.</p> <p>See also '<b>Local community</b>' and '<b>Near neighbours</b>'.</p>
Brolga home range	<p>The area where Brolgas are likely to occur more frequently throughout their breeding season, based on distances moved by Brolga families within, between, and around wetlands.</p>
Carbon dioxide equivalent	<p>A term describing different greenhouse gases in a common unit. Carbon dioxide equivalent or CO<sub>2</sub>e signifies the amount of carbon dioxide (CO<sub>2</sub>) which would have the equivalent global warming impact for any quantity and type of greenhouse gas. This allows for the global warming potential for a number of GHG to be aggregated into a single indicator.</p>
Categories of avoidance	<p>In relation to bats, a mitigation hierarchy adopted to prioritise the mitigation of impacts to high quality bat habitat as it is not feasible to avoid all potential Southern Bent-wing Bat habitat throughout south-east Victoria using a 269-metre buffer. This included:</p> <ul style="list-style-type: none"> <li>• High priority avoidance: Creeks, wetlands, remnant native woodland, forestry plantations, and higher number of Southern Bent-wing Bat-definite or complex calls per night relative to other sites.</li> <li>• Medium priority avoidance: Planted windrows and eucalypts, farm dams, and medium number of Southern Bent-wing Bat-definite or complex calls per night relative to other sites.</li> <li>• Low priority avoidance: Scattered trees, isolated windrows (100 metres from other trees), and low/very low number of Southern Bent-wing Bat-definite or complex calls per night.'</li> </ul> <p>See also '<b>Turbine risk categories</b>'.</p>
Chord length	<p>Wind turbine blade width along the length of the blade, with the thickest part of the blade (close to the hub) the maximum chord and the thinnest part (at the tip) the minimum chord.</p>

Term	Definition
Collision risk modelling	Modelling undertaken to identify the likely number of Brolga collisions due to the project over its lifetime, based on avoidance scenarios. The Interim Brolga Guidelines state the objective of collision risk modelling is “ <i>to estimate the residual number of Brolga movements which have the potential to interact with wind turbines on the proposed site and from this estimate the annual collision risk</i> ”.
Community Engagement Committee	Committee established by Moyne Shire Council in 2010 to provide a forum for direct engagement between the project team, representatives from the local community, and the Moyne Shire Council (including councillors and staff).
Complex calls	<p>Calls with characteristics that could be attributed to the Southern Bent-wing Bat, Little Forest Bat or Chocolate Wattled Bat are referred to as ‘complex calls’ as they are difficult to attribute to an individual species.</p> <p>Confirmed calls are those which can be directly attributed to a single species.</p>
Concept design	<p>Initial project design, developed based on a preliminary understanding of the environment, early stakeholder consultation, and experience developing comparable projects in similar environments.</p> <p>This was the design in the EES and EPBC Act referral submissions.</p> <p>See also ‘<b>Current design</b>’.</p>
Condition Scores	Condition Scores for native vegetation patches are assigned in accordance with the habitat hectares scoring method detailed in Vegetation Quality Assessment Manual (DSE, 2004b), which involves comparison against a mature and apparently long-undisturbed benchmark.
Consequence	<p>The magnitude or severity of the impact on the identified value, which is usually a factor of the geographic extent and/or duration of the predicted change to the value.</p> <p>The risk assessment framework used to determine the risk overall level of environmental harm (or damage) was based on both consequence and likelihood.</p> <p>See also ‘<b>Likelihood</b>’.</p>
Construction disturbance area	Land which would be disturbed to construct the project.
Crown land	Crown land is land that is owned and managed by the State Government, which is generally not freehold title.
Cultural Heritage Management Plan	Required under the <i>Aboriginal Heritage Act 2006</i> when an activity is considered to pose a risk to Aboriginal cultural heritage, being both a ‘high impact activity’ and occurring in an ‘area of cultural heritage sensitivity’ (as defined in the Aboriginal Heritage Regulations 2018), or if an EES is required.
Cumulative impact	Combination of effects on the existing environment from multiple projects (or activities) occurring in the same area and over similar timeframes.
Current design	<p>Project design, refined based on findings from initial technical studies, feasibility investigations and input from stakeholders. This is the design assessed by the technical specialists and presented in this EES.</p> <p>See also ‘<b>Concept design</b>’.</p>
Current wetlands	Wetlands mapped within the Department of Energy, Environment and Climate Action Victorian Wetland Inventory, which shows the extent and types of wetlands in Victoria, incorporating local and regional wetland datasets.

Term	Definition
dBA	<p>A-weighted noise level measured in decibels (i.e., unit for expressing sound intensity).</p> <p>See also '<b>A-weighting</b>'.</p>
dB <sub>L<sub>A90</sub></sub>	<p>Used in the New Zealand Standard 6808:2010 Acoustics – Wind Farm Noise (New Zealand Standard) to assess noise generated by wind energy facilities. It refers to a sound level measurement being the average decibel that was equalled or exceeded 90% of the time.</p>
dB <sub>L</sub>	<p>Measure of airblast (overpressure), associated with sound pressure levels. This is a separate measure to the audible component of a blast, which uses dBA and measures noise levels that affect hearing.</p> <p>See also '<b>dBA</b>' and '<b>airblast (overpressure)</b>'.</p>
dB ENL	<p>Effective Noise Level, as per EPA Victoria Publication 1826.4: Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues (Noise Protocol)</p>
Design controls	<p>Robust measures developed during the project design stage with the intent of avoiding or minimising impacts on defined environmental values or sensitive receptors.</p>
Designated waterway	<p>The <i>Water Act 1989</i> defines a 'designated waterway' as "<i>a natural channel in which water regularly flows, whether or not the flow is continuous</i>".</p>
Dewatering	<p>In-pit sump pumping of groundwater inflow, surface water run-off and rainfall.</p>
Direct impacts	<p>Impacts resulting from direct interaction between the project and the biophysical environment, and there is an immediate cause-and-effect relationship (e.g., land disturbance and removing habitat).</p> <p>See also '<b>Indirect impacts</b>'.</p>
Dissolved oxygen	<p>In relation to water quality, a measure of how much oxygen is dissolved in water. Low levels of dissolved oxygen (hypoxia) can lead to fish kill events.</p>
Earth and energy resources industry	<p>Defined under Clause 73.03 of the Moyne Planning Scheme as:</p> <p><i>"Land used for the exploration, removal or processing of natural earth or energy resources. It includes any activity incidental to this purpose including the construction and use of temporary accommodation."</i></p> <p>This land use is applicable to the proposed on-site quarry.</p>
Earth features	<p>In relation to Aboriginal cultural heritage, places where Aboriginal people lived over long periods of time (includes mounds, earth rings and hearths).</p>
Ecological Vegetation Class	<p>The basic mapping unit for ecosystem assessment, biodiversity planning and conservation management. An Ecological Vegetation Class is described through a combination of its floristic, life form and ecological characteristics.</p>
Edge effects	<p>Ecological alterations linked with development of sudden, artificial edges of forest fragments. These changes can include greater exposure to sunlight and wind and altered vegetation structure and composition.</p>
Effective Noise Level	<p>The effective noise level from commercial, industrial or trade premises determined in accordance EPA Victoria Publication 1826.5: Noise limit and assessment protocol for the control of noise from commercial, industry and trade premises and entertainment venues. This is the LAeq noise level over a 30-minute period, adjusted for the character of the noise. Adjustments are made for tonality, intermittency and impulsiveness.</p>
Electrical conductivity	<p>In relation to water quality, a measure of salinity. Depending on their tolerance thresholds, salinity levels above their preferred range can be harmful to aquatic species.</p>
Electromagnetic interference	<p>Interference with radiocommunication services to communication signals such as television broadcast signals and fixed point-to-point signals.</p>

Term	Definition
Emission scopes	<p>Greenhouse gas emissions sources are categorised into three different scopes in the Greenhouse Gas Protocol. These are:</p> <ul style="list-style-type: none"> <li>• Scope 1: Direct emissions from sources that are owned or operated by a reporting organisation (examples – combustion of fuel used in on-site power generation equipment)</li> <li>• Scope 2: Indirect emissions associated with the import of energy from another source (examples – purchases of electricity)</li> <li>• Scope 3: Other indirect emissions (other than Scope 2 energy imports) which are a direct result of the operations of the organisation but from sources not owned or operated by them (examples include embedded emissions in raw materials, business travel by air/rail and product usage).</li> </ul>
Energy efficiency criteria	<p>Efficiency criterion of a wind turbine is the percentage of the energy production potential of a wind turbine within the wind farm when compared to the maximum energy produced if the wind turbine was installed on its own (i.e., without wake effects reducing its output).</p>
Environment Reference Standard	<p>The Environment Reference Standard (ERS) identifies environmental values and provides a way to assess those environmental values in locations across Victoria. The ERS is itself made up of 'reference standards' that cover ambient air, ambient sound, land, and water (surface water and groundwater).</p>
Environmental Management Framework	<p>Environmental Management Framework has been developed for the project to provide the project with a transparent and integrated framework for managing environmental risk and mitigating adverse effects. The Environmental Management Framework outlines clear accountabilities for the delivery of the project in accordance with the environmental management measures and compliance with all relevant environmental laws, approvals, approval conditions and environmental management plans and procedures to ensure that the environmental risks and potential impacts of the project are effectively managed.</p>
Environmental values	<p>Identified in the Environment Reference Standard, environmental values are aspects of the environment and how we use it that are important to the Victorian community.</p> <p>Environmental values relevant to the project are:</p> <ul style="list-style-type: none"> <li>• Water dependent ecosystems and species – water quality that is suitable to protect the integrity and biodiversity of water dependent ecosystems.</li> <li>• Agriculture and irrigation – water quality that is suitable for agricultural activities such as stock watering and irrigation, as well as a range of other uses such as the irrigation of domestic gardens, commercial agriculture, parks and golf courses.</li> <li>• Traditional Owner cultural values - water quality that protects the cultural values of Traditional Owners, which may include traditional aquaculture, fishing, harvesting, cultivation of fresh water and marine foods, fish, grasses, medicines and filtration of water holes.</li> </ul>
Extraction area	<p>Area of 21.5 hectares within the work authority area.</p> <p>See also '<b>Work authority area</b>'.</p>
General environmental duty	<p>At the centre of the <i>Environment Protection Act 2017</i>, the general environmental duty requires any person in Victoria (businesses, industry and the community) engaging in an activity that may risk harming human health and the environment from pollution and waste to minimise those risks, so far as reasonably practicable.</p>
Gigawatt	<p>Refers to one billion watts or 1,000 megawatts.</p> <p>See also '<b>Megawatt</b>'.</p>

Term	Definition
Groundwater	<p>Refers to a water resource beneath the surface of the earth that forms when water seeps into the ground and is collected within aquifers (permeable rock).</p> <p>Groundwater supplies around 30% of Australia's total water needs.</p>
Groundwater dependent ecosystem	<p>Ecosystems (terrestrial or aquatic) that rely on groundwater to sustain ecological processes and biodiversity.</p> <p>Terrestrial groundwater dependent ecosystems include vegetation and habitats that access groundwater via roots, while aquatic groundwater dependent ecosystems are surface water systems like wetlands, springs, and rivers that are fed or maintained by groundwater inputs.</p> <p>See also '<b>Groundwater</b>'.</p>
Groundwater management areas	Established areas of groundwater in Victoria where groundwater has been intensively developed or has the potential to be developed.
Gully erosion	Formation of channels deeper than 0.3 metres from the concentration of strong flowing water runoff.
Hardstand area	Paved area to locate product stockpiles and any mobile processing plant.
Hydraulic conductivity	Represents the ease in which water can move through the pore spaces and fractures in the rock.
Hydraulic modelling	<p>Rain-on-grid, or direct rainfall model used to establish the extent of the floodplain and streamflow characteristics for different flood events by simulating runoff generated. These characteristics include flood level, velocity and duration.</p> <p>The project used hydraulic modelling software TUFLOW.</p> <p>See also '<b>Hydrologic modelling</b>'.</p>
Hydrogeological conceptual model	Represents the hydrogeological (groundwater) setting, including movement of groundwater, groundwater-surface water interactions and groundwater receptors (users and receiving environments).
Hydrostratigraphic units	Geologic layers that share similar hydrologic characteristics or properties associated with groundwater flow. These units can be classified into aquifer or aquitard units.
Hydrologic modelling	<p>Rainfall runoff model, used to define the existing flood conditions within a catchment by estimating the runoff generated during a rainfall event, and takes into consideration the land cover, topography and soil types within the catchment.</p> <p>The project used hydrologic modelling software RORB.</p> <p>See also '<b>Hydraulic modelling</b>'.</p>
ICUN Red List of Threatened Species	The world's most comprehensive inventory of the global conservation status of plant and animal species. It assesses extinction risk based on scientific data and helps guide conservation actions and policy decisions.
Indirect impacts	<p>Impacts that are at least one step removed from project activities in terms of cause-and-effect links (e.g., upgrade of existing roads has the potential to indirectly increase traffic due to more favourable driving conditions for local road users).</p> <p>See also '<b>Direct impacts</b>'.</p>
Industrial waste	Includes all waste from commercial, industrial and trade activities, and building and road construction.

Term	Definition
Instrument flight rules	<p>Rules applicable to the conduct of flight under instrument meteorological conditions and where flight by visual reference is not possible. Flying by Instrument Flight Rules relies on instruments in the flight deck and navigation by electronic signals.</p> <p>See also '<b>Visual flight rules</b>'.</p>
Interested parties	<p>Those interested in the project and/or could affect the project in some way.</p> <p>See also '<b>Affected parties</b>'.</p>
Kilovolts	<p>Refers to 1,000 volts. Kilovolts are commonly used to describe transmission line voltages.</p>
$L_{Aeq}$	<p>The A-weighted equivalent continuous noise level. It is the energy-average of noise levels of a continuous steady sound occurring over a measurement period.</p>
Landscape character units	<p>Areas classified by slight variations in the landscapes geology, topography, land use and vegetation which create distinct character areas and are used to characterise the existing conditions of the project visual investigation area.</p>
Large-scale batteries	<p>Large-scale batteries typically consist of several components: a battery unit or module, an inverter (to convert electricity from direct current to alternating current and vice versa), and a transformer (to transform the electricity to a different voltage). Each battery module is usually individually controlled with its own monitoring and fire suppression system.</p> <p>Large-scale batteries can store electricity when there is an over-supply or during periods of low demand within the National Electricity Market so that the electricity is available when demand is higher and/or supply decreases. They also stabilise the grid during frequency disruptions.</p> <p>Large-scale batteries can immediately dispatch stored electricity when energy demand exceeds generation supply or when there is a temporary loss of supply. This can reduce the frequency of blackouts and the need for load shedding when there is a supply imbalance.</p> <p>See also '<b>Batteries</b>'.</p>
Large tree	<p>A tree is considered to be a large tree if it is greater or equal to the large tree benchmark diameter at breast height for the relevant bioregional Ecological Vegetation Class.</p>
Likelihood	<p>The probability that an environmental, social or heritage value will be impacted by a project activity (creating a hazard).</p> <p>The risk assessment framework used to determine the risk overall level of environmental harm (or damage) was based on both likelihood and consequence.</p> <p>See also '<b>Consequence</b>'.</p>
Local community	<p>Defined as being within 10 kilometres of proposed wind turbine locations, including residents of Hexham, Caramut and Ellerslie.</p> <p>See also '<b>Broader community</b>' and '<b>Near neighbours</b>'.</p>
Low density artefact distributions	<p>In relation to Aboriginal cultural heritage, places that contain artefacts at concentrations of less than 10 artefacts in a 10 x 10 metre area.</p>
Management measures	<p>Administrative or procedural controls that will reduce the likelihood and/or consequence of an identified risk event.</p>

Term	Definition
Matters of national environmental significance	The EPBC Act provides a framework for the protection and management of defined matters of national environmental significance. Under this Act there are nine matters of national environmental significance, which include nationally threatened species and ecological communities, migratory species and wetlands of international importance.
Megawatt	Refers to one million watts and is a measure of power generation or consumption.
Megawatt hour	Refers to the generation or usage of one million watts for one hour.
Meteorological mast ('met mast')	Lattice tower that includes equipment (anemometers and wind vanes at various heights) to record wind speed and direction, temperature and atmospheric pressure.
Micro-siting	<p>Wind turbine micro-siting is the process through which the optimal location of wind turbines is determined during the detailed design phase. Each position must consider the existing wind resource, topography, proximity to other turbines and distances to neighbours and other environmental constraints.</p> <p>Micro-siting only refers to minor adjustments to location of the project components within 100 metres of the location assessed within this EES. This buffer was included in the investigation area for all specialist studies undertaken to inform this EES, to ensure that environmental values and constraints can be appropriately identified and considered. Micro-siting in accordance with this definition does not require approval from the Minister for Planning</p>
Migratory shorebird	A type of migratory bird that typically forage in coastal and inland wetlands. They depend on undisturbed, productive wetland habitats for feeding and roosting.
Migratory species	Animals that move cyclically and at certain times of the year, passing through or migrating to Australia during their annual migration.
Minimum Safe Altitude	The lowest safe altitude is defined for each air route segment to ensure terrain and obstacle clearance. It is determined by geography and the built environment to provide an altitude above which there are no obstacles.
Nacelle	Located on the top of a wind turbine tower, where the wind turbine hub is mounted with the three blades attached to the hub. The nacelle houses the generator and gearbox (if there is a gearbox) and shafts to convert mechanical energy to electrical energy.
National Electricity Market	The National Electricity Market facilitates the wholesale dispatch of electricity, which is transported via transmission lines (incorporating about 40,000 kilometres of state and private assets) to industrial energy users and local energy distributors in all states and territories except Western Australia and Northern Territory. In total, the National Electricity Market supplies more than 85% of Australia's population.
Native vegetation offsets	<p>In relation to Matters of National Environmental Significance, a type of offset required compensate for the loss of habitat by protecting or enhancing vegetation of a similar type and condition.</p> <p>See also '<b>Matters of national environmental significance</b>'.</p>
Natural areas	Natural areas are a land-use category for which the Environment Reference Standard details desired outcomes in terms of noise level to be achieved or maintained in Victoria. The Environment Reference Standard defines natural areas as "national parks, state parks, state forests, nature conservation reserves, wildlife reserves and environmentally significant areas and landscapes outside metropolitan Melbourne that are identified in a planning scheme".
Near neighbours	<p>Fourteen landowner families involved in hosting the project and the associated renewable infrastructure.</p> <p>See also '<b>Local community</b>' and '<b>Broader community</b>'.</p>

Term	Definition
Neighbour Benefit Sharing Program	A program developed for the project in 2020 to ensure the financial benefits of the project would be shared with those closest to the project.
Noise criteria	Refers to the noise values set to avoid potential noise impacts for most people, most of the time.
Noise limit	<p>The maximum effective noise level permitted in a noise sensitive area, as determined in accordance with the EPA Victoria Publication 1826.4: Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues (Noise Protocol).</p>
	<p>Effective noise level is determined (for noise from commercial, industrial and trade premises) as a 30-minute equivalent sound pressure level <math>L_{Aeq,30min}</math> adjusted for duration, noise character and measurement position (where relevant).</p>
	<p>See also '<math>L_{Aeq}</math>'.</p>
Noise sensitive locations	<p>Defined by the New Zealand Standard 6808:2010 Acoustics – Wind Farm Noise (New Zealand Standard) as areas "associated with a habitable space or education space in a building not on a wind farm site". This includes:</p> <ul style="list-style-type: none"> <li>any part of land zoned predominantly for residential use</li> <li>residential uses including land uses listed in the accommodation group at Clause 73.04-1 of the Moyne Planning Scheme</li> <li>education and childcare uses listed in the education centre group at Clauses 73.04-4 of the Moyne Planning Scheme.</li> </ul>
Non-stakeholder dwelling	<p>Landowner not hosting wind farm infrastructure and with no proposed wind farm agreement.</p>
	<p>See also '<b>Stakeholder dwelling</b>'.</p>
Obstacle Limitation Surface	<p>Series of planes, associated with each runway at an aerodrome, that define the desirable limits to which objects or structures may project into the surrounding airspace (i.e., the aerodrome airspace to be kept free of obstacles such as vegetation, buildings, large structures or transmission lines).</p>
	<p>See also '<b>Procedures for Air Navigation Services – Aircraft Operations surface</b>'.</p>
Offset	<p>In Victoria, an offset is generally required when an approval or permit to remove native vegetation is granted. An offset compensates for biodiversity losses arising from native vegetation removal.</p>
Overburden	<p>Earth (rock, soil, vegetation) that needs to be removed to access the materials to be mined.</p>
Particulate matter (PM) – including $PM_{2.5}$ and $PM_{10}$	<p>Refers to particles (solid and liquid droplets) in the air.</p> <p><math>PM_{10}</math> are particles with diameters less than or equal to 10 microns that, when inhaled, can enter the lungs. Smaller than <math>PM_{10}</math> particles are those with diameters less than or equal to 2.5 microns (referred to as <math>PM_{2.5}</math>). These particles can pass from the lungs into the bloodstream.</p>
Planning schemes	<p>In Victoria, planning schemes are statutory documents, prepared by the local council or the Minister for Planning, that contain objectives, policies and provisions that control land use and development (referred to as ordinance) and planning maps that show where zones and overlays apply. These set out the permit triggers and policy considerations for any planning application for a wind farm and associated infrastructure.</p>
pH	<p>In relation to water quality, a measure of acidity. Changes in pH can affect the toxicity of chemicals and heavy metals present in the water, which can harm aquatic species.</p>

Term	Definition
Photomontage	Combination of a photograph of an existing view with a computer-rendered image of a proposed development and can be used to provide information on the scale and potential appearance of the development. Photomontages are used to illustrate the likely view as it would be seen in a photograph (not as it would appear to the human eye in the field).
Point-to-point links	<p>Often used for line-of-sight connections for data, voice and video (such as on mobile and television broadcast towers).</p> <p>See also '<b>Point-to-multipoint links</b>'.</p>
Point-to-multipoint links	<p>Provide connections from one location to multiple locations, via multiple paths (e.g., wireless internet connections).</p> <p>See also '<b>Point-to-point links</b>'.</p>
Potential acid sulfate soil	<p>Potential acid sulfate soils are soils containing iron sulfides (commonly pyrite) which have the potential to produce sulfuric acid if they are drained or excavated. Actual acid sulfate soils have already undergone oxidation to produce acid, resulting in a soil pH of less than 4.</p> <p>See also '<b>Acid sulfate soil</b>'.</p>
Primary surveillance radar	<p>In relation to civil aviation surveillance facilities, a radar uses radio waves that reflect off aircraft (or other objects). This can be used to detect the position, height and airspeed of an aircraft within a range (radius) of around 250 nautical miles, or 463 kilometres).</p> <p>It does not require an aircraft to have a transponder.</p>
Priority waste	<p>Industrial waste that has greater regulatory controls as it may cause harm to human health or the environment, and has the potential to be recycled or reused.</p> <p>See also '<b>industrial waste</b>'.</p>
Procedures for Air Navigation Services – Aircraft Operations surface	<p>Surface that extends further and is higher than the Obstacle Limitation Surface, and provides protection for when a pilot is flying using instruments during poor weather.</p> <p>See also '<b>Obstacle Limitation Surface</b>'.</p>
Project site	Land parcels (mostly defined by land titles) on which the project is proposed.
Protected matters search tool	<p>Provides mapped locations of Matters of National Environmental Significance such as World Heritage properties, National Heritage places, Ramsar wetlands, and Commonwealth marine areas. It also records the locations of sightings and known habitats of listed species and ecological communities, included migratory species based on verified data from government agencies, research institutions, and conservation bodies.</p> <p>See also '<b>Matters of national environmental significance</b>'.</p>
Quarry	In relation to Aboriginal cultural heritage, sites where Aboriginal people collected stone from rocky outcrops to make stone tools for various purposes.
Quarry sump	<p>Runoff capture point in the low point of the quarry floor.</p> <p>Surface water runoff would be directed to a sediment trap then the quarry sump.</p>

Term	Definition
Quarry Work Plan	<p>The Work Plan is the primary document describing the permitted activities to be undertaken on a work authority. It is intended to provide guidance to operations staff at the quarry as well as informing other readers such as Council or Government officers in order to facilitate decisions, approvals, compliance, and enforcement functions.</p> <p>See also '<b>Work Authority</b>'.</p>
Radiocommunication	The transmission, emission and/or reception of radio waves for specific telecommunication purposes.
Registered Aboriginal Party	<p>Recognised under the <i>Aboriginal Heritage Act 2006</i> as having responsibilities to manage and protect Aboriginal Cultural Heritage, being the primary source of advice and knowledge on matters relating to Aboriginal places or Aboriginal objects in their region.</p> <p>The western portion of the project is located in an area that the Eastern Maar Aboriginal Corporation and the Gunditj Mirring Traditional Owners Aboriginal Corporation exercise joint responsibility as Registered Aboriginal Parties. The remainder of the project is located in an area over which the Eastern Maar exercise exclusive Registered Aboriginal Party status.</p>
Renewable Energy Target	A Commonwealth Government policy, administered by the Clean Energy Regulator, designed to ensure at least 33,000 gigawatt hours of Australia's electricity came from renewable sources by 2020. Under the Renewable Energy Target, the Large-scale Renewable Energy Target scheme requires high-energy users to acquire a fixed proportion of their electricity from renewable sources (in the form of large-scale generation certificates).
Renewable Energy Zone	Regions identified in the AEMO 2020 Integrated System Plan with the greatest potential for renewable energy development, based on initial assessments of their resource, infrastructure and transmission capacity.
Reasonably practicable	<p>To determine what is considered 'reasonably practicable', the level and scale of the risk of harm from an activity should be considered. This includes:</p> <ul style="list-style-type: none"> <li>• whether the risk can be eliminated</li> <li>• chance of harm resulting</li> <li>• degree of harm</li> <li>• knowledge of risk</li> <li>• available controls</li> </ul>
Respirable crystalline silica	Created during activities such as cutting, grinding, and drilling of materials such as stone, rock, concrete and mortar that contain silica, and can enter lungs when inhaled.
Rill erosion	Erosion occurring when water runoff down a slope results in the formation of small channels (less than 0.3 metres deep).
Road hierarchy	<p>Within the Moyne, Shire rural road hierarchy is as follows:</p> <ul style="list-style-type: none"> <li>• Link: Part of major truck and/or passenger vehicle route through the shire that is not a defined arterial road.</li> <li>• Collector: Provides a connection between traffic generators and destinations, or between arterial roads, link roads and destinations.</li> <li>• Access: Main purpose is to provide access to adjoining properties.</li> </ul>
Rotor diameter	The span of the circle (i.e., diameter) swept by wind turbine blades as they rotate.
Scarred trees	In relation to Aboriginal cultural heritage, a tree that has a 'scar' resulting from the removal of bark and wood by Aboriginal people for the creation of bark canoes, shelters, shields, etc.
Scattered tree	A native canopy tree that does not form part of a patch (can be a large or small trees).

Term	Definition
Secondary surveillance radar	<p>In relation to civil aviation surveillance facilities, a radar that requires an aircraft to carry a transponder, which transmits a data signal to a ground station.</p> <p>This radar can detect aircraft in an airspace radius of up to 250 nautical miles (463 kilometres) and up to 100,000 feet.</p>
Sensitive receptor or sensitive land use	<p>In relation to odour and dust emissions, land uses defined by EPA Victoria as requiring protection of the air environment, such as for human health and wellbeing and local amenity and aesthetic enjoyment. This includes places such as residential dwellings, education facilities and outdoor recreation sites.</p>
Shadow flicker	<p>Caused when the sun passes behind the rotating blades of a wind turbine and casts a moving shadow over the neighbouring areas.</p>
Shell midden	<p>In relation to Aboriginal cultural heritage, an accumulations of shell produced by Aboriginal people collecting, cooking and eating shellfish.</p>
Significant impact	<p>In relation to Matters of National Environmental Significance, an impact that is important, notable, or of consequence, considering its context or integrity.</p> <p>These are determined in relation to significant impact criteria set for threatened species and communities based on their conservation status.</p> <p>See also '<b>Matters of national environmental significance</b>'.</p>
Species offset	<p>In relation to Matters of National Environmental Significance, offsets required for specific matters that must deliver a measure able benefit for the listed threatened species or ecological community.</p> <p>See also '<b>Matters of national environmental significance</b>'.</p>
Stakeholder dwelling	<p>A dwelling located on the same land as the wind energy facility, or the landowner has an agreement or proposed agreement with the wind energy facility.</p> <p>See also '<b>Non-stakeholder dwelling</b>'.</p>
Stone arrangements	<p>In relation to Aboriginal cultural heritage, places where Aboriginal people have positioned stones to form shapes or patterns, likely related to ceremonial activities.</p>
Swept paths	<p>Swept path intersections refer to the area that vehicles transporting turbine blades occupies or "sweeps" as it turns through an intersection. These paths have been analysed to determine if there is enough room for vehicles to safely make turns.</p>
Technical Reference Group	<p>Group formed to provide technical advice to the Department of Transport and Planning and the project proponent during the preparation of the EES, made up of relevant state, and local government representatives, as well as representatives from project approval authorities.</p>
Total phosphorous and total nitrogen	<p>In relation to water quality, refers to the total organic and inorganic phosphorus and nitrogen in a water sample. High nutrient levels can lead to water quality issues such as toxic algal blooms, which can consume oxygen and block light for aquatic plants.</p>
Turbidity	<p>In relation to water quality, refers to the cloudiness of water caused by suspended sediment. High levels of turbidity can block light for aquatic plants and may contain contaminants.</p>

Term	Definition
Turbine risk categories	<p>In relation to bats, turbine risk categories were defined based on the proportion of medium or high priority areas of avoidance within the 269-metre turbine buffer. These were defined as:</p> <ul style="list-style-type: none"> <li>• Higher risk: Turbine buffers overlap with high priority avoidance habitat and/or have medium, high or very high numbers of Southern Bent-wing Bat or Southern Bent-wing Bat complex calls per night</li> <li>• Moderate risk: More than 2.5% of the turbine buffer covers medium priority habitat</li> <li>• Lower risk: Less than 2.5% of the turbine buffer overlaps with medium or low priority avoidance habitat. Buffers overlap with areas of very low or no Southern Bent-wing Bat activity.</li> </ul> <p>The 2.5% habitat overlap limit was chosen to enable a small portion of overlap with habitat to occur, as it was difficult to avoid medium and low priority habitat completely. At present, there are no specific guidelines to inform this approach. However, it was developed to be consistent with a precautionary yet pragmatic interpretation of the avoid and minimise principle, noting the conservation status of the species, and ensures 97.5% of the mapped habitat is outside of the nominated turbine buffer.</p>
Utility installation	<p>Defined under Clause 73.03 of the Moyne Planning Scheme as:</p> <p><i>"Land used:</i></p> <ol style="list-style-type: none"> <li>1. <i>to transmit, distribute or store power, including battery storage.</i>"</li> </ol> <p>This land use is applicable to the battery energy storage system and on-site substation.</p>
Vegetation	<p>Vegetation refers to plant communities (made up of multiple flora species) that occur within a defined area and interact to form ecosystems such as forests, grasslands, and woodlands.</p>
Victorian Heritage Inventory	<p>A listing of all known historical (non-Indigenous) archaeological sites in Victoria, protected under the <i>Heritage Act 2017</i>.</p> <p>Sites listed on the Victorian Heritage Inventory can also be included on the Victorian Heritage Register.</p> <p>See also '<b>Victorian Heritage Register</b>'.</p>
Victorian Heritage Register	<p>A listing of historical (non-Indigenous) heritage sites (places and objects), protected under the <i>Heritage Act 2017</i>, that are significant to the history and development of Victoria. Heritage places include buildings, trees and archaeological sites, while heritage objects include items such as furniture and art.</p> <p>See also '<b>Victorian Heritage Inventory</b>'.</p>
Visual flight rules	<p>Rules applicable to flight under visual meteorological conditions (i.e., weather conditions clear enough the pilot can remain clear of cloud and see the terrain and where the aircraft is going). Visual meteorological conditions require a forward visibility of 5,000 metres and operating clear of cloud for aircraft operating below 3,000 feet.</p> <p>See also '<b>Instrument flight rules</b>'</p>
Widely distributed	<p>Refers to bat species whose distribution is not restricted to a small portion of Australia, and that are recorded commonly throughout their distribution.</p>

Term	Definition
Wind energy facility	<p>Defined under Clause 73.03 of the Moyne Planning Scheme as:</p> <p><i>"Land used to generate electricity by wind force. It includes land used for:</i></p> <ol style="list-style-type: none"> <li>2. <i>any turbine, building or other structure or thing used in or in connection with the generation of electricity by wind force</i></li> <li>3. <i>an anemometer.</i>"</li> </ol> <p>This land use is applicable to the wind turbines, access tracks and ancillary facilities, and meteorological monitoring masts.</p>
Wind erosion	Erosion occurring when strong winds result in removal of small, loose soil particles.
Wind power	<p>Wind turbines work by converting the kinetic energy of the wind into electrical energy. A wind turbine is made up of five main parts: the foundations, tower, rotor, nacelle and transformer.</p> <p>Kinetic energy from the wind forces the wind turbine's blades to turn. The blades and the central hub are collectively called the rotor. The turning rotor turns a shaft within the nacelle which is connected to the generator via a gearbox. The generator then converts the wind's energy into electricity via the wind turbine's transformer, which regulates the output voltage.</p> <p>More specifically, a wind turbine converts the wind into electricity using the aerodynamics of the blade which create lift. Lift occurs because of the air pressure differences on each side of the blade due to the design of the blade. This lift enables the rotor (connected to the generator) to turn, which then generates electricity.</p>
Wireframe diagram	A computer-generated image based on a digital terrain model that indicates the 3D shape of the landscape and can be used to compare the position and scale of a proposed development to the existing landscape view. Wireframe images represent the worst case scenario as they do not take into account factors such as vegetation and building structures.
Work Authority	<p>Required under section 77I of the <i>Mineral Resources (Sustainable Development) Act 1990</i>, regulated by Earth Resources Regulation, for the extraction of stone.</p> <p>To obtain a work authority, the proponent must prepare a work plan for the proposed quarry under section 77G of the <i>Mineral Resources (Sustainable Development) Act 1990</i>, which includes a Risk Management Plan, Rehabilitation Plan and Community Engagement Plan.</p>
Work Authority area	<p>About 52.3 hectares, containing the on-site quarry.</p> <p>See also '<b>Extraction area</b>'.</p>
Zone of visibility	<p>The zone distances applied for the assessment of the visual impact of the project are:</p> <ul style="list-style-type: none"> <li>• Greater than 29.8 kilometres – Visually insignificant, the extent of the investigation area (&lt; 5% of vertical field of view)</li> <li>• 14.9 to 29.8 kilometres – Potentially noticeable or discernible (5–10% of vertical field of view)</li> <li>• 6.0 to 14.9 kilometres – Noticeable and potentially a visible element in the landscape (10–25% of vertical field of view)</li> <li>• 3.0 to 6.0 kilometres – Visible and potentially dominant (25–50% of vertical field of view)</li> <li>• Less than 3.0 kilometres – Will always be visually dominant (&gt; 50% of vertical field of view).</li> </ul>