NEOEN

June 2023

Confidential

Tchelery Wind Farm

Scoping Report

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Tchelery Wind Farm
Scoping Report

NEOEN

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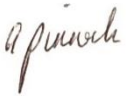
Prepared by:	Annie Pinnock; Lizzie Whiting	27/06/2023	
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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Abbreviations

ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEMO	Australian Energy Market Operator
AHIMS	Aboriginal Heritage Information Management System
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ASC	Australian Soil Classification
ASS	Acid sulfate soils
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity development assessment report
BESS	Battery Energy Storage System
Biodiversity and Conservation SEPP	*State Environmental Planning Policy (Biodiversity and Conservation SEPP) 2021*
Biosecurity Act	*Biosecurity Act 2015*
BOM	Bureau of Meteorology
BSAL	Biophysical Strategic Agricultural Land
CEP	Community Engagement Plan
CLM Act	*Contaminated Land Management Act 1997*
Conargo LEP	*Conargo Local Environmental Plan 2013*
COP	Convention on Climate Change Conference of Parties
COP26	26th annual Convention on Climate Change Conference of Parties
COP27	27th annual Convention on Climate Change Conference of Parties
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSSI	Critical State Significant Infrastructure
DCCEEW	Department of Climate Change, Energy, the Environment and Water (formerly Department of Agriculture, Water and the Environment)
DPE	Department of Planning and Environment (formerly DPIE)
DPIE	Department of Planning, Industry and Environment (now DPE)
EIS	Environmental Impact Statement
EMF	Electric and magnetic field

EPA	Environment Protection Authority
EPL	Environmental Protection Licence
EnergyCo	Energy Corporation of NSW
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPBC Act	*Environment Protection and Biodiversity Conservation*
ESD	Ecologically sustainable development
EU	European Union
FFDI	Forest Fire Danger Index
FM Act	*Fisheries Management Act 1994*
GDE	Groundwater dependent ecosystem
GHG	Greenhouse gas
GW	Gigawatts
GWh	Gigawatt hours
IAQM	Institute of Air Quality Management
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ISP	Integrated System Plan
Km^2	Square kilometres
kV	Kilovolt
LALC	Local Aboriginal Land Council
LCGs	Large-scale Generation Certificates
LEP	Local Environmental Plan
LGA	Local government area
LLS	Local Land Services
LRET	Large-scale Renewable Energy Target
LVIA	Landscape and Visual Impact Assessment
MNES	Matters of National Environmental Significance
MW	Megawatts
NASF	National Airport Safeguarding Framework
Navin	Navin Officer Heritage Consultants
NEOEN	Neoen Australia Pty Ltd
NEM	National Electricity Market

NOA	Naturally Occurring Asbestos
NPI	National Pollutant Inventory
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
ODP	Optimal development path
OEH	Office of Environment and Heritage (now Heritage NSW)
OSOM	Oversize and Overmass
PCT	Plant Community Type
Planning Systems SEPP	*State Environmental Planning Policy (Planning Systems) 2021*
PMST	Protected Matter Search Tool
POEO Act	*Protection of the Environment Operations Act 1997*
Primary Production SEPP	*State Environmental Planning Policy (Primary Production) 2021*
REAP	Registered Environmental Assessment Practitioner
Resilience and Hazards SEPP	*State Environmental Planning Policy (Resilience and Hazards) 2021*
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RFS	Rural Fire Service
RNE	Register of National Estate
SAII	Serious and Irreversible Impact
SEARs	Secretary's Environmental Assessment Requirements
SEPPs	State Environmental Planning Policies
SHR	State Heritage Register
SIA	Social Impact Assessment
SSD	State Significant Development
SSI	State Significant Infrastructure
TECs	Threatened ecological communities
Transport and Infrastructure SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
TSRs	Travelling stock reserves
UN	United Nations
VRE	Variable Renewable Energy
Wakool LEP	*Wakool Local Environment Plan 2013*
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*
WTG	*Wind turbine generator*

Glossary

Applicant	The applicant for this SSD project seeking development consent is NEOEN Australia Pty Ltd
Construction footprint	Area (ha) with temporary development that would be removed once operational
Department	Department of Planning and Environment
Development Application	A development application seeking consent for SSD under Division 4.7 of the EP&A Act
Development footprint	The development footprint is comprised areas of both the permanent and temporary footprint that represent the total area physically disturbed by development of the project.
Disturbance area	Area of land that would be disturbed by the establishment of the project.
Operational footprint	Area with permanent development to be used during operation including turbines and access tracks
Permanent footprint	The footprint comprises the land that would be permanently altered for the operation of the project.
Project study area	Includes the project site and a 20 kilometre buffer around the site for database searches to inform the environmental assessment.
REZ	Renewable Energy Zone – a geographic area with high-quality variable renewable energy resources (such as wind and solar), suitable topography and land use designations for development, and demonstrated interest from project developers.
South-West REZ	The South-West REZ is a geographic area of approximately 27,842 km^2 between Balranald to the west and Colleambally to the east and to Deniliquin in the south and Carrathool in the north, that will combine renewable energy generation, storage and high voltage transmission infrastructure to deliver energy to electricity consumers.
Temporary footprint	The temporary footprint comprises the land that would be temporarily disturbed during construction. These areas would then be rehabilitated following construction.
The project	The proposed Tchelery Wind Farm and associated infrastructure that would allow energy generation and storage and connection into EnergyConnect (NSW – Eastern Section) or the existing 220 kV transmission line.
The proponent	NEOEN Australia Pty Limited (NEOEN)

Executive summary

NEOEN Australia Pty Ltd (NEOEN) propose to construct and operate Tchelery Wind Farm (the project), a renewable energy development near Keri Keri in the Riverina Murray region of New South Wales (NSW). The project would provide around 800 MW of clean energy that would contribute to NSW and Commonwealth renewable energy targets and help achieve affordable, clean and reliable energy.

Project site

The project site is located near Keri Keri in the Riverina Murray region of NSW within Edward River Council local government area (LGA), south of the Sturt Highway, and within the Deniliquin Local Aboriginal Land Council. The project site is traversed by Maude Road (north-south) and Boorooban-Tchelery Road (east-west). Existing land uses of the project site and surrounds are predominately livestock grazing and some areas of cropping.

The project is approximately 790 kilometres (by road) west of Sydney, 35 kilometres (by road) east of Keri Keri, and 79 kilometres (by road) east of Balranald.

Project description

The project would include up to 120 wind turbines providing a total capacity of up to approximately 800 MW, that would be connected into the National Electricity Market (NEM) potentially through EnergyConnect (NSW – Eastern Section) or the existing 220 kV transmission line. The Wind Turbine Generator (WTG) model for the project is yet to be identified and would be confirmed during detailed design. The WTG would have hub height of up to 185 metres and tip height of up to 285 metres.

The project supports the NSW Governments objectives to increase renewable energy generation, storage and investment in the South West REZ under the Electricity Infrastructure Roadmap.

It is expected that construction of the project would commence in early 2026 and take about two to two and half years to complete. It is anticipated that the project would be operational in late 2028 or early 2029.

Statutory planning

Environmental planning approval for the project is required in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act), *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and other relevant statutory requirements. Approval for the project is sought under Part 4, Division 4.7 (State Significant Development (SSD)) of the EP&A Act.

Other relevant statutory matters are addressed in the Scoping Report, including potential impact of the project on matters of national environmental significance (MNES) under the EPBC Act.

Consultation

NEOEN are committed to developing and nurturing long-term relationships with the community and stakeholders and recognise that these genuine, open and ongoing relationships are vital to the success of Tchelery Wind Farm. NEOEN have undertaken early engagement on the project that would continue throughout the project's life cycle.

NEOEN recognises the rural nature of the community around Tchelery Wind Farm. A key component to engagement on this project has been to engage with stakeholders and the community at the early phases of development, to build trusting relationships between the NEOEN team who know the project the best, and the stakeholders that are part of and connected to the region and local community. This has allowed an ongoing dialogue that:

- involves the community in the development, construction, and operation of Tchelery Wind farm
- collaborates with the community to ensure that local advice and insights shape NEOEN's approach to engagement and benefit sharing
- empowers the community to shape key elements of the project, such as co-designing the long-term framework of the shared benefits program.

NEOEN is committed to building a strong and ongoing relationship with the local First Nations community. During the development stage, NEOEN have commenced engagement with traditional owners and have engaged experienced consultants to undertake an Aboriginal Cultural Heritage Assessment Report for the project (to be completed during the Environmental Impact Statement (EIS) phase). NEOEN are exploring the option of co-developing an Indigenous Participation Plan with the local First Nations community.

A Community Engagement Plan (CEP) has been prepared for the project to provide a framework for continued engagement with the community and stakeholders. It is NEOEN's intention to keep this document current and to update it at regular milestones based on how stakeholders and the community indicate they would like to be consulted in the future and where future opportunities to provide information are identified.

Preliminary environmental assessment

Biodiversity

Vegetation communities present in the project study area were identified. The project study area has been identified to traverse a diverse range of native vegetation types including arid shrublands (chenopod sub-formation), freshwater wetlands, grasslands, saline wetlands, semi-arid woodlands (grassy sub-formation) and semi-arid woodlands (shrubby sub-formation).

A total of four Threatened Ecological Communities (TECs) listed under the *Biodiversity Conservation Act 2016* (BC Act) and five TECs listed under the EPBC Act have been identified as potentially occurring within the project site, based on their alliance to native vegetation recorded either through field verification or broad scale mapping. Database searches identified 19 threatened flora species listed under the BC Act and 11 threatened flora species under the EPBC Act, that are predicted or known to occur within the project 10 km of the project site. Desktop searches identified 17 threatened fauna species listed under the BC Act and 28 threatened fauna species listed under the EPBC Act, that are predicted or known to occur within 10 km of the project site.

Database searches identified a total of 11 migratory and marine bird species, listed under the EPBC Act, that are predicted or known to occur within the project site.

No RAMSAR wetlands are within 10 km of the project site, with the closest Ramsar wetland occurring more than 100 km away.

A detailed terrestrial ecology assessment would be carried out in the EIS in accordance with the Biodiversity Assessment Method (BAM) under the framework of the BC Act and Commonwealth requirements. Further targeted detailed threatened species seasonal survey would be required to ensure compliance with the BAM along with vegetation integrity plot based native vegetation surveys.

Potential measures would be identified to minimise adverse effects and inform further design refinements with the aim of minimising the overall amount of vegetation required to be removed. Key to minimising impacts to native vegetation would be designing the project to avoid the important biodiversity values and minimise vegetation clearing as far as practicable.

Heritage

Aboriginal heritage

The project site is within the Deniliquin Local Aboriginal Land Council area.

The Aboriginal Heritage Information Management Search (AHIMS) found 80 sites within the surrounding area. The area comprises mainly surface artefacts (isolated finds or artefacts scatters), with a few earth mounds and hearths. The area around Dry Lake, north of the project site, comprises burials.

An Aboriginal Cultural Heritage Assessment Report would be prepared for the EIS to consider and assess potential impacts to Aboriginal heritage and intangible values held by the community and relevant stakeholders, including the local Aboriginal Land Council and Registered Aboriginal Parties.

Non-Aboriginal heritage

Exploration of the Murrumbidgee River and surrounds by early Europeans occurred during the 1820s, with an initial focus on the Murrumbidgee River. Soon after, early Europeans brought agricultural activities to the region, such as grazing, with the first pastoral runs established during the same period. Early occupation of the region by early Europeans was focused on cattle and sheep farming with cropping introduced at a later period (Sahukar et al, 2003).

Heritage registers including the World Heritage List, National Heritage List, State Heritage Register and the Local Environmental Plan were searched, and no non-Aboriginal heritage items were found to occur within the project site.

A non-Aboriginal Heritage Assessment would be prepared as part of the EIS to consider and assess potential impacts to non-Aboriginal heritage and intangible values held by the community and relevant stakeholders.

Land use and property

The project site and surrounds are comprised of agricultural land used for livestock grazing with small areas of irrigated agriculture. The project site is traversed by Maude Road (which is a travelling stock reserve running north-south) and Boorooban-Tchelery Road east-west to the east of Maude Road.

A desktop Property and Land Use Assessment and an Agricultural Impact Assessment would be prepared as part of the EIS.

Landscape character and visual amenity

The study area generally consists of open, flat rural plains associated with the Murrumbidgee River and its tributaries. There is existing power infrastructure within the project study area including the Balranald to Darlington Point 220 kV transmission lines, that traverse through the project site. The surrounding landscape has a rural character, containing various large agricultural structures including cotton gins, machinery sheds and grain receival points including silos. There are several roads that support local and regional transport, including Maude and Booroorban-Tchelery Road, both sealed roads used mainly by local residents and visitors to this part of the Riverina region.

A Preliminary Landscape and Visual Impact Assessment identified six individual dwellings, one woolshed, and two key public viewpoints (Maude and Booroorban-Tchelery Road) within eight kilometres of the project study area which contain single or multiple view sectors.

A detailed Landscape and Visual Impact Assessment would be undertaken as part of the EIS to identify potential visibility of the project from different viewpoints along the corridor.

Social

The project would be located within the Edward River Council LGA, that is an area that includes the town of Deniliquin and six rural villages of Blighty, Booroorban, Conargo, Mayrung, Pretty Pine, and Wanganella. Potential impacts of the project during construction include delays to road journeys, inequitable employment opportunities, loss of social cohesion and increased demand for local and regional resources. Potential impacts of the project during operation include noise, visual impact, land use changes, improved regional economic outcomes and increased employment opportunities.

A complex Social Impact Report would be prepared in the EIS to address the matters identified in the preliminary Social Impact Assessment.

Economic

A significant amount of expenditure (approximately $1.36 billion capital investment value for the 800 MW wind farm) would be spent within the local, regional and NSW economies during the construction phase over a relatively short period of time. During operation, the project would facilitate a source of reliable and low-cost renewable energy supply with associated economic benefits to consumers across the National Electricity Market (NEM).

A detailed Economic Impact Assessment would be prepared as part of the EIS to identify and quantify potential economic impacts of the project.

Hydrology, flooding and water quality

The project study area is within the Murrumbidgee surface water catchment.

No part of the project study area traverses land that is mapped as flood risk. Potential impacts on flooding relate to structures and infrastructure (such as the substations and switching stations) creating obstructions. No structures would be located within the vicinity of major watercourses, where practicable.

A detailed Hydrology, Flooding and Water Quality assessment would be included in the EIS to consider water quality, water demand and potential erosion and sedimentation.

Groundwater

The project study area is within the Lower Murrumbidgee Alluvium groundwater source. There were no areas mapped as Groundwater Vulnerable identified within the project site.

During excavations for the wind turbine foundations and the substation works, there is some potential groundwater could be intercepted, and temporary minor dewatering may be required. The project is not expected to interact with groundwater during operation.

The EIS would identify potential risks to groundwater and other groundwater users during construction and operation of the project.

Hazard and risk

There is a risk that construction activities could be impacted by bushfires as well as a risk that construction activities could initiate fires. Construction activities that involve hot works, such as grinding, welding or cutting, or may otherwise result in sparks from plant or equipment, could increase risk of bushfire ignition. During operation, ongoing vegetation management would be undertaken within the wind farm to minimise bushfire risk.

Electric and magnetic fields (EMF) are not expected to be an issue during construction as the WTGs and ancillary structure would not be energised.

During operation, there is potential the project could interfere with signals associated with telecommunication services. The nearest telecommunication services within the vicinity of the project study area include a communications tower, located on neighbouring property (Everslee), approximately one kilometre north of the project site.

There are several primary production land uses such as livestock grazing and some areas of cropping within vicinity of the project. Biosecurity risks involving introduction or spread of pathogens and diseases, may result in impacts to native vegetation, threatened fauna, agricultural activities and aquatic ecosystems during construction. Pathogens and diseases may be transported by machinery or vehicles or material utilised during construction. Where practicable, surplus soil would be sourced from onsite to reduce biosecurity risks (if required).

During operation, there is a low risk of blade throw. Blade throw refers to potential risk of an operational wind turbine blade breaking, that could result in potential injury to humans, livestock or infrastructure.

Dangerous goods and hazardous material may currently be stored and used within vicinity of the project for agricultural activities. Storage, handling and use of dangerous goods and hazardous substances may adversely impact human safety, either directly through contact, or indirectly through damage to the local environment.

Appropriate hazard and risk reporting for bushfire, EMF, telecommunications, biosecurity, blade throw and dangerous and hazardous materials would be included in the EIS.

Traffic and access

The project site is located approximately 315 kilometres north of Melbourne, 500 kilometres east of Adelaide and 700 kilometres southwest of Sydney. The road network within the project study area includes several major roads, including the Sturt Highway (A20), Mid-Western Highway (B64, A41 and A39), Maude Road, and the Cobb Highway (B75). The project is located about eight kilometres north of Moulamein Regional Airport.

There may be some temporary disruptions to traffic movements along surrounding roads during construction. Construction may require temporary traffic management or lane closures for safety; however, this would be scheduled to minimise impacts during peak traffic periods where practicable.

Construction and operational traffic and transport impacts would be assessed in the EIS.

Aviation

Installation of wind turbines with hub heights up to 185 metres and tip heights of up to 285 metres would present potential impacts on aviation safety and could result in changes to existing aircraft routes, height procedures, communications, and navigation. During operation of the project, traffic and transport impacts are expected to be minimal.

Aviation impacts would be assessed through the preparation of an Aviation Impact Assessment in the EIS.

Noise and vibration

The existing environment is anticipated to generally experience low background noise levels consistent with the rural character of the area. Individual residential dwellings on agricultural land make up the nearest sensitive receivers within the project study area. The nearest town is Moulamein, located about 30 kilometres southwest of the project area.

Construction activities are not expected to cause significant noise and vibration impacts due to the relatively short duration of work at each location and distance from sensitive receivers. Construction noise impacts would be assessed in the EIS.

The preliminary noise assessment determined that during operation, the project can achieve the allowable noise levels of the *NSW Wind Energy: Noise Assessment Bulletin* at all non-associated dwellings. The project is not anticipated to contribute a significant noise impact on surrounding receivers during operation as it would be designed to comply with standards or to incorporate consideration of mitigation, where required.

A detailed construction and operational Noise and Vibration Assessment would be included in the EIS.

Soils and contamination

Main impacts on soils from the project would generally be from excavation during construction. Soil disturbance activities may lead to erosion and sediment transfer offsite, that may result in potential sedimentation of surrounding land and drainage lines.

It is anticipated that existing on site contamination risks would be minimal. Main contamination risk for the project is during operation of the substation that could be associated with potential leaks from oil-filled equipment, such as substation transformers.

A detailed assessment would be prepared for the EIS and would include the existing environment, review of available historical aerial photography, current and historical contaminating activities and mapping of potential contamination sources.

Air quality

Air quality impacts from construction are expected to be minor and short-term due to the relatively small scale of construction works required at each turbine location, distance from sensitive receivers, and progressive nature of construction works.

During operation, the project is not anticipated to generate a substantial amount of additional local air quality or greenhouse gas impacts.

A standard construction and operation Air Quality Assessment would be included in the EIS.

Waste management and resource use

Disposal of waste generated during construction and operation of the project is not anticipated to result in significant adverse environmental impacts. While the project would result in some increased demand on local and regional resources, it would be unlikely that the project alone would result in any resource becoming scarce or in short supply.

Cumulative impacts

Cumulative impact assessments focus on various environmental issues from within the project and their combined effect, the project's interaction with other projects (and proposed projects) and where construction and/or operational timeframes are likely to be concurrent.

Future environmental assessment for issues such as biodiversity, hazards and risk, noise and vibration, visual, and traffic for the project would involve identifying a baseline condition, including impacts of other potential projects, and determining cumulative impacts of the project.

EPBC Act

Based on the current project study area, the proposed preliminary design and understanding of site conditions, it is anticipated that the project could potentially result in significant impacts on Commonwealth listed threatened species and ecological communities.

An EPBC Act referral would be submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to consider whether the project would be considered a controlled action on the basis of potential impacts to the listed threatened species. If determined to be controlled, then a bilateral assessment process would be requested for the project.

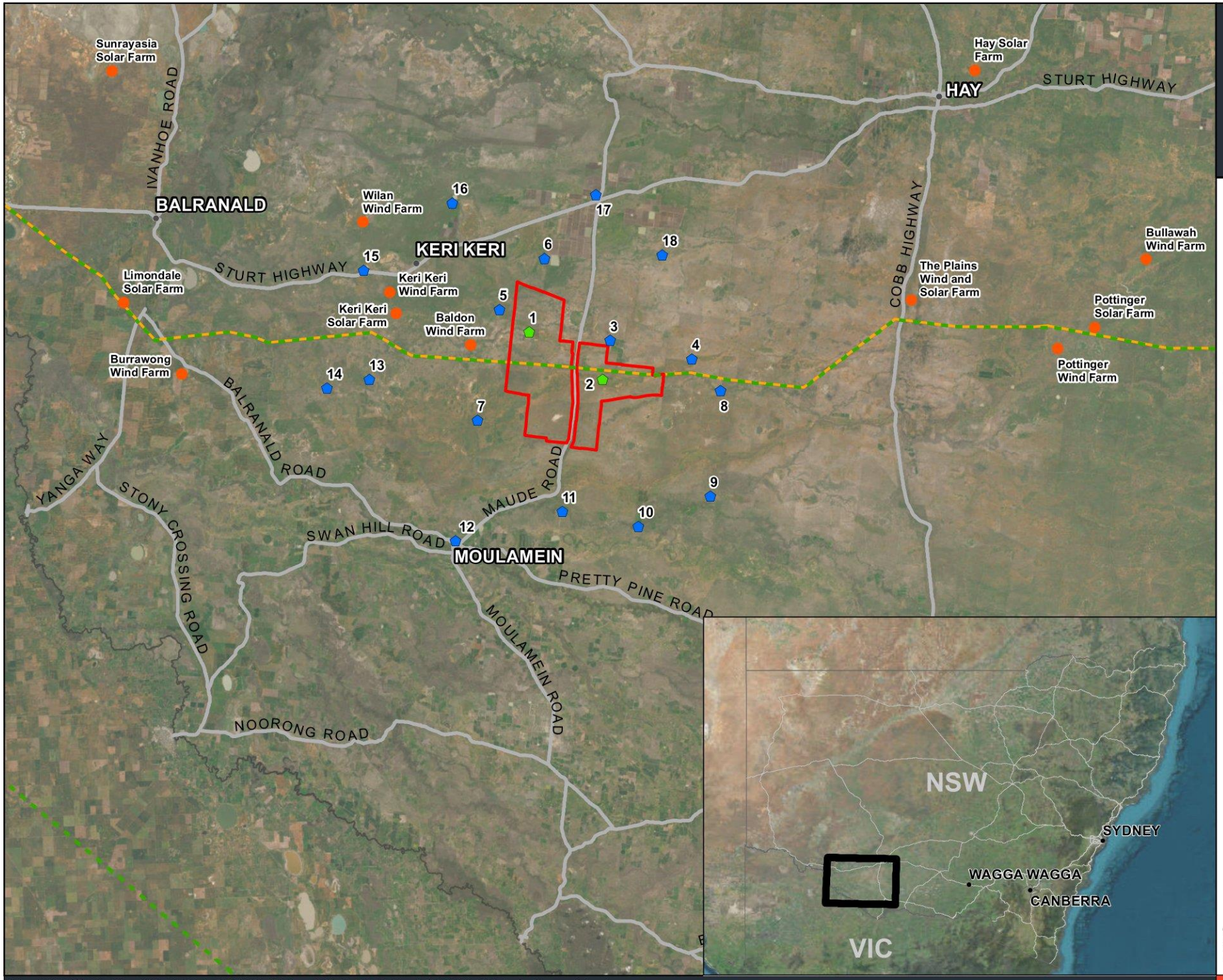
1 Introduction

This chapter provides an overview and background to Tchelery Wind Farm (the project). This chapter provides a summary of the project details, outlines the proposed infrastructure and the purpose and structure of this Scoping Report.

1.1 Tchelery Wind Farm

NEOEN Australia Pty Ltd (NEOEN) propose to construct and operate the Tchelery Wind Farm (the project), a renewable energy development near Keri Keri in the Riverina Murray region of New South Wales (NSW) (refer to Figure 1.1 for the regional context of the project). Fully constructed, the project would include up to 120 wind turbines providing a total capacity of up to approximately 800 megawatts (MW), that would be connected into EnergyConnect (NSW – Eastern Section) or the existing 220 kV transmission line. NEOEN is seeking State Significant Development (SSD) consent under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the project.

The Energy Corporation of NSW (EnergyCo) (a NSW State Owned Corporation) is in the early stages of planning the South West Renewable Energy Zone (REZ). The South West REZ (location in Figure 1.2) has been identified as a NSW priority energy zone and the project would be within the current proposed REZ boundaries. The proposed location of the project and the South West REZ would benefit from connection into EnergyConnect (NSW – Eastern Section) that traverses the proposed REZ with a strong pipeline for renewable energy, including the project. The project would contribute to renewable energy generation to help reach the NSW and Commonwealth net zero emission targets that are discussed in section 2.1.



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Tchelery Wind Farm

Figure 1.1
Regional Context

Legend

- Nearby Projects (approximate)
- Associated Residences
- Non Associated residences
- Existing 220kV Transmission Line
- Project EnergyConnect – Eastern Section
- Road
- Project Site

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:752,175 Date: 19/06/2023

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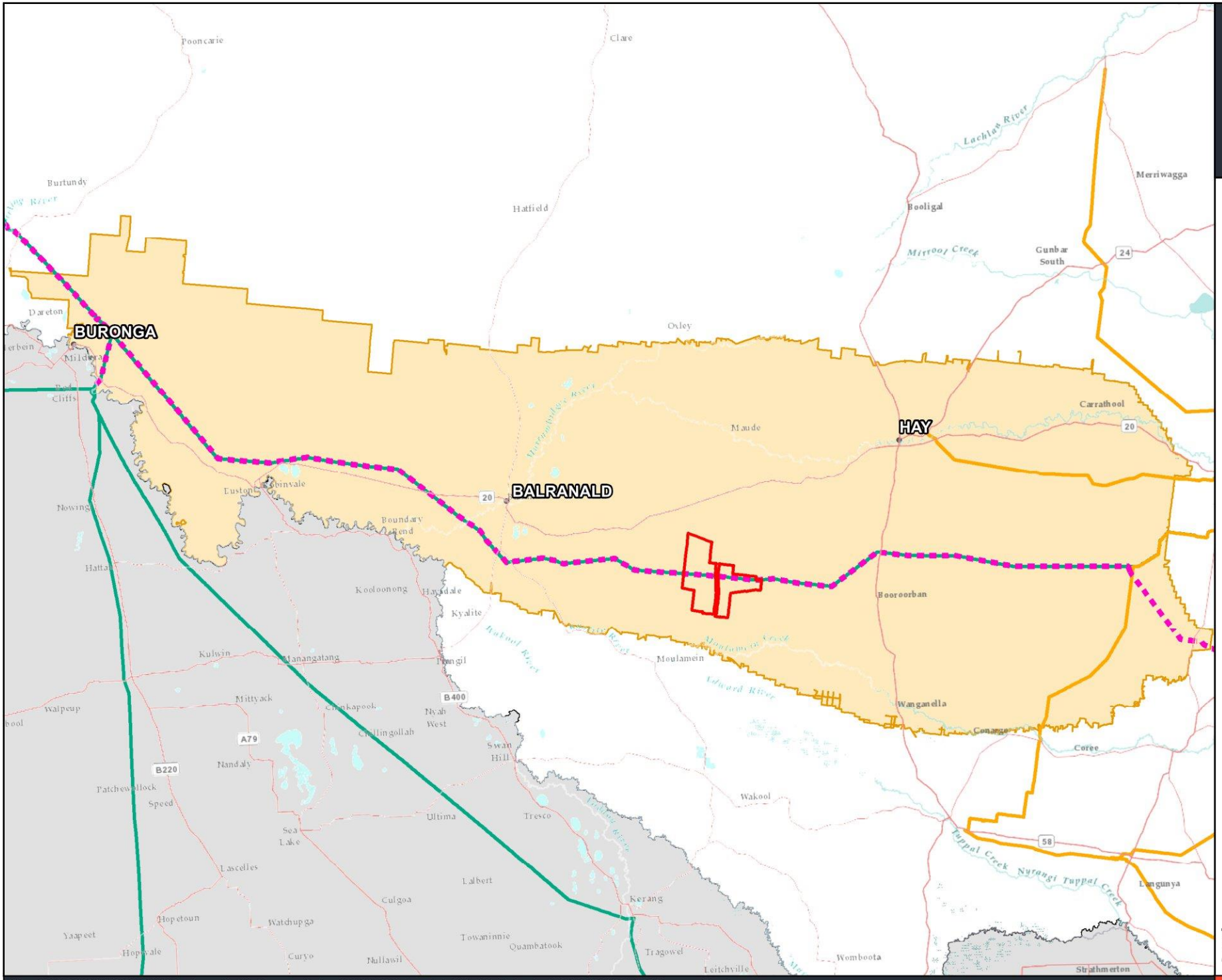

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Tchelery Wind Farm

Figure 1.2
Indicative Location of the South-West REZ

Legend

- Project Site
- South West Renewable Energy Zone
- Indicative Location of Project EnergyConnect (PEC)

Transmission Lines

Capacity (kV)

- 132
- 220

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:1,500,000 Date: 21/04/2023

1.2 Purpose of this report

This Scoping Report has been prepared on behalf of NEOEN. The purpose of this report is to describe the project and present the preliminary assessment of potential environmental issues that would be considered as part of an Environmental Impact Statement (EIS) for the project.

This report is intended to provide sufficient information to allow preparation of Secretary's Environmental Assessment Requirements (SEARs) to guide the preparation of an EIS for the project in accordance with Part 4, Division 4.7 of the EP&A Act and the requirements of Clause 192 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation). NEOEN are seeking approval of the NSW Minister for Planning and Public Spaces or their delegate to carry out SSD.

The information and recommendations in this Scoping Report would be used to further inform the options investigations and ongoing design refinement for the project with an aim to avoid or minimise environmental, economic and social impacts wherever practicable.

1.3 The Proponent

Founded in 2008, NEOEN is a specialist, independent power producer with a long-term vision that translates into a strategy to produce renewable, competitively priced energy, that is both sustainable and on a large scale. As of January 2023, NEOEN has close to 6.6 GW of solar, wind and storage capacity globally.

NEOEN has been operating in Australia since 2012 and is one of the largest renewable energy companies in Australia. NEOEN is an owner and operator of a number of renewable energy projects across Australia, including:

- DeGrussa Solar Farm and Battery Storage
- Hornsdale Wind Farm and Hornsdale Power Reserve
- Parkes Solar Farm
- Dubbo Solar Hub
- Griffith Solar Farm
- Coleambally Solar Farm
- Bulgana Green Power Hub
- Numurkah Solar Farm
- Victorian Big Battery
- Kaban Green Power Hub
- Western Downs Green Power Hub.

NEOEN currently has close to 3 GW of renewable projects either operating, or under construction in Australia with offices in Sydney, Canberra, Adelaide, Perth, Melbourne and Brisbane, and is a key provider of renewable energy to NSW and Australia (refer Figure 1.3**)**. NEOEN's vision is to reach 5 GW of operating or under construction assets in its portfolio in Australia by 2025.

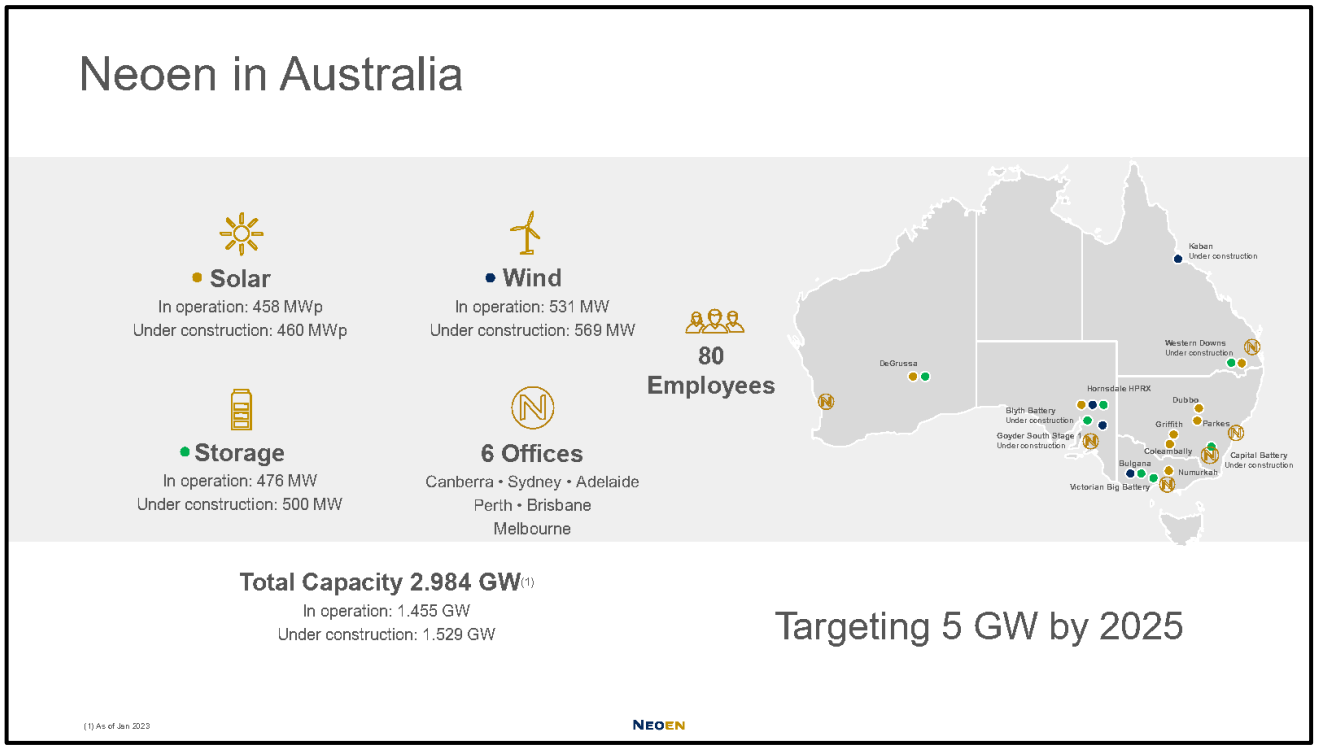


Figure 1.3 NEOEN's renewable energy generation across Australia (source: NEOEN, 2023)

Table 1.1 Proponent details

Proponent details	
Name	NEOEN Australia Pty Ltd
Address	Level 10 227 Elizabeth Street Sydney NSW 200
ABN	57 160 905 706

1.4 Report terminology

The following terms are used throughout this Scoping Report:

- Renewable Energy Zone (REZ): A geographic area with high-quality variable renewable energy resources (such as wind and solar), suitable topography and land use designations for development, and demonstrated interest from project developers.
- South West REZ: The South West REZ is a geographic area of approximately 27,842 square kilometres (km^2) between Balranald to the west and Colleambally to the east and to Deniliquin in the south and Carrathool in the north, that will combine renewable energy generation, storage and high voltage transmission infrastructure to deliver energy to electricity consumers.
- The project: Tchelery Wind Farm and associated infrastructure that would allow energy generation and storage and connection into the National Electricity Market (NEM) potentially through EnergyConnect (NSW – Eastern Section) or the existing 220 kV transmission line.
- Project site: The project site is within the Keri Keri region in NSW and comprises an area of approximately 274 km^2.

- Project study area: Includes the project site and a 20 kilometre buffer around the site for database searches to inform the preliminary environmental assessment.
- Disturbance footprint: Area of land that would be disturbed by establishment of the project. The disturbance footprint would be provided in the EIS phase during detailed design, considering the preliminary environmental assessment and in consultation with relevant government agencies.
- Construction footprint: Area of land that would be disturbed during construction of the project. The construction footprint would be provided in the EIS phase during detailed design, considering the preliminary environmental assessment and in consultation with relevant government agencies.

1.5 Project overview

NEOEN propose to construct and operate the Tchelery Wind Farm (the project), a utility scale renewable energy development near Keri Keri in the Riverina Murray region of NSW. The project would be approximately 790 kilometres (by road) west of Sydney, 35 kilometres (by road) east of Keri Keri, and 79 kilometres (by road) east of Balranald. The project is within the Edward River Local Government Area (LGA), south of the Sturt Highway. The project site is traversed by Maude Road (north-south) and Boorooban-Tchelery Road (east-west). Existing land uses of the project site and surrounds are predominately livestock grazing and some areas of cropping.

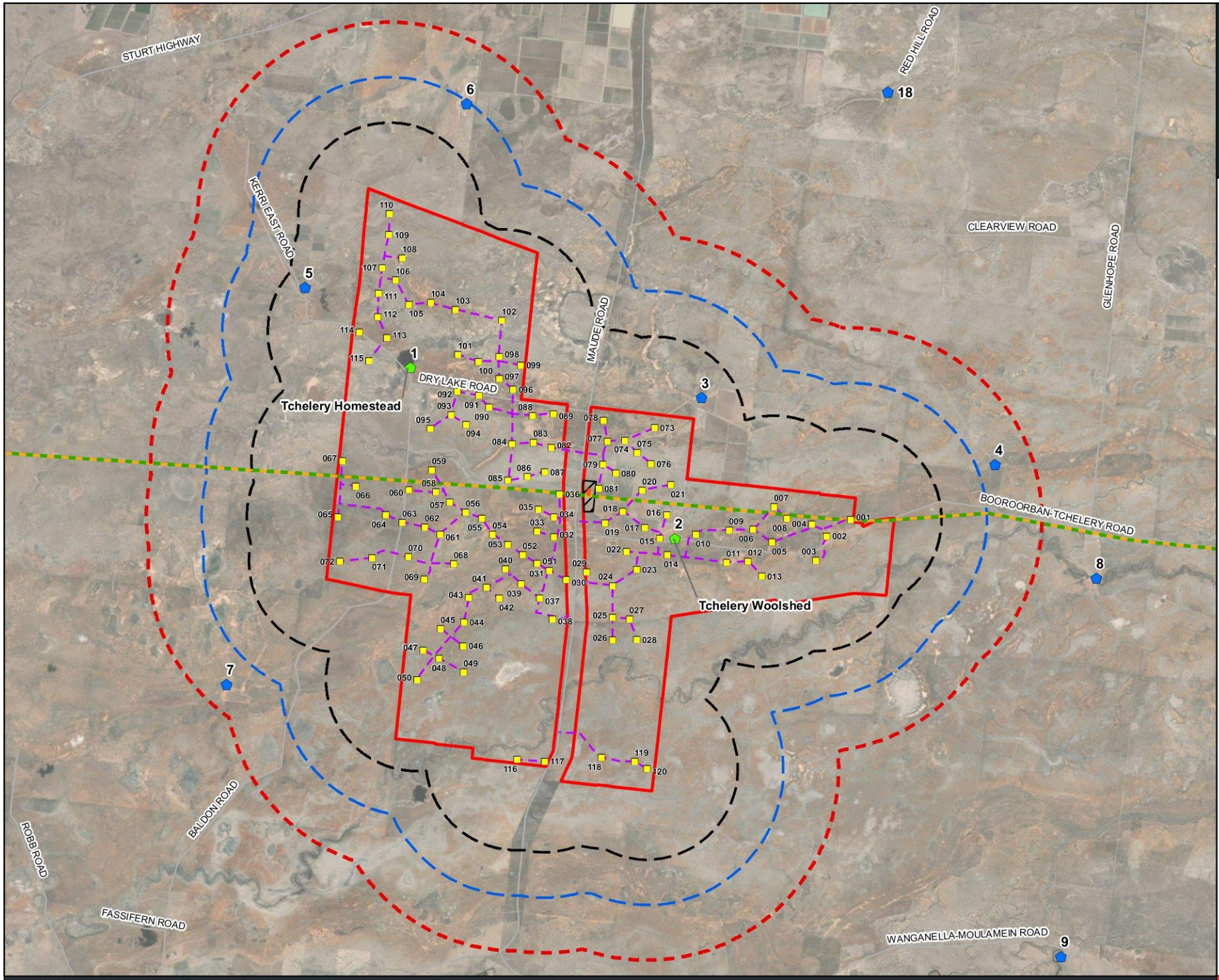
Fully constructed, the project would include up to 120 wind turbines providing a total capacity of up to approximately 800 MW, that would be connected into the National Electricity Market (NEM) potentially through EnergyConnect (NSW – Eastern Section) or the existing 220 kV transmission line. The Wind Turbine Generator (WTG) model for the project is yet to be identified and would be confirmed during detailed design. The WTG would have hub height of up to 185 metres and tip height of up to 285 metres.

The project would also comprise of the following infrastructure and associated works:

- construction vehicle and workforce vehicle parking
- concrete batching plant, crushing facilities and gravel pits
- construction laydown and stockpiles
- parking for operational staff
- internal access roads
- substation and switching station
- underground and overhead transmission lines
- meteorological masts
- operations and maintenance facility including site office and amenities
- potential on-site accommodation camp. NEOEN is in consultation with the Councils regarding potential accommodation options in the nearest towns.

It is expected that construction of the project would commence in early 2026 and take about two to two and half years to complete. It is anticipated that the project would be operational in late 2028 or early 2029.

An overview of the project site layout is shown in Figure 1.4.



Tchelery Wind Farm

Figure 1.4
Site Layout (Preliminary)

Legend

- Associated Residences
- Non Associated residences
- Wind Turbines
- Existing 220kV Transmission Line
- Connection to Project EnergyConnect
- Project EnergyConnect – Eastern Section
- Internal roads and access tracks
- Roads
- Substation and Site Compound
- Project Site
- Wind Turbines 3.8km Buffer
- Wind Turbines 5.7km Buffer
- Wind Turbines 8.0km Buffer

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:210,000 Date: 19/06/2023

C:\Users\AUFS504460\OneDrive - WSP O365\Projects\PS131616_Tchelery_wind_far\Mxd\02_SiteOverview\PS131616_F104_SiteLayoutPreliminary_r1v7.mxd

1.6 Project objectives

The project would deliver a total capacity of up to 800 MW of renewable energy into the NEM. The project supports the NSW Governments objectives to increase renewable energy generation, storage and investment in the South West REZ under the Electricity Infrastructure Roadmap (Department of Planning, Industry and Environment (DPIE), 2020).

The objectives of the project include:

- provide a source of affordable, reliable power to NSW consumers and assist in reducing greenhouse gas (GHG) emissions
- make positive contributions towards achieving both NSW and Commonwealth renewable energy targets
- make a positive contribution towards achieving the target of 2.5 GW of renewable energy generation for the South West REZ
- contribute to employment opportunities during construction and operation
- collaboratively work with members of the community and other stakeholder to limit environmental and social impacts
- work to the highest quality, safety and environmental standards
- facilitate construction and operation in an environmentally sustainable manner.

The project would provide long-term, strategic benefits to NSW, including:

- estimated infrastructure investment of approximately $1.3 billion
- support a total of around 500 full time positions (direct and indirect) during 24 to 30 month construction phase and around 20 full time positions (direct and indirect) during operation
- indirect benefits to local services through the construction and operation stages
- additional landowner income to involved landowners resulting in financial contributions to the local community
- local community benefits through implementation of a proposed community benefit schemes that would invest in local community projects and initiatives to provide a direct and targeted local benefit.

1.7 Structure of this report

The structure and content of this report is as follows:

- Chapter 1– Introduction: Outlines the background and need for the project and the purpose of this report.
- Chapter 2 – Strategic context and alternatives: Provides an overview of the strategic and regulatory context for the project and the anticipated benefits of the project. An overview of the options assessment that led to the preferred option is also presented.
- Chapter 3 – Project description: Provides an outline of the key features of the project.
- Chapter 4 – Statutory context: Provides an overview of the relevant statutory approvals framework for the project, including applicable legislation and planning policies.
- Chapter 5 – Stakeholder and community consultation: Provides an overview of the stakeholder engagement and consultation activities that have been undertaken to date with regards to the project. An overview of the proposed future consultation activities is also provided.
- Chapter 6 – Preliminary environmental assessment: Provides a preliminary description of the existing environment and an initial consideration of potential direct and indirect impacts that may result from the project.
- Chapter 7 – Preliminary scoping: Provides a preliminary environmental risk analysis for the project taking into account the current scope and the existing environment.

- Chapter 8 – Justification and Conclusion: Outlines the justification for the project and key conclusions of this report.
- Chapter 10 – References: Identifies the key reports and documents used to generate this report.
- Appendices to this report includes:
  - Appendix A – Scoping summary table
  - Appendix B – Preliminary Biodiversity Assessment (WSP, 2023)
  - Appendix C – Preliminary Noise Impact Assessment for Operation (Echo Acoustic Consulting, 2023)
  - Appendix D – Preliminary Visual Impact assessment (Iris, 2023)
  - Appendix E – Initial Social Impact Assessment (WSP, 2023)
  - Appendix F – Community Engagement Plan (NEOEN, 2023)
  - Appendix G – Cumulative impact assessment scoping summary.

1.8 Limitations

The information presented in this Scoping Report has been based on preliminary desktop biodiversity, heritage, landscape character and visual, noise and vibration, social and visual impact assessment. The remaining assessments have been prepared based on preliminary desktop review and assessment of published data including relevant databases, reports and other available literature. More detailed investigations of potential environmental issues, including field inspections, would be undertaken during the preparation of the EIS for the project.

2 Strategic context and alternatives

This chapter presents the strategic options that were considered and need for and benefits of the project. The project is also presented in the context of key government strategies and policies.

2.1 Need for emissions reduction

Climate change, which is linked to an increased level of GHG emissions in the atmosphere, is having worldwide impacts on society, the economy and the environment. In the 2015 Paris Agreement and the 2021 Glasgow Climate Pact (Convention on Climate Change Conference of Parties (COP26)), the European Union (EU) and 198 countries committed to try and limit global warming to 1.5°C to minimise the impacts of climate change (United Nations (UN), 2021). In November 2022, COP27 took place in Egypt to address the changing climate and the global transition to renewable energy (UN, 2022). COP27 focused on three main areas; reducing emissions, helping countries prepare for and deal with climate change and secure technical support and funding for developing countries.

A global commitment to achieve net zero GHG emissions by 2050 was agreed to through strong policies, measures and actions. In view of this commitment, the Australian Government has set interim emission reduction targets, including a commitment to reduce emissions by 43 per cent below 2005 levels by 2030. Independently, every state and territory in Australia has set a goal or target to achieve net zero emissions by the second half of this century (Climate Change Authority, 2020). Specifically, NSW is set to halve emissions by 2030 under updated projections and objectives released as part of the Net Zero: Stage 1 Implementation Update (DPE, 2022).

The Renewable Energy Target (RET) Scheme reflects current efforts to achieve this goal. The scheme was implemented in 2009 with an initial target of 44,000 gigawatt hours (GWh) of renewable energy generation by 2020. The RET has been a successful initiative that has driven more than 50 per cent reduction in the cost of large-scale wind and solar projects over the last ten years (Clean Energy Council, 2022).

Electricity generation is currently Australia's largest source of emissions, accounting for 33 per cent of Australia's total annual emissions in 2020 (Climate Change Authority, 2020). Fossil fuels contributed 76 per cent of total electricity generation in 2020, including coal, gas and oil. Renewables contributed 24 per cent of total electricity generation in 2020, including solar, wind and hydro (Department of Climate Change, Energy, the Environment and Water (DCCEEW, 2022a)). The United Nations (UN) Climate Change Conference in Glasgow (COP26) made clear that countries must move away from fossil fuels and are calling for a phase-down of coal power and a phase-out of 'inefficient' fossil fuel subsidies (UN, 2021). To achieve net zero and emission reduction targets, Australia must invest in alternative sources of energy that are clean, accessible, affordable, sustainable, and reliable. The project would contribute to meeting Australia's commitments through the generation of renewable wind energy and resultant annual reduction in GHG.

2.2 Existing transmission network

The National Electricity Market (NEM) incorporates around 40,000 kilometres of transmission lines and cables across Queensland, NSW, Australian Capital Territory, Victoria, South Australian and Tasmania. The NEM connects the southern and eastern states and territories in Australia and delivers around 80 per cent of Australia's electricity consumption. To meet Australia's emission reduction targets, the NEM needs to significantly transition from traditional energy sources to lower emission alternatives including renewable energy (DCCEEW, 2022b).

The existing transmission network was established to transport electricity primarily from generators in fossil fuel rich areas to local centres. As supply mix changes and evolves, transmission networks need to be reconfigured to connect regions with high-quality renewable energy resources to load centres. EnergyCo is in the early stages of planning the South West Renewable Energy Zone (REZ) that is traversed by Project EnergyConnect and comprises relative land use compatibility and a strong pipeline of proposed projects (Project EnergyConnect, 2022). The proposed wind farm development is within the current proposed location of the South West REZ and would contribute to renewable energy generation and utilise the potential to connect into the NEM through Project EnergyConnect or the existing 220 kV line between Balranald and Darlington Point substation (refer Figure 2.1).

2.3 Shift towards renewable energy

The energy sector is undergoing transformation; over the past five years the share of wind and solar in the NSW electricity generation mix has tripled. NSW has extensive renewable energy resources and is committed to ensuring an orderly transition to reliable, affordable and modern energy for NSW households and businesses (Australian Energy Market Operator [AEMO], 2022).

The 2022 Integrated System Plan (ISP) (AEMO, 2022) forecasts the need for over 125 GW of additional Variable Renewable Energy (VRE) by 2050, to meet demand as coal-fired generation withdraws. To replace coal-fired generation, the renewable share of total annual generation would rise from approximately 28 per cent in 2020–2021 to 83 per cent in 2030-2031, to 96 per cent by 2040, and 98 per cent by 2050 (AEMO, 2022). The retirement of coal generation has potential to put pressure on future supply of energy. In addition, this pressure is compounded by Australian electricity consumption forecasts predicting increases over the next ten years (Transgrid, 2022).

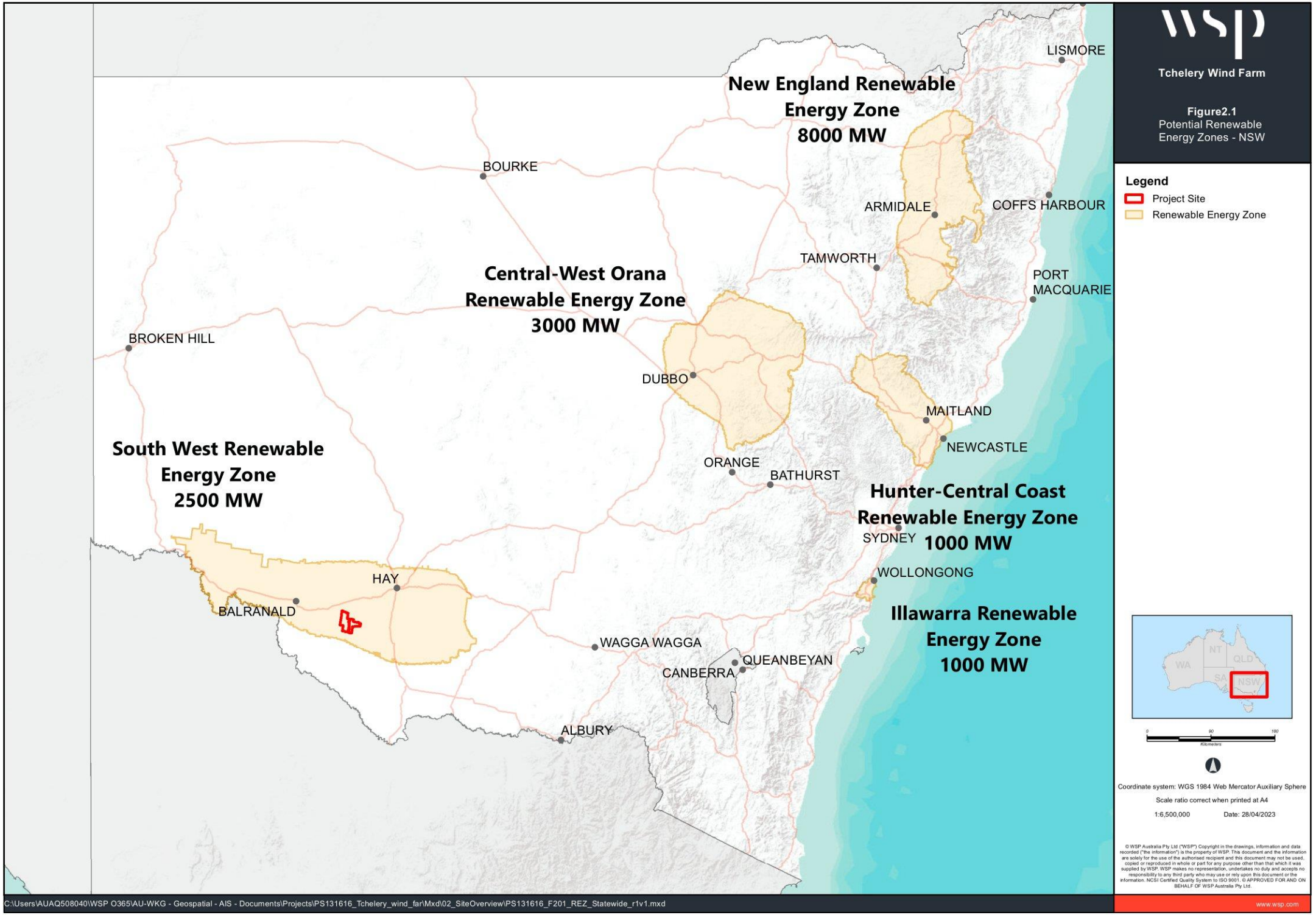
The project represents an investment in new large-scale renewable energy, providing up to approximately 800 MW of electricity generating capacity and potential for battery energy storage system (BESS) capacity, providing essential input into the renewable energy sources needed to transition from coal-fired generation to renewable energy.

2.4 Contribution to the National Electricity Market

The AEMO's 2021 Electricity Statement of Opportunities provides updates forecasts for demand and supply of electricity over a ten year period. There are a number of drivers accelerating the energy transition in the NEM and making the management of system reliability and security more complex:

- accelerated deployment of large-scale and distributed renewable resources
- accelerated exit of coal and increasing risk of plant failures
- accelerated interest in hydrogen production and greater electrification.

The project would help meet increasing demand for energy in the NEM through production of renewable energy.



wsp

Tchelery Wind Farm

Figure2.1
Potential Renewable Energy Zones - NSW

Legend

- Project Site
- Renewable Energy Zone

0 90 180
Kilometers

Coordinate system: WGS 1984 Web Mercator Auxiliary Sphere

Scale ratio correct when printed at A4

1:6,500,000 Date: 28/04/2023

2.5 Consistency with strategic planning and policy

2.5.1 Australian government policy context

2.5.1.1 Integrated System Plan 2020

The ISP provides an integrated roadmap for the development of the NEM over the next 20 years. An update to the 2020 ISP, the 2022 ISP (AEMO, 2022), outlines an optimal development path (ODP) to support Australia's complex and rapid energy transformation from oil and gas to renewables, BESS and others to 2050. The NEM is supporting a transformation in the way electricity is generated and consumed in eastern and southeastern Australia, which would replace legacy assets with low-cost renewables, add energy storage and other new forms of firming capacity and reconfigure the grid to support two-way flow.

The project would be located within the South West REZ, that has been identified as an actionable project in the ISP. The project would create '*renewable generation development to replace energy provided by retiring coal-fired generators*' and is proposed to be connected to Project EnergyConnect, where practicable, to further align with the ISP 2020.

2.5.1.2 Large-scale Renewable Energy Target

The Large-scale Renewable Energy Target (LRET) incentivises development of renewable energy power in Australia, through a market involving the creation and scale of certificates known as Large-scale Generation Certificates (LGCs). Power stations accredited under the LRET can create LGCs for the electricity generated from renewable energy sources, that can then be sold to liable entities that must meet compliance obligations under the LRET. Once operational, the project would generate up to approximately 800 MW of electricity annually.

The project would therefore contribute to meeting the LRET target of additional renewable energy to be generated annually.

2.5.1.3 Climate change policy

On 10 November 2016, Australia ratified the UN Paris Agreement and the Doha Amendment to the Kyoto Protocol, representing the Australian Government's commitment to provide action on climate change, setting interim emission reduction targets, including a commitment to reduce emissions by 26 to 28 per cent below 2005 levels by 2030. In 2017, the Australian Government reviewed its climate change policies to ensure they remain effective in achieving Australia's 2030 target and Paris Agreement commitments. A final report was released December 2017 which generally indicated the Australian Government's policies were on course to meet Australia's international climate change commitments (Department of the Environment and Energy, 2017).

COP26 was the 26th annual climate change Convention on Climate Change Conference of Parties (COP) held in Glasgow 2021. The Australian government committed to achieving net zero emissions by 2050.

The Australian Government's Annual Climate Change Statement is a requirement under the recent *Climate Change Act 2022* and must report progress made towards achieving emissions reduction targets, international developments that are relevant to addressing climate change, climate change policy, risk to Australia from climate change impacts, and the effectiveness and impact of the Commonwealth's climate change policies to achieve Australia's emissions reduction targets (DCCEEW, 2022). The Annual Climate Change Statement 2022 outlines that urgent action is needed to reduce global temperatures and that Australia's policies seek to decarbonise the electricity sector and ensure infrastructure is in place to manage increases in electricity demand (DCCEEW, 2022).

The project would contribute to meeting Australia's commitments through generation of renewable wind energy and resultant annual reduction in GHG emissions. It would facilitate the longer-term transition across the NEM to low-emission energy sources by providing another source for renewable energy.

2.5.2 NSW government policy context

2.5.2.1 Net Zero Plan Stage 1: 2020:2030

The Net Zero Plan Stage 1: 2020–2030 (DPIE, 2020a) sets the foundation for NSW's action on climate change and how the NSW Government will deliver on its objective to achieve net zero emissions by 2050. The Plan outlines the NSW Government's plan to grow the economy and create jobs and is an overarching strategy to reduce emissions and mitigate the impacts of climate change.

The project would contribute to the Net Zero Plan through generation of renewable energy and subsequent reduction in GHG emissions.

2.5.2.2 NSW Electricity Infrastructure Roadmap

The NSW Electricity Infrastructure Roadmap (DPIE, 2020b) provides a coordinated framework for transition of the existing electricity sector's move to renewable energy sources. The roadmap builds on the 2019 NSW Electricity Strategy (DPIE, 2019) and the 2018 NSW Transmission Infrastructure Strategy (DPIE, 2018) to streamline delivery of a cheaper, cleaner and more reliable energy system. The project would assist in meeting the NSW Government's emissions reductions targets, NSW's energy generation and storage requirements and NSW's transition from coal-fired power generation to renewable energy.

The project would contribute to the development of the South West REZ and add to regional growth and investment in renewable energy in NSW.

2.5.2.3 NSW Electricity Strategy

The NSW Government released its NSW Electricity Strategy in 2019 (DPIE, 2019), that outlines a plan for a reliable, affordable and sustainable electricity system. The Strategy identifies challenges such as the existing fleet of power stations reaching the end of their technical lives, congestion in the transmission system and the location of areas with the strongest renewable resource potential being located away from the existing network. The Strategy identifies the scale of new generations required to meet NSW's future energy needs, making it critical to efficiently develop transmission lines to these new locations.

The project is consistent with the Strategy as it provides renewable energy generation that, together with other renewable generation projects, is expected to result in lower cost of power in comparison to wholesale prices. The project would contribute to greater energy resilience through future supply of electricity to the NEM.

2.5.2.4 NSW Transmission Infrastructure Strategy

The NSW Transmission Infrastructure Strategy (DPIE, 2018) is the NSW Government's plan to unlock private sector investment in priority transmission infrastructure projects that can deliver least-cost energy to customers through to 2040 and beyond. The Strategy aims to:

- increase NSW's energy capacity by prioritising Energy Zones in the Central West, South West and New England regions of NSW, which will become a driving force to deliver affordable energy into the future
- boost interconnection between Victoria, South Australia and Queensland, and unlock more power from the existing Snowy Hydro Scheme
- work with other states and regulators to streamline regulation and improve conditions for investment. By increasing transmission capacity and low-cost generation, NSW will support an orderly transition of the energy sector over the next two decades.

The project would contribute to the development of the South West REZ resulting in an increase to NSW's energy capacity.

2.5.2.5 State Infrastructure Strategy 2022–2042

The State Infrastructure Strategy 2022–2042 (Infrastructure NSW, 2022) establishes the strategic directions, projects and initiatives to meet infrastructure needs of a growing population and a growing economy. The strategic objective for the energy sector within the Strategy is to 'encourage private sector investment to deliver secure, reliable, affordable, low emissions energy supply'.

The project is aligned with this objective as it would provide generation of renewable energy and investment in low emission energy generating projects within the South West REZ in NSW.

2.5.2.6 NSW Climate Change Policy Framework

The NSW Climate Change Policy Framework (Office of Environment & Heritage (OEH), 2016) outlines NSW's long-term objectives to achieve net zero emissions by 2050 and to make NSW more resilient to a changing climate. The framework states that NSW will be part of the global transformation of the world's energy system and that boosting energy and resource productivity can reduce impact of rising energy prices and the cost of transition to a net zero emissions economy.

The project is aligned with this framework, as it would provide a key piece of strategic transmission infrastructure that would enable the transition to a lower emissions economy.

2.5.2.7 Renewable Energy Zone access schemes

Renewable Energy Zone access schemes are a key part of the NSW Government's work to coordinate and encourage investment in REZs, and to realise objectives of the Electricity Infrastructure Roadmap and its enabling legislation.

REZ access schemes will:

- govern the volume of projects that may be granted access rights to connect to REZ scheme infrastructure
- enable investment in new, low-cost generation and storage projects by providing increased certainty
- create a streamlined connection process for projects.

The project located within the South West REZ and would contribute to the future development of the South West REZ. The project would also seek to connect to the Project EnergyConnect corridor that would allow for low-cost renewable energy generated from the project to be supplied to the NEM.

2.6 Project need

The Tchelery Wind Farm involves construction and operation of a utility scale wind farm near the Keri Keri region of NSW. Fully constructed, the Tchelery Wind Farm (the project) is expected to comprise up to 120 wind turbines, that would be connected into EnergyConnect (NSW – Eastern Section) or the existing 220 kV line between Balranald and Darlington Point substation.

The project provides another critical step in Australia's transition to renewable energy. Investment in new renewable energy infrastructure would provide NSW with affordable, reliable and clean energy for the future. The project is consistent with the NSW and Commonwealth Government targets for reduction of GHG emissions and investment in renewable energy technology and would support regional investment and development.

The NSW government has indicated that development of REZs would play a vital role in delivering affordable energy generation to help prepare the state for the expected retirement of thermal power stations over the coming decades. The Tchelery Wind Farm is within the proposed South West REZ, a targeted area identified by the NSW government for renewable energy development. The South West REZ is a critical step in the process to provide infrastructure that gives certainty to developers that there will be sufficient transmission capacity to distribute and sell their energy. The project would positively contribute to the development of the South West REZ resulting in an increase to NSW's renewable energy capacity.

2.7 Key benefits of project

The project would deliver low-cost, renewable energy to the national grid, and would contribute to the Commonwealth and NSW Government's emission reduction targets by:

- providing a source of renewable energy to supplement NSW and national energy requirements, supporting the transition away from coal-fired energy to renewable energy production and assisting in reducing GHG emissions
- future provision for development of a BESS, that would assist in managing fluctuations in electricity demand.

The project is located in the South West REZ and expected benefits of the proposed wind farm include:

- renewable energy supply to assist with fulfilling the current obligations under state and Commonwealth renewable energy targets
- providing for cleaner reliable electricity generation, assisting with meeting current load demand while reducing GHG emissions and impacts of climate change
- regional investment in the NSW renewable energy sector
- making a positive contribution towards achieving the target of 2.5 GW of renewable energy generation from the South West REZ.

The project would deliver significant benefits to the local region and communities including:

- direct investment in the Murray River region
- job opportunities for local contractors and businesses including an additional up to 500 jobs during construction
- up to 20 long-term service and maintenance jobs during operation of the project
- development of new skilled labour in the region within the growing renewable energy industry
- indirect benefits to local services through construction and operation phases
- additional landowner income to involved landowners resulting in financial contributions to the local community
- local community benefits through implementation of a proposed community benefit scheme that would invest in local community projects and initiatives to provide a direct and targeted local benefit.

2.8 Project development and feasible alternatives

2.8.1 Strategic options assessment

The project would provide a significant contribution to Australia's transition to renewable energy and would contribute to NSW objectives to halve emissions by 2030 (OEH, 2016). Wind farms deliver financial and social benefits to their host communities and income and investment from wind farms flow to local communities. The project area is suitable for the proposed wind farm due to its proximity to the Project EnergyConnect corridor, location within the boundaries of the South West REZ, is easily accessible with the Sturt Highway (A20) directly north and is compatible with existing land uses of the site and surrounding areas. Most importantly, the site was chosen due to its area of mapped high wind speeds, creating the ideal location for new infrastructure for wind turbines.

2.8.1.1 Do Nothing option

The project area is currently used for farming and agricultural purposes. The 'do nothing' option does not meet NSW needs for generation of renewable energy and would lead to missed opportunity to generate additional renewable energy. This option would also miss opportunities to contribute to the NEM and the South West REZ and to reduce Australia's dependency on fossil fuels for energy, that create GHG emissions. The project is expected to result in savings of tonnes of GHGs annually and the electricity generated would supply a large number of households with energy annually.

Without the project going ahead, the local and wider region would not realise the benefits of the project including:

- economic benefits to the local and regional community during both construction and operation of the project
- capital investment value of approximately $1.3 billion creating direct and indirect employment during construction and operations
- contribution to renewable energy including lower electricity costs and lower GHG emissions.

2.8.1.2 Alternate site

The project area is identified as a highly suitable site for the proposed wind farm. A project of this scale requires significant land area, proximity to existing or proposed transmission networks and available network capacity. Many alternative sites may be limited in providing these elements.

Due to the site being located near Project EnergyConnect and within the South West REZ, the site provides an optimal location for the proposed wind farm. An alternate site is not the preferred option.

2.8.1.3 Alternate site layout

The site layout and number of turbines proposed considered a preliminary constraints assessment completed in 2021. The key environmental constraints identified included:

- biodiversity including threatened ecological communities, areas of high abundance of hollow bearing trees, raptor nests, candidate species habitat, riparian and wetland areas, bird strike and ecological connectivity
- areas of inundation and riparian corridors
- Aboriginal heritage including areas of high archaeological potential and known sites
- nearby Yanga State Conservation Area, including potential impacts to cultural heritage.

The preliminary layout presented in this Scoping Report includes consideration of the outcomes of preliminary constraints assessment. The EIS and associated technical assessment would further assess identified constraints to facilitate further layout design refinements in response to identified values and constraints, as well as strategies to mitigate potential impacts.

2.8.1.4 Alternate sourcing of energy

The alternative to using wind energy or any form of renewable energy is the continued use of fossil fuels, including coal and natural gas. Reliance on these forms of electricity results in the release of GHG emissions into the atmosphere and contributes to global warming and climate change.

Due to the wind resource, sparsely populated locality and proposed route of Project EnergyConnect and the project's location within the South West REZ, it is considered that large-scale wind technology is an optimum form of energy generation at the site. Large-scale wind technology is a lower-cost form of new energy generation, reducing cost pressures on consumers and also reduces GHG emissions.

2.8.2 Preferred option

The options assessment looked at site suitability, type of renewable energy generation, economic benefits, environmental impacts and proximity to Project EnergyConnect and the South West REZ. The options assessment concluded that a wind farm development at the chosen site is expected to deliver the highest benefit and is therefore the preferred option. The project site and preliminary concept layout are considered throughout this Scoping Report.

2.8.3 Evaluation of strategic options

2.8.3.1 Strategic alternatives

NEOEN has considered a number of alternatives to developing the wind farm. However, other alternatives considered were not chosen due to a number of factors including topography of the site and not being located within close proximity to an existing transmission line or REZ. The project site provides an area where potential impacts can be minimised through additional assessment and design refinements and improves outcomes for local, regional and national community.

2.8.3.2 Construction compounds and accommodation camps

There is potential for the development of construction compounds and workforce accommodation camps on site. NEOEN is in consultation with the local Councils regarding potential accommodation options in the nearest towns. These would be explored during detailed design of the EIS phase.

2.8.3.3 Option for future BESS

The site provides potential for a BESS to be installed at a later date, subject to a separate development application. A BESS would provide essential input into the renewable energy sources needed to transition away from coal-fired generation.

Installation of a BESS at the site would play an important role in the future of a more efficient and sustainable electrical grid.

3 Project description

This chapter describes the Tchelery Wind Farm (the project) including construction and operation, associated activities such as enabling works and property identification as well as the construction schedule.

The design and layout of the project is provided, including the development of design criteria and principles. The current design for the project is described in this chapter; however, further design refinement would occur following the lodgement of the Scoping Report.

3.1 Project overview

Table 3.1 Project overview

<table>
<tr><th>Project element</th><th>Summary of the Project</th></tr>
<tr><td colspan="2">Construction</td></tr>
<tr><td>Disturbance area</td><td>The disturbance area would be determined through input from specialists and ongoing consultation with stakeholders to allow design refinements during the EIS phase. An indicative disturbance area for the project is provided below:
<table>
<tr><th>Buffer</th><th>Area (Ha)</th></tr>
<tr><td>Internal roads with 12.5 metre buffer on each side of the centreline</td><td>316.9</td></tr>
<tr><td>Turbines with 270 metre x 100 metre buffer</td><td>324.0</td></tr>
<tr><td>Substation and site compound</td><td>60.1</td></tr>
<tr><td>Workforce accommodation camp</td><td>12.3</td></tr>
<tr><td>Batching plan (x3) 150 metres x 150 metres</td><td>6.8</td></tr>
<tr><td>Laydown area (x3) 200 metres x 200 metres</td><td>12</td></tr>
<tr><td>Construction workforce amenities (x2) 50 metres x 50 metres</td><td>0.5</td></tr>
<tr><td>Total disturbance area (indicative)</td><td>732.6</td></tr>
</table></td></tr>
<tr><td>Workforce</td><td>Estimated peak workforce of up to 500 construction workers.</td></tr>
<tr><td>Ancillary features</td><td>Key ancillary features of the project would include construction vehicle and worker force vehicle parking, concrete batching plant, crushing facilities and gravel pits, construction laydown and stockpiles and site office and amenities.</td></tr>
<tr><td>Temporary facilities</td><td>The following ancillary features would be required during construction:
— site access including internal access roads with a road surface width of approximately 6–9 metres with additional works required for cut and fill batters and drainage structures
— laydown and storage areas for temporary storage of plant and equipment, materials and wind turbine generator components
— site office and amenities
— parking.
The need for temporary workforce accommodation would be investigated during the EIS phase of the project.</td></tr>
<tr><td>Dewatering</td><td>A preliminary desktop assessment identified an expected groundwater depth of around 16 to 50 metres. As such, dewatering is not expected at this preliminary stage.</td></tr>
</table>

Project element	Summary of the Project
Property	46 Kerri East Road, Moulamein
Estimated capital investment value	Approximately $1.3 billion for the 800 MW project
Operation	
Description	Energy generation is expected to commence from early 2028. The project would have an operational life of approximately 30 years. At this point in time, the project would be decommissioned (and the site rehabilitated) or repowered (installation of new wind turbine generators).
Operational footprint	The operational footprint for the project would be determined through input from specialists and ongoing consultation with stakeholders to allow design refinements during the EIS phase.
Watercourse crossings	There is the potential for access tracks to cross watercourses within the project site. This would be subject to design refinement during the EIS phase.
Road crossings	There is the potential for road crossings within the project site This would be subject to design refinement during the EIS phase.
Ancillary features	Key ancillary features for operation and maintenance would include: — wind monitoring masts — parking for operational staff — permanent facility to be used throughout operation to support maintenance and repair activities associated with the operations phase of the project. This includes an office with staff amenities including but not limited to kitchenette, toilet and shower facilities, workshop and/or shed, and laydown/temporary storage area.
Substation location(s)	One substation is proposed to the east of Maude Road and north of Boorooban-Tchelery Road.
Transmission infrastructure	The wind turbine generators would be connected to the substation via underground and overhead transmission lines (subject to design refinement). Connection to the NEM would be through EnergyConnect (NSW – Eastern Section) or the existing 220 kV transmission line.
Supporting infrastructure	The potential for a BESS would be explored at a later stage (subject to a separate future development application).

3.2 Project context and location

3.2.1 Study area

The project site is comprised of an area approximately 274 km^2. The project is approximately 790 kilometres (by road) west of Sydney, 35 kilometres (by road) east of Keri Keri, and 79 kilometres (by road) east of Balranald. The project site is within the Edward River Local Government Area (LGA), south of the Sturt Highway, and is traversed by Maude Road (north-south) and Boorooban-Tchelery Road (east-west).

The project study area is relatively flat with low relief, at an elevation of approximately 70 metres to 80 metres above sea level. Existing land uses of the project site and surrounds is predominately sheep grazing and cropping. However, the landscape is likely to change due to future renewable energy projects within the South West REZ.

The lots within which the project site is located are detailed in Table 3.2.

Table 3.2 Project study area Lot and DP details

Lot	DP
3, 4	41547
1, 2, 3 ,4	133879
1	133882
1, 2, 3, 4, 5, 6, 7, 8, 9, 10	455152
4, 5, 6, 7, 8, 9, 10, 12, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 89, 90, 91, 92,	756506
6, 32, 33, 35, 45	756523
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 51, 52, 125	756542
1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, 28, 29, 30, 38, 39, 40, 41, 51, 52, 53, 55	756578
2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34	756581
1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 43,	756582
11	1079009
1	1098854
1, 2	1133563

The ancillary activities associated with the project (including brake and winch sites, crane pads, site compounds and equipment laydown areas) would generally be undertaken within this project site area. Additional locations that may be required for specific uses (such as access tracks and accommodation camps) would be identified during design development and assessed as part of the EIS.

3.2.2 Key features of the site/corridor

3.2.2.1 Local and regional community

The project would be located in the Edward River local government area (LGA) of the Riverina region of NSW. An overview of the project's regional context is provided in Figure 1.1.

The nearest regional population centre to the project is:

- Hay, located approximately 86 kilometres (by road) northwest of the project area.

Smaller towns, villages and localities near the project study area include:

- Moulamein, located approximately 30 kilometres south of the project study area
- Maude, located approximately 48 kilometres north of the project study area
- Darlington Point, located approximately 208 northeast of the project study area
- Coleambally, located approximately 217 northeast of the project study area
- Balranald, located about 132 kilometres west of the project study area.

3.2.2.2 Features of the natural and built environment

The project is located within the Murrumbidgee subregion of the Riverina bioregion. The project comprises an area of rural land, land that has been developed primarily for agriculture, predominately livestock grazing. Other land uses within and surrounding the project study area include farm buildings and infrastructure, roads and road reserves and existing transmission line easements.

The majority of the project study area has been cleared and disturbed for agricultural activities; however, small areas of remnant native vegetation remain. The project would seek to avoid areas of native vegetation where practicable. Refer to section 6.2 for further discussion on biodiversity.

3.2.2.3 Existing major infrastructure

Existing major infrastructure within the project study area includes:

- Maude Road (sealed road) and Boorooban-Tchelery Road (unsealed road)
- high voltage (330 kilovolt (kV)) transmission lines (EnergyConnect (NSW – Eastern Section))
- a communications tower on neighbouring property (Everslee) approximately one kilometre north of the project site.

Other major infrastructure near the project study area include:

- Sturt Highway (A20), located approximately 10 kilometre north of the project site
- Hay Regional Airport, located approximately 86 kilometre northwest of the project site.

3.2.2.4 Risks and hazards

Key risks and hazards within the existing environment include:

- bushfire risk
- biosecurity risks
- storage and transport of dangerous goods and hazardous materials
- traffic and transport on existing roads
- electric and magnetic fields.

3.3 Key components of the project

The key components of the project are summarised in Table 3.3.

Table 3.3 Summary of key components of the project

<table>
<tr><th>Component</th><th>Description</th></tr>
<tr><td>Wind Turbines</td><td>The project would comprise up to 120 wind turbine locations with a combined capacity of up to 800 MW. NEOEN would go through a competitive process to select the WTG supplier and model having a maximum hub height of up to 185 metres and tip height of up to 285 metres. Installation of the wind turbines would involve a fixed concrete footing (up to nine metres in depth), mounted tubular steel towers with hardstand areas adjacent to each tower location for installation and maintenance activities. Potential key turbine specifications for the project include (subject to future detailed design):
<table>
<tr><th>Key feature</th><th>Specification</th></tr>
<tr><td>Make and model</td><td>Selection of WTG to be installed would be subject to design refinement and technology availability during the EIS phase. For the purpose of preliminary noise and vibration reporting Siemens Gamesa/ SG6.2-170/6.2 MW has been considered.</td></tr>
<tr><td>Blade length</td><td>100 metres</td></tr>
<tr><td>Hub height</td><td>185 metres</td></tr>
<tr><td>Tip height</td><td>285 metres</td></tr>
<tr><td>Rotor swept area</td><td>31,416 m^2</td></tr>
<tr><td>Minimum ground clearance</td><td>86.7 metres</td></tr>
<tr><td>Cut-in wind speed</td><td>3 metres per second</td></tr>
<tr><td>Cut-out wind speed</td><td>25 metres per second</td></tr>
<tr><td>Maximum sound power level</td><td>106 dBA</td></tr>
</table>
An indicative wind turbine is shown in Figure 3.1.</td></tr>
<tr><td>Substation</td><td>To provide a connection into the grid, a new substation up to 330 kV would be constructed on site.</td></tr>
<tr><td>Internal transmission lines</td><td>Internal transmission would be underground following access track where feasibly practicable.</td></tr>
<tr><td>Access</td><td>Access to the project would be via Maude Road and Boorooban-Tchelery Road. Internal access tracks would be constructed to provide access to each wind turbine location for installation and maintenance. Construction and operation vehicles would access the project from purpose-built access and not via the existing Tchelery Homestead access.</td></tr>
<tr><td>Earthworks</td><td>Construction of individual turbines could incorporate either gravity foundations or rock anchor foundations. Excavations for gravity foundations would be up to five metres below ground level, while rock anchor foundations are anticipated to require drilling to depths of up to approximately 16 metres below ground level (subject to detailed design). Further excavation works at shallower depths would be undertaken.</td></tr>
</table>

Component	Description
Other works and associated works	During construction, other temporary works to facilitate works would incorporate: — construction vehicle and workforce vehicle parking — concrete batching plant, crushing facilities and gravel pits — construction laydown and stockpiles. The potential for temporary workforce accommodation camp would be explored during the EIS phase of the project, including consultation with the community and relevant stakeholders. During operation other works to facilitate operation would involve the addition of: — a wind monitoring mast — parking for operational staff — site office with amenities — a telecommunications tower, if required. These would be confirmed through design refinements during the EIS phase.
Ancillary activities	Ancillary activities would be considered further during the EIS phase, including (but not limited to): — sourcing of construction materials — sourcing of water for construction — geotechnical investigations — screening of construction laydown areas.
Potential future development	While not part of the current project, future provision of a BESS has been considered in design. Approval for a BESS would be subject to separate development approval.

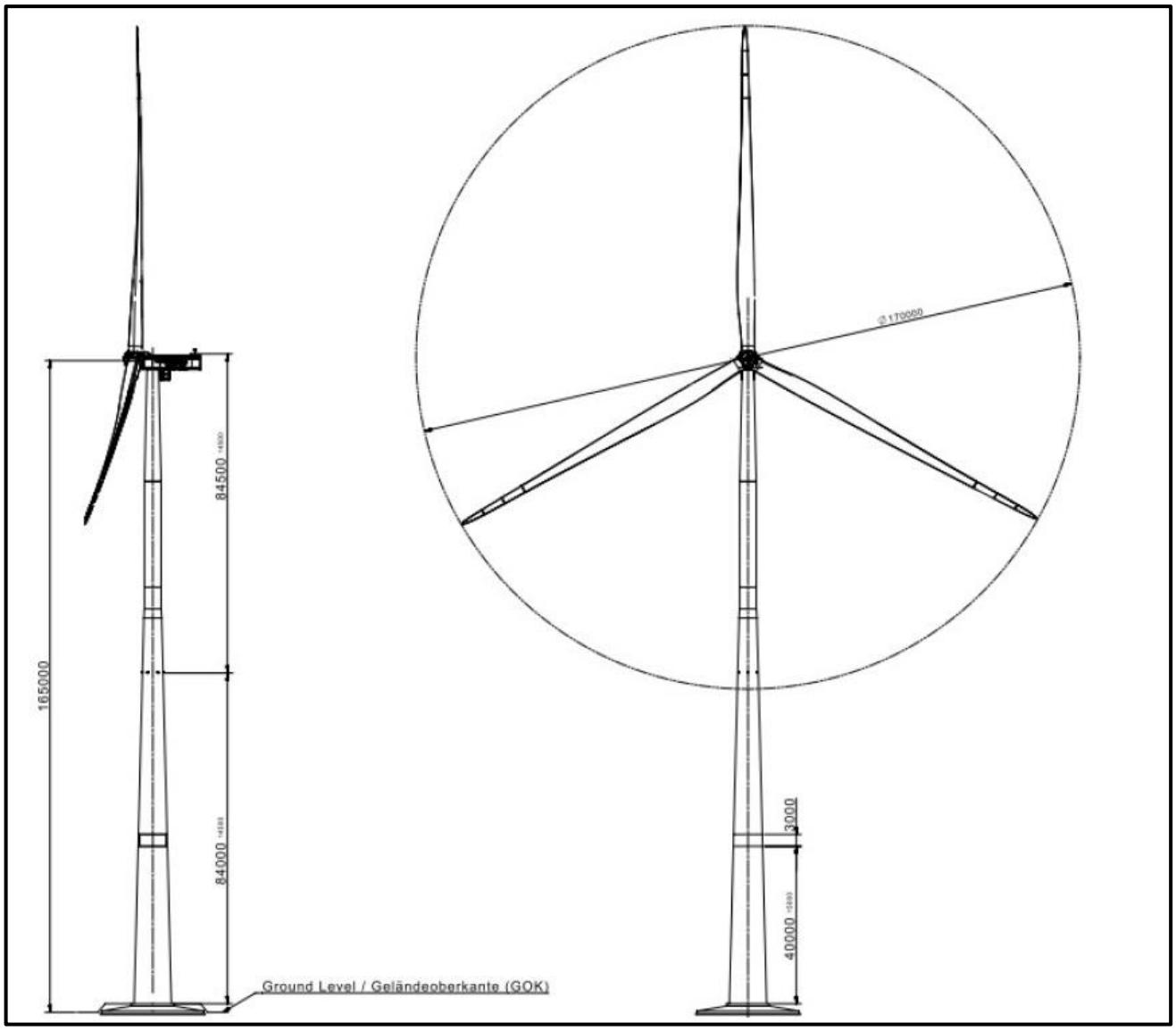


Figure 3.1 Example of a wind turbine generator, subject to design refinement (Siemens Gamesa, 2021)

3.4 Physical layout and design

The indicative layout of the project is shown in Figure 3.2. The preliminary layout has been developed in line with preliminary environmental constraint assessments for the site.

3.4.1 Construction

It is expected that the proposal would not result in demolition of any farm structures, including the current homestead and woolshed.

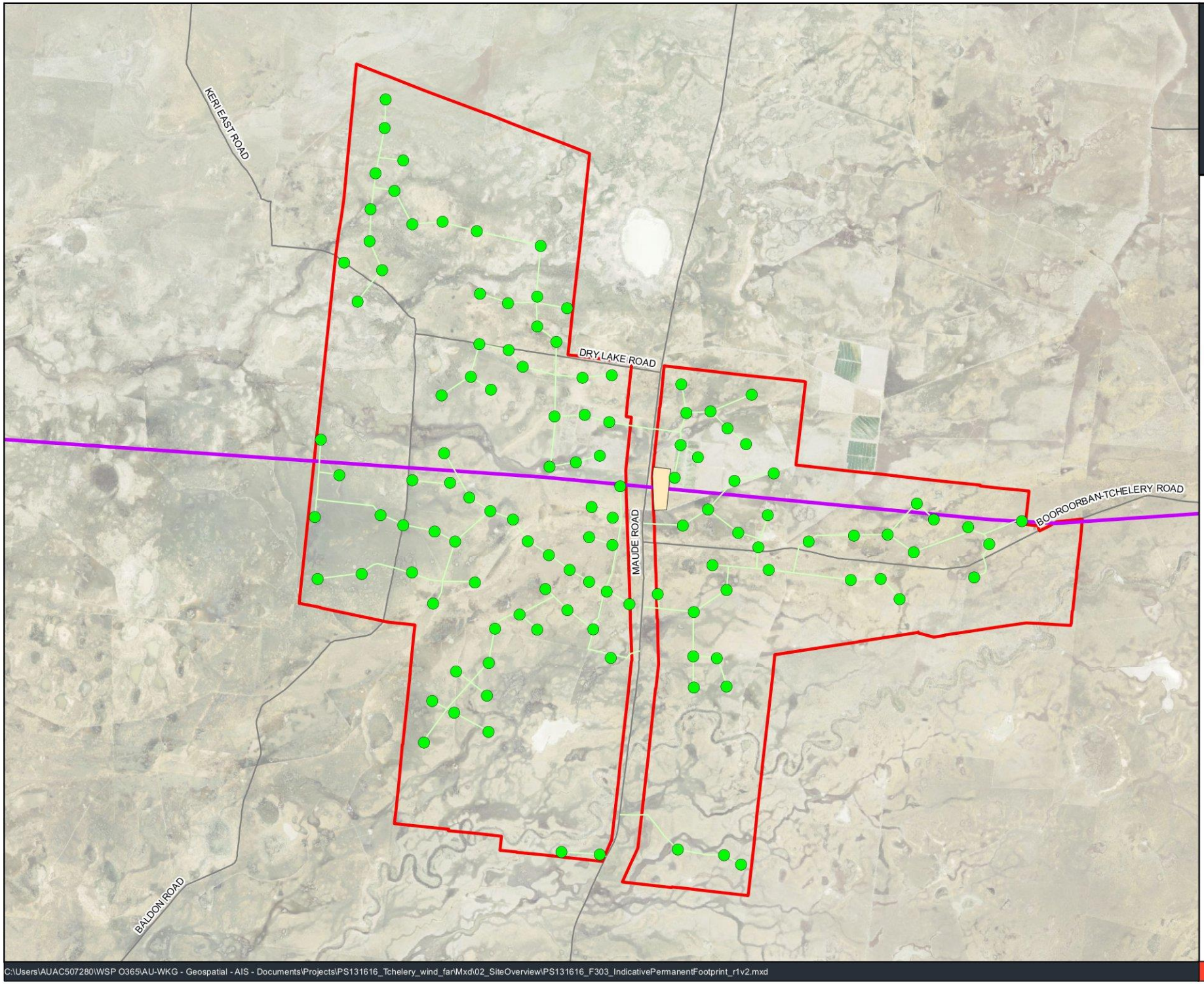
Construction is expected to commence around early 2026. The temporary footprint for construction includes land that would experience temporary alteration. The temporary construction footprint would include:

- access tracks
- construction laydown and stockpiling areas
- temporary workforce accommodation (dependent on detailed design).

3.4.2 Operation

The project would have an operational life of approximately 30 years. Energy generation is expected to commence from late 2028 – early 2029. The permanent footprint for operation includes land that is subject to permanent alteration from the project (until the decommissioning phase). The permanent footprint would be provided in the EIS and would consider preliminary environmental assessment and consultation with relevant government agencies. The permanent footprint would include:

- wind turbine footings
- hard stand crane pads
- internal transmission line and associated access tracks
- 330 kV substation.



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Tchelery Wind Farm

Figure 3.2
Indicative Permanent Footprint of the Project

Legend

- Wind Turbines
- Indicative location of Project EnergyConnect (PEC) / Existing 200kV Transmission Line
- Internal roads and access tracks
- Roads
- Project Site
- Substation and Site Compound

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:150,000 Date: 27/04/2023

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3.5 Construction of the project

3.5.1 Project timeframes

Construction of the project is expected to commence in early 2026, subject to relevant planning approvals. The project is estimated to take about two and a half years to construct. The project is expected to be commence energy generation (i.e. become operational) in late 2028 – early 2029 (see Table 3.4) This program is indicative and is based on the current design and preliminary construction staging.

The program would continue to be refined and would be further considered as part of the EIS.

Table 3.4 Indicative program

Activity	Duration (months)	2026				2027				2028			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Enabling works phase	1												
Earthworks and civil construction works	17												
Wind turbine installation	15												
Electrical construction works	15												
Pre-commissioning	13												
Commissioning	2												
Final completion (remediation works)	1												

3.5.2 Construction methodology

Construction activities would generally be undertaken within the identified project site. Ancillary sites, in particular large centralised staging and accommodation facilities, would likely be located within the project site. Construction works for the project would typically include the following components of work:

- site establishment works, that may include (but not be limited to):
  - establishment of construction site(s), access tracks and service relocations
  - vegetation clearance
- civil works associated with the proposed transmission lines, which would include (but not be limited to):
  - construction of access tracks to accommodate safe access of construction machinery and materials to each transmission line structure site
  - earthworks and establishment of construction pads for each transmission line structure
  - construction of footings and foundation works for the new transmission line structures including boring and/or excavation, steel fabrication works and concrete pours
  - erection of the new transmission line structure using crane(s) and or helicopter(s)
  - stringing of the conductors and overhead earth wires and optical ground wire
  - installation of earthing conductors
- civil and building works associated with the substation works, which would generally include (but not be limited to):
  - earthworks and slab construction
  - electrical fit out with new substation equipment
  - testing and commissioning of the new substation equipment.

Earthworks associated with the project may require blasting. This would be subject to further ground condition investigations and identified as part of the EIS.

In total, construction of the project is expected to require approximately 500 construction workers. However, the construction workforce at any one time would vary depending on the stage of construction and associated activities.

3.5.3 Construction plant and equipment

An indicative list of construction plant and equipment likely to be required for the key construction elements is provided below. Not all the equipment identified below would be required for all phases of the proposed construction of the project.

- Bob cats
- Bulldozers
- Concrete agitator
- Concrete batch plants
- Concrete pump
- Cranes (various sizes)
- Dozer
- Drill and blast units and associated support plant/equipment
- Dumper trucks
- Elevated work platform
- Excavators (various sizes)
- Fuel trucks
- Front end loader
- Generators
- Graders
- Helicopter and associated support plant/equipment
- Low Loader
- Mobile crushing and screening plant
- Piling rigs
- Pneumatic jackhammers
- Rigid tippers
- Rollers
- Scraper
- Semi-trailers
- Tilt tray trucks
- Tipper truck
- Trenchers
- Transport trucks
- Truck-mounted concrete pump
- Watercarts.

3.5.4 Construction hours

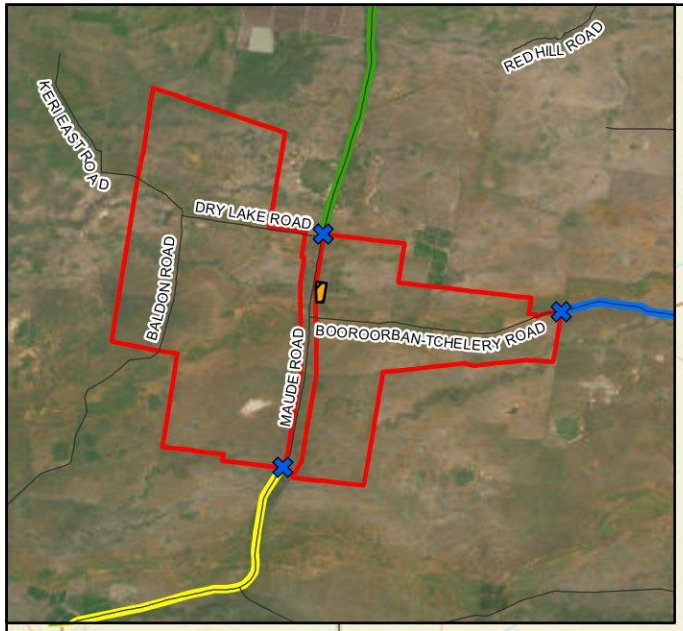
It is proposed that the works would generally be undertaken across a seven-day work week between 7 am and 7 pm, during both standard and non-standard construction hours. As details of construction methodology and project needs are developed, these hours would be refined for certain activities and considered in the EIS.

Potential establishment of a temporary workforce accommodation camp would be investigated during design refinement. Should a temporary workforce accommodation camp be included operation of the camp would be 24 hours a day, seven days a week.

3.5.5 Construction traffic

Construction vehicle movements would comprise vehicles transporting equipment, waste, materials and spoil, as well as worker's vehicles. Larger volumes of heavy vehicles would occur during the main civil construction works associated with construction of the wind turbines. Primary access to the project study area would be from Maude Road, with potential secondary access from Boorooban-Tchelery Road if required (subject to consultation and assessment in the EIS).

The haulage (transit) routes for project related vehicle trips would use much of the surrounding road network between the project site and beyond to main shipping ports (i.e. Sydney, Adelaide, Melbourne and Geelong). Indicative haulage routes are provided in Figure 3.3. Haulage routes and traffic, transport and access would be considered as part of the EIS.



wsp

Tchelery Wind Farm

Figure 3.3
Potential Transport Route Options

Legend

- Potential primary site access points (to be confirmed in the EIS)

Potential Transport Routes

- Geelong to Keri Keri
- Melbourne to Keri Keri
- Newcastle to Keri Keri
- Port Adelaide to Keri Keri
- Port Botany to Keri Keri
- Port Kembla to Keri Keri
- Portland to Keri Keri
- Project Site

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:5,400,000 Date: 28/04/2023

3.6 Pre-commissioning, commissioning and operation

3.6.1 Pre-commissioning and commissioning phases

A series of pre-commissioning activities would occur prior to commissioning. This would include testing the new transmission line and substation components. Key activities that would be undertaken during the pre-commissioning phase would include:

- point to point testing of energy hubs and transmission line equipment
- earthing testing
- high voltage testing
- high voltage equipment operational checks
- connection to the Transgrid network (EnergyConnect – NSW Eastern Section) or the existing 220 kV transmission line
- protection, control, and metering system testing.

3.6.2 Operation and maintenance

Operation of the project would occur for up to 30 years. During the operational phase of the project, the project would have a core permanent workforce of around 10 workers (with up to 20 workers dependent on the maintenance activity) who would undertake general operational maintenance. The majority of maintenance activities would be for preventative maintenance as wind farms are designed to generally operate without intervention, and activities would include:

- regular inspection (ground and aerial) and maintenance of access tracks every six months
- wind turbine blade inspection (and replacement if applicable) every five years
- fire detection system inspection and maintenance
- stormwater maintenance.

3.6.3 Decommissioning and rehabilitation or repowering

The operational life of the wind farm would be approximately 30 years. At this point the site could be formally decommissioned and rehabilitated or repowered. Potential options associated with decommissioning and rehabilitation as well as the repowering of the site (where new wind turbines would be erected) would be explored in the EIS.

If the site were to be decommissioned at the end of life, the process would be undertaken in accordance with relevant legislation, regulations and requirements including any conditions of approval. Ancillary infrastructure, such as access tracks, could be retained subject to the leasing agreement.

4 Statutory context

This chapter describes the statutory context for the project including relevant approval pathway. Environmental planning approval for the project is required in accordance with *Environmental Planning and Assessment Act 1979* (EP&A Act), *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and other relevant statutory requirements.

4.1 Power to grant approval

Approval for the project is sought under Part 4, Division 4.7 of the EP&A Act, that outlines the approval pathway for State Significant Development (SSD). Section 4.36(2) of the EP&A Act states:

> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.*

Relevant State Environmental Planning Policies (SEPPs) include State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP).

Under Clause 2.6 (1) of the Planning Systems SEPP, a development is classified SSD if:

(a) the development on the land concerned in, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and

(b) the development is specified in Schedule 1 or 2.

Schedule 1, Clause 20 of the Planning Systems SEPP identifies 'electricity generating works' as SSD if it meets the following criteria:

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:

(a) has a capital investment value of more than $30 million,

A quantity surveyor report for the project would be prepared to confirm capital investment value during the EIS phase.

4.1.1 Permissibility

The Transport and Infrastructure SEPP is a key environmental planning instrument that can determine the permissibility of infrastructure development and subsequently under which part of the EP&A Act it is assessed. Clause 2.36 of the Transport and Infrastructure SEPP permits 'development for the purpose of electricity generating works' to be carried out with development consent on land within a prescribed rural, industrial or special use zone. The project area is zoned RU1 – Primary Production under the Wakool Local Environment Plan 2013 (Wakool LEP) and Conargo Local Environment Plan 2013 (Conargo LEP) that is a prescribed rural zone.

The project is characterised as electricity generating works under Clause 2.35 of the Transport and Infrastructure SEPP that defines electricity generating works as:

'electricity generating works means a building or place used for the purpose of –

(a) making or generating electricity, or

(b) electricity storage'

The project involves development for the purpose of electricity generating works using wind power which has a capital investment value or more than $30 million and as such is permissible with consent and is considered SSD.

4.1.1.1 Electricity Infrastructure Investment Act (2020)

Section 23 of the *Electricity Infrastructure Investment Act* (2020) identifies REZs in NSW. The project area is located within the South West REZ, that may support up to 2.5 GW of additional transmission capacity.

4.1.1.2 South West Renewable Energy Zone

The proposed location of the South West REZ (shown in Figure 1.2) has been identified as a NSW priority energy zone. The South West REZ is traversed by Project EnergyConnect, comprises relative land-use compatibility and a strong pipeline of proposed projects. The proposed wind farm development is within the current proposed location of the South West REZ and would contribute to renewable energy generation in NSW and may utilise the potential to connect to Project EnergyConnect.

4.1.2 NSW Environmental Planning Legislation and Approvals

The EP&A Act and the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) are the primary pieces of legislation regulating land use planning and development assessment in NSW. This legislation is supported by a range of environmental planning instruments including State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).

Division 4.7 of the EP&A Act provides for assessment of SSD. An EIS would be prepared for the project in accordance with Section 4.39 of the EP&A Act and Part 8 Division 5 of the EP&A Regulation.

Section 4.41 of the EP&A Act lists legislation that is not required to be considered for SSD that is authorised by a development consent (refer Table 4.1).

Section 4.42 of the EP&A Act lists legislation that must be consistently applied to SSD projects (refer Table 4.1). For the project, Section 4.42 approvals would be confirmed in the EIS however are likely to require:

- Environment Protection Licence under the *Protection of the Environment Operations Act 1997*
- work in or over a public road approval under the *Roads Act 1993*.

4.1.3 Other NSW approvals

Other relevant NSW legislation relevant to the project are summarised in Table 4.1.

Table 4.1 Other approvals required to carry out the project

Approval category	Legislation	Application of provision to project
Approvals not required under SSD Section 4.41 of the EP&A Act states the following approvals, permits etc. are not required for an approved SSD.	*Fisheries Management Act 1994*	Potential impact on key fish habitat would be considered in the EIS. Key fish habitat is mapped within the project study area, as discussed in section 6.2.1.4.
	Heritage Act 1977	Potential impact on non-Aboriginal heritage would be considered in the EIS. As discussed in section 6.4, there are no non-Aboriginal heritage items or places within the project study area. The nearest item is the Old Courthouse and Footbridge located approximately 30 kilometres away from the project site.
	National Parks and Wildlife Act 1979	The project would potentially impact on Aboriginal cultural heritage. An Aboriginal cultural heritage assessment would be prepared as part of the EIS and would include consultation with Aboriginal communities.
	Rural Fires Act 1997	A Bushfire Assessment would be prepared as part of the EIS.

Approval category	Legislation	Application of provision to project
	Water Management Act 2000	Potential impact on water quality and use would be considered in the EIS.
Consistent Approvals Section 4.42 of the EP&A Act outlines that these approvals cannot be refused if necessary for carrying out an approved SSD and are to be consistent with the terms of the SSD approval	*Roads Act 1993* (Roads Act)	The project would likely require consent from the appropriate road authority under Section 138 of the Roads Act for any works undertaken on public roads. The impacts of the project on roads and traffic would be assessed within the EIS.
	Protection of the Environment Operations Act 1997 (POEO Act)	Under the provisions of Schedule 1, Clause 17 of the POEO Act, activities requiring an environment protection licence (EPL) include 'electricity works (wind farms)' that is the subject of a development consent relating to SSD. Accordingly, an EPL would likely be required for the project.
Native Title	*Native Title Act 1993*	The EIS would consider potential impact on Aboriginal cultural heritage, including Native Title.
Other Approvals	*Water Management Act 2000*	The project may require water access licences under the *Water Management Act 2000* for a water use approval, water management work and/or an activity approval.
	Conveyancing Act 1919	The final development footprint may require a lease from the owners of the affected land, including any potential substation.
NSW legislation and concurrent approvals		See sections 4.3.1 to 4.3.3 for other NSW legislation and approvals that are relevant to the project.

4.2 Planning approval process

The NSW Minister for Planning and Public Spaces or their delegate is the consent authority for the project and an EIS is required to be lodged to the DPE.

Before preparing the EIS, the applicant must request the SEARs for the EIS. This Scoping Report has been prepared to support that request in accordance with the *State Significant Development Guidelines* (DPE, 2021).

The EIS would be prepared to address the SEARs (once issued) and the form and content requirements set out in Part 8 Division 5 of the EP&A Regulation. The EIS would be submitted to DPE for review before it is publicly exhibited for at least 28 days. During the exhibition period, the public and agencies would be invited to make submissions. After the exhibition period closes, DPE may ask the proponent to respond to issues raised in the submissions and prepare a Submissions Report.

4.3 Mandatory matters for consideration

4.3.1 Applicable NSW Environmental Planning Instruments

The consent authority is required to consider a range of matters when deciding whether to grant consent for the project. These are referred to as mandatory considerations that are detailed in Table 4.2.

Table 4.2 Environmental Planning Instruments relevant to the project

Environmental planning instrument	Relationship to PROJECT
State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	The Planning Systems SEPP identifies development that is SSD. As discussed in section 4.1.2, the project is characterised as electricity generating works under Clause 2.35 of the Transport and Infrastructure SEPP.
State Environmental Planning Policy (Primary Production) 2021 (Primary Production SEPP)	The Primary Production SEPP aims to facilitate orderly economic use and development of land for primary production and reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources. The SEPP is also intended to identify land that has been declared to be State Significant agricultural land (currently no land identified by the SEPP). As the proposal would likely impact on areas of primary production and agriculture, the provisions of this SEPP would be further considered in an Agricultural Impact Assessment as part of the EIS for the project. Potential impacts on agricultural land are discussed in section 6.5 (Land use and property).
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)	The Resilience and Hazards SEPP provides a state-wide approach to the remediation of contaminated land for the purpose of minimising risk of harm to health of humans and the environment. In accordance with Clause 4.6 (1) of the Resilience and Hazards SEPP, a consent authority must consider potential contamination and proposed use. A Phase 1 contamination investigation would be undertaken as part of the EIS to inform design of the project. Contamination is discussed in section 6.15 (Soils, topography and contamination).
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP)	The Biodiversity and Conservation SEPP contains provisions for the conservation and management of natural vegetation areas that provide habitat for koalas. Potential impacts on koala populations have been considered in Appendix B (Preliminary Biodiversity Assessment) and are summarised in section 6.2 (Biodiversity).

4.3.2 Local Environmental Plans

The project would be located near Keri Keri within the Edward River local government area (LGA). The project would therefore fall under the Wakool LEP and Conargo LEP.

The zoning that is applicable to the project includes the following:

- RU1 Primary Production (consisting of all of the land on which the project would be located).

There are a number of national parks and reserves (zones C1 National Parks and Nature Reserves) within close proximity to the project site, including:

- Yanga National Park (approximately 30 kilometres west)
- Kalyarr National Park (approximately 47 kilometres north)
- Oolambeyan National Park (approximately 84 kilometres east).

While the LEP guides local development within the LGA, the EP&A Act provides that LEPs do not apply to SSD projects. Therefore, the remaining provisions of the LEPs have not been considered further in this Scoping Report. However, the Scoping Report has provided preliminary consideration of heritage items listed under the LEPs in section 6.4 (Non-Aboriginal heritage) and has considered preliminary potential impacts to land use in section 6.5 (Land use and property).

4.3.3 Other NSW planning legislation

Table 4.3 discusses other NSW legislation that may be applicable regardless of the project being declared SSD.

Table 4.3 Other NSW planning legislation of potential relevance to the project

Legislation	Requirement
Aboriginal Land Rights Act 1983	This Act establishes the NSW Aboriginal Land Council and local Aboriginal land councils and requires these bodies to: — take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law — promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area. Under this Act, Aboriginal land councils can claim Crown land which, if granted, is transferred as freehold title. 'Claimable Crown lands' includes Crown lands that are not lawfully used or occupied and that are not needed, nor likely to be needed, for an essential public purpose. No claimable Crown lands have been identified that would be affected by the project (refer to section 6.5 (Land use and property)). Consultation would occur with Aboriginal communities as part of the EIS.
Biodiversity Conservation Act 2016 (BC Act)	This Act aims to conserve threatened species, populations and ecological communities through ensuring appropriate assessment, management and regulation of actions that may damage critical or other habitat for a listed threatened species, or may otherwise significantly affect a threatened species, population or ecological community. A preliminary assessment of biodiversity risks associated with the project has been carried out in accordance with the BC Act. The results of this assessment are presented in Appendix B (Preliminary Biodiversity Assessment) and summarised in section 6.2 (Biodiversity).

Legislation	Requirement
Biosecurity Act 2015 (Biosecurity Act)	Under the Biosecurity Act, all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. A preliminary assessment of biosecurity risks associated with the project has been provided in Appendix B (Preliminary Biodiversity Assessment) and summarised in section 6.2 (Biodiversity) and also discussed in section 6.11.1.3.
Contaminated Land Management Act 1997 (CLM Act)	The CLM Act outlines the circumstances in which notification to the Environment Protection Authority (EPA) is required in relation to the contamination of land. This may be relevant for this project during construction and/or operation and would be discussed in the EIS. A Phase 1 contamination investigation would be undertaken to inform the design of the project and EIS process. Contamination is further discussed in section 6.15.
Crown Land Management Act 2016	This Act sets out the requirements for the management of Crown land in NSW. A search on NSW ePlanning database in May 2022 revealed no areas of Crown Land would be affected by the project (see section 6.5) (Land use and property).
Fisheries Management Act 1994 (FM Act)	The FM Act aims to produce sustainable biological, environmental and socioeconomic benefits for renewable aquatic resources. Potential impact to key fish habitat would be considered in the EIS.
National Parks and Wildlife Act 1974 (NPW Act)	A preliminary assessment of potential impacts on Native Title and Aboriginal heritage was undertaken in May 2022 and is provided in section 6.3 (Aboriginal heritage). The EIS would consider potential impact on Aboriginal cultural heritage, including consultation with Aboriginal communities.
Native Title (NSW) Act 1994 (Native Title Act)	This Act provides for the recognition of Native Title in relation to land or waters in NSW in accordance with the *Commonwealth Native Title Act 1993* (refer to section 4.3.5.2). A preliminary assessment of potential impacts on Native Title and Aboriginal heritage was undertaken in May 2022 and is provided in section 6.3 (Aboriginal heritage). The EIS would consider potential impact on Aboriginal cultural heritage, including consultation with Aboriginal communities.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	This Act encourages the most efficient use of resources in order to reduce environmental harm. The project would consume some natural resources and would produce waste. Waste and resource impacts associated with the project have been considered in section 6.17 (Waste management and resource use).
Wind Energy Guidelines – for State Significant wind energy development (DPE, 2016)	The Wind Energy Guideline (the Guideline) provides the community, industry and regulators with guidance on the planning framework for the assessment of large-scale wind energy development proposals that are SSD (Wind Energy Guideline DPE, 2016). The Guideline identifies key planning considerations relevant to wind energy development in NSW. It guides the assessment, evaluation, determination of wind energy development proposals and their construction and operation and has been considered in this Scoping Report and would be further considered in the EIS.

4.3.4 Ecologically sustainable development

Part 8, Division 5 (Clause 193) of the EP&A Regulation and Section 6(2) of the *Protection of the Environment Administration Act 1991* outline the four principles of ecologically sustainable development (ESD). The four ESD principles comprise the precautionary principle; intergenerational equity; conservation of biological diversity and ecological integrity; and improved valuation, pricing, and incentive mechanisms.

NEOEN would consider the principles of ESD in design refinement of the project. A discussion of how the project has considered ESD principles and how these are incorporated into the project would be included in the EIS.

4.3.5 Commonwealth legislation

4.3.5.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, proposed actions with the potential to significantly impact matters protected by the EPBC Act must be referred to the DCCEEW to determine whether they are controlled actions and require approval from the Australian Government Minister for the Environment (Minister). Under Part 3 of the EPBC Act, approval from the Minister is required for:

- an action that is likely to have a significant impact on MNES
- an action taken by any person on Commonwealth land that is likely to have a significant impact on the environment
- an action taken by any person outside of Commonwealth land that is likely to have a significant impact on the environment on Commonwealth land
- an action taken by a Commonwealth agency anywhere in the world that is likely to have a significant impact on the environment.

NEOEN is not a Commonwealth agency and a preliminary assessment of the project indicates no Commonwealth land would be affected.

Matters of National Environmental Significance

A search of the EPBC Act Protected Matters Search Tool (PMST) for the project study area was conducted in March 2023 to identify potential MNES that may trigger the need for referral of the action to the DCCEEW. This has been supplemented by the results of a Preliminary Biodiversity Assessment (refer to Appendix B). A summary of the potential MNES within the project study area is presented in Table 4.4.

Table 4.4 MNES under the EPBC Act

MNES	Matters within the project area
World heritage properties	None
National heritage places	None
Wetlands of international importance	None within 100 kilometres of the proposal site
Commonwealth listed threatened species and ecological communities	A search on the PMST identified five listed Threatened Ecological Communities (TECs) that may or are likely to occur within the project study area, and 26 listed threatened flora and fauna with habitat known or likely to occur within the project study area.
Commonwealth listed migratory species	The results of likelihood of occurrence assessments identified that nine migratory species have a moderate or higher likelihood of occurrence within the project study area (see Appendix B).
Nuclear action	The project would not result in any nuclear action, nor would any nuclear activity need to be undertaken.

MNES	Matters within the project area
Commonwealth marine area	None
Great Barrier Reef Marine Park	None
Protection of water resources from coal seam gas development and large coal mining	None

Based on the current project study area, the proposed preliminary design for the project and understanding of site conditions, it is anticipated that the project could potentially result in significant impacts on Commonwealth listed threatened species and ecological communities.

An EPBC Act referral would be submitted to the DCCEEW to consider whether the project would be considered a controlled action on the basis of potential impacts to the listed threatened species. If determined to be controlled, then a bilateral assessment process would be requested for the project.

4.3.5.2 Native Title Act 1993

The Commonwealth *Native Title Act 1993* provides for recognition of native title and establishes ways in which future dealings affecting native title may proceed, sets the standards for those dealings and establishes a mechanism for determining claims to native title. Section 8 states that the *Native Title Act 1993* is not intended to affect the operation of any law of a State or a Territory that is capable of operating concurrently with the Act. The Aboriginal Cultural Heritage Consultation Requirements (ACHAR) for Proponents 2010 (DCCEEW, 2010a) stipulates that, where relevant, consultation must be conducted with Native title holders or registered native title claimants.

Searches of the registers maintained by the National Native Title Tribunal indicate there are no native title claims or any indigenous land use agreements that apply to land within the area covered by this project. The EIS would consider potential impact on Aboriginal cultural heritage, including consultation with Aboriginal communities.

5 Stakeholder and community consultation

5.1 Introduction and context

NEOEN are committed to developing and nurturing long-term relationships with the community and stakeholders and recognise that these genuine, open and ongoing relationships are vital to the success of Tchelery Wind Farm. NEOEN have undertaken early engagement on the project that would continue throughout the project's life cycle. NEOEN's objectives for consultation and engagement with the community and stakeholders includes:

- fostering a transparent and open approach to the development of Tchelery Wind Farm and ensure 'no surprises' for the local community
- keeping the community and stakeholders informed about Tchelery Wind Farm through the provision of accurate, timely and factual project information
- identifying and addressing community and stakeholder concerns while maintaining transparency in the project design, implementation and ongoing operations
- involving stakeholders and community regarding key decisions
- identifying opportunities for local business involvement and local employment in the construction and operations of Tchelery Wind Farm and where appropriate develop a Local Participation Plan
- identifying opportunities for Indigenous Participation and employment in the construction and operations of Tchelery Wind Farm and where appropriate co-develop and implement an Indigenous Participation Plan
- developing and delivering a benefit sharing program in collaboration with the community, and in partnership with local stakeholders where possible
- developing long-term relationships and partnerships with community and stakeholders.

5.2 Engagement considerations, principles and framework

In developing the Community Engagement Plan (CEP) for this project (refer CEP, Appendix F), NEOEN has been informed by *Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2022), particularly the concept of engaging at the earliest possible opportunity and providing clear and concise information that allows people to provide informed feedback. The CEP was also developed in accordance with global best practice guidelines and outlines the overall framework across all three phases of the project lifecycle (from development through to construction and operations.

The CEP Framework acts as NEOEN's commitment to uphold the following principles when engaging with its stakeholders:

- **Integrity:** NEOEN's consultation is based on establishing relationships that are built on mutual respect, transparency, and inclusiveness.
- **Commitment:** NEOEN is clear about purpose, responsiveness and aims for mutual benefit.
- **Audacity:** NEOEN plans engagement activities that are genuine and driven by local context and innovation.
- **Esprit de corps:** NEOEN values its relationships with the local community and celebrates community in all its forms.

5.2.1 Strategy to date

NEOEN recognises the rural nature of the community around Tchelery Wind Farm. A key component to NEOEN engagement on this project has been to engage with stakeholders and the community at the early phases of development, to build trusting relationships between the NEOEN team who know the project the best, and the stakeholders that are part of and connected to the region and local community. This has allowed NEOEN to start an ongoing dialogue that:

- involves the community in the development, construction, and operation of Tchelery Wind farm
- collaborates with the community to ensure that local advice and insights shape NEOEN's approach to engagement and benefit sharing
- empowers the community to shape key elements of the project, such as co-designing the long-term framework of the shared benefits program.

The CEP provides a framework that comprises eight key phases, of which three phases have been undertaken to date, including:

- site selection
- feasibility
- planning and approvals (ongoing).

5.3 Stakeholders

NEOEN has identified a list of relevant key stakeholders who are affected by or have an interest or influence on the project. Table 5.1 provides an initial list of stakeholders who have been engaged to date. As the project moves through its lifecycle, this list would be reviewed and updated to ensure its accuracy.

Table 5.1 Key stakeholder groups for the project

Stakeholder group	Date and method	Key theme / Feedback consultation activity	NEOEN response
Host Landowners	2022 – May 2023 In-person meetings, email, and phone calls	Introduction to the Project, planning process, project schedules and updates. Consultation and coordination for project related studies such as cultural heritage, ecology, noise, etc. The response has been positive and supportive.	NEOEN would continue to engage and consult regularly and to seek feedback throughout the project life.
Adjacent and 3 of 4 near neighbours up to 8km	Oct 2022 - March 2023 In-person meetings, email, and phone calls	Introduction to the Project. Consultation and coordination for noise studies. Key themes discussed: traffic, noise, visual impact. Most of the close neighbours are signed with other renewable energy developers. The response has been favourable and collaborative.	NEOEN would continue to engage and consult regularly and to seek feedback throughout the project life.
Neighbourhood Moulamein 2733	23 Feb 2023 Community event (advertised in two local newspapers, a local magazine and on project website).	The event was advertised in two local newspapers, a local magazine and on Project website. Key themes discussed: Accommodation in Moulamein, use of local content, local employment, Community Benefit Sharing Scheme, Water Source, Traffic, Visual and Noise. The response has been generally positive, particularly towards economic, jobs and community benefits. Community members were interested in support towards aged care, education, and gardens.	NEOEN would continue to engage regularly with the community to understand and address their questions and concerns, as well as to identify opportunities to use local service providers.
Traditional Owners – Indigenous community	May 2022 - May 2023 Email, phone, letter, newspaper	Invitation sent to Registered Aboriginal Parties (RAPs) to be involved in Aboriginal Heritage Cultural Assessment Report (ACHAR) process. Registration of interest received from four RAPs for involvement in ACHAR process. Survey methodology was shared with the registered RAPs. No changes or updates to the survey method were requested. The surveys have been scheduled for 19th of June and RAPs invited to participate. Email sent introducing NEOEN, the Project and including an invitation to the community event. NEOEN followed up via phone call to invite to the community session. (no RAP representative attended the event). NEOEN identified First Nations stakeholder contacts at the event. The response has been favourable.	NEOEN to continue engagement consultation for the project development, ACHAR process and on First Nations Benefit Sharing Scheme.

Stakeholder group	Date and method	Key theme / Feedback consultation activity	NEOEN response
Edward River Council, Local Government	December 2022 – May 2023 Email, virtual meeting, phone calls	Letter sent via email introducing NEOEN Australia and the Project followed by a virtual meeting to brief the Council's planning team on the project. Key themes discussed: Accommodation, Community Benefit Sharing Scheme, Project lifecycle and Decommissioning. The response has been positive and collaborative. Invitation sent to Council for the community event. Project presentation was submitted for discussion at the Council meeting held on 4 April.	NEOEN would continue engaging and consulting with the Council as the project progresses.
Hay Shire Council, Neighbouring Local Government	December 2022 – May 2023 Email, Virtual meeting, phone	Letter sent via email introducing NEOEN Australia and the Project, followed by a virtual project briefing to the Council's planning team. Key theme: Accommodation, Community Benefit Sharing Scheme, Project lifecycle. The response has been positive and collaborative. The planning team members were interested in support towards educational projects/fundings. Invitation to the community event.	NEOEN would continue engaging with the Council as the project progresses. NEOEN would schedule a time with the Council to provide a briefing at the Council meeting.
Murray River Council, Neighbouring Local Government	December 2022 – May 2023 Email, phone	Letter sent via email introducing NEOEN Australia, and the Project, followed by a phone call to discuss the Project and to request a meeting with the planning team and the Councillors. No response received on the meeting request. Invitation sent to the community event.	NEOEN would continue engaging with the Council as the project progresses. NEOEN would schedule a time with the Council to provide a briefing at the Council meeting.
State MP Mrs Helen Dalton, Member for Murray	25 Jan 2023 Email	Letter sent via email introducing NEOEN Australia and the Project and including an invitation to the community event in Moulamein. No response received.	NEOEN would continue engagement by providing regular project updates and by continuing to invite Mrs Helen Dalton to future community events.

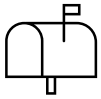
Stakeholder group	Date and method	Key theme / Feedback consultation activity	NEOEN response
Federal MP Hon Sussan Ley, Member for Farrer	31 Jan 2023 Email	Letter sent via email introducing NEOEN Australia and the Project and including an invitation to the community event in Moulamein. Response received acknowledging the letter and apologies for being unable to attend.	NEOEN would continue engagement by providing regular project updates and by continuing to invite the Hon Sussan Ley to the future community events.
Local Fire Authority, NSW RFS Deniliquin Fire and Rescue Zone Office Regional West 3 - Riverina	Jan 2023 Email and phone	Phone call to both the local fire authorities introducing NEOEN Australia, the Project including invitation to the community session followed by an email containing the same information. During the call, RFS member confirmed that they will not be able to attend the community session. However, they will pass on the information and invite to local brigades in the project area. (no one from fire authority attended the community event) During the call, Fire and Rescue member confirmed that the Project area is not within Fire and Rescue catchment area. The response was favourable.	NEOEN would engage and consult with Deniliquin RFS and local fire brigades for the Project's design. The Project is out of Fire and Rescue jurisdiction. NEOEN would provide regular project updates.
Local Emergency Services, SES Southern Zone	Jan 2023 Email	Introduction sent via email to NEOEN and the Project. Invitation sent to the community event. No response received.	NEOEN would provide regular updates about the project.
Schools	Jan 2023 Email and Phone	Introduction sent via email to the local school (Moulamein Pre-school and Public School) about the educational resources available through NEOEN's Learning Hub and Invitation to the community event. No response received.	NEOEN would engage with the Moulamein Pre-school and Public School and explore opportunities to collaborate.

Stakeholder group	Date and method	Key theme / Feedback consultation activity	NEOEN response
Heritage NSW	May-June 2022 Email	Notification of ACHAR consultation commencement and request to provide list of interested parties sent via email. Response via email with list of potential Aboriginal parties.	NEOEN would continue engagement for the Project development and ACHAR process.
Biodiversity, Conservation and Science Directorate (BCD), NSW DPE	March - May 2023 Email, virtual meeting	Early consultation to present the biodiversity study findings to date and to seek feedback. Presentation, memo summarizing findings to date was shared. Early consultation was received positively by BCD.	NEOEN would continue consultation with BCD through the next phases of the project

5.4 Communication materials, engagement channels and current reach

The following communications materials and engagement channels have been used to build knowledge about the project and allow an opportunity for consistent dialogue, should that be desired by stakeholders and the community. Early engagement has focussed on understanding the needs and opinions of the community.

Table 5.2 Method of communication, engagement channels and current reach

Method	Description of communication
Project webpage 	A dedicated project website has been established that provides clear and accessible information about the project to the community. The website provides details of project contact points and visitors are invited to email or call the project team or complete a feedback survey. The website provides details for community information sessions and will remain active throughout the life of the project as a place where the community can access operational information, log complaints and access "visit us" information.
Project email 	A dedicated project inbox where stakeholders and the community can contact the project team with any questions.
Project phone number 	A dedicated project 1800 phone number has been established that will remain active for the lifetime of the project. All calls to this number are directed to the NEOEN Project Manager during office hours (Monday to Friday, 9:00am to 5:30pm). Out of hours calls will be directed to an answering message service which will forwarded all recorded messages to the project email.
Media and paid advertising and editorials 	Across major project milestones media releases and paid advertising will used to secure reach of messaging to the broader community. Tchelery Wind Farm's community information session was advertised to the public via local media including: — Wongi: 14 and 21 February 2023 — Swan Hill Guardian: 3, 14 and 17 February 2023 — Koondrook Barham Bridge Newspaper: 2 and 16 February 2023.
Community information sessions 	Tchelery Wind Farm's first community information session was held on 23 February 2023. At the community information session, a Community Information Booklet was distributed and printed on A1 corflute posters for viewing. Attendees were invited to provide feedback on the project via the project's online feedback form with a link to the feedback form being provided via email to participants on a voluntary basis. **A total of nine attendees were at the first community information session.**
Letterbox drops 	Letterbox drops with updates for host landowners and adjacent/near neighbours, including the township of Moulamein. Letters would continue to be used in future stages of the project to invite stakeholders to briefings and events, and to provide updates at key project milestones.

Method	Description of communication
Project briefings 	Project briefings are provided to Government agencies, including local government, to communicate project updates and details as needed.

5.5 Feedback received from engagement

NEOEN recognises the importance of continued engagement with stakeholders and the community and are committed to providing opportunities for all parties to provide feedback throughout the planning and operation phases. Moreover, NEOEN acknowledges that, it is through this feedback, better project outcomes can be realised.

Consultation completed prior to submission of this Scoping Report include:

- after the project was identified in late-2018, engagement with potential landholders commenced soon after (which was paused until confirmation of Project EnergyConnect in late-2021)
- initial discussions with the host landholders in early-2022, which involved one-on-one meetings to discuss the project. NEOEN have been in regular contact with the host landholders to provide updates on the progress and the development via emails, in-person meetings and phone calls
- consulted and sought advice from relevant government agencies in preparation of the Scoping Report
- presented the proposed project to Edward River Council and Hay Shire Council. The Murray River Council has been informed of the project and efforts have been made to provide a briefing to the planning team
- state and Commonwealth MPs for the area have been notified about the project
- informed the Local Aboriginal Land Councils, Local Schools and Rural Fire Service about the project
- hosted a Community Information Session on 23 February 2023 with an open invite to the general public. A total of nine people attended, including a few of key stakeholders and representatives identified from the local area.

Community and stakeholders have had the opportunity to provide initial feedback on the project from online feedback forma and during the Community Information Session. There have been two online feedback forms completed and nine stakeholders attended the community information session.

Key areas of concerned raised include:

- Aboriginal heritage
- capacity of the NEM
- housing pressures in Moulamein and surrounding areas, including aged care
- potential local suppliers
- project timelines in relation to other renewable projects in the area.

Key areas of opportunity include:

- development of the community benefit-sharing scheme, with community suggestions comprise support for initiatives such as:
  - apprenticeships
  - local schools
  - Moulamein Festival
  - Bush Nurse Service
  - sporting teams
  - Edward River Garden
  - community owned aged care facility.

Nearby residents and the general community have been engaged through direct letters, traditional media and the community information session. However, the limited participation suggests that the community may not have the project knowledge or willingness to form a strong opinion on how the project may impact them now as well as the rural locality of the project area.

Overall, consultation undertaken to date has indicated a moderate to high level of interest for the project which was primarily a result of their interest in renewable energy development and employment.

5.6 Engagement with Aboriginal representatives

Tchelery Wind Farm is within the Deniliquin Aboriginal Land Council area. NEOEN is committed to building a strong and ongoing relationship with the local First Nations community.

During the development stage, NEOEN have commenced engagement with traditional owners and have engaged experienced consultants to undertake an Aboriginal Cultural Heritage Assessment Report for the project (to be completed during the EIS phase).

NEOEN are exploring the option of co-developing an Indigenous Participation Plan with the local First Nations community. Participation would incorporate the following three elements:

- Indigenous employment by Engineering, Procurement and Construction (EPC) and second/third tier contractors during construction and operation
- Indigenous suppliers providing works packages in construction and operation
- Indigenous workplace training and education pathways in partnership with local schools and education establishments.

A more detailed Indigenous Participation Plan may be developed following assessment of the SSD application.

5.7 Future engagement

A CEP has been prepared for the project to provide a framework for continued engagement with the community and stakeholders. It is NEOEN's intention to keep this document current and to update it at regular milestones based on how stakeholders and the community indicate they would like to be consulted in the future and where future opportunities to provide information are identified.

It is expected the next phase of engagement would include:

- continued regular engagement with the host landholders to provide updates on the progress and the development via emails, in-person meetings and phone calls
- continue to be in regular contact with the relevant councils with the project updates. NEOEN is aiming to provide a briefing to the councillors of all three councils as the project progresses
- state and Commonwealth MPs for the area would be kept up to date as the project progresses
- aim to engage with the Local Schools to explore opportunities to work with them to support education and training in renewable energy generation, the electricity grid and electricity market
- continue engaging and consulting with Local Aboriginal Land Councils, Rural Fire Service and relevant agencies about the project
- continue to consult the community for co-design of the community benefit scheme
- introduce a complaints management process that would be made available online and in community consultations that occur in the lead up to construction commencement, and at any community consultation that is held during the construction period.

In addition to any new activities or channels that may be identified to support stakeholders and the community, the activities and channels outlined earlier in this chapter would also continue to be updated to offer people a broad range of ways to seek information and provide informed feedback.

All feedback would be captured formally in a project Stakeholder Register.

6 Preliminary environmental assessment

6.1 Overview

A preliminary environmental assessment has been carried out to identify the potential economic, environmental and social issues associated with the proposed construction and operation of the project.

Environmental issues are described in terms of the sensitivity of the project study area and surrounds, scale and nature of the likely impacts of the project and the ability to avoid, minimise and/or offset these impacts. The significance of each issue and need for specialist assessment has been based on potential environmental impact and likely level of community and stakeholder interest.

For each issue, the proposed scope and required level of assessment (detailed or standard) to be carried out as part of the EIS is identified, as well as the data requirements, investigations required, methodology for assessing impacts, applicable criteria, uncertainties and relevant government plans, policies and guidelines. The methods of assessment proposed in this report would be reviewed and confirmed upon receipt of the SEARs for the project. A summary of the key issues and their proposed scope and level of assessment in the EIS is provided in the Scoping Summary Table in Appendix A.

6.2 Biodiversity

This section provides a summary of a preliminary biodiversity assessment that has been prepared based on background database, pre-existing and ongoing field validation (provided in Appendix B).

The report further identifies potential data gaps and seasonal survey requirements that pose potential issues that would likely need to be addressed as part of the Biodiversity Development Assessment Report (BDAR).

This section also considers MNES under the Commonwealth EPBC Act.

Vegetation communities present in the project study area were identified. The project study area includes the project site and a 20 kilometre buffer around for threatened flora and fauna searches consistent with the BioNet Atlas user manual (DPE, 2019) and standard practice for the Commonwealth DCCEEW PMST.

6.2.1 Existing environment

6.2.1.1 Excluded impacts (Category 1 – exempt land)

Under the NSW Land Management Framework, the categorisation of land determines the native vegetation management options available to landholders. Rural land in NSW is categorised into three main categories:

- Category 1 – exempt land is land where native vegetation can be cleared without approval from Local Land Services
- Category 2 – land is divided into:
  - Category 2 – regulated land is Category 2 land that is not Vulnerable or Sensitive regulated land. You may need authorisation from Local Land Services to clear native vegetation from rural zoned land in this category
  - Category 2 – vulnerable regulated land is land where clearing of native vegetation may not be permitted under the Land Management (Native Vegetation) Code 2018, and a limited range of allowable activities are permitted
  - Category 2 – sensitive regulated land is land where clearing is not permitted under the Land Management Code (Native Vegetation) Code 2018, and a limited range of allowable activities is permitted.
- Excluded land is land where the Land Management (Native Vegetation) Code 2018 and allowable activities do not apply.

An overview of Category 1 and Category 2 lands within the project site is provided in Figure 6.1 and Table 6.1.

Table 6.1 Overview of Category 1 – exempt lands within the project site

Land classification	Area within the project site (ha)
Category 1 – exempt lands	32
Category 2 – Vulnerable Regulated Land	563
Native vegetation	26,725
Total	**27,320**

6.2.1.2 Terrestrial ecology

Overview

An overview of the existing environment was undertaken based on a combination of broad scale state vegetation mapping, threatened species database searches and literature review.

Native vegetation

The project study area has been identified to traverse a diverse range of native vegetation types (refer Figure 6.2) including the following broad vegetation formations:

- Arid Shrublands (Chenopod sub-formation)
- Freshwater Wetlands
- Grasslands
- Saline Wetlands
- Semi-arid Woodlands (Grassy sub-formation)
- Semi-arid Woodlands (Shrubby sub-formation).

A total of four Threatened Ecological Communities (TECs) listed under the BC Act have been identified as potentially occurring within the project site, based on their alliance to native vegetation recorded either through field verification or broad scale mapping. These four communities are considered candidate TECs and include:

- *Acacia melvillei* Shrubland in the Riverina and Murray-Darling Depression bioregions – Endangered
- *Allocasuarina luehmannii* Woodland in the Riverina and Murray-Darling Depression Bioregions – Endangered (Serious and Irreversible Impacts (SAII))
- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions – Endangered
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions – Endangered.

An overview of each TEC, threat status and associated Plant Community Type (PCT) is presented in Figure 6.2 and Appendix B. The estimated historical percentage cleared and the extent of PCTs (in hectares) within the project site is presented in Table 3.2 of Appendix B.

Threatened flora

The likelihood of occurrence assessments identified that 19 threatened flora species listed under the BC Act, are predicted or known to occur within the project study area. Seven threatened flora species were found to have a moderate or higher likelihood of occurrence within the project study area (refer Figure 6.3):

1. Mossgiel Daisy
2. Spike-Rush
3. Yellow Gum
4. Winged Pepper-cress
5. Lanky Buttons
6. Chariot Wheels
7. Slender Darling-pea.

Threatened and migratory fauna

The results of likelihood of occurrence assessments identified that 17 threatened fauna species listed under the BC Act are predicted or known to occur within the project study area. Of these, seven threatened fauna species are predicted to have a moderate or high likelihood of occurrence within the project study area:

- Southern Bell Frog
- Bush Stone-curlew
- White-bellied Sea Eagle
- Little Eagle
- Major Mitchell's Cockatoo
- Plains-wanderer
- Superb Parrot.

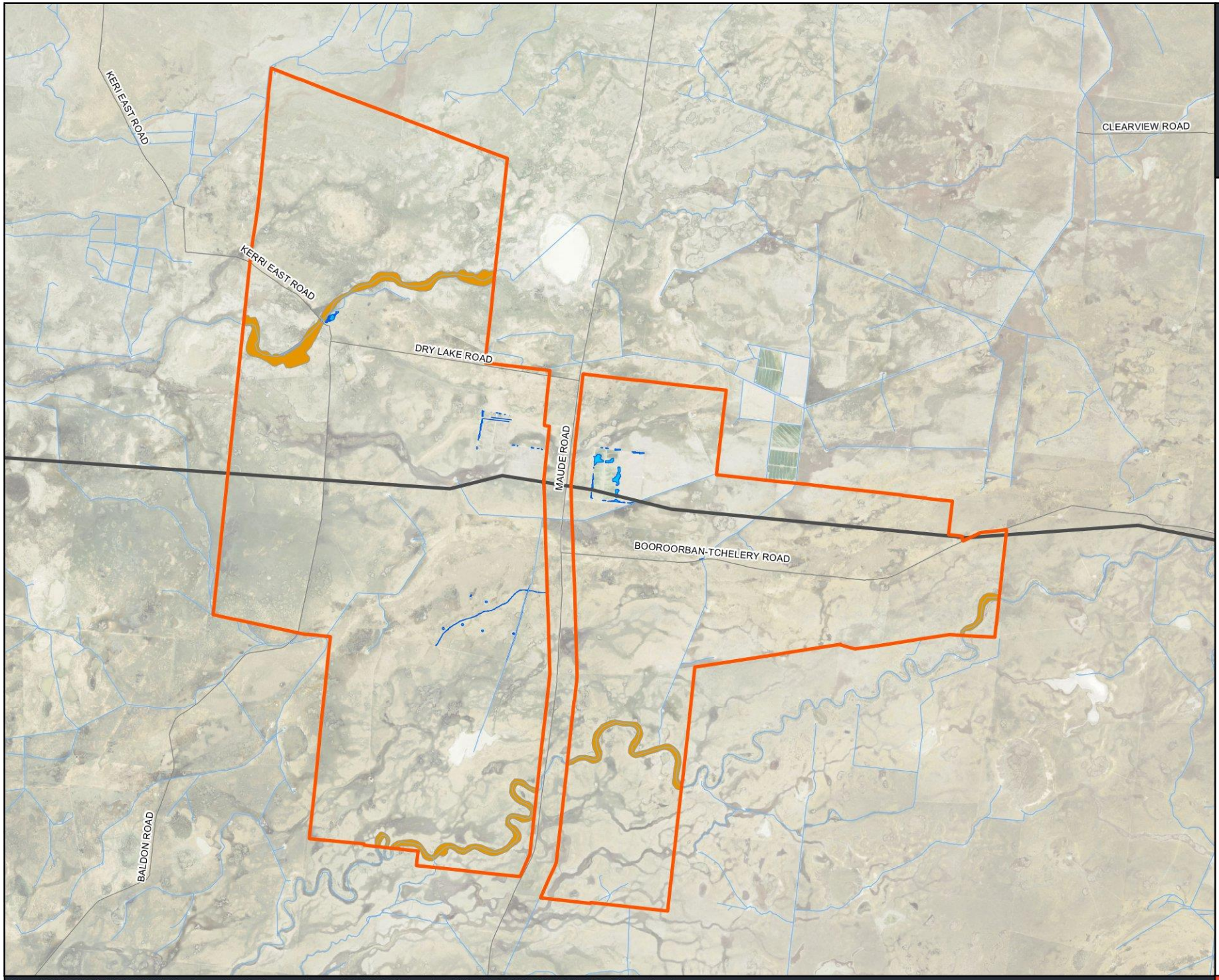
National Parks, State Forests and Conservation Areas

There are no National Park estates within the project site.

National Park estates near the project site include:

- Yanga National Park (approximately 30 kilometres west)
- Kalyarr National Park (approximately 47 kilometres north)
- Murrumbidgee Valley Regional Park (approximately 177 kilometres west)
- Murray Valley National Park (approximately 114 kilometres southeast)
- Oolambeyan National Park (approximately 84 kilometres east).

NSW Nature Reserves adjacent to the project site include South West Woodland Nature Reserve, Lachlan Valley Nature Reserve and Jerilderie Nature Reserve.



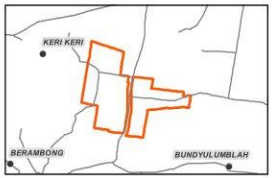
wsp

Tchelery Wind Farm

Figure 6.1
Overview of Category 1 and Category 2 lands within project site

Legend

- Watercourse
- Roads
- Transmission Line
- Project Site
- Category 1 - Exempt Land
- Category 2 - Vulnerable Regulated Land



Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:150,000 Date: 21/04/2023

Data sources: Atlas Bionet, Geoscience Australia

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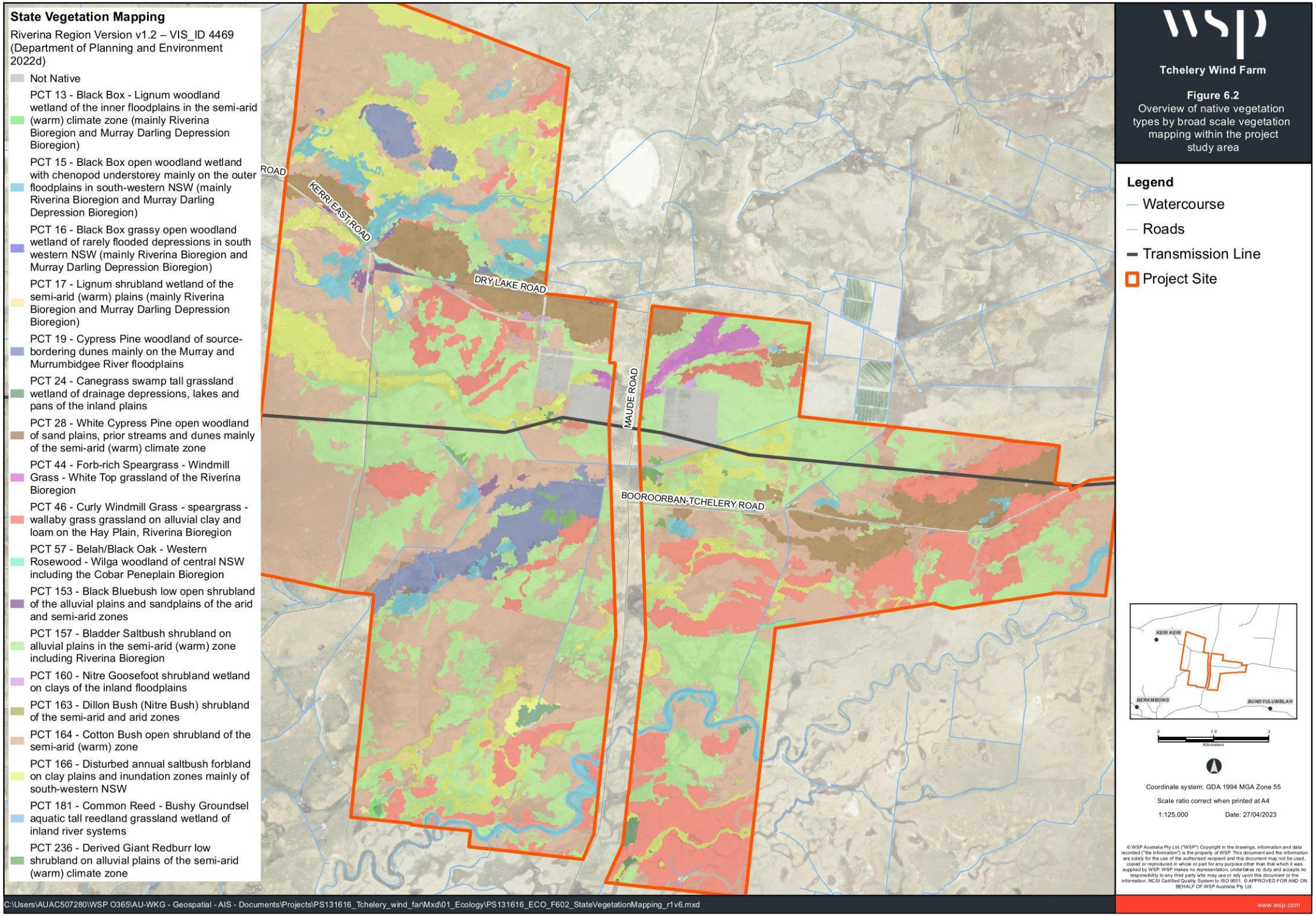

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Tchelery Wind Farm

Figure 6.2
Overview of native vegetation types by broad scale vegetation mapping within the project study area

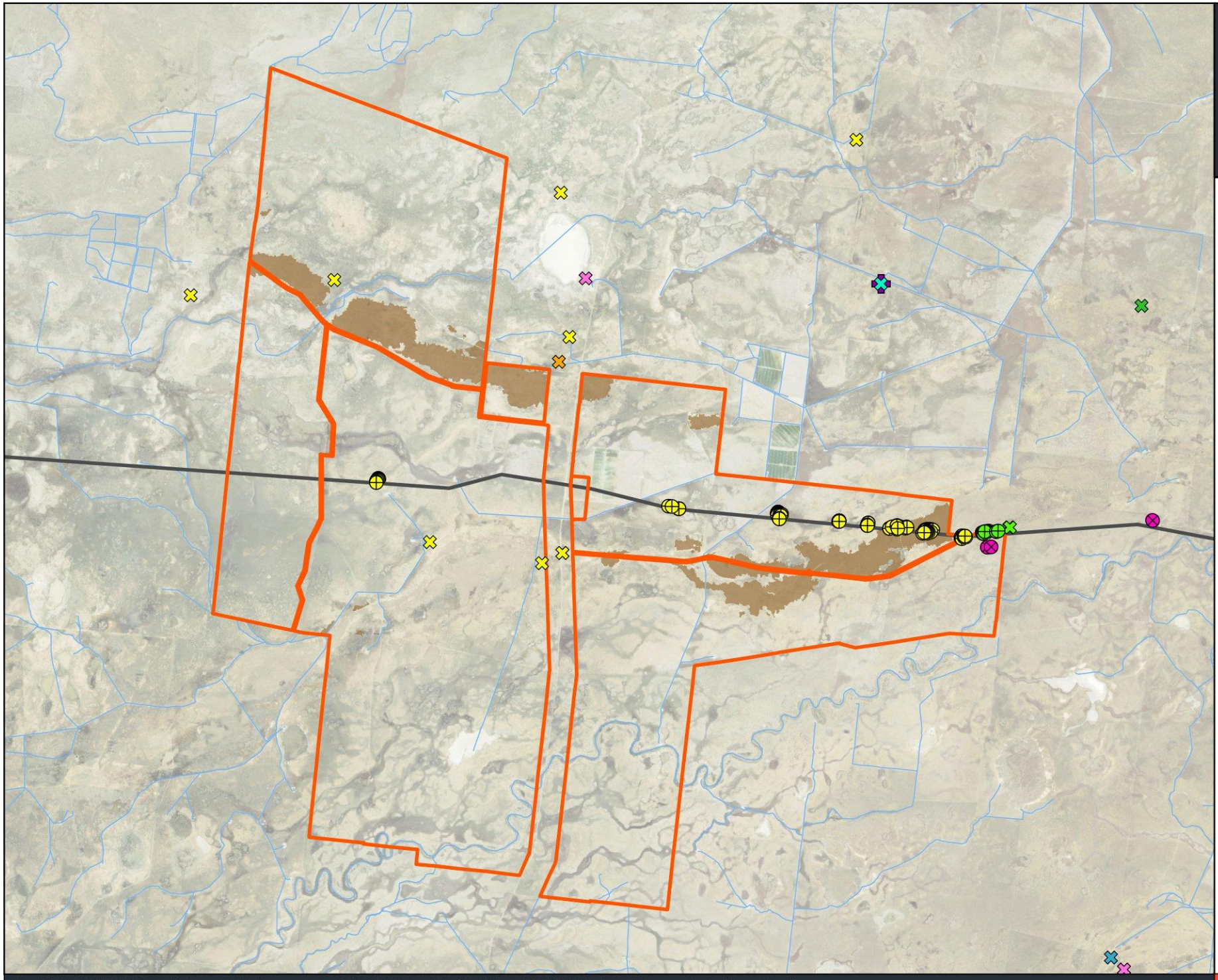
Legend

- Watercourse
- Roads
- Transmission Line
- Project Site

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:125,000 Date: 27/04/2023



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Tchelery Wind Farm

Figure 6.3
Overview of BC Act
Threatened Entities

Legend

- Watercourse
- Cadastre
- Project Site
- Transmission Line

Threatened Species Records (*Bionet, 2022*)

Threatened Flora

- *Lepidium monoplocoides*
- *Brachyscome papillosa*
- *Maireana cheelii*
- *Swainsona murrayana*

Threatened Fauna

- Major Mitchell's Cockatoo (*Lophochroa leadbeateri*)
- Superb Parrot (*Polytelis swainsonii*)
- Grey-crowned Babbler (*Pomatostomus temporalis temporalis*)
- Grey Falcon (*Falco hypoleucos*)
- Plains-wanderer (*Pedionomus torquatus*)

Threatened Species Records (*WSP, 2022*)

Threatened Flora

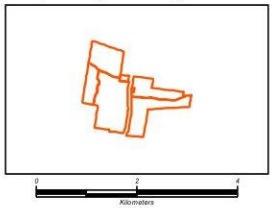
- *Maireana cheelii*
- *Swainsona murrayana*

Threatened Fauna

- White-fronted Chat (*Epthianura albifrons*)

State Vegetation Mapping

- PCT 28 - Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions – Endangered



Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:150,000 Date: 27/04/2023

Data sources: - DNRME, TMR, Atlas Bionet,Geoscience

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6.2.1.3 Matters of National Environmental Significance (MNES)

Threatened ecological communities

Desktop assessment identified five TECs listed under the EPBC Act with potential to occur within the project site. Of these two have been identified to have a moderate or higher likelihood of occurrence within the project site (refer Appendix B):

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions – Endangered
- Weeping Myall Woodlands – Critically Endangered.

Field surveys would be required to analyse and assess the full extent of all potential and recorded TECs within the project site.

Threatened flora and fauna

Database searches identified a total of 11 threatened flora species, listed under the EPBC Act, that are predicted or known to occur within the project study area. Results of likelihood of occurrence assessments identified a total of five threatened flora species to have a moderate or higher likelihood of occurrence within the project site (refer Appendix B):

- Mossgiel Daisy
- Spike-Rush
- Winged Pepper-cress
- Chariot Wheels
- Slender Darling-pea.

Database searches identified a total of 28 threatened fauna species, listed under the EPBC Act, that are predicted or known to occur within the project study area. The results of likelihood of occurrence assessments identified a total of five threatened fauna species to have a moderate or higher likelihood of occurrence within the project site (refer Figure 6.4).

- Southern Bell Frog
- White-throated Needletail
- Swift Parrot
- Plains-wanderer
- Superb Parrot.

Migratory species

Database searches identified a total of 11 migratory and marine bird species, listed under the EPBC Act, that are predicted or known to occur within the project study area. Results of likelihood of occurrence assessments for these migratory bird species identified that eight species have a moderate or higher likelihood of occurrence within the project site:

- Fork-tailed Swift
- Sharp-tailed Sandpiper
- Curlew Sandpiper
- Red-necked Stint
- Rainbow Bee-eater
- Little Pied Cormorant
- Australian Pelican
- Straw-necked Ibis.

Listed marine species

Listed marine species are not likely to form an important biodiversity constraint for the project and would not be assessed in further detail as part of the BDAR and EIS.

World and National heritage

No World Heritage Properties or National Heritage Places are located within or nearby the project site.

Wetlands of national and international importance

Wetlands are important habitat for a diverse range of animals including waterbirds, amphibians, invertebrates and fish species as well as aquatic and water loving plants such as sedges and rushes. Tree species such as River Red Gum also rely on these environments. Wetlands are important and provide strategic refuge during drought and frequently support threatened species. Most of the migratory bird species listed under international convention agreements with Australia may be found in these wetlands.

Nationally important wetlands

Two nationally important wetlands were identified in the broader region, these being Lowbidgee Floodplain in Yanga National Park and Black Swamp and Coopers Swamp along the Cobb Highway. Both of these nationally important wetlands occur more than 50 kilometres from the project site.

No nationally important wetlands are located within the project site.

Wetlands of International Importance (RAMSAR Wetlands)

Four RAMSAR wetlands or Wetlands of International Importance were identified by database searches. However, no Wetlands of International Importance are within 10 kilometres of the project site, with the closest wetland occurring more than 100 kilometres away.

6.2.1.4 Aquatic ecology

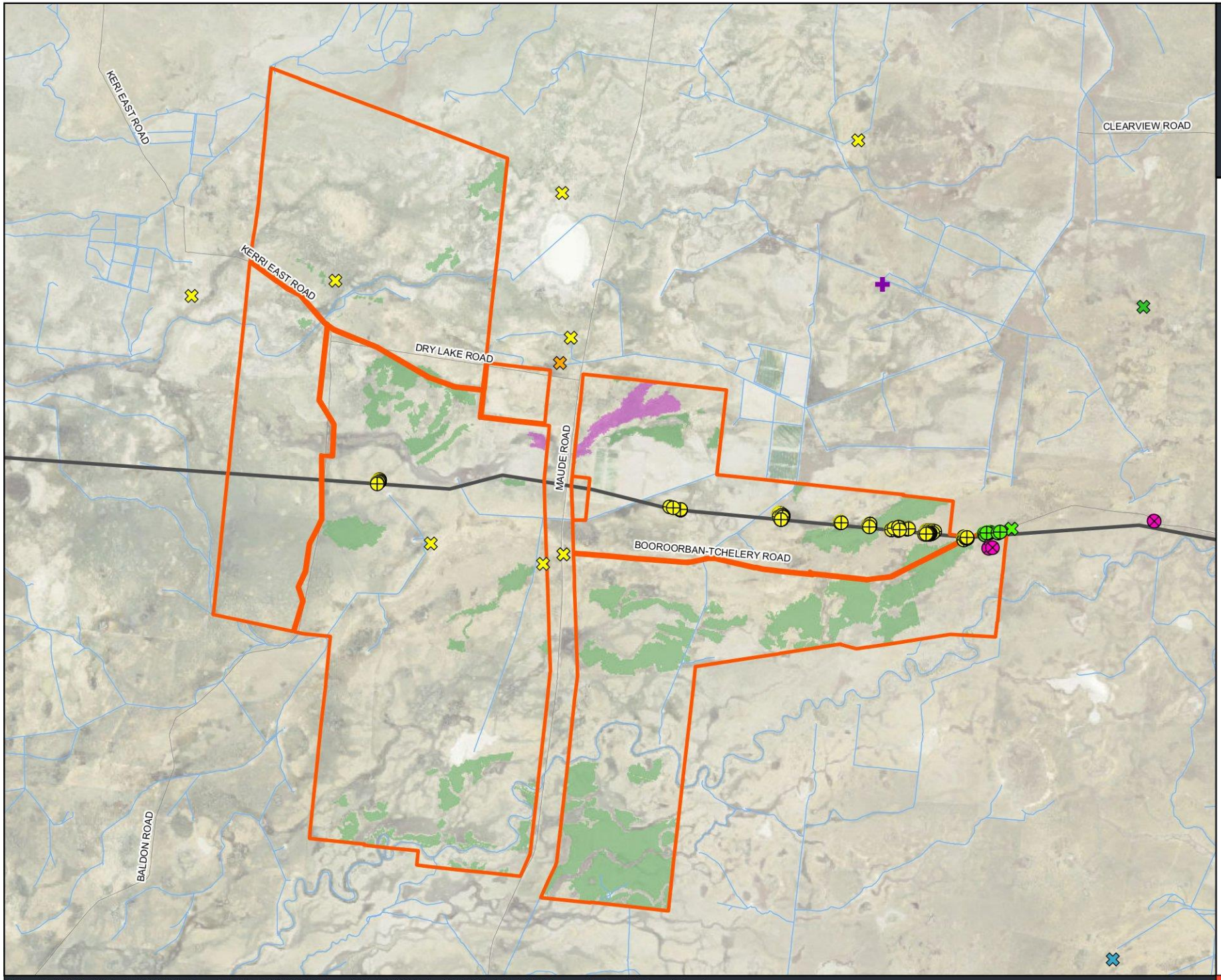
The project site is generally flat and mostly dry, but has some key aquatic and riparian environments, including the following:

- Abercrombie Creek: a 9th order stream in the northern part of the project site
- The Forest Creek: a 9th order meandering stream in the southern part of the project site.

Dry Lake is located to the north of the project site. The lake is often under cultivation and dry but during recent flooding was filled for the first time in over a decade.

Groundwater dependent ecosystems

A search of the Bureau of Meteorology Groundwater Dependent Ecosystem (GDE) Atlas for the project study area identified several terrestrial GDEs that rely on the subsurface expression of groundwater and have a high likelihood of occurrence (Bureau of Meteorology, 2023). Terrestrial GDEs that are likely to occur within the study area are river base flows, floodplains and riparian vegetation. Additionally, there is a high likelihood of aquatic GDEs being present within the project site where it crosses waterways.



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Tchelery Wind Farm

Figure 6.4
Overview of EPBC Act Threatened Entities

Legend

- Watercourse
- Cadastre
- Project site
- Transmission Line

Threatened Species Records (*Bionet, 2022*)

Threatened Flora

- *Brachyscome papillosa*
- *Maireana cheelii*
- *Swainsona murrayana*

Threatened Fauna

- Superb Parrot (*Polytelis swainsonii*)

Threatened Species Records (*WSP, 2022*)

Threatened Flora

- *Maireana cheelii*
- *Swainsona murrayana*

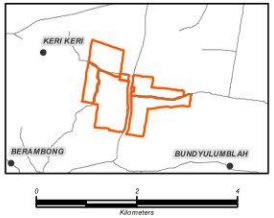
Threatened Fauna

- White-fronted Chat (*Epthianura albifrons*)

State Vegetation Mapping

Natural Grasslands of the Murray Valley Plain – Critically Endangered

- PCT 44 - Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT 46 - Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion



Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:150,000 Date: 01.07.2022

Data sources: - DNRME, TMR, Atlas Bionet,Geoscience

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6.2.2 Potential impacts

As summarised in the section above, and detailed in Appendix B, a number of threatened native flora and fauna species, TECs, important habitat values and sensitive environments could potentially be impacted by the project.

6.2.2.1 Terrestrial ecology

Construction

Main potential impacts of the project during construction include:

- clearing of vegetation and flora species habitat within the construction footprint, and that required for ancillary activities
- loss of fauna habitat and impacts on threatened species
- injury or mortality of fauna
- habitat fragmentation and connectivity issues for flora and fauna
- disturbance from noise, vibration, movement and human presence
- introduction or inadvertent spread of weeds and pathogens.

The WTGs and associated infrastructure could potentially require vegetation clearance to construct and allow for the surrounding bushfire asset protection zone. This would cause direct impacts on vegetation and fauna habitat and indirect impacts to species and habitat adjacent to the cleared area during construction.

Access tracks are required to the foot of each wind turbine tower and require full clearance of vegetation along each track to a width of approximately 6 to 9 metres to allow for passage of construction vehicles. The final width and vegetation clearing required would be determined through design refinements during the EIS phase. Upgrades of existing access tracks could also result in some vegetation trimming or removal.

Ancillary areas such as laydown areas, tower construction pads, communications hut and workforce accommodation camps could require full clearance of vegetation, while brake and winch sites are more temporary and may be able to retain ground vegetation during use.

Operation

During operation, vegetation near the project infrastructure (such as WTGs, operation and maintenance buildings, substation, access tracks) would need to be managed and maintained.

Potential collision risks to birds and bats, line noise, electric and magnetic fields (EMF) and radio interference from transmission infrastructure would be considered further in the EIS.

6.2.2.2 Aquatic ecology

Construction

Aquatic ecology impacts are most likely to occur through:

- direct disturbance to riparian land and aquatic habitat during construction of new waterway crossings
- turbidity and sedimentation due to eroded soil transported to waterways from earthworks and construction vehicle movements near waterways
- spill of materials such as fuel or pesticides near a waterway.

Establishment of waterway crossings may involve placement of rock on the bank or bed of the waterway, as required. The crossings may also involve installation of pipes to allow water to flow through the structure. Placement of material within waterways has the potential to alter stream flows, water levels and aquatic habitat. The impact would be assessed in detail during EIS phase and design refinements would be carried out accordingly.

Operation

During operation, impacts to waterways could include the transport and deposition of sediment during maintenance activities such as access track upgrades, work on transmission tower footings, and construction of level pads for elevated work platforms, or caused by ongoing erosion of exposed soil on access tracks. Spills could also occur during maintenance works.

6.2.3 Proposed investigations and assessment

Based on preliminary field surveys and desktop assessment within the project study area, preliminary recommendations for the project include:

- avoidance wherever practicable of areas that have been identified with TECs under both BC Act and EPBC Act, as part of any design refinements
- avoidance of all threatened flora species recorded wherever practicable should be implemented as part of design refinements. Where design changes are proposed, it is recommended that these areas are also inspected to ensure no threatened flora species occur.

Biodiversity impacts, and opportunities for avoidance or mitigation, would be a key consideration for the project. A detailed terrestrial ecology assessment would be carried out in the EIS in accordance with the Biodiversity Assessment Method (BAM) under the framework of the BC Act and Commonwealth requirements.

A BDAR would be prepared as part of the EIS, that would further identify and clarify the potential significance of biodiversity impacts associated with the project. The BDAR would be prepared in accordance with the BC Act and BAM. Further targeted detailed threatened species seasonal survey would be required to ensure compliance with the BAM along with vegetation integrity plot based native vegetation surveys.

Potential measures would be identified to minimise adverse effects and inform further design refinements with the aim of minimising the overall amount of vegetation required to be removed. Potential biodiversity impacts in relation to threatened fauna and flora are considered to be a key issue for the project.

Key to minimising impacts to native vegetation would be designing the project to avoid the important biodiversity values and minimise vegetation clearing as far as practicable.

A referral under the EPBC Act to the Commonwealth would be required. This would be lodged post submission of the Scoping Report.

6.3 Aboriginal heritage

This section provides a summary of a preliminary Aboriginal heritage assessment that has been prepared based on publicly available information.

6.3.1 Existing environment

The project study area is within the Murrumbidgee subregion of the Riverina bioregion. The subregion is generally comprised of a relatively flat landscape largely comprised of cracking clays, silts and sands (Sahukar et al, 2003). Over time modern waterways have intersected earlier palaeochannels and these landscape features provide complexity to an assessment of archaeological sensitivity within the region that may not be identified through the predictive features of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DCCEEW, 2010).

Aboriginal heritage sites are commonly located along waterways and waterbodies (Navin Officer Heritage Consultants [Navin], 2021). There are no major waterways within the project site, with the nearest major river channels being the Murrumbidgee River approximately 30 kilometres to the north and the Edward River approximately 20 kilometres to the south. A minor stream, The Forest Creek, traverses the southern section of the project site and Abercrombie Creek in the north that would present a higher likelihood of potential archaeological deposits. Likewise, ephemeral streams within the

project site could indicate potential archaeological deposits. There are no lakes or swamps within the project site; however, Dry Lake, is located approximately 1.5 kilometres from the western boundary of the project site.

There is little landform variation within the project study area, with the majority of the Murrumbidgee subregion being comprised of plains (Sahukar et al, 2003). Sites have previously been identified across most land formed patterns, elevated areas and those associated with current and historic waterways often contain a disproportionate number of Aboriginal sites. Elevated areas within the project study area are most likely associated with the modern active floodplain.

A search of the Australian Soil Classification (ASC) Soil Type Map of NSW identified three soil types within the area that are consistent with the common soils of the landscape:

- vertosols – commonly referred to as cracking clay soils and comprise the majority of the site
- rudosols – soils with little formation that are located in the centre of the site (most likely associated with the existing floodplain)
- chromosols – soils with a strong contrasting texture commonly found near waterways, such as The Forest Creek within the project site.

Soil types are often indicative of the potential presence of Aboriginal heritage, for example, chromosols are generally associated with waterways, and water availability had a major influence on the suitability of an area for Aboriginal occupation (Navin, 2021). Within the project site, The Forest Creek is mapped with chromosols as the main soil type. Other soil types within the project site include vertosols and rudosols, refer to section 6.15.1.

6.3.1.1 Previous archaeological assessments

Several archaeological surveys and reports have been conducted within and in the vicinity of the project. These previous studies are associated with other renewable energy projects and other land management programs, including:

- EnergyConnect (NSW – Eastern Section) (2021) – (Navin, 2021) surveyed a one kilometre wide corridor for a 540 kilometre transmission line between Buronga substation and Wagga Wagga substation that traverses the project study area. Navin recorded a total of 91 new Aboriginal sites within the total survey area, in addition to 44 potential archaeological deposits. Isolated artefact finds were the most common find type throughout the entire survey area with artefact scatters the second most common.
- Keri Keri Renewable Energy Project – NGH Environmental (2020) conducted a preliminary cultural heritage assessment for a renewable energy project approximately eight kilometres west of the project study area. Several recorded Aboriginal sites were assessed along with the environmental landscape. The assessment suggests that Aboriginal use of the landscape was seasonally intermittent.
- Sunraysia Solar Farm – NGH Environmental (2016) surveyed an 800-hectare site for the proposed solar farm approximately 55 kilometres west of the project study area. NGH recorded a total of three sites within the survey area and noted the nature of archaeological material was representative of intermittent activity, most likely due to a lack of permanent water within the project study area. The key finds of the survey comprised burnt clay clusters (recorded as ovens), stone artefacts and three heaths.
- Balranald Mineral Sands Project – Anderson (2015) surveyed 1,125 hectares of a 3,300 hectare site for a mineral sands project approximately 115 kilometres northwest of the project study area. Anderson recorded 548 Aboriginal sites within the survey area. Isolated and open scatters were the most common site type throughout the survey area with hearths and scarred trees the second most common.

6.3.1.2 AHIMS search results

The Aboriginal Heritage Information Management System (AHIMS) database contains information on recorded Aboriginal sites and items in NSW. An extensive search of the AHIMS database for the project study area was conducted on 17 April 2023. The AHIMS database search details are provided in Table 6.2 and the results are summarised in Table 6.3.

Table 6.2 AHIMS database search details

Item	Detail
Client service ID	684227
Latitude	-35.0057 to -34.724
Longitude	143.9988 to 144.4932
Number of sites	80

Table 6.3 AHIMS registered sites within the study area

Site features	Number of sites	Site ID
Artefact	22	48-4-0530; 48-4-0532; 48-4-0533; 48-4-0546; 48-4-0527; 48-4-0529; 48-4-0542; 48-4-0398; 48-4-0549; 48-4-0552; 48-4-0395; 48-4-0076; 48-4-0397; 48-4-0541; 48-4-0544; 48-4-0550; 48-4-0551; 48-4-0528; 48-4-0536; 48-4-0543; 48-4-0545; 48-4-0182
Artefact – Earth Mound (Potential archaeological deposit [PAD])	3	48-4-0317; 48-4-0318; 48-4-0386
Artefact – Earth Mound – Hearth	16	48-4-0104; 48-4-0105; 48-4-0106; 48-4-0109; 48-4-0113; 48-4-0110; 48-4-0111; 48-4-0114; 48-4-0112; 48-4-0107; 48-4-0108; 48-4-0103; 48-4-0102; 48-4-0067; 48-4-0101; 48-4-0068
Artefact – Hearth	3	48-4-0531; 48-4-0534; 48-4-0535
Burial	16	48-4-0011; 48-4-0012; 48-4-0540; 48-4-0117; 48-1-0018; 48-4-0115; 48-4-0539; 48-4-0443; 48-4-0007; 55-6-0014; 48-4-0014; 48-4-0116; 48-4-0010; 48-4-0013; 48-4-0015; 48-1-0016
Burial – Art	1	48-1-0017
Burial – Earth Mound	8	48-4-0442; 48-4-0075; 48-4-0017; 48-4-0018; 48-4-0080; 48-4-0078; 48-4-0069; 48-4-0019
Earth Mound	4	48-4-0193; 48-4-0098; 48-4-0099; 48-4-0444
Earth Mound – Hearth	1	48-4-0008
Earth Mound – Shell Midden	1	48-4-0002
Hearth	3	48-4-0100; 48-4-0553; 48-4-0097
Modified Tree (Carved or Scarred)	2	48-4-0537; 48-4-0538

6.3.1.3 Statutory and non-statutory registers

A search of NSW's statutory heritage registers (listed in section 6.4.1.1) was conducted on 28 March 2023 and 31 March 2023 and the search did not identify any registered Aboriginal items or places within or in the vicinity of the project study area. However, a search of NSW's non-statutory heritage registers (listed in section 6.4.1.2) identified an indicative Aboriginal place on the Register of National Estate (RNE).

The RNE contains more than 13,000 places across Australia and the list was compiled between 1976 and 2003 by the Australian Heritage Commission. The RNE is now maintained by the Australian Heritage Council. In 2007, amendments to the *Australian Heritage Council Act 2003* resulted in the RNE being frozen and no new places could be added or removed from. The search identified an indicative Indigenous Place on Tchelery Station. An 'indicative place' on the RNE is defined by:

> *Data provided to or obtained by the Heritage Branch has been entered into the database. However, a formal nomination has not been made and the Council has not received the data for assessment.*
>
> *The data in the place does not necessarily represent the views of the Council or the Minister* (DCCEEW, 2021).

As such, the status of the potential Aboriginal place has not been proceeded from an 'indicative place' to a 'nominated' or 'listed' place. Likewise, the indicative place has not been declared under any of the current statutory and non-statutory heritage registers.

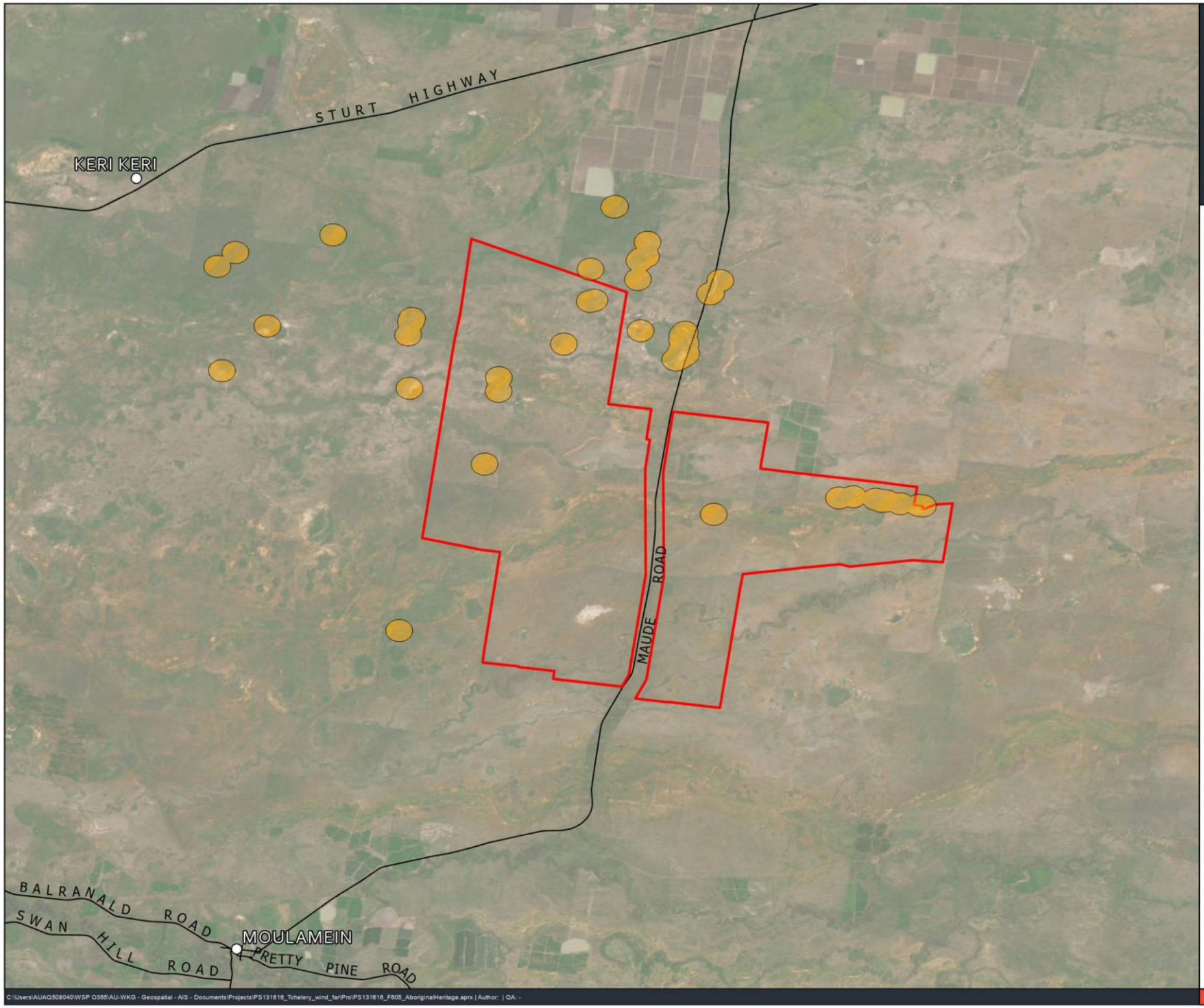
6.3.2 Potential impacts

Previous Aboriginal heritage studies indicate that use of the subject study was intermittent and seasonal. Of the 69 AHIMS recorded sites within the project study area, 12 are associated with the EnergyConnect (NSW – Eastern Section) alignment and would not be impacted by the proposal as they fall under the EnergyConnect (NSW – Eastern Section) alignment.

There is a higher likelihood of Aboriginal objects along waterways and elevated areas of the project study area, and the project design would be refined to minimise potential impact to Aboriginal heritage, where practicable.

6.3.3 Proposed investigations and assessment

An Aboriginal Cultural Heritage Assessment Report (ACHAR) would be prepared for the EIS. The ACHAR would provide a comprehensive investigation of the project study area, including field surveys. Field surveys and investigations (including reporting on results) would be conducted in accordance with the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH 2011), the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b), and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a). The ACHAR would consider and assess potential impacts to Aboriginal heritage and intangible values held by the community and relevant stakeholders, including the local Aboriginal Land Council and Registered Aboriginal Parties.



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Tchelery Wind Farm

Figure 6.5
Recorded Aboriginal heritage sites within and surrounding the project site

Legend

- Town
- Roads
- Project Site
- Recorded Aboriginal Heritage Sites

0 4,000 8,000
Metres

Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:200,000 Date: 21/04/2023

Data sources: World Imagery: Earthstar Geographics
World Street Map: Esri, Garmin, FAO, NOAA, USGS

6.4 Non-Aboriginal heritage

6.4.1 Existing environment

Exploration of the Murrumbidgee River and surrounds by early Europeans occurred during the 1820s, with an initial focus on the Murrumbidgee River. Soon after, early Europeans brought agricultural activities to the region, such as grazing, with the first pastoral runs established during the same period. Early occupation of the region by early Europeans was focused on cattle and sheep farming with cropping introduced at a later period (Sahukar et al, 2003).

6.4.1.1 Statutory heritage registers

Commonwealth Heritage List

The Commonwealth Heritage List contains places owned or controlled by the Australian Government that have been declared by the Minister as a place that has Commonwealth Indigenous, historic or natural heritage significance. A search of the Commonwealth Heritage List was conducted on 31 March 2023 and found there are no Commonwealth Heritage listed places within the project site. The nearest Commonwealth heritage listed place is the Hay Post Office, approximately 86 kilometres (by road) from the project study area.

National Heritage List

The National Heritage List contains places that possess outstanding heritage significance to the nation, including Indigenous, historic and natural places. A search was conducted on 31 March 2023 and there are no places within the project site listed on the National Heritage List.

State Heritage Register

The State Heritage Register (SHR) contains items and places identified by the SHR Committee as having state heritage significance, including Indigenous, historic and natural items or places. A search of the SHR was conducted 28 March 2023 and there were no places within the project study area listed on the SHR. The nearest places listed on the SHR were located in Hay, approximately 86 kilometres (by road) from the project site.

Conargo Local Environmental Plan 2013

A search of the Conargo Local Environmental Plan 2013 was conducted on 28 March 2023. The search did not identify any locally listed heritage items within or in proximity of the project site.

Wakool Local Environmental Plan 2013

A search of the Wakool Local Environmental Plan 2013 was conducted on 28 March 2023. The search did not identify any locally heritage listed sites within the project study area. However, the search identified one locally listed heritage item, The Old Courthouse and footbridge in Moulamein which is located approximately 30 kilometres (by road) south of the project site.

Section 170 Heritage and Conservation Register

All state government agencies are required to keep and maintain a database of heritage assets under Section 170 of the *NSW Heritage Act* 1977. A search of the Section 170 Heritage and Conservation Register on 28 March 2023 did not identify any heritage listed sites within the project site.

6.4.1.2 Non-statutory heritage registers

Register of the National Estate

A search of the RNE was conducted on 28 March 2023. The search did not identify any heritage listed sites within the project site.

National Trust of Australia (NSW) Heritage Register

The National Trust of Australia (NSW) maintains a register of items and places that they determine have cultural significance that are worth conservation including landscapes, townscapes, buildings, industrial sites, cemeteries and other items and places of cultural significance. The National Trust advised on 31 March 2023 that there are no National Trust listed properties within or in the vicinity of the project site.

6.4.1.3 Non-Aboriginal heritage summary

There are no non-Aboriginal heritage items or places within the project study area. Table 6.4 provides a summary of the nearest registered non-Aboriginal heritage site.

Table 6.4 Non-Aboriginal heritage sites

Item/place	Register	Item Id	Description	Distance to the Project Study Area (approx.)	Significance level
The Old Courthouse and Footbridge	Wakool LEP 2013	15	Moulamein Courthouse with footbridge crossing Billabong Creek	30 kilometres (by road)	Local

6.4.2 Potential impacts

The preliminary desktop assessment of non-Aboriginal heritage found no registered non-Aboriginal items or places within the project study area, and no impacts are predicted on known non-Aboriginal heritage. However, there could be potential impacts on archaeological deposits that are not currently listed on the heritage registers.

6.4.3 Proposed investigations and assessment

As outlined in section 6.4.1, the preliminary desktop assessment of non-Aboriginal heritage has shown that there are no non-Aboriginal heritage items or places within the project study area listed on the statutory and non-statutory heritage registers. The nearest registered non-Aboriginal heritage item was 'The Old Courthouse and Footbridge' (Wakool LEP 2013 – Id 15), that is listed as having local significance and is located approximately 30 kilometres (by road) from the project study area.

While there are no registered heritage items within the project study area, the registers do not inform on potential archaeological deposits. A non-Aboriginal heritage assessment would be prepared as part of the EIS to consider and assess potential impacts to non-Aboriginal heritage and intangible values held by the community and relevant stakeholders.

6.5 Land use and property

6.5.1 Existing environment

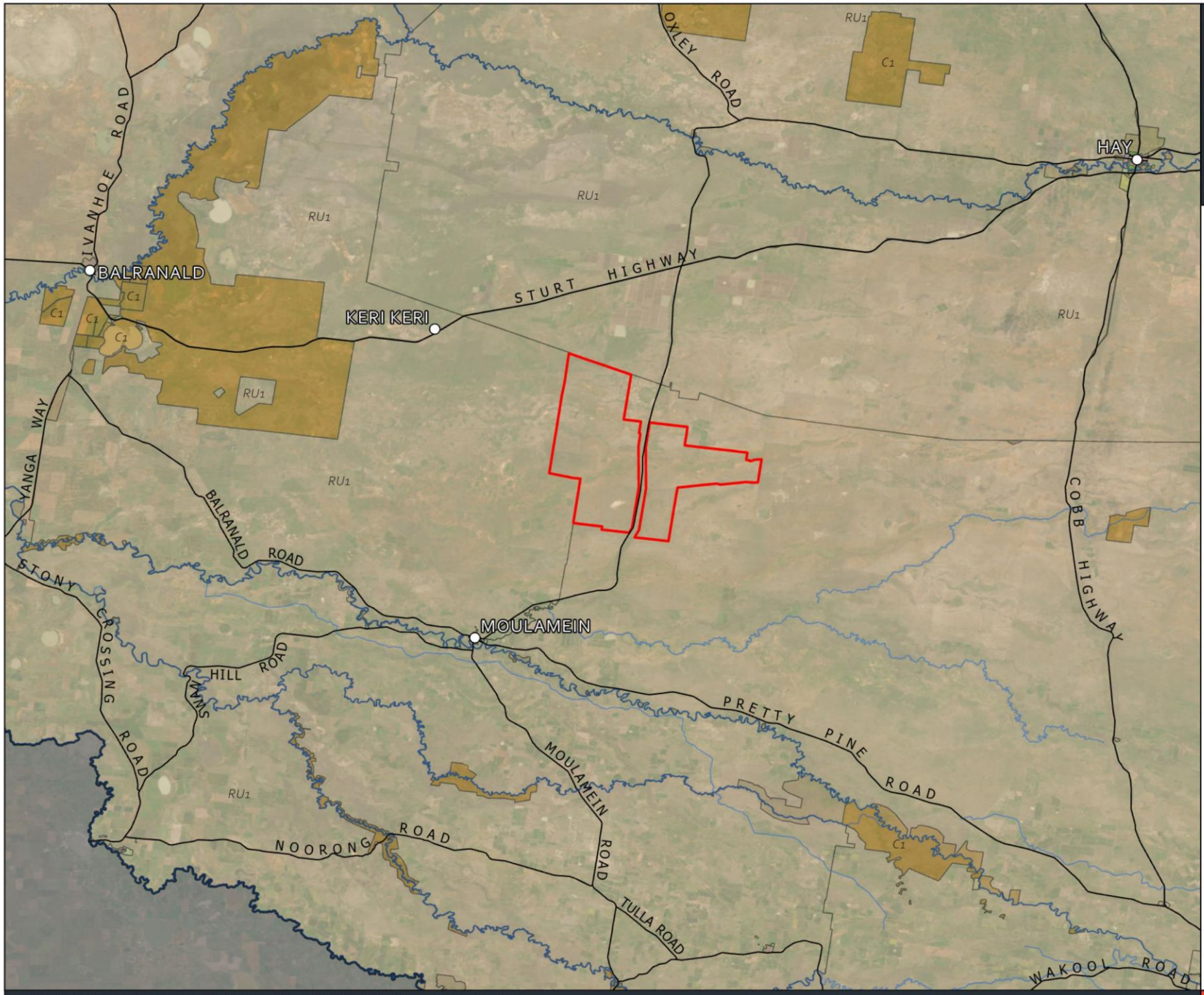
The project is located within the Edward River Council LGA. The project study area and surrounds are zoned RU1 Primary Production (with the exception of existing roads). RU1 land zoning is primarily intended to promote agricultural production and environmental protection. Livestock grazing is the predominant land use within the project study area with small areas of cropping (DPIE, 2020a).

A preliminary review of the Soil and Land Capability Mapping data for project study area (SEED, 2023) indicates that there are two land and soil capability classes: Class 5 (severe limitations) and Class 6 (very severe limitations). Likewise, a review of Biophysical Strategic Agricultural Land (BSAL) data (SEED, 2023) showed that there are no areas of BSAL mapped within or in the vicinity of the project study area.

Land tenure in the project study area is predominantly freehold, with some areas of Crown land, including road reserves and travelling stock reserves (TSRs). Maude Road is a livestock highway and Category 2 TSR with medium conservation value (Local Land Services [LLS], 2019). Category 2 TSRs, are commonly used for travelling stock, emergency management and biosecurity, and they also play an important role in biodiversity conservation and provide access for Aboriginal cultural heritage practices. Table 6.5 outlines the key land uses within and surrounding the project study area. Figure 6.6 shows the land zoning within the project study area and surrounds.

Table 6.5 Key land uses within and surrounding the project study area

Key land uses	Relevance to project study area
Agriculture	The majority of the project study area is comprised of agricultural land used for livestock grazing with small areas of irrigated agriculture. The project site is traversed by Maude Road (which is a travelling stock reserve running north-south) and Boorooban-Tchelery Road east-west to the east of Maude Road.
Transport infrastructure	The project site is located south of the Sturt Highway and is accessed and traversed by both Maude Road and Boorooban-Tchelery Road.
Electrical infrastructure	The project site would be traversed by the EnergyConnect (NSW – Eastern Section) and existing 220 kV transmission line.
Energy generation	A number of wind farms and solar farms are proposed within the vicinity of the project, refer to Section 6.19.
Protected environments	There are a number of national parks and reserves (zones C1 National Parks and Nature Reserves) within close proximity to the project study area, including: — Yanga National Park approximately 35 kilometres west of the project site — Kalyarr National Park approximately 39 kilometres north of the project site — Oolambeyan National Park approximately 86 kilometres east of the project site.
Rivers and waterways	The project site is traversed by two waterways, The Forest Creek to the south and Abercrombie Creek to the north. Dry Lake is located adjacent to the project study area (east of Abercrombie Creek).
Other key land uses	The surrounding area is predominately agricultural land. There are no current mining or exploration applications or titles within the vicinity of the project study area.



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Tchelery Wind Farm

Figure 6.6
Land zoning within and surrounding the project study area

Legend

- Town
- Watercourse
- Roads
- Project Site

Land Zoning

- C1 - National Parks and Nature Reserves
- C2 - Environmental Conservation
- E4 - General Industrial
- R1 - General Residential
- R5 - Large Lot Residential
- RE1 - Public Recreation
- RE2 - Private Recreation
- RU1 - Primary Production
- RU3 - Forestry
- RU4 - Primary Production Small Lots
- RU5 - Village
- SP1 - Special Activities
- SP2 - Infrastructure
- SP3 - Tourist
- W1 - Natural Waterways
- W2 - Recreational Waterways

0 10,000 20,000
Metres

Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:500,000 Date: 28/04/2023

Data sources: World Imagery: Earthstar Geographics
World Street Map: Esri, Garmin, FAO, NOAA, USGS

6.5.2 Potential impacts

6.5.2.1 Construction

The design is being refined through input from specialists and ongoing consultation with stakeholders. The proposed footprints of permanent and temporary structures would be confirmed and considered as part of the EIS.

During construction, the project has potential for temporary land use and property impacts such as delays or interruptions to Maude Road TSR, biosecurity risks from construction movements and some temporary restrictions to access and use of portions of properties near construction activities. Land may be temporarily leased during construction to develop necessary ancillary sites and this would be confirmed as the design is refined.

There would also be temporary disruption to existing land uses through changes in traffic (due to haulage and other construction related transportation) and amenity impacts, including noise, vibration and air quality.

6.5.2.2 Operation

Operation of the project would result in a permanent change in land use from agricultural activities to energy generation. However, due to the dispersed and small overall impact footprint in comparison to the land available for agriculture within the proposed development area, grazing activities could continue to occur near the wind turbines.

6.5.3 Proposed investigations and assessment

A desktop property and land use assessment would be undertaken for the EIS that would:

- describe the existing environment, including existing land use and zoning, land capability, Crown land presence, mining licenses, infrastructure easements, stock routes, land values and ownership patterns (government and private)
- consider property acquisition or lease, including a summation of characteristics such as property description, ownership, land zoning and current use
- assess potential construction and operational impacts and recommend relevant mitigation measures.

An Agricultural Impact Assessment would be prepared and included in the land use and property assessment. This would include consideration of existing agricultural operations near the project, including impacts on BSAL and Important Agricultural Land, biosecurity risks and appropriate mitigation measures to minimise impacts on agriculture.

NEOEN would continue to consult with neighbouring landowners during further planning and design refinement to avoid or minimise impacts on adjacent land uses and property.

6.6 Landscape character and visual amenity

This section provides a summary of the Preliminary Landscape and Visual Impact Assessment (LVIA) prepared by Iris Visual Planning and Design in April 2023 (Appendix D).

6.6.1 Existing environment

Although the project is located within the Edward River Council LGA, all land uses within the former Conargo and Wakool Shire Council LGAs, including the project study area, are still regulated by the Conargo LEP and Wakool Wakool LEP 2013.

The project site is zoned RU1 Primary Production that ‘allows for the development of non-agricultural land uses that are compatible with the character of the zone’ (Conargo and Wakool LEP).

The project study area for the LVIA used an eight kilometre offset from the WTGs for the application of the Preliminary Assessment tools.

6.6.1.1 Site description

The study area generally consists of open, flat rural plains associated with the Murrumbidgee River and its tributaries. The project study area surrounds the junction at Maude Road and Booroorban-Tchelery Road. The site is flat with little to no tree cover, predominantly used for agricultural purposes including livestock grazing pastures (refer to Figure 6.7). A small area of arable farmland is located at the northern part of the site, east of Maude Road. As a generally flat and treeless rural landscape, the visibility extends to the horizon.

There is existing power infrastructure within the project study area including the Balranald to Darlington Point 220 kV transmission lines, which traverse through the project site. The surrounding landscape has a rural character, containing various large agricultural structures including cotton gins, machinery sheds and grain receival points including silos. There are several roads that support local and regional transport, including Maude and Booroorban-Tchelery Road, both sealed roads used mainly by local residents and visitors to this part of the Riverina region.

The area is a sparsely settled, rural landscape. The closest town to the project study area is Moulamein, which has a population of about 300 people, and is over 20 kilometres away from the nearest WTG. There is one associated dwelling and a woolshed, and five non associated dwellings located within eight kilometres of the WTGs (refer to Figure 6.8). Two of these non-associated dwellings are currently unoccupied. Due to the flat landform, little tree cover and few buildings within the site and surrounding area, the visual catchment of the project is broad, covering the majority of the eight kilometre study area (refer Figure 6.8).

Figure 6.7 View across project study area showing flat, rural landscape and existing transmission lines

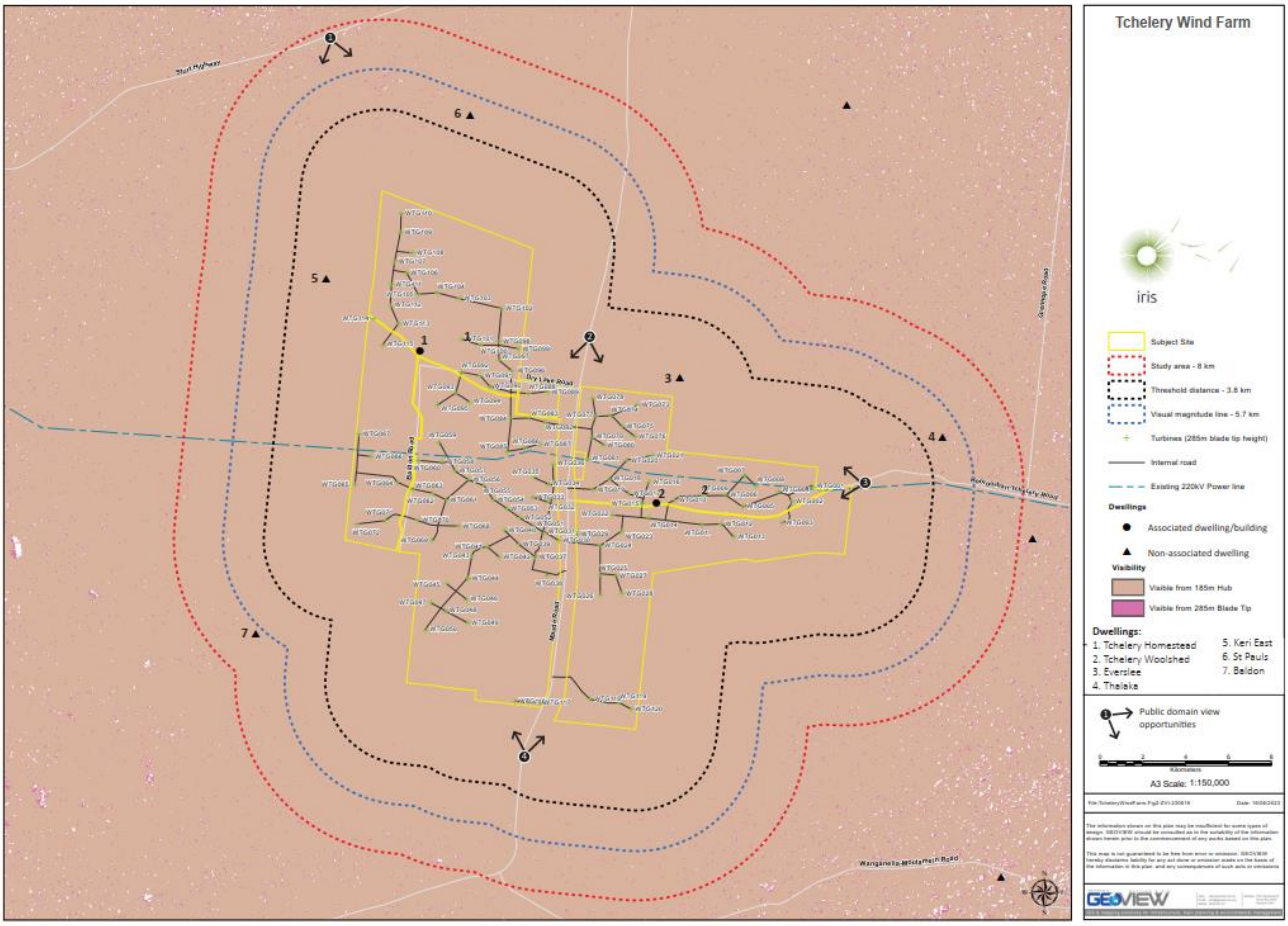


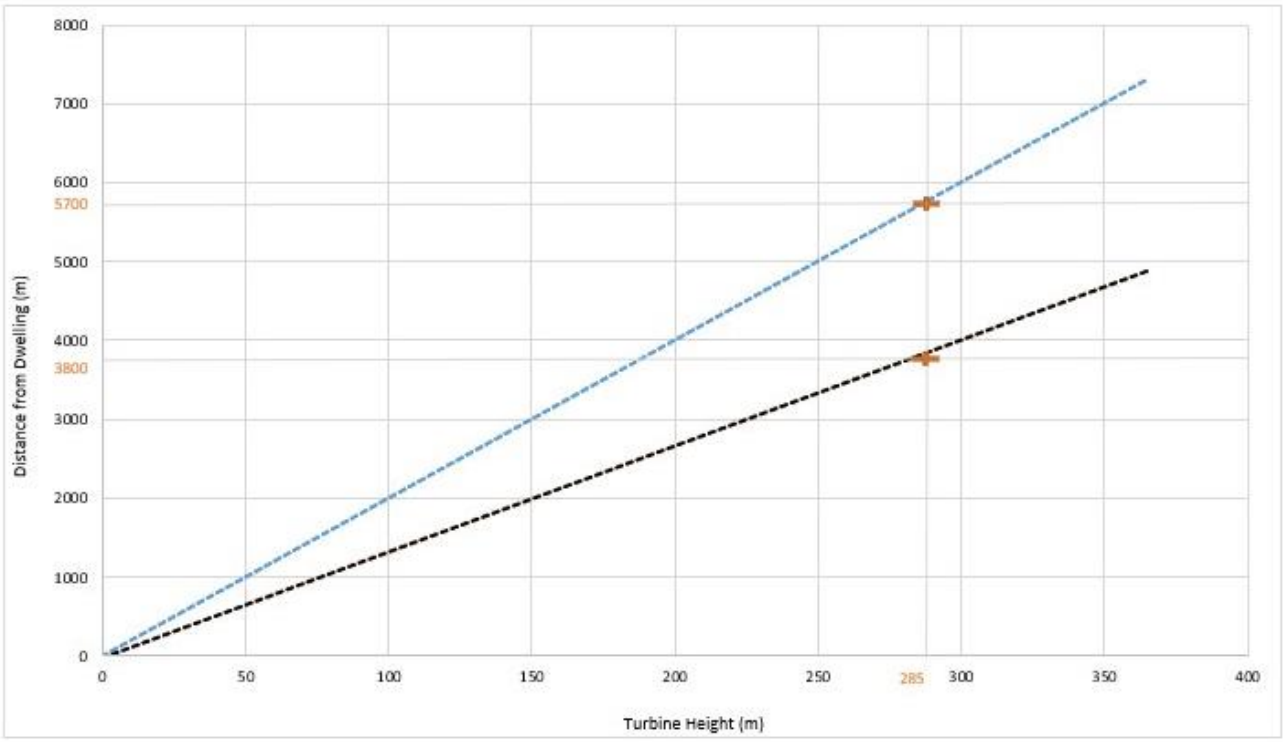
Figure 6.8 Zone of visual influence

6.6.2 Potential impacts

6.6.2.1 Visual magnitude

Potential visual magnitude of a wind turbine to surrounding dwellings has been mapped, based on the height of the proposed wind turbines. This is shown in the graph at Figure 6.9.

The black line depicted in the graph in Figure 6.9 provides an indication of where detailed consideration should be given to the visual impacts on dwellings or key public viewpoints from turbines located below the black line. The proposed wind turbines are nominated at a 285 metre tip height, with the black line intersecting at a distance of approximately 3.8 kilometres. Dwellings located at eight kilometres from the wind turbines which coincides with the threshold for multiple wind turbine tool analysis as indicated on the blue line in Figure 6.9. Dwellings located between 3.8 kilometres and 5.7 kilometres have been identified and illustrated to provide a greater degree of context regarding the location and number of dwellings surrounding the proposed wind farm.



Visual magnitude – areas below this line provides an indication of where proponents should consider the visual impacts on dwellings or key public viewpoints from turbines.

Threshold distance line – areas below this line identifies potentially high visual magnitude impacts.

Figure 6.9 Potential visual impacts for further detailed consideration (black line) and visual magnitude thresholds for visual assessment (blue line)

6.6.2.2 Multiple wind turbines

The multiple wind turbine tool provides a preliminary indication of potential cumulative impacts arising from the proposed wind energy project. The LVIA identified six individual dwellings (and one woolshed) and two key public viewpoints (Maude and Booroorban-Tchelery Road) within eight kilometres of the project study area which contain single or multiple view sectors.

Of the six dwelling and one woolshed locations:

- two dwellings (Everslee and Tchelery Homestead and Woolshed) are located below the black line (<3.8 kilometres) and predicted to have views towards wind turbines within three or more 60° sectors, with over 40 turbines potentially visible
- one dwelling (Keri East) is located below the black line and predicted to have views towards wind turbines within two 60° sectors, including 18 turbines potentially visible, however this dwelling is currently listed as abandoned/ unoccupied
- two dwellings are located between the black (3.8 kilometres) and blue line (5.7 kilometres), and are predicted to have views toward wind turbines in one 60°sector (Thalaka and St Pauls)
- one dwelling is located between the blue line (5.7 kilometres) and the study area, predicted to have views toward wind turbines in one 60° sector, however this dwelling is currently listed as abandoned/currently unoccupied (Baldon).

The only key public viewing locations within eight kilometres of the project are Maude Road and Booroorban-Tchelery Road. Both roads extend through the project study area and would have views to multiple wind turbines, at varying distances.

6.6.3 Community and stakeholder consultation

In 2022, NEOEN commenced community and stakeholder consultation regarding their plans to develop a wind farm. Community consultation to date has not identified any particular landscape features and vantage points that are valued by the local community in the study area.

Consultation would be ongoing for the project.

6.6.4 Proposed investigations and assessment

A detailed LVIA would be undertaken as part of the EIS to identify potential visibility of the project from different viewpoints along the corridor. This assessment would identify and describe potential sensitive receivers and landscape character areas and unique qualities, consider heritage and other social values, and consider potential impacts on the landscape character and views during construction and operation during the day and night.

The assessment of landscape character and visual amenity impacts would include:

- public realm views from roads and villages, open space viewing areas and reserves to substations, switching stations and transmission lines
- views from residences or other sensitive receivers identifying the potential viewshed of the project and aerial photograph interpretation.

The sensitivity of the landscape and visual receivers would be evaluated, followed by a prediction of the magnitude of the change that each would experience as a result of the project. These would be combined to determine the significance of the effect during construction and during operation. The assessment would develop mitigation measures to minimise impacts of the project, where practicable.

6.7 Social

This section presents a summary of a preliminary Social Impact Assessment (SIA) prepared for the project by WSP (Appendix E).

6.7.1 Existing environment

This section describes the existing social and economic characteristics of local communities within the social locality.

6.7.1.1 Edward River Council LGA

The project would be located within the Edward River Council LGA, that is an area that includes the town of Deniliquin and six rural villages of Blighty, Booroorban, Conargo, Mayrung, Pretty Pine, and Wanganella. Edward River Council was proclaimed in 2016 after amalgamating the former Conargo Shire Council and Deniliquin Council. The LGA of Edward River Council is home to 8,456 people, where the median age is 46. The majority of residents (84 per cent) are Australian born. Aboriginal and/or Torres Strait Islander residents account for approximately 5 per cent of the Edward River population (Australian Bureau of Statistics [ABS], 2021).

Over half (59 per cent) of residents in the Edward River LGA work full-time, while 32 per cent work part-time. The most common industry of employment is ‘other social assistance’ (4.5 per cent). When understanding the implications of the construction of a wind farm in the Edward River Council LGA, particularly regarding traffic and noise, it is worth considering that over half of the local residents (68 per cent) drive to work, while others (11.2 per cent) work from home (ABS, 2021).

6.7.1.2 Murray River LGA

The Murray River LGA is located to the south of the project, and the largest town within the Murray River LGA is Moama.

The Murray River LGA is home to 12,850 residents, and the median age is 49. Of this population, approximately 4 per cent are Aboriginal and/or Torres Strait Islander, and 84 per cent are Australian born. This LGA spans land belonging to the Wadi Wadi and Wemba Wemba peoples (ABS, 2021).

Moulamein

Located in the northeast of the Murray River LGA, Moulamein is located directly south of the project area. There are 489 residents in this town, with Aboriginal and/or Torres Strait peoples comprise 2.5 per cent of the town's population, and 73.4 per cent of people are Australian born.

Over two thirds of the population (62.4 per cent) work full-time, while 28.4 per cent of the population work part-time. The most common industry of employment in this town is specialised sheep farming (12.6 per cent), followed by local government administration (10.5 per cent), and then grain-sheep or grain-beef cattle farming (9.5 per cent). The most common type of occupation within the area is managers (31.6 per cent), then labourers (17.4 per cent), and then community and personal service workers (13.2 per cent) (ABS, 2021).

6.7.1.3 Hay Shire Council LGA

The Hay Shire Council LGA includes the namesake town of Hay and two villages, Booligal and Maude. The population of the LGA is 2,882, with a median age of 48. Most residents are Australian born (80 per cent), and approximately 8 per cent are of Aboriginal and/or Torres Strait Islander heritage. The LGA spans land belonging to the Wiradjuri and Nari Nari peoples (ABS, 2021).

The township of Hay is to the northeast of the project site, located near Murrumbidgee Valley Regional Park, with approximately 2,300 residents. 80 per cent are Australian born, and approximately 9 per cent of the population are of Aboriginal and/or Torres Strait Islander heritage. The median age of the residents is 47 (ABS, 2021).

6.7.1.4 Balranald Shire Council LGA

The Balranald Shire Council LGA is the fifth largest shire in the state and is located to the west of the project. The LGA is home to 2,208 people. Most of the residents are Australian born (78 per cent), while 6 per cent of the population are of Aboriginal and/or Torres Strait Islander heritage; the LGA spans across land belonging to the Madi Madi and Dadi Dadi peoples. The Mungo National Park is of cultural significance and is primarily located within the shire (ABS, 2021).

The town of Balranald is located to the west of the project and west of the Yanga National Park. It is home to 1,063 residents, of which 10 per cent are of Aboriginal and/or Torres Strait Islander Heritage and 78 per cent are Australian born. Almost two thirds (59.4 per cent) of the population work full-time, while 31 per cent work part-time. Labourers are the most common (17 per cent) type of occupation, followed by community and personal service workers (15 per cent).

6.7.2 Potential impacts

Potential social impacts of the project during construction include the following:

- potential delays and longer journey times for regular residents due to construction traffic and haulage of materials
- local income-generation from engagements with the project may lead to social disparities between community subgroups if certain community cohorts and demographics are excluded from employment and procurement planning or if benefits are not distributed proportionately
- impact on social cohesion of the local communities due to influx of construction workforce
- impacts on water supply may affect landholders' ability to operate properties due to water use during construction
- potential impact to unknown heritage sites that may affect historical and cultural values in the region

- residents near the construction site may experience annoyance, sleep disruption and stress due to noise, vibration and changes to air quality due to operation of heavy vehicles, excavations, etc.
- increased demand for local and regional resources, creating scarcity
- increase in employment opportunities.

Potential social impacts of the project during operation include the following:

- noise from the operation of the wind turbines may cause ongoing disturbance to proximate residents
- potential bushfire risk could result in stress and anxiety for landowners and residents nearby project infrastructure
- changes to landscape and vegetation could affect people's sense of place and aesthetic, and environmental values
- increased waste production could impact landscape and environmental values
- land use changes could affect landholder's ability to manage agricultural properties
- improved regional economic outcomes for regional residents and businesses
- increase in employment opportunities
- improved and sustainable socio-economic outcomes in the local area through community benefit-sharing program. Increased human capital at the individual, household and community levels.

6.7.3 Proposed investigations and assessment

A complex social impact report would be prepared in the Phase 2 SIA to address the matters identified in Chapter 7 of Appendix E. The assessment would be undertaken in accordance with the *Social Impact Assessment Guideline* (DPE, 2022d) and form part of the EIS.

The key objectives of the SIA report prepared as part of the EIS would be to:

- predict and analyse the extent and nature of likely social impacts against baseline conditions using accepted social science methods
- evaluate, draw attention to and prioritise the social impacts that are important to people
- develop appropriate and justified responses (e.g., avoidance, mitigation and enhancement measures) to social impacts, and identify and explain residual social impacts
- propose arrangements to monitor and manage residual social impacts, including unanticipated impacts, over the life of the project (DPE, 2022d).

6.8 Economic

6.8.1 Existing environment

The project study area is within the Edward River region and is largely rural, with the main industries of employment at the 2021 Census being other social assistance services, hospitals, grain-sheep or grain-beef cattle farming, primary education and supermarket and grocery stores (ABS, 2021).

6.8.2 Potential impacts

6.8.2.1 Construction

As a result of the project, a significant amount of expenditure (approximately $1.36 billion capital investment value for the 800 MW wind farm) would be spent within the local, regional and NSW economies during the construction phase over a relatively short period of time. The construction phase would also generate notable opportunities for local employment and suppliers, that would benefit the economy of nearby towns. The project would generate up to 500 jobs during construction.

Substantive negative impacts to local businesses are unlikely as a result of the project, given the remoteness of the location of the project. Availability of short-term accommodation to support the required workforce could be limited and

the potential for establishment of a temporary workforce accommodation camp would be considered during the EIS phase.

6.8.2.2 Operation

When fully completed, the project would facilitate a source of reliable and low-cost renewable energy supply with associated economic benefits to consumers across the NEM including:

- renewable energy generation to supplement the NEM
- provide renewable energy development that would assist global goals to reduce GHG emissions and remove the reliance on coal powered energy
- contribute to growing clean energy demand in NSW
- contribute to NSW and Commonwealth renewable energy targets
- provide construction and operation employment opportunities in regional areas
- help achieve economies of scale for cheap, clean and reliable electricity
- conduct effective community and stakeholder engagement
- provide a sustainable renewable energy development
- minimise potential adverse impacts on the environment
- support investment in the South West REZ.

Other economic activities close to the project, such as tourism and recreational activities, may be affected from changes to amenity, such as the visual presence and noise from the operational wind turbines. Indirect impacts to national parks and nature reserves are expected to be negligible with no direct impacts likely.

6.8.3 Proposed investigations and assessment

A detailed economic impact assessment would be prepared as part of the EIS to identify and quantify potential economic impacts of the project including:

- employment and value added to the state economy during both the construction phase and on an ongoing operation basis
- spending of workers directed to local businesses
- payments to associated host landholders and neighbours
- Council rates revenue
- electricity supply benefits
- environmental benefits of GHG emission reduction.

The methodology for the economic impact assessment would be guided by the TPP17-03 NSW Government Guide to Cost-Benefit Analysis (NSW Treasury, 2017).

6.9 Hydrology, flooding and water quality

6.9.1 Existing environment

6.9.1.1 Surface water, hydrology and water quality

The project study area is within the Murrumbidgee surface water catchment, (refer to Figure 6.10). The *Water Sharing Plan for the Murrumbidgee Unregulated and Alluvial Water Sources 2016* is in place for this catchment.

The Forest Creek and Abercrombie Creek, and ephemeral waterways are present within the project site, as shown in Figure 6.10. The project study area does not intersect any major rivers with the Murrumbidgee River approximately 30 kilometres to the north and the Edward River approximately 20 kilometres to the south. There are no lakes or swamps

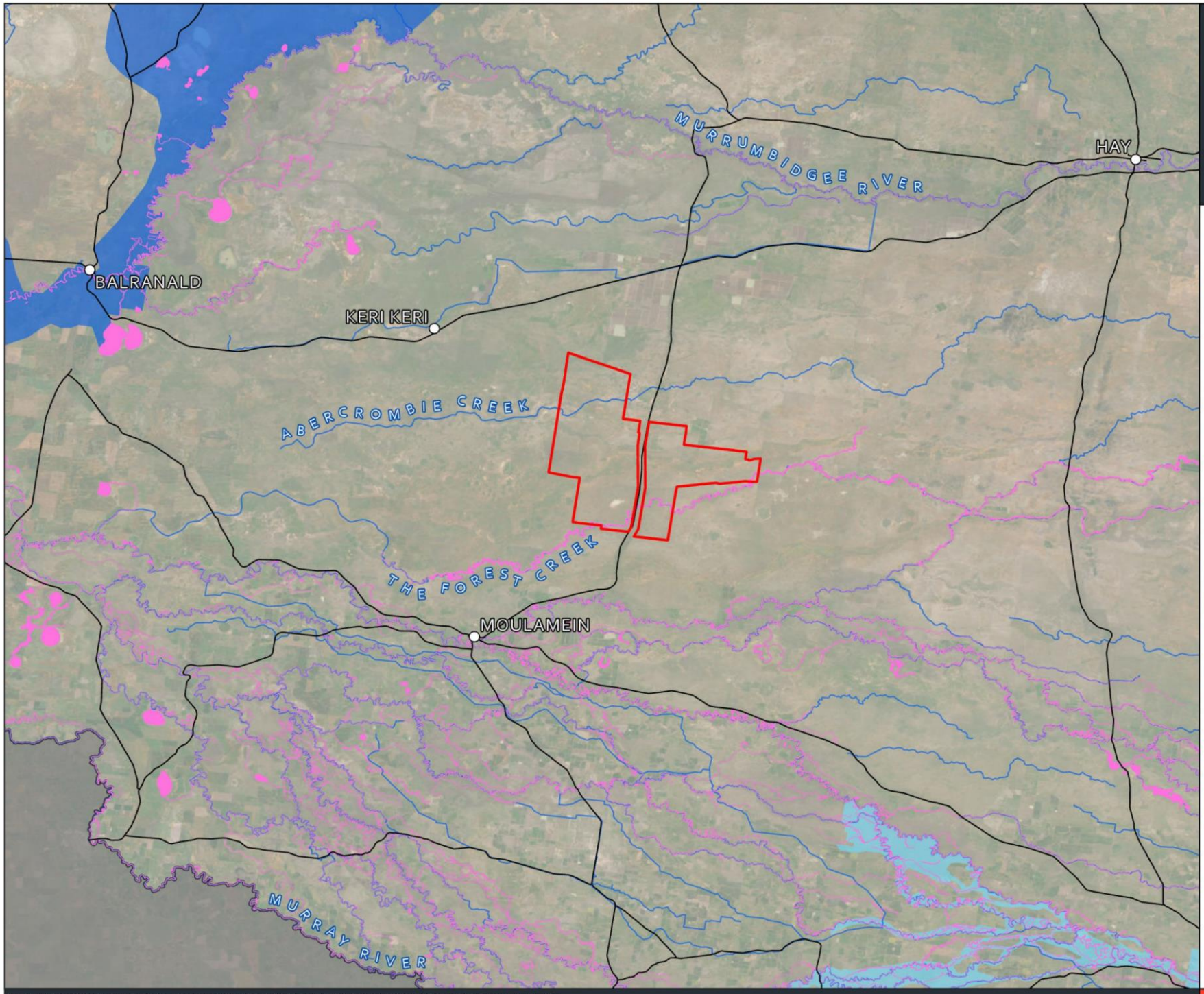
within the project site; however, Dry Lake, is located approximately 1.5 kilometres from the western boundary of the project site.

Existing water quality within the project study area is expected to be influenced by surrounding land uses, such as existing agricultural operations that may have resulted in increased pollutants (from pesticides, herbicides, fertilisers) and sedimentation within nearby waterways.

As discussed in Section 6.2.1.4, key fish habitat is present within the project study area within named waterways (refer Figure 6.10).

6.9.1.2 Flooding

Flood risk mapping is provided through the NSW Environmental Planning Instrument – Flood Planning. No part of the project study area traverses is mapped as flood risk (DPE, 2023a).



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Tchelery Wind Farm

Figure 6.10
Surface water and flooding in and surrounding the project study area

Legend

- Town
- Watercourse
- Roads
- Project Site
- Key Fish Habitat

Environmental Planning Instrument - Flood

- Flood Planning Area
- Land subject to flooding

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Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:500,000 Date: 28/04/2023

Data sources: World Imagery: Earthstar Geographics
World Street Map: Esri, Garmin, FAO, NOAA, USGS

6.9.2 Potential impacts

6.9.2.1 Construction

Potential impacts on water quality could occur during construction of the project due to:

- sedimentation of soil material eroded during ground disturbance, vegetation removal and storm events
- leaks and spills of fuels, chemicals or wastewater impacting surface water or groundwater quality
- changes to surface water flow patterns due to the location of earthworks, flow diversions, bunding, material stockpiles and temporary drainage infrastructure
- temporary dewatering of excavations.

Sedimentation, if uncontrolled, would have potential to increase turbidity and result in a decline in the water quality of the minor waterways within the project study area. If not managed appropriately, introduction of pollutants from accidental leaks and spills could result in changes to the pH, electrical conductivity, dissolved oxygen and temperature of water; reduced light penetration due to increased turbidity; increased sediment load, organic matter and turbidity of water; increase in gross pollutants and introduction of toxic pollutants such as construction fuels, oils and grease and chemicals.

Establishment of access tracks may require crossing of various natural waterways, that would involve placement of rock on the bank or bed of the waterways, as required, to enable access of heavy vehicles hauling plant and equipment. The crossings may also involve installation of pipes to allow water to flow through the site. The placement of material within the waterways has potential to alter stream flows, water levels and aquatic habitat. Many of these access tracks would need to be maintained during the operational stage of the project. The final location of access tracks and potential crossings would be determined during the EIS phase and would be subject to design refinement.

Water use and access to water during construction for activities such as concrete batching, dust suppression and ancillary facilities could potentially be an issue for the project due to the need for water security in regional NSW. As such, it is expected that the community would be sensitive to any impacts on local water supplies.

6.9.2.2 Operation

Potential impacts related to surface water and hydrology during operation are most likely to be associated with:

- changes to local hydrology, including the quality, quantity and patterns of surface water runoff and drainage, associated with an increase in non-permeable surfaces due to construction of the wind turbine infrastructure, substation and any transmission tower structure footings
- transport and deposition of sediment from ground disturbance as well as vehicle and equipment movements during maintenance activities
- potential leaks and spills of chemicals and fuels during maintenance activities or as the result of fire water overflowing from substation bunds during an emergency.

Potential impacts on flooding relate to structures and infrastructure (such as the substations and switching stations) creating obstructions. No structures would be located within the vicinity of major watercourses, where practicable.

6.9.3 Proposed investigations and assessment

A detailed hydrology, flooding and water quality assessment would be included in the EIS. The assessment would address potential impacts, including:

- impacts on quantity and quality of surface water resources, and flooding
- water demand, water sources and any required licensing requirements
- impacts on waterfront land
- erosion and sedimentation risks and management measures during construction and operation.

6.10 Groundwater

6.10.1 Existing environment

The project study area is within the Lower Murrumbidgee Alluvium groundwater source. A search of the Bureau of Meteorology's Australia Groundwater Explorer on 31 March 2023 indicated the groundwater level across the project study area is variable with bores drilled from around 16 to 50 metres below ground level (Bureau of Meteorology, 2023).

Groundwater aquifer boundaries and existing boreholes in the project study area are shown in Figure 6.11. A search of Groundwater Vulnerability was conducted on 31 March 2023 and there were no areas mapped as Groundwater Vulnerable were identified within the project site.

The project study area is within the Murrumbidgee surface water catchment, (refer to Figure 6.10). The *Water Sharing Plan for the Murrumbidgee Unregulated and Alluvial Water Sources 2016* is relevant in this catchment.

6.10.2 Potential impacts

6.10.2.1 Construction

Potential impacts to groundwater during construction may include:

- groundwater levels, flows and connectivity: these include changes to groundwater connectivity, groundwater flow direction, groundwater levels and recharge rates. During excavations for the wind turbine foundations and the substation works, groundwater could be intercepted, and temporary minor dewatering may be required. However, the preliminary desktop review of groundwater depths of the project study area indicate that turbine foundation excavations would not intercept groundwater
- groundwater chemistry: these include pollution of groundwater and changes to groundwater quality. There is a minor potential for spills or leaks to allow oil and grease contamination to enter shallow aquifers. However, the depth of existing bores within the project site, while variable, indicate that there are no shallow aquifers
- groundwater users: interference to aquifers resulting in a decrease or change in groundwater levels that subsequently affect groundwater users and/or groundwater dependent ecosystems and riparian areas.

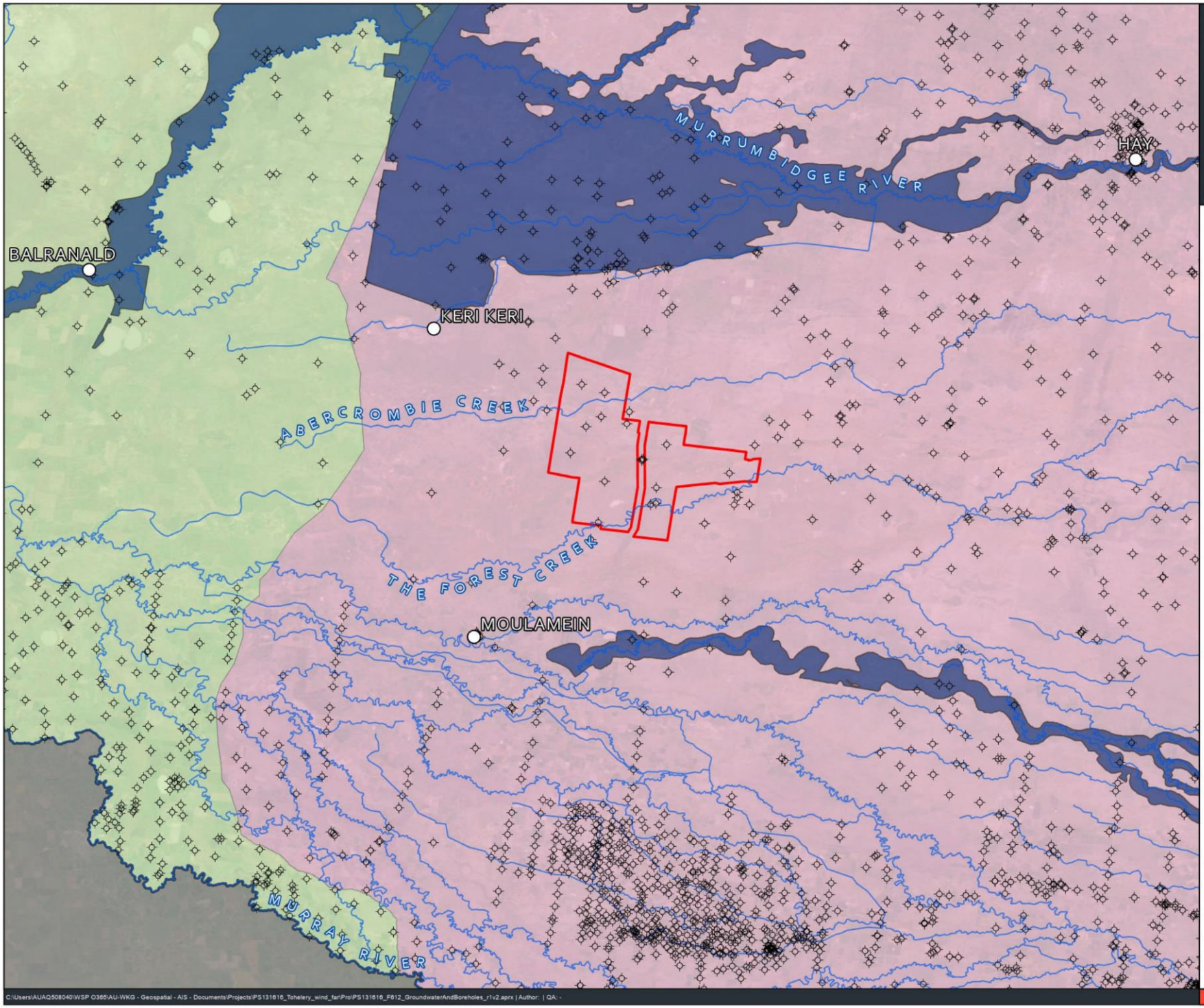
Potential impacts on groundwater would be considered as part of the EIS.

6.10.2.2 Operation

The project is not expected to interact with groundwater during operation. As such, there are no expected significant impacts on groundwater levels, flow or connectivity. Installation of the wind turbines and substation would result in impervious surfaces and minor reduced local recharge into the groundwater at these locations. Impact on the local groundwater system is expected to be minor as the surface water runoff is expected to infiltrate into the regional groundwater system regardless of the increased impervious area.

Any impact on groundwater during operation is likely to be minor given the unlikely occurrence of accidental spills as well as the proposed operational control of runoff.

There is no expected drawdown to the groundwater water table therefore any impact to groundwater users during operation including water supply users, GDEs or riparian areas or wetlands is likely to be minor.



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Tchelery Wind Farm

Figure 6.11
Groundwater aquifer boundaries and existing boreholes

Legend

- Town
- Borehole
- Watercourse
- Project Site
- Vulnerable Groundwater Areas

Aquifers

- Blanchetown Clay
- Calivil Formation or equivalents
- Loxton Parilla Sand or equivalent
- Renmark Group or equivalents
- Shepparton Formation
- Winnambool Formation or equivalents

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Metres

Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:500,000 Date: 28/04/2023

Data sources: World Imagery: Earthstar Geographics
World Street Map: Esri, Garmin, FAO, NOAA, USGS

6.10.3 *Proposed investigations and assessment*

A detailed groundwater assessment would be included in the EIS. The assessment would involve a desktop review of existing and available geological and hydrogeological information and features, including groundwater levels, hydraulic conductivity, groundwater flow directions, groundwater quality, GDEs and registered groundwater bores. The review would include geological maps, the Bureau of Meteorology Australian Groundwater Explorer, the Bureau of Meteorology GDE Atlas, and data/reports from studies in the project study area.

The EIS would identify potential risks to groundwater and other groundwater users during construction and operation of the project. Avoidance, mitigation and management measures would be identified to minimise potential inflows and their impacts to the groundwater regime and users.

6.11 Hazard and risk

6.11.1 *Existing environment*

6.11.1.1 Bushfire risk

The project study area is predominately flat with minimal elevation change. Bushfire risk across the project study area varies depending on the vegetation and climatic conditions. Vegetation density across the project study area is highly variable, with large areas of rural grazing land, small areas used for cropping and a mix of grasslands, semi-arid woodlands and arid shrublands, each presenting a distinct bushfire risk. Bushfires pose a risk to life, property and the environment and can be caused by a variety of factors, including lightning strikes, sparks from machinery, sparks from hot works and heavy plant, escaped burns offs/campfires and electrical incidents such as fallen power lines.

With the exception of waterways, all land within the project study area is mapped as Category 3 Bush Fire Prone Land (DPE, 2023), as shown in Figure 6.12. Vegetation Category 3 is considered to comprise vegetation that present a medium risk of bushfire. In the grassland and open woodland areas of the project study area, grass fires can spread more rapidly over larger distances. High temperatures combined with thunderstorm activity in these areas can initiate major fire events. Prolonged drought conditions can also exacerbate bushfire impacts.

6.11.1.2 Electric and magnetic fields

Electric and magnetic fields (EMF) are part of the natural environment with electric fields present in the atmosphere in ionospheric currents, thunderstorms and lightning while static magnetic fields are created by the earth's core. EMF is also produced wherever electricity or electrical equipment is in use. Transmission lines, electrical wiring, household appliances and electrical equipment generally produce extremely low frequency (ELF) EMF that occupy the lower part of the electromagnetic spectrum in the frequency range 0 – 3000 Hertz (Australian Radiation Protection and Nuclear Safety Agency [ARPANSA], 2022).

Parts of the project study area contain existing high voltage transmission lines (up to 330 kV), low-voltage distribution lines and a substation, which are all current sources of EMF.

6.11.1.3 Biosecurity

There are several primary production land uses such as livestock grazing and some areas of cropping within vicinity of the project. Majority of agricultural land in vicinity of the project is used for grazing.

As discussed in section 6.5.1, land within and surrounding the project study area does not contain land mapped by DPE as BSAL. The land within the project study area and surrounds has a severe to very severe limitations on land capability.

Within NSW there are several pathogens that have potential to impact agricultural activities and biodiversity. The project is located within the rice biosecurity zone, which is located across the Murrumbidgee and Murray River regions of NSW (Department of Primary Industries [DPI], 2017). There are number of pests and diseases that are not currently found in NSW that would threaten productivity of the rice industry should they be introduced. For example, golden apple snail, kernel smut of rice, khapra beetle, rice water weevil, panicle blight and bakanae (that are included as prohibited matter in Schedule 2 of the *Biosecurity Act 2015*).

6.11.1.4 Dangerous goods and hazardous material

Dangerous goods and hazardous material may currently be stored and used within vicinity of the project for agricultural activities. Businesses are required to store, handle and use these dangerous goods and hazardous substances in accordance with the *NSW Work Health and Safety Act 2011* and relevant Australian Standards. Road users are required to transport dangerous goods and hazardous materials within the surrounding road network in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008* and the Dangerous Goods (Road and Rail Transport) Regulation 2014.

6.11.2 Potential impacts

6.11.2.1 Bushfire risk

Construction

There is a risk that construction activities could be impacted by fires as well as a risk that construction activities could initiate fires. Construction activities that involve hot works, such as grinding, welding or cutting, or may otherwise result in sparks from plant or equipment, could increase risk of bushfire ignition.

Operation

During operation, ongoing vegetation management would be undertaken within the wind farm to minimise bushfire risk.

6.11.2.2 Electric and magnetic fields

Construction

EMF is not expected to be an issue during construction as the WTGs and ancillary structure would not be energised.

Operation

The project would introduce high voltage transmission and substation infrastructure within the project study area, that would result in additional increases to EMF in the local area. The proposed powerlines and substation would be designed and built to ensure that exposure levels are within the limits recommended by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines. The proposed substation would also be located as far as practicable from residential dwellings to further minimise this risk. There are currently no recognised international guidelines to specifically protect animals and plants from EMF.

6.11.2.3 Telecommunications

During operation, there is potential the project could interfere with signals associated with telecommunication services. The nearest telecommunication services within the vicinity of the project study area include a communications tower, located on neighbouring property (Everslee), approximately one kilometre north of the project site.

6.11.2.4 Biosecurity

Biosecurity risks involving introduction or spread of pathogens and diseases, may result in impacts to native vegetation, threatened fauna, agricultural activities and aquatic ecosystems during construction.

Pathogens and diseases may be transported by machinery or vehicles or material utilised during construction. Where practicable, surplus soil (if required) would be sourced from on site to reduce biosecurity risks.

Instream works that are required for construction of the project also have potential to result in unplanned introduction and establishment of aquatic pest species to aquatic environments within the project site should equipment and/or materials be contaminated.

The EIS would include environmental management measures to manage biosecurity risks in relation to pest species and pathogens during construction and operation.

6.11.2.5 Blade throw

During operation, there is a low risk of blade throw. Blade throw refers to potential risk of an operational wind turbine blade breaking, that could result in potential injury to humans, livestock or infrastructure. Risk of blade throw is generally considered to be low and would be minimised through utilisation of modern wind turbine technologies that have been proven to be safe and reliable.

6.11.2.6 Dangerous goods

Construction

Based on typical construction methods and maintenance requirements for similar projects, the dangerous goods and hazardous substances required for the project may include:

- bitumen
- cement and concrete
- diesel fuels
- gases (oxy-Acetylene)
- herbicides
- oils, greases and lubricants
- paints and epoxies.

Storage, handling and use of dangerous goods and hazardous substances may adversely impact human safety, either directly through contact, or indirectly through damage to the local environment. This may impact construction workers and residents surrounding the project study area and haulage routes. The types of dangerous goods and hazardous substances that would be stored and used within each temporary ancillary facility would be dependent on the purpose of each temporary ancillary facility and would be confirmed during design refinement and discussed in the EIS.

The storage, handling and use of dangerous goods and hazardous substances would be carried out in accordance with the *NSW Work Health and Safety Act 2011*, relevant Australian Standards and environmental management measures developed for the project. As such, potential for impacts to construction workers and the environment is considered to be low.

Operation

It is not anticipated that substantial volumes of dangerous goods or hazardous substances would be used for maintenance activities during operation of the project. Contaminants either directly associated with a spill or hazardous material clean-up may enter the receiving environment from both paved and unpaved surfaces. However, potential for a spill and consequential impacts is considered to be low due to the following factors:

- existing legislative controls on the transport of dangerous goods and hazardous materials
- in the unlikely event of a traffic crash involving a vehicle carrying dangerous goods or hazardous materials, any spills would typically be managed by the emergency services and permanent water quality controls developed for the project
- environmental management measures would be developed for the EIS to minimise risks associated with the handling and use of dangerous goods and hazardous materials during operation.

6.11.3 Proposed investigations and assessment

6.11.3.1 Bushfire risk

A Bushfire Risk Assessment would be prepared to understand potential impact of the project on bushfire risk and potential impacts to public safety, property, and the environment. The assessment would identify bushfire risks within the project study area and aim to minimise potential impacts of bushfire risks.

An initial high-level desktop assessment of bushfire risk factors would be conducted to consider fire weather, historic fire occurrence, potential ignition sources, vegetation, slope, access and construction standards for assets across the project study area. A preliminary bushfire hazard assessment would be prepared to collect information on the areas with greatest consequence and likelihood of fire ignition.

Project specific bushfire mitigation measures would be developed for the EIS to reduce potential for impacts from bushfires on the wind farm and surrounding communities. The measures would indicate any Asset Protection Zones required for structures, indicative bushfire attack level for the substation, temporary workforce accommodation, access requirements for ancillary infrastructure during construction works, vegetation management requirements, water supply and other services, and requirements for emergency and evacuation planning.

6.11.3.2 Electric and magnetic fields

Potential impacts of EMF from the project would be considered as part of the EIS, using the ICNIRP Guideline. Consideration of EMF would include potential health risks for adjacent residents resulting from development of new high voltage transmission lines and substation and switching station infrastructure.

The ICNIRP Guideline sets ‘Basic Restrictions’ derived from levels at which interactions with the central nervous system are established, with a safety factor applied. The ICNIRP ‘Basic Restrictions’ and ‘Reference Levels’ for the general public would be used as criteria in the EIS.

Given the inconclusive nature of the science regarding EMF at levels commonly associated with electrical equipment and human health, the ‘prudent avoidance’ approach would be applied.

6.11.3.3 Telecommunications

A Telecommunications Assessment Report would be prepared as part of the EIS to understand potential impacts on telecommunications within the vicinity of the project, including:

- fixed radiocommunications links
- meteorological radar
- mobile voice-based communications using existing service maps and tower locations
- wireless and satellite internet services for dwellings
- broadcast and digital radio signals
- broadcast, digital and satellite television
- trigonometrical Stations
- GPS.

The telecommunications assessment would provide recommendations on how the project could mitigate potential risks.

6.11.3.4 Biosecurity

The assessment of biosecurity risk would be included in the Agricultural Impact Assessment, and would include:

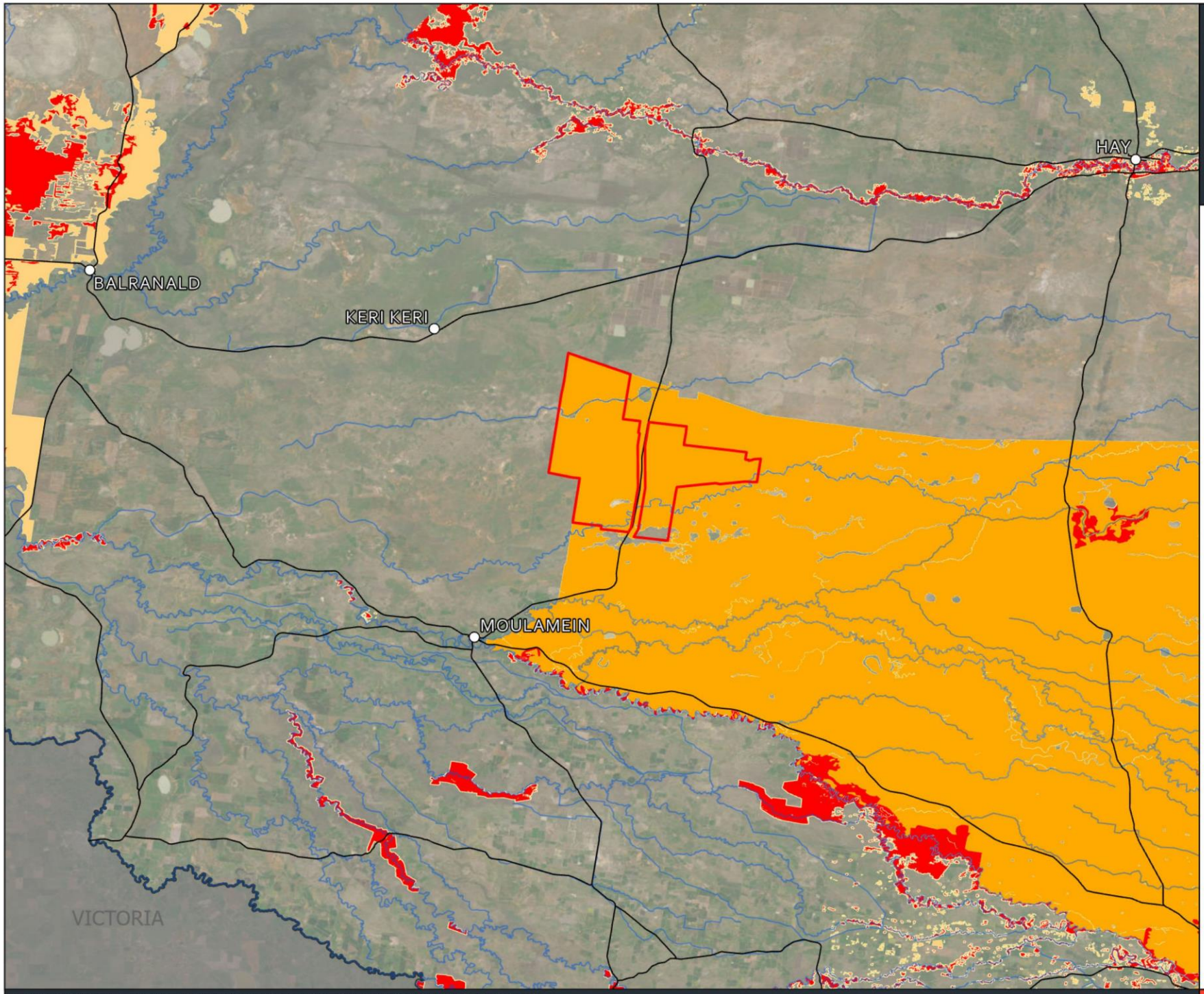
- biosecurity risks for agricultural operations during construction and operation
- biosecurity risk mitigation measures
- research and assess the impacts of the project on biosecurity risks
- identify biosecurity risks in the project area
- develop mitigation strategies to minimise resource loss, biosecurity risks and other impacts

6.11.3.5 Blade throw

An assessment of blade throw risk would be prepared for the EIS and would include a description of blade throw risk, the potential likelihood of occurrence and consequences, the theoretical distance radii for a blade throw event in relation to nearest sensitive receivers and a review of historical blade throw occurrences. The EIS would provide relevant mitigation measures to be implemented during operation of the project.

6.11.3.6 Dangerous goods and hazardous materials

A Preliminary Contamination Assessment would be conducted in general accordance with National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 2013), Contaminated Land Guidelines: Guidelines for Consultants Reporting on Contaminated Land (EPA, 2020) and other relevant EPA endorsed guidelines. The EIS would provide relevant mitigation measures to be implemented during construction and operation of the project.



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Tchelery Wind Farm
Project Study Area

Figure 6.12
Bushfire prone land within and surrounding the project area

Legend

- Town
- Watercourse
- Roads
- Project Site

Bush Fire Prone Lands

- Buffer Zones
- Category 1 - Areas of forest, woodlands, heaths (tall and short), forested wetlands and timber plantations
- Category 2 -Rainforests and lower risk vegetation parcels
- Category 3 - Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands

0 10,000 20,000
Metres

Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:500,000 Date: 28/04/2023

Data sources: World Imagery: Earthstar Geographics
World Street Map: Esri, Garmin, FAO, NOAA, USGS

6.12 Traffic and access

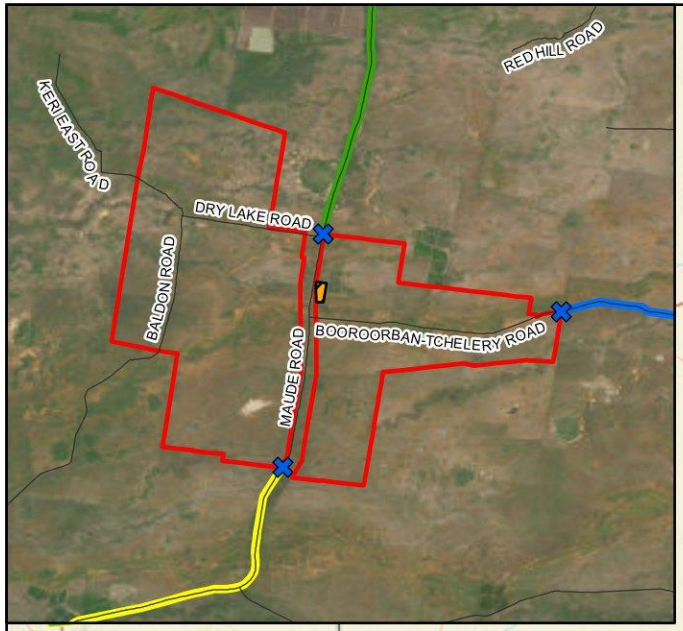
6.12.1 Existing environment

The project site is located approximately 315 kilometres north of Melbourne, 500 kilometres east of Adelaide and 700 kilometres southwest of Sydney.

The road network within the project study area includes several major roads as shown in Figure 6.13, including:

- Sturt Highway (A20), which is a major highway and has the capacity to carry oversize and overmass (OSOM) vehicles to and from the project area. The Sturt Highway is anticipated to be used as much as practicable for delivery of large items to avoid road upgrades and impacts on local roads and traffic
- Mid-Western Highway (B64, A41 and A39) located in the central western and northern Riverina regions of NSW
- Maude Road, which bisects the project study area and would be utilised as a haulage route and access into the project area
- Cobb Highway (B75), which is located in the western Riverina and far western regions of NSW, with a short section in Victoria.

The project is located about eight kilometres north of Moulamein Regional Airport. The location of Moulamein Regional Airport as well as smaller landing grounds near the project study area are shown in Figure 6.13. Recreational and agricultural aviation uses could be impacted by the height and scale of the proposed development. Consideration of potential aviation safety impacts including intrusion of wind turbines into the airspace and any potential impacts on navigation instruments would be assessed further in the EIS.



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Tchelery Wind Farm

Figure 6.13
Transport surrounding the project study area

Legend

- Potential primary site access points (to be confirmed in the EIS)

Potential Transport Routes

- Geelong to Keri Keri
- Melbourne to Keri Keri
- Newcastle to Keri Keri
- Port Adelaide to Keri Keri
- Port Botany to Keri Keri
- Port Kembla to Keri Keri
- Portland to Keri Keri
- Project Site

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:5,400,000 Date: 28/04/2023

6.12.2 Potential impacts

Construction

Construction traffic associated with the project would include heavy and light vehicles related to:

- delivery of construction equipment and materials such as concrete, wires, cables and gravel
- delivery of construction equipment as well large equipment to be installed at the substations such as transformers and reactors and prefabricated elements for the transmission tower structures
- movement and/or removal of excavated soil and waste materials
- construction workers driving to and from the construction work sites and workforce accommodation each day.

Construction traffic is likely to use the surrounding major road network that is approved for use by heavy vehicles for transportation of key elements of construction plant and equipment and bulk material haulage. A number of other regional, local and private roads in the surrounding road network that connect to the project study area may also be used by construction traffic for the project. The project is also likely to require oversized or non-standard vehicles for transportation of oversized items and equipment from other parts of the state by road. Light vehicles would typically be used to transport construction workers to and from work sites, towns and workforce accommodation.

Some construction equipment and materials may be transported to the project study area via shipping ports, railways or airports. This may be required for transportation of prefabricated items or materials that are not readily available locally within NSW.

Volumes of heavy and light vehicles generated during construction of the project may result in a noticeable increase in traffic using the surrounding road network, particularly along local or regional roads where existing traffic volumes are typically lower. Small towns located near the project could be impacted by increased local or regional traffic pressures from the movements of the project workforce. Estimates of truck and vehicle movements would depend on the adopted construction methodology and staging plans and would be described in the EIS.

There may be some temporary disruptions to traffic movements along roads within the project study area during the construction stages. Construction may require temporary traffic management or lane closures for safety; however, this would be scheduled to minimise impacts during peak traffic periods. Any impacts associated with this are expected to be short in duration and unlikely to cause considerable disruptions to road or rail users.

Existing access tracks to sections of the project may be inadequate for delivery of some material, plant and equipment. As such, access tracks would be built or upgraded to allow access to each WTG, substation site and ancillary sites during construction (subject to design refinement during the EIS phase). Construction of the project may also result in changed access to some nearby properties, with the temporary closure of existing access roads or tracks, or areas of land fenced off for safety during construction work. Alternate access arrangements would be developed in consultation with the relevant landholders.

Operation

During operation of the project, traffic and transport impacts are expected to be minimal and would typically be limited to occasional vehicle travel by maintenance staff along access tracks and the surrounding road network.

Access to existing properties is not anticipated to be substantially affected by operation of the project, however some minor impacts may occur where new or realigned access tracks are required. The location of any permanent access changes, if required, would be developed in consultation with the relevant landowners.

6.12.3 Proposed investigations and assessment

Construction and operational traffic and transport impacts would be assessed in the EIS by reviewing expected construction and operation activities, generated traffic volumes, haulage routes and distribution of construction traffic, and impact of activities on road network performance, road access and safety, public and active transport. The existing road network would be characterised, including the existing road widths and the condition of the road surface, existing road capacity, daily and peak traffic volumes including consideration of peak holiday traffic, and the proportion of light and heavy vehicles. Current performance of key intersections would be reviewed on designated construction access routes along with accident history and safety requirements.

Site access management strategies to minimise conflict and improve safety would be developed, along with management and mitigation measures to reduce negative impact of project construction and operation.

6.13 Aviation

6.13.1 Existing environment

A desktop review of aircraft landing areas was conducted and identified that the project site is located about eight kilometres north of Moulamein Regional Airport. The location of Moulamein Airport as well as smaller landing grounds near the project study area are shown in Figure 6.14. Moulamein Regional airport is most likely only used for local transportation and aerial application operations, such as aerial agricultural practices.

The nearest regional airports to the project are located in the towns of Balranald, Hay and Swan Hill:

- Balranald Airport (BZD) about 53 kilometres northwest
- Ag Flite (HXX) about 59 kilometres northeast
- Swan Hill Airport about 73 kilometres southwest.

6.13.2 Potential impacts

Construction

During construction of the project, there could be impacts on existing operations of aircraft in the region. Installation of wind turbines with hub heights up to 185 metres and tip heights of up to 285 metres would present potential impacts on aviation safety and could result in changes to existing aircraft routes, height procedures, communications, and navigation. Likewise, there would be impacts on existing aerial applications such as aerial firefighting and agricultural practices.

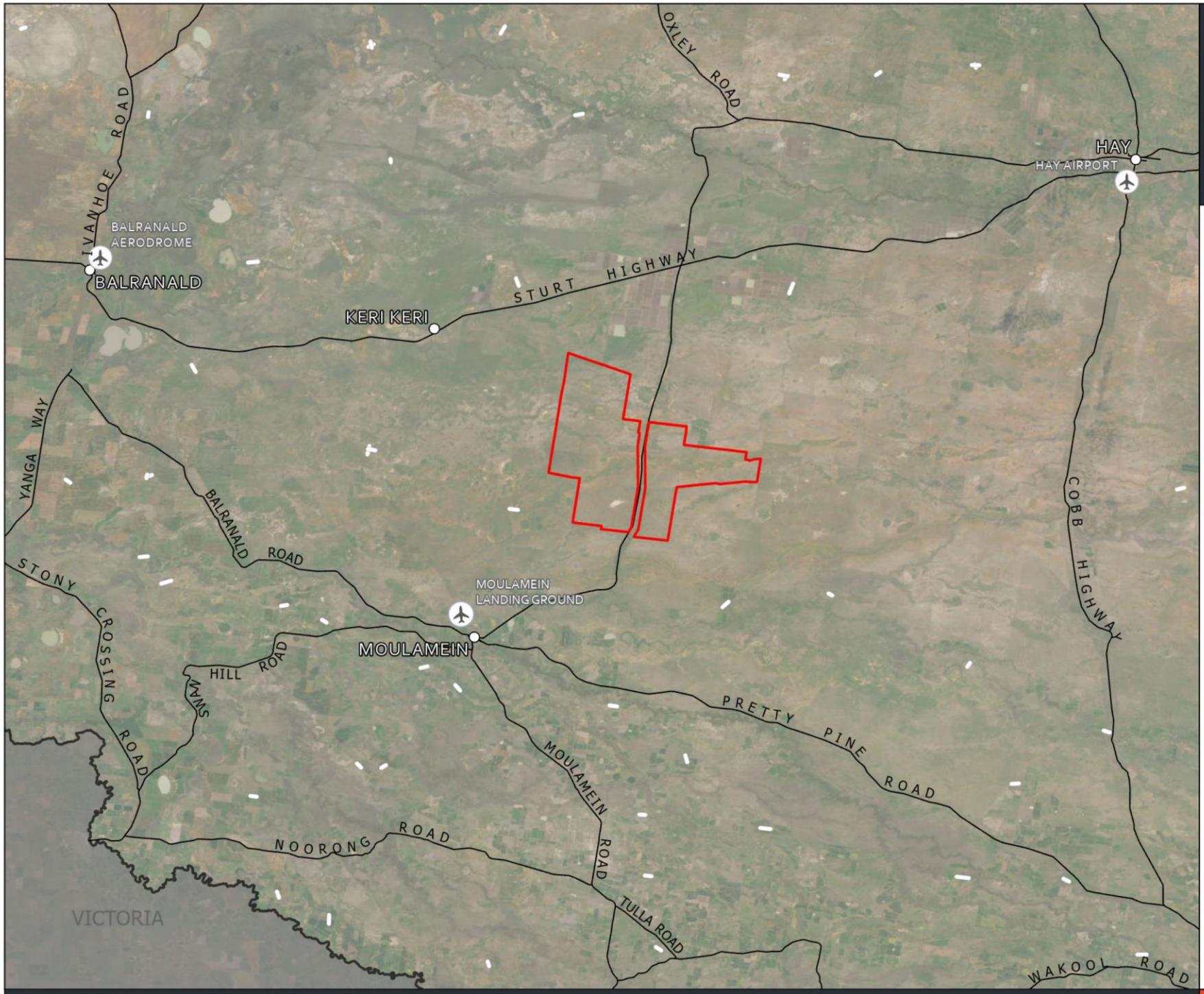
Operation

During operation of the project, the addition of wind turbines would have potential impacts on local aviation safety. Potential impacts include:

- safety issues due to wake and turbulence
- collision with turbine structures (with hub heights of up to 185 metres and tip heights of up to 285 metres), presenting need for aviation safety lighting
- changes to existing air traffic routes, height procedures, communication systems and navigation
- changes to existing aerial emergency services, such as firefighting, and aerial agricultural operations.

6.13.3 Proposed investigations and assessment

Aviation impacts would be assessed through the preparation of an Aviation Impact Assessment in the EIS. The assessment would review relevant documentation, including regulatory requirements, other information sources, and conduct a site visit to investigate the aviation safety aspects of the project. An Aviation Impact Statement and qualitative risk assessment would be undertaken to determine need for measures such as obstacle lighting. The assessment would specifically respond to the National Airport Safeguarding Framework (NASF) Guideline and would identify appropriate risk mitigation strategies to improve aviation safety during construction and operation of the project.



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Tchelery Wind Farm
Project Study Area

Figure 6.14
Aircraft landing areas surrounding the project area

Legend

- Town
- Aircraft Facilities
- Other Runways
- Roads
- Project Site

0 10,000 20,000
Metres

Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:500,000 Date: 28/04/2023

Data sources: World Imagery: Earthstar Geographics
World Street Map: Esri, Garmin, FAO, NOAA, USGS

6.14 Noise and vibration

This section provides a summary of a preliminary Noise Impact Assessment that has been prepared for the Scoping Report (Appendix C).

The noise levels generated by renewable energy projects are well understood and can be predicted with accuracy. Environmental noise impact assessments compare predicted noise levels against the relevant noise requirements. Where the requirements cannot be achieved, the assessments determine whether WTGs can be relocated, reduced in operational mode, or removed to achieve compliance. The assessments also identify areas where further investigations need to be made.

The preliminary Noise Impact Assessment predicts the noise associated with up to 120 proposed WTGs at all dwellings identified within 10 kilometres of the nearest WTG. It considers the use of the Siemens Gamesa SG170-6.0 MW in Application Mode 0 (which increases the WTG capacity to 6.2 MW) as a candidate WTG for the project; however, the WTG would be determined during design refinement during the EIS phase.

6.14.1 Existing environment

The existing environment is anticipated to generally experience low background noise levels consistent with the rural character of the area. Individual residential dwellings on agricultural land make up the nearest sensitive receivers within the project study area. The nearest town to the project study area is Moulamein, located about 30 kilometres southwest of the project area.

Existing noise conditions in the project area are expected to be influenced by natural noise sources (such as wildlife calls and wind-blown vegetation), human activity, livestock, agricultural machinery, future nearby wind farms and transport noise on road networks.

6.14.2 Potential impacts

Construction

Potential noise and vibration impacts during the construction phase would be associated with:

- operation of high noise generating plant and equipment such as excavators, piling, chainsaws, mulchers, graders, dozers during construction activities such as vegetation clearance, earthworks and road upgrades (if required)
- increased road traffic noise along haulage routes and near workforce accommodation due to heavy vehicle and light vehicle movements transporting construction staff, equipment and materials to and from the construction areas
- use of construction compounds and potential for an on site worker accommodation camp.

For most of the project site, these activities would not be expected to cause significant noise and vibration impacts due to the relatively short duration of work at each location and distance from sensitive receivers. Construction of the wind turbines, substation and associated infrastructure would result in construction noise impacts on sensitive receivers immediately surrounding the work sites for a short period of time.

Minimal vibration impacts are expected during construction of the project.

Predicted noise levels during operation

During operation, the new wind turbines and substation have potential to introduce some additional noise sources to their localities. Potential operational impacts include:

- noise from operation of noise generating equipment within the new substation and switching station, such as transformers, generators, reactors and mechanical heating, ventilation and cooling systems
- noise from wind turbines.

There may also be occasional minor noise impacts from maintenance activities. However, these maintenance activities are expected to be infrequent, short in duration and localised. Potential vibration impacts during operation are anticipated to be negligible.

Operational noise level predictions have been made using the noise model, inputs and assumptions detailed in Appendix C. It is noted that design refinements during preparation of the EIS would confirm the WTG make and model for the project.

The predicted noise level at the identified dwellings for operation of the Siemens Gamesa SG6.0 170 at its maximum noise level is provided in Table 6.6. The distance to the closest WTG from each dwelling is also provided in Table 6.6.

Table 6.6 Predicted noise levels

Dwelling ID	Agreement with project	Closest WTG (metres)	Noise Criterion (dBA)	Maximum equivalent noise level (dBA)
1 (Tchelery Homestead)	Yes	1600	-	35
2 (Tchelery Woolshed)	Yes	660	-	42
3	No	2324	35	29
4	No	6473	35	<25
5	No	2918	35	28
6	No	5616	35	<25
7	No	6981	35	<25

The predicted noise levels indicate that the 35 dB(A) baseline criterion applicable to non-associated dwellings can be achieved at all locations.

The Tchelery Homestead and Tchelery Woolshed are associated dwellings and under the Bulletin can establish a higher noise level criterion, which would be the subject to a formal agreement between the project and landowner/s.

The noise prediction contours for the operation of the Siemens Gamesa SG6.0 170 candidate WTGs at their maximum equivalent noise level output are provided in Figure 3 of Appendix C.

The noise prediction contours for the operation of the WTGs at their maximum equivalent noise level output depicts that all inhabited non-associated dwellings are outside (have a lower noise level than) the baseline noise criterion contour of 35 dB(A).

6.14.3 Proposed investigations and assessment

A detailed construction and operational Noise and Vibration Assessment would be included in the EIS. Background noise level monitoring would also be conducted as part of the EIS process, which would justify an increase in the project noise assessment criteria above the baseline noise criterion of 35 dB(A) in the circumstance where the measured ambient noise levels are sufficiently high (which can occur at higher integer hub height wind speeds).

This preliminary noise assessment considered the noise generated by WTGs only, and the EIS would consider the following additional noise sources in accordance with the relevant guidelines, including:

- ancillary infrastructure, such as transformers, assessed in accordance with the NSW Noise Policy for Industry (EPA, 2017)
- construction activity assessed in accordance with the Interim Construction Noise Guideline (DECC, 2009) and Assessing Vibration: A Technical Guideline (DEC, 2006).

6.15 Soils, topography and contamination

6.15.1 Existing environment

6.15.1.1 Geology, soils and topography

The project lies within the Riverina bioregion which is comprised of river channels, floodplains, back plains, and lakes of Quarternary age (Sahukar et al). The Riverina bioregion can be broken up into five bioregions, and project is within the Murrumbidgee subregion. The Murrumbidgee subregion is consistent with the Riverina geology, comprised of quaternary alluvial sediments (Morgan and Terrey, 1992). Due to the complex geology, varying topography and climate influences, there is a diverse range of soil types across the project study area.

A search of the Australian Soil Classification (ASC) Soil Type Map of NSW identified three soil types within the area (refer Figure 6.15). The predominant soil type for the project study area were vertosols, which are commonly referred to as cracking clay soils. These soils have a clay texture and have characteristic shrinking and swelling through wetting and drying phases with a display strong display of cracking when dry. The search also indicated the presence of rudosols (soils with little formation) in the centre of the project study area and chromosols (soils with strong contrasting texture) along the waterway located in the southern section of the project study area.

Salinity occurs in many areas of NSW, and includes dryland salinity, irrigation and river salinity, and urban salinity. Hydrogeological mapping on the eSpade tool (DPE, 2023b) indicates a low likelihood of salinity within the project study area and hence there would be a low likelihood of salinity occurring.

6.15.1.2 Land contamination

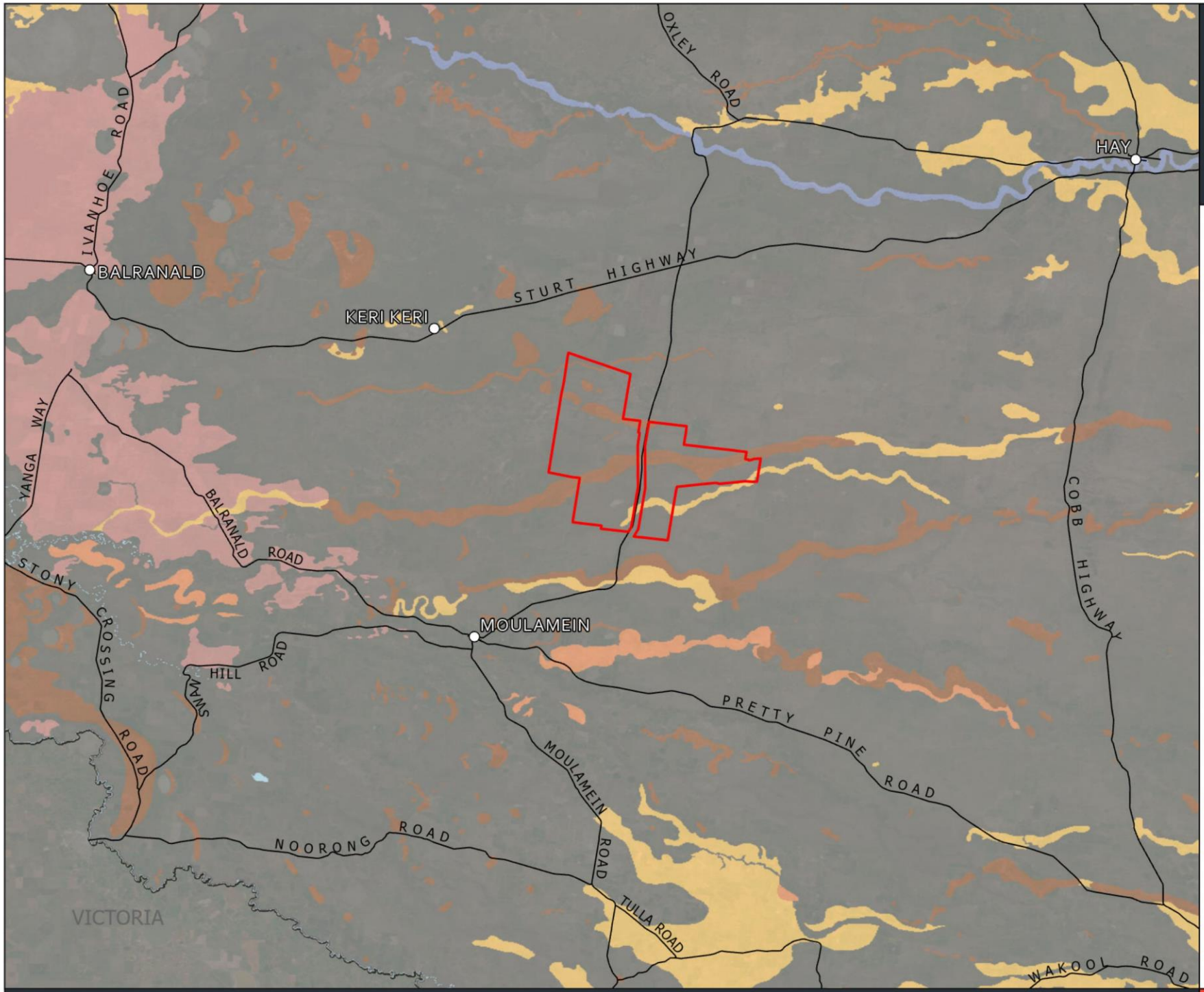
The project study area encompasses many different land uses; however, for the majority of the area it is anticipated that existing on site contamination risks would be minimal.

A search of the NSW EPA Contaminated Land Record of Notices on 29 March 2023 for the Edward River LGA identified no known contaminated sites within the project study area (EPA, 2023). Regulation under the *Contaminated Land Management Act 1997* is not required for the project site. The nearest contaminated site notified to the EPA is located approximately 90 kilometres southeast of the project study area.

There is potential for localised contamination that is not currently identified on the register, including localised soil contamination from waste storage, agricultural chemicals use and storage, active or disused livestock dip sites which are potential sources of arsenic and pesticide contamination and localised pesticide use.

Asbestos is a naturally occurring mineral comprised of fibrous silicate crystals found in rock, sediment or soil. When disturbed, microscopic fibres of asbestos can be released into the air. The term Naturally Occurring Asbestos (NOA) distinguishes natural occurrences of asbestos from manufactured products that contain asbestos. The NSW Trade and Investment, Division of Resources and Energy assessed the known and potential occurrence of NOA and the Edward River LGA was not identified as having any known of potential NOA (NSW Government, 2015), and hence it is unlikely that the project would encounter areas of NOA.

Acid sulfate soils (ASS) are naturally occurring soils that contain high concentrations of micro-crystalline iron sulfide (pyrite), which on contact with oxygen and water combines to become sulfuric acid, potentially making the soil highly acidic. ASS are typically formed in regions that are subjected to long-term waterlogged conditions, and are found in coastal estuarine environments and wetlands. Localised inland ASS can occur within drainage lines, wetlands and billabongs where sulfate is present in the landscape. There is no known occurrence of ASS within project study area according to the CSIRO Acid Sulfate Soil Risk Mapping (CSIRO, 2023).



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Tchelery Wind Farm
Project Study Area

Figure 6.15
Australian soil classifications within and surrounding the project area

Legend

- Town
- Project Site
- Roads

Australian Soil Classification Types

- Anthroposols (AN)
- Calcarosols (CA)
- Chromosols (CH)
- Dermosols (DE)
- Ferrosols (FE)
- Hydrosols (HY)
- Kandosols (KA)
- Kurosols (KU)
- Kurosols - natric (KUn)
- Organosols (OR)
- Podosols (PO)
- Rudosols (RU)
- Rudosols - alluvial (RUa)
- Sodosols (SO)
- Tenosols (TE)
- Vertosols (VE)
- Not assessed
- Water

0 10,000 20,000
Metres

Coordinate system: GDA2020
Scale ratio correct when printed at A3

1:500,000 Date: 28/04/2023

Data sources: Australian Soil Classification Types.
World Imagery,Earthstar Geographics
World Street Map,Esri, Garmin, FAO, NOAA, USGS

6.15.2 Potential impacts

Construction

Main impacts on soils from the project would generally be from excavation during construction. Soil disturbance activities may lead to erosion and sediment transfer offsite, that may result in potential sedimentation of surrounding land and drainage lines.

Construction of wind turbine foundations would require removal of vegetation and excavation, while construction and upgrades of access tracks to each wind turbine would require removal of vegetation, surface disturbance, and emplacement of suitable gravel and fill materials. Construction of the new substation would require bulk earthworks to prepare a level foundation for installation of the substation infrastructure. Where practicable, spoil generated would be used on site to provide the required levels.

Some excavated material may also be suitable for reuse for elements such as access tracks. This would be determined during design refinements. Excess spoil would be utilised on site.

Other potential impacts on soils and geology include:

- physical and chemical changes to soil quality, mixing of soils and changes to drainage
- changes in soil salinity from soil disturbance, vegetation clearance and groundwater aquifer interference
- soil compaction from movement of vehicles and machinery.

It is unlikely for ASS to be exposed to air during excavations due to no known occurrence within the project study area.

Contamination may occur from leaks or spills from operation or refuelling of plant, equipment and vehicles during construction. Construction would also require transportation and storage of fuels, oils and chemicals, that could potentially spill or leak and result in localised contamination. These construction activities could result in mobilisation and spread of pre-existing contamination in the surrounding soil if disturbed during construction.

Use of worker facilities within ancillary facilities and accommodation camps, if required, would produce sewerage and wastewater, that could contaminate land if accidentally released.

NOA can release silicate fibres to the air when disturbed, that may be hazardous to human health. However, the project study area is unlikely to contain areas of NOA. If NOA is found during excavations, stringent safety controls and monitoring during excavation of foundation structures, as well as management of spoil, would occur.

Operation

Soil erosion or compaction impacts could also occur during operation from vehicle and equipment movements during maintenance activities. Potential spills and leaks of chemicals and fuels could also occur during these activities, that could result in localised contamination to the surrounding land.

Main contamination risk at the substation during operation would be associated with potential leaks from oil-filled equipment, such as substation transformers. Spills may result from storage of fuels and chemicals, fire events or indirectly through overflow of firefighting water from substation spill containment systems that would be captured in oil containment systems and bunds.

6.15.3 Proposed investigations and assessment

A detailed assessment would be prepared for the EIS to assess potential impacts of construction and operational activities associated with the project. This would include a detailed assessment of the existing environment, review of available historical aerial photography, identification of current and historical contaminating activities and mapping of potential contamination sources, including registered contaminated sites, former livestock dip locations and sites with notable per- and poly-fluoroalkyl substances investigation risk.

Site inspections would be carried out to assess visual indications of surface filling, dumped wastes, land uses and other contamination risks. The assessment would include impact assessment and identification of management and mitigation measures, including measures to manage the risk of contamination, soil erosion and sedimentation as well as any monitoring requirements for the project. The assessment and site inspections would also establish the requirement for site sampling to confirm contamination risks.

6.16 Air quality and greenhouse gases

6.16.1 Existing environment

Ambient air quality within the project study area would be characteristic of a rural area and affected by a number of factors including topography, prevailing meteorological conditions and local and regional sources of potential air pollution.

There are no sources of air pollutants listed on the National Pollutant Inventory (NPI) including quarries, factories and feedlots (DCCEEW, 2023) in the vicinity of the project. The closest listed place listed on the NPI is the JHW Patterson and Son site on the Sturt Highway, approximately 24 kilometres northwest of the project site, that includes feedlot and general farming (DCCEEW, 2023). Other air pollution sources in the area would include vehicle and dust emissions from roads and agricultural activities.

6.16.2 Potential impacts

Construction

During construction, local air quality may be temporarily affected by particulate (dust) and exhaust emissions from activities such as earthworks, stockpile management, concrete batching plants, access track construction, maintenance and use and use of vehicles, plant and equipment. Main sensitive receivers for air quality impacts during construction would be residences within 100 metres from construction works. Air quality impacts from construction are expected to be minor and short-term due to the relatively small scale of construction works required at each turbine location, distance from sensitive receivers, and progressive nature of construction works.

Gaseous emissions associated with combustion of fuel and combustion-related pollutants from construction plant and machinery would be manageable through maintenance and correct operation of equipment.

GHG emissions are likely to be generated due to vegetation removal, combustion of fuel for transport, and consumption of electricity and from waste. Use of construction equipment and manufacture of materials for use in the project would also consume resources associated with GHG emissions.

Operation

During operation, the project is not anticipated to generate a substantial amount of additional local air quality or GHG impacts. A minor amount of GHGs would be anticipated due to the operation of machinery for maintenance activities; however, these impacts are anticipated to be minimal. Operational air quality and GHG impacts would be manageable through application of standard environmental management measures.

During operation, the proposed wind farm would generate renewable energy and contribute to the reduction of GHG emissions, as well as assist with NSW's and Australia's GHG targets.

6.16.3 Proposed investigations and assessment

A standard construction and operation air quality assessment would be included in the EIS. Air quality impacts associated with dust generated by construction activities would be assessed qualitatively.

The assessment would consider potential dust effects from construction activities based on the scale and nature of the works and sensitivity of the area surrounding the activity. Data requirements would include areas of soil disturbance, materials and equipment, vehicle movements, scheduling, and likely location or distance to receivers of emission sources such as WTG locations, substations, potential accommodation camps laydown and stockpile areas and concrete batching plants. Site-specific mitigation measures would be identified to manage and minimise adverse impacts in the EIS.

6.17 Waste management and resource use

6.17.1 Existing environment

Waste management and waste transfer facilities within and near the project study area include the Deniliquin Landfill Depot and Blighty Waste Disposal Depot, both of which provide metal recycling facilities. Three further landfills and waste disposal depots are located in vicinity of the project study area; however, are available to local rural residents only.

6.17.2 Potential impacts

Construction of the project would result in a range of typical waste materials including:

- vegetation waste from clearing for turbine footings and adjacent hardstand areas for installation and maintenance adjacent to each turbine, internal access roads and substation site
- spoil from excavations and access track works
- surplus construction materials such as steel, concrete, construction off-cuts and packaging
- general domestic waste from construction and maintenance personnel
- waste and wastewater produced at construction compounds and workers camp/s
- small quantities of waste oils, greases, chemicals and lubricants from operation of construction plant and equipment.

During operation, the main source of waste material is expected to be from vegetation maintenance with small quantities of other waste materials generated from maintenance activities (replacement of fittings, equipment etc) and general domestic waste from operation and maintenance personnel. Disposal of waste generated during construction and operation of the project is not anticipated to result in significant adverse environmental impacts as removal of waste generated would be managed through the application of standard environmental management measures that would be identified as part of the EIS.

Resources used during construction and operation of the project would include, but not limited to:

- water (construction and operational phases)
- electricity (construction and operational phases)
- fuel (construction and operational phases)
- concrete (primarily construction phase)
- steel (primarily construction phase).

While the project would result in some increased demand on local and regional resources, it would be unlikely that the project alone would result in any resource becoming scarce or in short supply.

6.17.3 Proposed investigations and assessment

A standard assessment of waste impacts and management would be included in the EIS to identify potential waste streams associated with construction and operation of the project and would include standard management practices compliant with the *Waste Avoidance and Resource Recovery Act 2001* and other relevant policies and guidelines to avoid or minimise waste from the project. This would include management of spoil to balance cut and fill volumes.

Waste would need to be carefully managed and handled in accordance with the Waste Classification Guidelines (EPA, 2014). Construction waste would be segregated and stockpiled on site, with materials such as clean excavated soil, concrete, timber, plastic and metals separated for reuse or recycling. Any potentially contaminated or hazardous materials would need to be handled carefully and segregated to minimise the risk of cross-contamination. Waste requiring disposal would be directed to a waste management facility that is lawfully permitted to accept that type of waste.

6.18 Climate change

6.18.1 Existing environment

Climate is described in terms of long-term weather statistics for a particular location comprising averages, variations and extremes. AdaptNSW regional climate change snapshots provide an indicative view of climate change risks that are current influence on assets and operations across the project study area (AdaptNSW, 2014). Climate parameters considered in the snapshots include temperature, temperature extremes, rainfall, frost and fire weather.

The project study area is located within the Riverina Murray region. The region is characterised by wide floodplains and relatively flat river valleys. It also contains high-elevation alpine areas in the Snowy Mountains. These higher areas provide water for the region, with rainfall and snowmelt runoff contributing to the Murrumbidgee River, that flows into the Murray River. The floodplains of the region have made the Murray Murrumbidgee one of Australia's most important agricultural areas.

The Riverina Murray region experiences a distinct seasonal and regional variation in temperature with cool to cold winters and warm to hot summers. Climate change is affecting the region, with projections showing temperatures are expected to rise, rainfall patterns are predicted to change, and there would be an increased risk of severe weather events such as bushfire, rainfall and droughts. Over the past 30 years, the number of hot days per year, where temperatures exceed 38°C, have increased from eight days per year between 1959 and 1988 to 14 days per year between 1989 and 2018. The AdaptNSW snapshots prepared in 2014 present likely changes in climate in the near future (by 2039) and far future (2079). Near future changes could impact construction of the project, while far future changes are relevant to operational assets. These are summarised in Table 6.7.

Table 6.7 Likely changes in climate of the Riverina Murray region by 2039 and 2079

Climate parameter	Near future (by 2030)	Far Future (by 2070)
Temperature	Maximum temperatures are projected to increase by 0.4–1.0°C Minimum temperatures are projected to increase by 0.4–0.8°C	Maximum temperatures are projected to increase by 1.6–2.5°C Minimum temperatures are projected to increase by 1.3–2.4°C
Temperature extremes – hot days (reaching >35°C)	Hot days are projected to increase across the region by an average of 9 days per year by 2030.	Hot days are projected to increase across the region by an average of 27 days per year by 2070.
Temperature extremes – cold days (reaching <2°C)	Cold nights are projected to decrease across the region by an average of 8 fewer nights per year by 2030. Changes in cold nights can have considerable impacts on native ecosystems and agricultural crops reliant on cold winters.	Cold nights are projected to decrease across the region by an average of 23 fewer nights per year by 2070.
Rainfall (Note – while there are some consistent patterns, the projections reflect considerable variability in rainfall across the region and from year to year)	Annual rainfall would vary across the region, with the greatest increases seen during summer and autumn. The greatest decreases in rainfall are across the region during spring. Winter rainfall is primarily decreasing across the region.	Annual rainfall would continue to vary across the region. The region is projecting increases in rainfall for summer, autumn and winter. A decrease in rainfall across the region is projected for spring.

Climate parameter	Near future (by 2030)	Far Future (by 2070)
Fire weather	The Forest Fire Danger Index (FFDI) is used in NSW to quantify fire weather. The FFDI combines observations of temperature, humidity and windspeed. Fire weather is classified as severe when the FFDI is above 50. Severe fire weather is projected to increase across the region during summer and spring. Declines are projected during autumn due to increases in rainfall. There is little change during winter. These increases are being seen during the peak prescribed burning season (spring) and peak fire risk season (summer).	Severe fire weather is projected to increase across the region primarily during summer and spring. Increases are greatest in the west of the region during spring. There are small declines during autumn due to increases in rainfall. These increases are being seen during the peak prescribed burning season (spring) and peak fire risk season (summer).

Source: Adapt NSW, 2014

Based on a review of the CSIRO Climate Change in Australia Projections, climate projections for the area include (CSIRO, 2022):

- further increase in temperatures, with more extremely hot days and fewer extremely cool days
- harsher fire weather climate in the future
- a decrease in cool-season rainfall across many regions of southern Australia, with more time spent in drought
- more intense heavy rainfall throughout Australia, particularly for short-duration extreme rainfall events
- an increase in the number of high fire weather danger days and a longer fire season for southern and eastern Australia.

6.18.2 Potential impacts

During construction, climate change risks would be associated with severe weather events, such as extreme temperature, flooding, changes in rainfall patterns and fire risk, placing increased pressure on control measures to prevent flooding, erosion and sedimentation and bushfire ignition. Extreme weather could delay construction of the project, damage materials and cause adverse health impacts for workers.

Operational vulnerability to climate change could potentially include:

- an increase in the number and severity of weather-related electricity outages
- flooding of substation causing damage to equipment with effort and time required to clean up and repair equipment, and weakening of the tower structures due to erosion or debris impact
- damage from bushfires, often coinciding with increased demand for electricity from high temperatures.

6.18.3 Proposed investigations and assessment

Resilience of the operational assets to extreme weather would be considered in design of assets, including allowance for wind loading, ice and snow, sag and appropriate clearances for transmission lines, and cooling systems for substations and transformers. Coatings on the conducting wires give some protection against high temperatures.

Assessment and development of mitigation measures would be carried out in the EIS for related issues such as bushfire, surface water, flooding and hydrology. The Australian government guideline Climate change impact and risk management – A guide for business and government (Australian Greenhouse Office, 2006) would be relevant to these assessments in the EIS.

6.19 Cumulative impacts

Cumulative impacts of the project would be assessed in the EIS in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE, 2021a). The guidelines provide a framework for assessing and managing project-level cumulative impacts.

Assessment of cumulative impacts focuses on the project's interaction with other projects in the vicinity and where construction and/or operational timeframes are likely to be concurrent.

6.19.1 Proposed assessment

There are six key steps to the cumulative impact assessment as outlined in the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPIE, 2021a) and in Figure 6.16. The purpose of a cumulative impact assessment is to assess project specific impacts from an existing baseline condition as well as combined impacts of the project with other known or foreseeable future developments.

To evaluate potential impacts in the EIS, two broad types of assessment would be undertaken: incremental and cumulative. Incremental types are standard practice for all project-level environmental impact assessment, whereas cumulative types are effective where there is potential for material cumulative impacts with other relevant future projects. The environmental risk analysis would be supported and is informed by these assessments. The description of the types of assessments would be based on *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW DPIE, 2021a).

The EIS would include a standard qualitative, combined incremental assessment to consider the combined impact of the different project issues. The EIS assessment methodologies for issues such as air quality, biodiversity, heritage, traffic, noise and water for the project would involve identifying a baseline condition, including the impacts of past and present projects and determining incremental impacts of the project.

The cumulative impact assessment would include consideration of key questions at the Scoping Phase that would inform the SEARs and EIS assessment, refer to Table 6.8 for consideration of key questions.

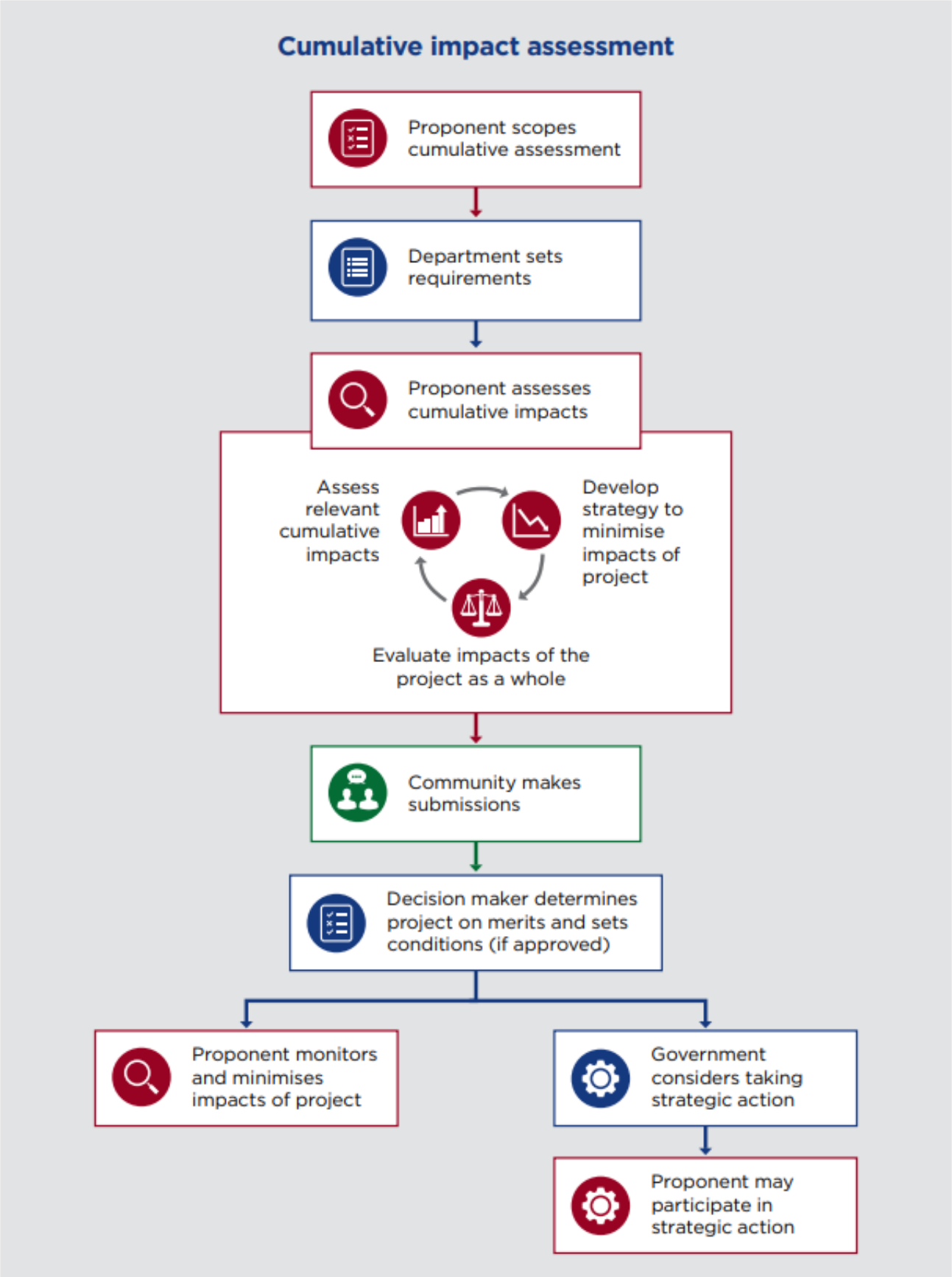


Figure 6.16 Key steps in cumulative impact assessment (DPIE, 2021a)

Table 6.8 Scoping cumulative impacts – key questions

Scoping questions	Considerations	Commentary
What to assess	Government strategic planning framework for the area having regard to any relevant legislation, plans, policies or guidelines.	Consideration of key legislation, plans, policies or guidelines is provided in Chapter 4.
	The project and other potentially relevant future projects that may be developed over the same time period or similar timeframes as the project.	Site setting and features from a regional and local context are discussed in section 3.2, which notes: — key land uses and economic activities within the region are centred around agriculture — closest population centre is the town of Hay, that is located approximately 86 kilometres (by road) northwest of the project study area — nearest major waterways are the Murrumbidgee River approximately 30 kilometres to the north and the Edward River approximately 20 kilometres to the south of the project study area — there are a number of proposed renewable energy projects located in proximity to the project study area, within the South West REZ region as detailed in section 6.19.2 — there is potential for impacts of these proposed projects to combine with the potential environmental impacts of the project, generating cumulative impacts that are greater than the impact of each project individually.
	Potential material impacts on features including National Parks and other protected areas, environmentally sensitive areas, threatened species and ecological communities, important natural resources, culturally significant resources, key infrastructure and industries, sensitive land use zones, population centres, settlements and residential areas.	
	The likely scale and nature of the cumulative impact of these projects.	
What study area	The study area selected for the cumulative impact assessment of each matter would vary depending on the specific characteristics of the assessment matter and the scale and nature of the potential impacts on the matter resulting from the project with other relevant future projects.	The study area for matters subject to cumulative assessment would be guided by the relevant technical assessments and locality features. Cumulative visual impacts for example would include, as a minimum, a 100-kilometre radius around the project site and is subject to further assessment during the EIS phase, including consideration of topography and vegetation features.

Scoping questions	Considerations	Commentary
Over what time period	Like the study area, the time period selected for the cumulative impact assessment on each matter would vary depending on the characteristics of the matter and the scale and nature of the potential impacts on the matter. In most cases, the period selected is likely to match the life of the project (e.g. 50 years). However, in some cases the period selected may be much shorter than this and cover a single phase of the project, or much longer.	Proposed timeframe for the development of the project is: — Planning and approvals: completion early 2024 — Construction: 2026 (24-30 months) — Operation: from late 2028- early 2029 (30 years).
What projects to include	Build upon past and current operating project assessments by considering the cumulative impacts of the proposed project on key matters when other future proposed projects are included in the assessment.	See section 6.19.2.

The issues subject to cumulative assessment for the project, including the study area extent and time period are described in Table 6.9.

Table 6.9 Issues to be assessed in the cumulative impact assessment

Issue	Rationale	Study area extent	Time period
Aboriginal cultural heritage	Combined effects of ground disturbance could impact on Aboriginal archaeological items.	Locations where the project could impact on sensitive items with similar heritage value as other relevant future projects.	Construction and operation
Bushfire	An increase to the fire risk during construction and operation in bushfire prone areas.	Specific areas of bushfire prone land and continuous vegetation, and other relevant future projects.	Construction and operation
Land use	Changes to the availability of future or planned land uses, when combined with the construction or operation of other future projects, especially on land that is currently used or zoned for agricultural or forestry purposes.	Regional land use impacts, considering representative land use types.	Construction and operation
Noise	Where the construction and operational noise impacts of the project overlap with the noise impacts of other relevant future projects and result in material noise impacts on certain sensitive receivers.	Areas at the specific locations where there is an overlap of noise impacts resulting in material noise impacts on certain sensitive receivers.	Construction and operation
Property	Temporary leasing, permanent acquisition, and new easements on land titles.	Regional impacts of property acquisitions (including easements) for the project and other relevant future projects.	Construction and operation

Issue	Rationale	Study area extent	Time period
Social	Positive and negative impacts are anticipated in combination with other future projects and short-term cumulative impacts such as community benefits and impacts during construction.	Regional social and economic impacts	Construction and operation
Surface water	Construction activities with potential to impact surface water, and near other relevant future projects.	Downstream impacts where other relevant future projects are in the same catchment as the project.	Construction
Terrestrial ecology	Due to some vegetation removal required and the possibility of other future projects removing the same PCTs and habitat for threatened species that are likely to be impacted by the project.	The biodiversity cumulative impact area would be based on the range and distribution of potential listed threatened species and would focus on those species that are at risk of serious or irreversible harm due to the cumulative impacts of the project with other relevant future projects.	Construction and operation
Traffic	Where construction of the project occurs at the same time and area as future potential major projects that generate large volumes of traffic.	Specific main transport routes and towns where there is an overlap of potential traffic impacts.	Construction
Visual and landscape character	Proximity to proposed future projects.	Specific viewpoints or landscapes impacted by more than one project.	Construction and operation
Waste	Where other future relevant projects use the same waste management facility/facilities.	Waste management facilities that may need to service several projects.	Construction

6.19.2 Future projects

Relevant future projects to consider in the cumulative impact assessment would be identified through a search of:

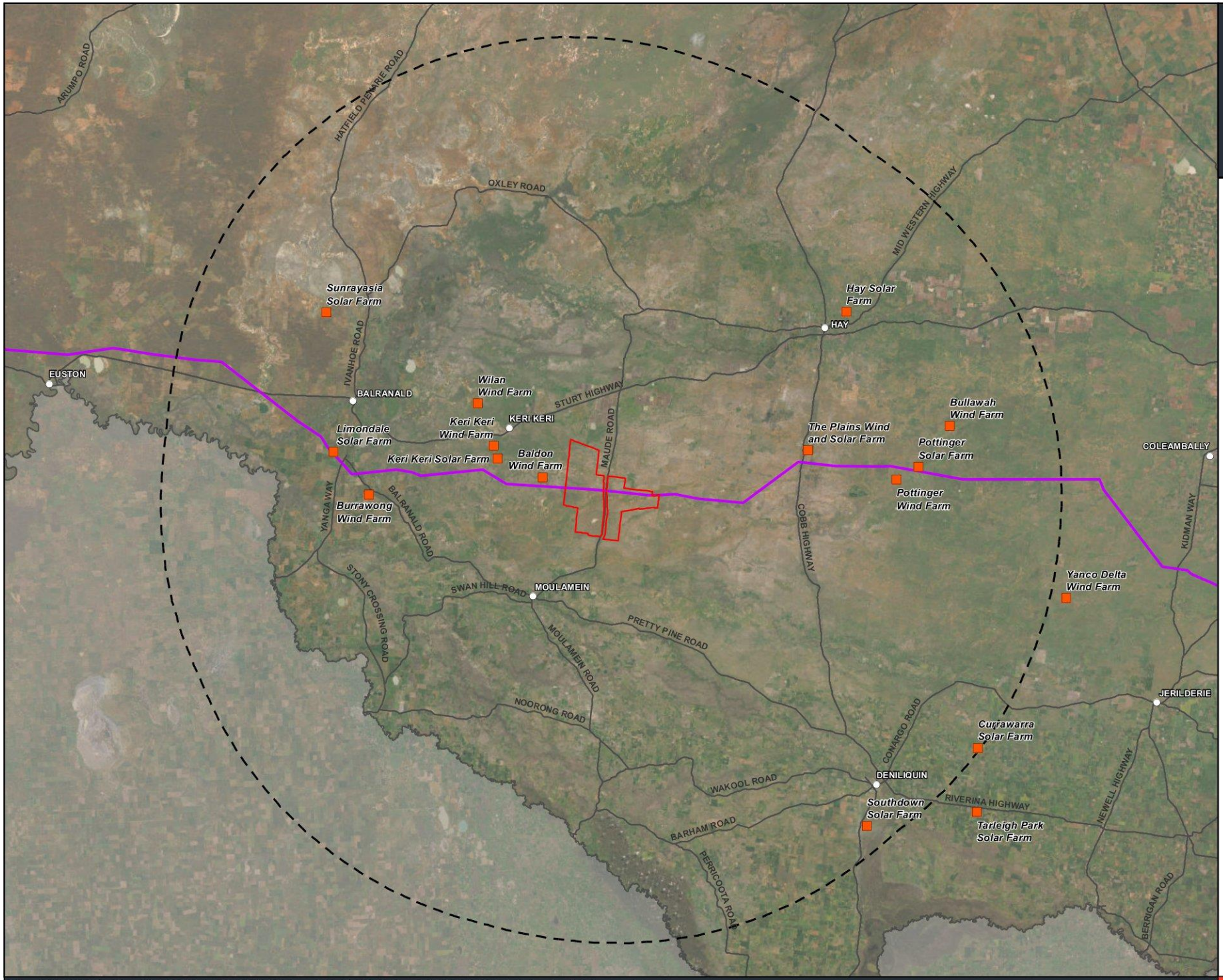
- DPE's online major projects database
- NSW Government's list of Special Activation Precincts
- Local Council websites
- projects declared to be controlled actions under the Commonwealth EPBC Act
- major greenfield and urban renewal development scheduled for the area.

A search of DPE's online major projects database was carried out in March 2023 to identify SSD and State Significant Infrastructure (SSI) projects in the locality (refer Figure 6.17). A cumulative impact assessment scoping summary is provided in Appendix G.

SSD and SSI projects of relevance to the project within 100 kilometres include:

- Keri Keri Wind Farm
- Keri Keri Solar Farm
- Baldon Wind Farm
- Hay Solar Farm
- Limondale Solar Farm
- Sunraysia Solar Farm
- Burrawong Wind Farm
- The Plains Wind Farm
- Bullawah Wind Farm
- EnergyConnect (NSW – Eastern Section)
- Currawarra Solar Farm
- Southdown Solar Farm
- The Plains Solar Farm
- Wilan Wind Farm
- Pottinger Wind Farm
- Pottinger Solar Farm

There are no major greenfield and urban renewal developments scheduled in the area.



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Tchelery Wind Farm
Project Study Area

Figure 6.17
Preliminary cumulative impacts

Legend

- Town
- Nearby Project within 100km
- Project EnergyConnect (PEC)
- Road
- Project Site
- Project 100km Buffer

Coordinate system: GDA 1994 MGA Zone 55

Scale ratio correct when printed at A4

1:1,250,000 Date: 19/06/2023

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7 Preliminary scoping

7.1 Overview

An environmental risk analysis was undertaken as part of the Scoping Report to:

- identify the potential impacts and issues to be considered as part of the impact assessments
- identify the residual environmental impacts after the implementation of mitigation.

This section outlines the context and methodology for the preliminary scoping of environmental matters.

7.2 Categorising assessment matters

Table 7.1 defines the risk rating for the assessment of potential impacts used in this scoping report.

Table 7.1 Risk rating descriptions

Risk grade	Risk	Description
1	Low	— Not likely to impact on siting, design, construction or operation stages and can be managed through generic environmental controls. — Specialist studies not likely to be required. — Mitigation is likely to show positive results.
2	Medium	— Will need consideration during either siting, design, construction, or operation stages. — Specialist studies likely to be required to minimise potential environmental impact. — External approval potentially required and is standard.
3	High	— Critical issue that may have significant impact on siting or be a significant time and cost constraint. — Extensive specialist studies likely to be required. — External approval likely to be required and may be onerous.

7.3 Approach to assessment

To evaluate the potential impacts, two broad types of assessment would be undertaken in the EIS: incremental and cumulative.

Wind energy projects present their own unique risks that require assessment under the Wind Energy Guideline. Assessment of wind energy projects take a risk-based approach to the assessment of impacts; in particular, stringent noise criteria and landscape character and visual impact assessments. In addition, there are a broad range of social, environmental and economic considerations to be considered, including:

- Biodiversity
- Aboriginal heritage
- Non-Aboriginal heritage
- Soils and erosion
- Transport and traffic
- Surface and ground water
- Hazards and risk
- Waste and resource use
- Socio-economic
- Land use and property
- Contamination
- Cumulative

7.4 Impact scoping

Results of impact scoping are presented in Appendix A.

8 Justification and conclusion

The project is subject to assessment under Division 4.7 of the EP&A Act and as such, this document supports an application seeking the SEARs for the EIS. The preliminary assessment considered potential impacts during construction and operation of the project and considered the existing environment, scale and nature of the project, ability to avoid, minimise or mitigate impacts (for the scoping stage), cumulative impacts and the technical assessment of the project.

Key environmental assessment issues identified for the project, that would undergo a more detailed technical assessment during the preparation of the EIS include:

- Aboriginal heritage
- Agricultural (Land use and Property)
- Aviation
- Biodiversity
- Bushfire risk (Hazards and Risks)
- Economic
- Groundwater
- Hydrology, flooding and water quality
- Landscape character and visual amenity
- Noise and vibration
- Non-Aboriginal heritage
- Social
- Soils and contamination
- Telecommunications (Hazards and Risks)
- Transport and traffic
- Cumulative impact.

Other issues that would not require detailed technical assessment (including cumulative impacts), either based on lower likelihood of occurrence or absence of likely receptors, are as follows:

- Air quality
- Climate change
- EMF (Hazards and Risks)
- Waste management and resource use.

As part of preparation of the EIS, further assessment would be carried out in conjunction with the further refinement of the project design. In assessing potential environmental impacts of the project, the key focus would be avoidance and minimisation of impacts on the environment and local communities, where reasonable and feasible, when taking into consideration engineering constraints and cost implications. The assessment would identify mitigation and management measures to minimise impacts on the environment. Consultation with stakeholders and the local community would continue throughout the EIS assessment, design and construction phases.

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10 References

ABS (2021) *Australian Bureau of Statistics 2021 Census of Population and Housing*

AdaptNSW (2023). *Interactive climate change projections map.* Available at: Interactive climate change projections map | AdaptNSW

Australian Energy Market Operator (2022) *Integrated System Plan*. Available at: 2022-integrated-system-plan-isp.pdf (aemo.com.au)

Australian Greenhouse Office (2006). *Climate Change Impact and Risk Management – A Guide for Business and Government*.

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), 2022. Extremely Low Frequency Electric and Magnetic Fields. Accessed 19 May 2022 https://www.arpansa.gov.au/understanding-radiation/what-is-radiation/non-ionising-radiation/low-frequency-electric-magnetic-fields

Bureau of Meteorology (2023). *Groundwater Ecosystems Atlas*. Available at: http://www.bom.gov.au/water/groundwater/gde/

Clean Energy Council (2022) *Renewable Energy Target*. Available at: Renewable Energy Target Australia | Clean Energy Council

Climate Change Authority (2020) *Electricity fact sheet*. Available at: Microsoft Word - Fact sheet - Electricity (climatechangeauthority.gov.au)

Commonwealth Scientific and Industrial Research Organisation (2023). Acid Sulfate Soil Risk Mapping. Available at: https://www.asris.csiro.au/themes/AcidSulfateSoils.html

Commonwealth Scientific and Industrial Research Organisation (2022). *Climate Change in Australia Projections*.

Department of Climate Change, Energy, the Environment and Water (2023). *National Pollutant Inventory*. Available at: National Pollutant Inventory - DCCEEW

Department of Climate Change, Energy, the Environment and Water (2010a). *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. Available at: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/aboriginal-cultural-heritage-consultation-requirements-for-proponents-2010-090781.pdf

Department of Climate Change, Energy, the Environment and Water (2022a). *Annual Climate Change Statement 2022*. Available at: Annual Climate Change Statement 2022 (dcceew.gov.au)

Department of Climate Change, Energy, the Environment and Water (2022b). *Renewables*. Available at: Renewables | energy.gov.au

Department of Climate Change, Energy, the Environment and Water (2021). *Legal status and heritage place lists.* Available at: https://www.dcceew.gov.au/parks-heritage/heritage/publications/australian-heritage-database/legal-status

Department of Environment, Climate Change and Water (2010). *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.* Available at: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/due-diligence-code-of-practice-aboriginal-objects-protection-100798.pdf

Department of Environment and Climate Change (2009). *Interim Construction Noise Guideline*. Available at: https://www.environment.nsw.gov.au/resources/noise/09265cng.pdf

Department of Environment and Conservation (2006). *Assessing Vibration: a technical guideline*. Available at: https://www.environment.nsw.gov.au/resources/noise/vibrationguide0643.pdf

Department of the Environment and Energy (2017). *2017 Review of Climate Change Policies*. Available at: https://www.dcceew.gov.au/sites/default/files/documents/2017-review-of-climate-change-policies_0.pdf

Department of Planning and Environment (2023). *Spatial Viewer*.

Department of Planning and Environment (2023b). *eSPADE tool.*

Department of Planning, Industry and Environment (2021a). *Cumulative Impact Assessment Guidelines for State Significant Projects.* Available at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/SSPT-Guidelines/GD1259-RAF-Assessing-Cumulative-Impacts-Guide-final.pdf

Department of Planning, Industry and Environment (2021b). *State Significant Development Guidelines*. Available at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/SSD-Guidelines/State-Significant-Development-Guidelines.pdf

Department of Planning and Environment (2022a). *Reaching Net Zero Emissions.* Available at: Reaching net zero emissions | NSW Climate and Energy Action

Department of Planning and Environment (2022b). *Social Impact Assessment Guideline for State Significant Projects*. Available at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/Social-Impact-Assessment/SIA-Guideline.pdf

Department of Planning and Environment (2018). *NSW Transmission Infrastructure Strategy*. Available at: https://www.energy.nsw.gov.au/sites/default/files/2022-08/2018_11_NSW_TransmissionInfratructureStrategy.pdf

Department of Planning and Environment (2016). *Wind Energy Guideline - For State significant wind energy development*. Available at: https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/wind-energy-guideline-for-state-significant-wind-energy-development-2016-12.pdf

Department of Planning, Industry and Environment (2022). *Undertaking Engagement Guidelines for State Significant Projects.* Available at: Undertaking Engagement Guidelines for State Significant Projects (nsw.gov.au)

Department of Planning, Industry and Environment (2021). *Net Zero Plan Stage 1: 2020-2030 Implementation Update.* Available at: Net Zero Plan Stage 1: 2020-2030 Implementation Update (nsw.gov.au)

Department of Planning, Industry and Environment (2020a). *NSW Landuse 2017 v1.2 Dataset (version 1.2 of the dataset, published June 2020.*

Department of Planning, Industry and Environment (2020b). *NSW Electricity Infrastructure Roadmap*. Available at: https://www.energy.nsw.gov.au/sites/default/files/2022-08/NSW%20Electricity%20Infrastructure%20Roadmap%20-%20Overview_1.pdf

Department of Planning, Industry and Environment (2019). *NSW Electricity Strategy*. Available at: https://www.energy.nsw.gov.au/sites/default/files/2022-08/2019_11_NSW_ElectricityStrategyOverview.pdf

Department of Primary Industries (2017). *Rice Biosecurity Zone*. Available at: https://www.interstatequarantine.org.au/wp-content/uploads/2017/07/Rice-Biosecurity-Zone.pdf

Environment Protection Authority (EPA) (2014). *Waste Classification Guidelines.*

EPA (2020). *Consultants reporting on contaminated land.* Available at: https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/contaminated-land/20p2233-consultants-reporting-on-contaminated-land-guidelines.pdf?la=en&hash=EBB6758A2DE448534B6FDD5057D280523E423CC7

EPA (2023). *EPA Contaminated Land Record of Notices.* Available at: https://www.epa.nsw.gov.au/your-environment/contaminated-land/notified-and-regulated-contaminated-land/record-of-notices

Infrastructure NSW (2022). *State Infrastructure Strategy 2022-2042.* Available at: https://www.infrastructure.nsw.gov.au/expert-advice/state-infrastructure-strategy

Local Land Services (2019). *Travelling Stock Reserves State-wide Plan of Management*.

Morgan, G. and J. Terrey, 1992. Nature Conservation in Western New South Wales. National parks Association, Sydney.

National Environment Protection Council (NEPC) (2013). *National Environment Protection (Assessment of Site Contamination) Measure*. Available at: https://www.nepc.gov.au/nepms/assessment-site-contamination

Navin Officer Heritage Consultants Pty Ltd (Navin), 2022. *Environmental Impact Statement – EnergyConnect (NSW – Eastern Section). Technical Paper 2 – Aboriginal Cultural Heritage Assessment Report.* Available at: https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-9172452%2120220113T044403.029%20GMT

NGH Environmental (2016). *Environmental Impact Statement – Sunraysia Solar. Appendix G – Aboriginal Cultural Heritage Assessment Balranald Solar Farm*. Available at: https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-7680%2120190227T235422.956%20GMT

Niche Environment and Heritage (2015). *Environmental Impact Statement – Balranald Mineral Sands Project. Appendix G – Aboriginal Cultural Heritage Assessment*. Available at: https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5285%2120190227T001326.355%20GMT

NSW Trade and Investment, Division of Resources & Energy (NSW Government) (2015). *Mapping of Naturally Occurring Asbestos in NSW – Known and Potential for Occurrence.*

NSW Treasury, 2017. *NSW Government Guide to Cost-Benefit Analysis*.

Office of Environment and Heritage (now Heritage NSW) (OEH) (2011). *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*. Available at: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Aboriginal-cultural-heritage/guide-to-investigating-assessing-reporting-aboriginal-cultural-heritage-nsw-110263.pdf

OEH (2016). *NSW Climate Change Policy Framework*. Available at: https://www.energy.nsw.gov.au/sites/default/files/2022-08/nsw-climate-change-policy-framework-160618.pdf

OEH (2019). *BioNet Atlas user manual 2019.* Available at: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/BioNet/bionet-atlas-user-manual-2019-180504.pdf

Project EnergyConnect (2022) *Project EnergyConnect*. Available at: Project EnergyConnect

Sahukar, Roshan, Catherine Gallery and Julianne Smart, 2003. *The Bioregions of New South Wales their Biodiversity, Conservation and History*. Available at: https://www.environment.nsw.gov.au/resources/nature/bioregionscontentsintro.pdf

SEED (2023). *SEED Map.* Available at: https://geo.seed.nsw.gov.au/Public_Viewer/index.html?viewer=Public_Viewer&locale=en-AU

Transgrid (2022). *Transmission Annual Planning Report*. Available at: tgr12164-tapr-2022-v5-4-final.pdf (transgrid.com.au)

United Nations (UN) (2021) *Climate Action: COP26: Together for our planet*. Available at: COP26: Together for our planet | United Nations

UN (2022). *Climate Action: COP27: Delivering for people and the planet.* Available at: COP27: Delivering for people and the planet | United Nations Vattenfall (2012). *Ormonde Offshore Wind Farm*. Available at: https://group.vattenfall.com/uk/what-we-do/our-projects/ormonde

Appendix A

Scoping summary table

Appendix B

Preliminary Biodiversity Assessment
(WSP, 2022)

Appendix C

Preliminary Noise Impact Assessment for Operation (Echo Acoustic Consulting, 2023)

Appendix D

Preliminary Visual Impact assessment (Iris, 2023)

Appendix E

Initial Social Impact Assessment
(WSP, 2023)

Appendix F

Community Engagement Plan
(NEOEN, 2023)

Appendix G

Cumulative Impact Assessment scoping summary

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