Environmental Scoping Report

Central-West Orana REZ Transmission – Wollar Substation Upgrade Project

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Quality information

Project	Central-West Orana REZ Transmission – Wollar Substation Upgrade Project
Document	Environmental Scoping Report

Revision History

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Executive Summary

Overview and Background

TransGrid is investigating the construction and operation of new and upgraded high-voltage electricity transmission infrastructure within the Central-West Orana region of NSW (the Central-West Orana Renewable Energy Zone (REZ) Transmission).

The Central-West Orana REZ will be the first REZ to be rolled out under the *Electricity Infrastructure Investment Act 2020* (NSW) which builds on the NSW Government's *Electricity Strategy* and *Electricity Infrastructure Roadmap*. The new transmission infrastructure planned for the Central-West Orana REZ will be a crucial element of enabling electricity produced by new energy generation and storage projects to be exported into the electricity transmission network. The REZ will play a crucial role in delivering reliable, affordable and clean energy to help replace the state's existing power stations as they retire over the next 15 years.

The *2020 Integrated System Plan* (ISP) (Australian Energy Market Operator (AEMO), 2020) forecasts the transition of the National Energy Market (NEM) toward a highly diverse make up of renewable, conventional and distributed generation. REZs will play an important role in supporting a competitive and low-cost electricity market, as well as being the most cost-effective way to add capacity and balance variable resources across the whole NEM.

The Central-West Orana REZ Transmission comprises two components: the Shared Network Infrastructure project; and the Wollar Substation Upgrade project. This Environmental Scoping Report (ESR) relates to the Wollar Substation Upgrade project (the Project). As a central component of the Central-West Orana REZ Transmission, the Project is required to facilitate additional network capacity and ensure sufficient reserve of energy can be maintained in the transmission network during an outage of a 500 kV transmission line connecting to Wollar substation. TransGrid will seek separate environmental planning approvals for the Shared Network Infrastructure project.

Central-West Orana Renewable Energy Zone (REZ)

The Central-West Orana region is one of five regions prioritised by the NSW Government for development as a REZ; an area with high energy potential where planned transmission infrastructure upgrades are able to connect multiple renewable energy generation and storage projects efficiently. The Central-West Orana REZ is proposed to be at least a 3,000 megawatt (MW) pilot REZ that would produce enough energy to power up to 1.4 million homes each year.

The *NSW Electricity Infrastructure Roadmap* identifies the crucial role the Central-West Orana REZ will play in delivering affordable energy and in helping replace the state's existing power stations as they retire over the next 15 years (Department of Planning, Industry and Environment (DPIE), 2020a).

Central-West Orana REZ Transmission

As the existing 330 kV and 132 kV transmission network is not capable of transferring 3,000 MW of new electricity generation in the Central-West Orana REZ, new transmission infrastructure will be required to unlock the development of new electricity generation and energy storage projects in the region.

New transmission lines from the Central-West Orana REZ to the existing electricity transmission network have been identified by AEMO in the 2020 ISP as being critical in addressing cost, security and reliability issues within the network.

The Central-West Orana REZ Transmission is being developed by TransGrid, in close coordination with the Energy Corporation of NSW, as an appropriate response to both the NSW electricity infrastructure policies and the optimal network development path described in the 2020 ISP.

As stated above, the Central-West Orana REZ Transmission includes two principal components:

> The **Shared Network Infrastructure project**
> The **Wollar Substation Upgrade project**.

The Wollar Substation Upgrade Project

The Wollar Substation Upgrade project proposes to upgrade and expand the existing Wollar substation. This would ensure sufficient reserve can be maintained in the transmission network during an outage of a 500 kV transmission line connecting to Wollar substation and minimise constraints on the Central-West Orana REZ generation. The Project would include:

> Extension of the hardstand area at the existing Wollar substation and expansion of the switchyard to the south west
> Removal of one transmission line tower and construction of two new transmission line towers
> Electrical works to connect transmission lines via the new transmission line towers to the new switch bays
> Ancillary works such as structural strengthening works, access tracks, easements and laydown areas as required.

The Proponent

The Project would be carried out by NSW Electricity Networks Operations Pty Ltd as trustee for NSW Electricity Networks Operations Trust (referred to as TransGrid). TransGrid is the operator and manager of the main high-voltage transmission network in NSW and the Australian Capital Territory. The TransGrid network transports electricity from sources of generation including wind, coal, solar, gas and hydro to large industrial customers and to the distribution networks which deliver it to homes and businesses. This system enables more than three million homes and businesses to access a safe, reliable and affordable supply of electricity.

Comprising more than 100 substations and more than 13,000 kilometres of high-voltage transmission lines, underground cables, together with interconnections with Queensland and Victoria, the TransGrid network is instrumental to the electricity system and economy in Australia's eastern and southern states and facilitates energy trading across the NEM.

Further information on TransGrid can be found at http://www.transgrid.com.au.

Ongoing Engagement Activities

TransGrid has based its approach to engagement on a structured process to ensure consistent, targeted and meaningful engagement.

A variety of engagement activities have been undertaken to reach different stakeholder groups and encourage participation in the consultation process. These activities have included letters, briefings, meetings, community information sessions and organised events, direct communication, the Central-West Orana REZ Transmission webpage and interactive map to capture stakeholder feedback, fact sheets, a project email address and a 1800 toll free number. These activities will continue to be used to inform stakeholders in a consistent and coordinated manner, helping them to understand key information about the Project.

Engagement will continue on specific issues and relevant opportunities to inform the preparation of the Environmental Impact Statement (EIS), as well as general engagement regarding Central-West Orana REZ Transmission more broadly. Community and stakeholder engagement will complement formal consultation required under planning regulations, including activities that may be stipulated in the Secretary's environmental assessment requirements (SEARs).

Preliminary Environmental Assessment

The Central-West Orana REZ Transmission, of which the Wollar Substation Upgrade project is a component of, is subject to environmental impact assessment under Part 5 Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), by reason of an Order made by the Minister for Planning and Open Spaces declaring the Central-West Orana REZ Transmission to be State Significant Infrastructure and critical State Significant Infrastructure. The Order also amended Schedule 5 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) to include a description of the Central-West Orana REZ Transmission as critical State Significant Infrastructure. The Project requires approval from the Minister for Planning and Open Spaces under Division 5.2 of the EP&A Act.

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) would also be submitted. This would be a precautionary referral based on the conclusion that the Project is unlikely to have a significant impact on Commonwealth matters and therefore is unlikely to be deemed a controlled action.

This ESR has been prepared to identify environmental, social and economic matters which are likely to be impacted by the Project and thus inform the preparation of SEARs for an EIS for the Project.

A preliminary environmental assessment was undertaken primarily at a desktop level, with the addition of ecological fieldwork, and determined that most environmental issues would require some level of assessment in the EIS. The key environmental assessment issues identified for the Project are:

- Land use and property
- Ecology
- Landscape character and visual amenity.

Other environmental issues that would be considered in the EIS but are not considered likely to result in significant impacts include:

- Hazards and risk
- Noise and vibration
- Aboriginal cultural heritage
- Traffic and access
- Non-Aboriginal heritage
- Surface water and hydrology
- Soils and contamination
- Air quality
- Socio-economics
- Waste management and resources.

Cumulative impacts have also been identified as an issue for environmental assessment and would be assessed in further detail during the EIS process.

As part of the preparation of the EIS, further assessments would be carried out in conjunction with progressing design development of the Project. In assessing 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. Mitigation and management measures to minimise impacts on the environment would also be identified in the EIS.

Glossary

Term/ Acronym	Description
ABS	Australian Bureau of Statistics
AEMO	Australian Energy Market Operator
AHIMS	Aboriginal Heritage Information Management System, providing a register of Aboriginal sites under the NSW *National Parks and Wildlife Act 1974*
ARENA	Australian Renewable Energy Agency (Commonwealth)
BAM	Biodiversity Assessment Method, enabled under the NSW *Biodiversity Conservation Act 2016*
BC Act	NSW *Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
CEFC	Clean Energy Finance Corporation (Commonwealth)
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DEC	NSW Department of Environment and Conservation (now the Environment, Energy and Science Group in the NSW Department of Planning, Industry and Environment)
DECC	NSW Department of Environment and Climate Change (now the Environment, Energy and Science Group in the NSW Department of Planning, Industry and Environment)
DEECW	NSW Department of Environment, Climate Change and Water (now the Environment, Energy and Science Group in the NSW Department of Planning, Industry and Environment)
DEE	Commonwealth Department of the Environment and Energy (now the Commonwealth Department of Agriculture, Water and the Environment)
DPIE	NSW Department of Planning, Industry and Environment
CEEC	Critically endangered ecological community listed under either the NSW *Biodiversity Conservation Act 2016* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
CEP	Community Engagement Plan
EIA	Environmental impact assessment
EII Act	NSW *Electricity Infrastructure Investment Act 2020*
EIS	Environmental Impact Statement prepared under the NSW *Environmental Planning and Assessment Act 1979*

Term/ Acronym	Description
EMF	Electric and magnetic fields
EPBC	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
ESR	Environmental Scoping Report to support a request for Secretary's environmental assessment requirements under the NSW *Environmental Planning and Assessment Act 1979*
IBRA	Interim Biogeographical Regionalisation of Australia
LEP	Local Environmental Plan made under the NSW *Environmental Planning and Assessment Act 1979*
LGA	Local government area
LSC	Land and Soil Capability
MW	Megawatts
NEM	National Electricity Market
NSW	New South Wales
OEH	NSW Office of Environment and Heritage (now the Environment, Energy and Science Group in the NSW Department of Planning, Industry and Environment)
PCT	Plant Community Types
REZ	Renewable Energy Zone
RDPs	Rapid Data Points
RRG	Regional Reference Group
SAII	Serious and Irreversible Impacts
SEARs	Secretary's environmental assessment requirements under the NSW *Environmental Planning and Assessment Act 1979*
SEPP	State Environmental Planning Policy made under the NSW *Environmental Planning and Assessment Act 1979*
The Project	Wollar Substation Upgrade project

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1. Introduction

TransGrid is investigating the construction and operation of new and upgraded high-voltage electricity transmission infrastructure for the Central-West Orana region of NSW (the Central-West Orana Renewable Energy Zone (REZ) Transmission). The new and upgraded infrastructure would enable electricity produced by new energy generation and storage projects located in the Central-West Orana REZ to be exported into the electricity transmission network.

The Central-West Orana REZ Transmission comprises two components: the Shared Network Infrastructure project; and the Wollar Substation Upgrade project. This Environmental Scoping Report (ESR) relates to the Wollar Substation Upgrade project (the Project), and has been prepared to support a Critical State Significant Infrastructure application and to inform the preparation of Secretary's environmental assessment requirements (SEARs) for that project under Division 5.2, Part 5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

Community and stakeholder engagement as well as corridor refinement are currently being undertaken for the Shared Network Infrastructure project, which will be the subject of a separate ESR and Environmental Impact Statement (EIS).

1.1 Central-West Orana Renewable Energy Zone

The *NSW Transmission Infrastructure Strategy* (NSW Department of Planning, Industry and Environment (DPIE), 2018) presents the NSW Government's vision for a modern energy system. The strategy includes a framework to encourage investment in the new energy infrastructure needed to unlock more secure, affordable and clean energy for households and businesses. One of the principal aims of the strategy is to increase energy capacity by prioritising the development of 'Energy Zones' to deliver affordable energy into the future. The strategy identifies development of Energy Zones in the Central-West Orana, South-West and New England regions of NSW as an initial priority.

The *NSW Electricity Strategy* (DPIE, 2019a) and the *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a) build on the framework established by the *NSW Transmission Infrastructure Strategy* (DPIE, 2018). Both documents nominate the development of a 3,000 megawatt (MW) pilot REZ in the Central-West Orana region as a key focus area. They also highlight the need to coordinate the delivery of new generation projects with transmission network investment, to ensure the benefits of development of the pilot Central-West Orana REZ are fully realised. An indicative location for the Central-West Orana REZ[1] is shown in Figure 1-2.

Consistent with the *NSW Electricity Strategy* (DPIE, 2019a), in mid-2020 the NSW Government sought expressions of interest from the market to develop new electricity generation and storage projects in the Central-West Orana REZ. More than 27,000 MW of projects were identified through the registration of interest process. The NSW Government is continuing to engage with the market, local councils, affected local communities and a range of other stakeholders with respect to the development of the Central-West Orana REZ. It anticipates proceeding with a competitive tendering process during 2021 to determine which energy generation and storage projects will have the opportunity to connect to the new Central-West Orana REZ shared network infrastructure.

Further discussion of the *NSW Transmission Infrastructure Strategy* (DPIE, 2018), the *NSW Electricity Strategy* (DPIE, 2019a) and the *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a) in the context of the Central-West Orana REZ Transmission is provided in Chapter 2.

[1] The location shown in the figure is an indicative location (source: DPIE) and the Energy Corporation of NSW are responsible for identifying the location of the Central-West Orana REZ.

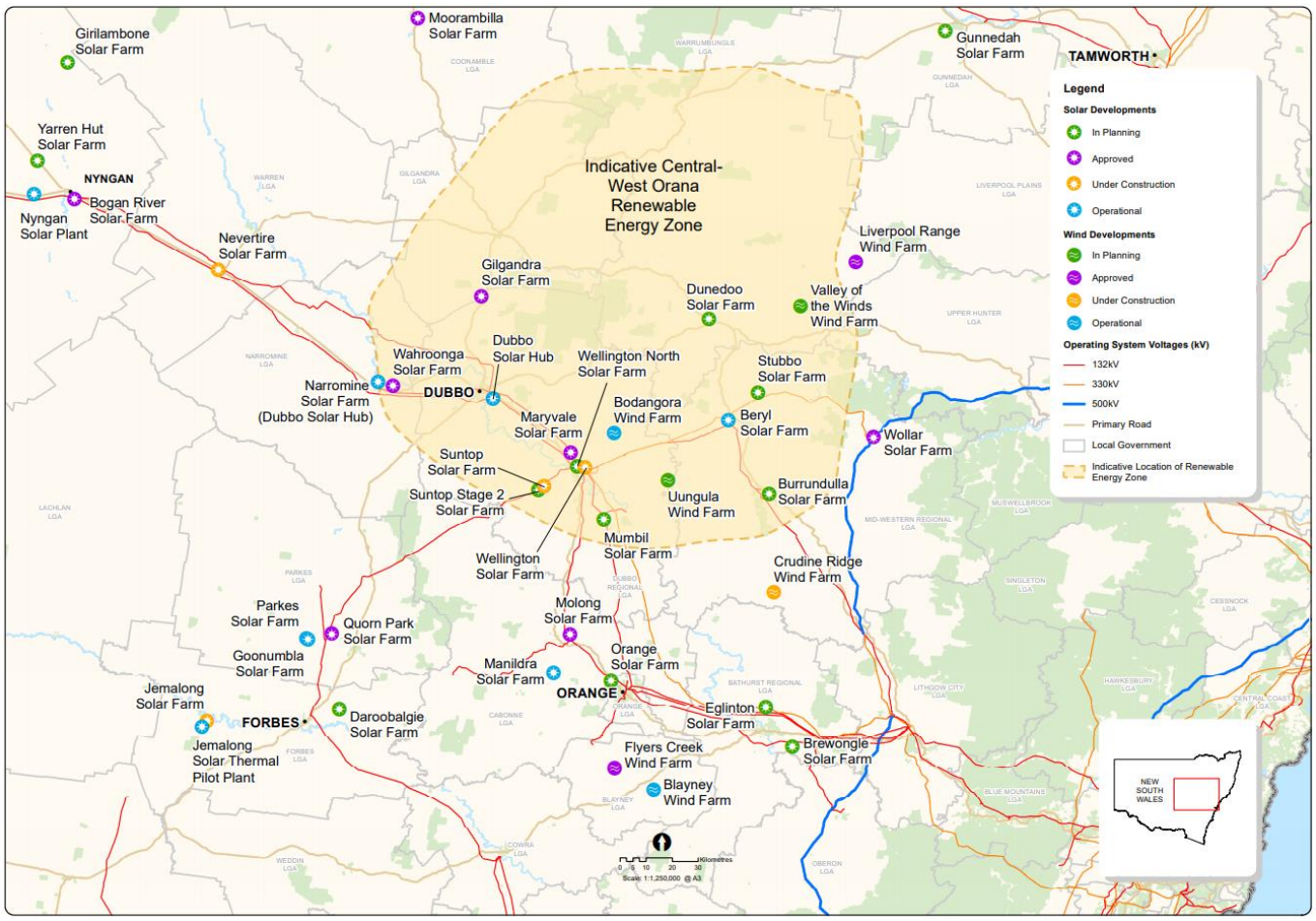

Figure 1-1 Indicative location for the Central-West Orana REZ (Source: DPIE)

1.2 Central-West Orana REZ Transmission

Development of new electricity generation and storage projects in the Central-West Orana REZ will require new transmission infrastructure to export their electricity into the existing electricity transmission network. The *NSW Transmission Infrastructure Strategy* (DPIE, 2018), the *NSW Electricity Strategy* (DPIE, 2019a) and the *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a) all recognise the importance of coordinating the planning and delivery of such transmission infrastructure so that it is ready for connection of new electricity generation and storage projects in the Central-West Orana REZ.

The *2020 Integrated System Plan* (ISP) (Australian Energy Market Operator (AEMO), 2020) identifies a transmission connection from the Central-West Orana REZ to the existing electricity transmission network as an 'Actionable Project'. Actionable Projects are those identified by AEMO as being critical to address electricity transmission network cost, security and reliability issues.

The Central-West Orana REZ Transmission is being developed by TransGrid, in close coordination with the Energy Corporation of NSW, as an appropriate response to both the NSW electricity infrastructure policies and the optimal network development path outlined in the 2020 ISP.

The context of the Project in regard to the indicative broader Central-West Orana REZ is shown in Figure 1-2.

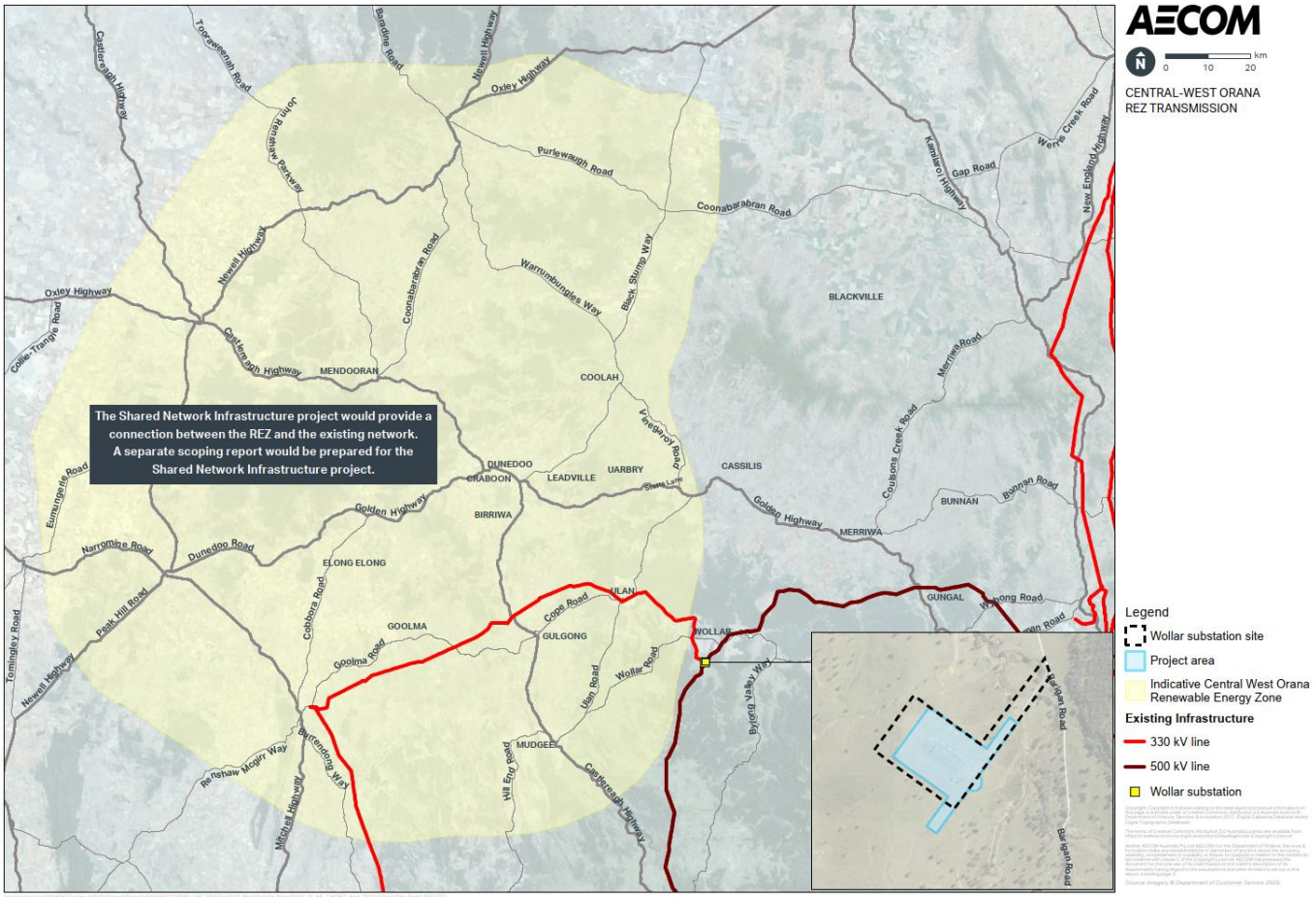

Figure 1-2 The Central-West Orana REZ Transmission comprising the indicative REZ and the Wollar Substation Upgrade Project area

The Central-West Orana REZ Transmission includes two principal components:

- The **Shared Network Infrastructure project**, which would include new 500 kV and 330 kV transmission lines and substations to facilitate development of the REZ and connect the REZ to the existing 500kV and 330 kV transmission network. The Shared Network Infrastructure project is currently under development and further details would be included in a separate ESR
- The **Wollar Substation Upgrade project**, which includes:
  - Extension of the existing 500 kV yard and the associated electrical works on the Wollar substation site, adjacent to and immediately to the south west of the existing substation infrastructure
  - New cut-in of the existing 500 kV transmission line 5A3, including:
    - Removal of an existing transmission line tower and associated landing span to the south of the tower
    - Construction of a new 5A3 cut-in transmission line tower, including earthworks and footing construction
    - Electrical works to connect the transmission line from the north via the new 5A3 cut-in transmission line tower to the existing Wollar substation infrastructure
    - Electrical works to connect the transmission line from the south via the new 5A3 cut-in transmission line tower to the new switch bays
    - Structural strengthening work on towers as a result of the new cut-in designs
  - Modification of the existing cut-in of 500 kV transmission line 5A4 and 5A5 including:
    - Modification of the existing 5A4 cut in transmission line tower
    - Construction of a new 5A5 cut-in transmission line tower, including earthworks and footing construction

- Electrical works to connect the transmission line from the south via the new 5A5 cut-in transmission line tower to the new switch bays
- Structural strengthening work on towers as a result of the new cut-in designs.

Key components of the Wollar Substation Upgrade project are shown in Figure 3-2.

This ESR relates to the Wollar Substation Upgrade project as part of the broader Central-West Orana REZ Transmission. A separate Critical State Significant Infrastructure application and associated ESR would be prepared for the Shared Network Infrastructure project.

1.3 The Wollar Substation Upgrade Project

The Wollar Substation Upgrade project would involve an expansion of infrastructure on the Wollar substation site, and new and modified connections with the existing 500 kV transmission lines 5A3, 5A4 and 5A5 that are adjacent to the site. These works are outlined in Section 1.2 and described in more detail in Chapter 3.

Upgrades to the Wollar substation are required to ensure sufficient reserve can be maintained in the transmission network during an outage of a 500 kV transmission line connecting to Wollar substation and to minimise constraints on the Central-West Orana REZ once it reaches around 1,000 MW of generation output. The Project, in conjunction with other transmission infrastructure upgrades, is required in order to facilitate at least 3,000 MW generation output of the REZ nominated by the *NSW Electricity Strategy* (2019a) and the *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a).

1.4 Project Objectives

The objective of the Central-West Orana REZ Transmission is to facilitate scale efficient development and integration of energy generation and storage projects located in the Central-West Orana REZ and enable electricity output from these projects to be transferred to the major load centres via the existing electricity transmission network. This would provide NSW customers with clean, affordable and reliable energy for the future in accordance with the *NSW Transmission Infrastructure Strategy* (DPIE, 2018).

The Wollar Substation Upgrade project would support this objective by ensuring sufficient reserve can be maintained in the transmission network during an outage of a 500 kV transmission line connecting to Wollar. In addition to this the Project would also enhance the capacity of the existing substation to distribute energy through connection to the 500 kV network as generator interest continues to grow in the region. Alongside the future development of the Central-West Orana REZ Transmission, generators would be able to connect to the future transmission infrastructure supported by the Project. With these upgrades, the Project, in combination with other transmission upgrades, would facilitate the storage and distribution of the forecasted energy generation from the Central-West Orana REZ region.

1.5 The Proponent

The Project would be carried out by NSW Electricity Networks Operations Pty Ltd as trustee for NSW Electricity Networks Operations Trust (referred to as TransGrid). TransGrid is the operator and manager of the main high-voltage transmission network in NSW and the Australian Capital Territory, and is the Authorised Network Operator for the purpose of an electricity transmission or distribution network under the provisions of the NSW *Electricity Network Assets (Authorised Transactions) Act 2015*.

TransGrid's network enables more than three million homes and businesses to access a safe, reliable and affordable supply of electricity. Comprising more than 100 substations and more than 13,000 kilometres of high-voltage transmission lines, underground cables, together with interconnections with Queensland and Victoria, the TransGrid network is instrumental to the electricity system and economy in Australia's eastern and southern states and facilitates energy trading across the National Electricity Market (NEM).

Further information on TransGrid can be found at http://www.transgrid.com.au.

1.6 Purpose and Structure of this Report

The purpose of this report is to describe the Project and present the preliminary environmental assessment of the potential environmental issues that would be covered as part of an EIS for the Project.

This report has been prepared to identify environmental, social and economic matters which are likely to be impacted by the Project and thus provide sufficient information to allow for the preparation of SEARs to guide the preparation of an EIS for the Project in accordance with the EP&A Act and the requirements of clause 192 of the Environmental Planning and Assessment Regulation 2000.

The structure and content of this report is as follows:

- **Section 1 – Introduction:** Outlines the background and need for the Project, and the purpose of this report
- **Section 2 – Strategic context and justification:** Provides an overview of the strategic and regulatory context for the Wollar Substation Upgrade project, the Central-West Orana REZ Transmission and the anticipated benefits of the Project
- **Section 3 – The Project:** Provides an outline of the key components of the Project
- **Section 4 – Planning and assessment process**: Provides an overview of the relevant statutory approvals framework for the Project, including applicable legislation and planning policies
- **Section 5 – Engagement:** Provides an overview of the community and stakeholder engagement and consultation activities that have been undertaken to date with regard to the Central-West Orana REZ Transmission and more specifically for the Wollar Substation Upgrade project. An overview of the proposed future consultation activities is also provided
- **Section 6 – Key assessment issues**: Provides a preliminary assessment of the potential key environmental impacts associated with the Project
- **Section 7 – Other issues:** Provides a preliminary assessment of the other potential environmental impacts associated with the Project
- **Section 8 – Conclusions:** Outlines the key conclusions of this report
- **Section 9 – References**: Identifies the key reports and documents used to inform this report.

1.7 Report Terminology

The following terms are used in this ESR:

- **The Project**: the **Wollar Substation Upgrade project**, as part of the broader **Central-West Orana REZ Transmission**
- **The Central-West Orana REZ Transmission:** the entirety of the proposed works required to provide a transmission connection between the **Central-West Orana REZ** and the existing electricity transmission network, and comprising two principal components – the **Shared Network Infrastructure project**, and the **Wollar Substation Upgrade project**
- **Central-West Orana REZ**: the area within the Central-West Orana region of New South Wales being progressed by the NSW Government for potential development of large-scale renewable and energy storage projects, consistent with the *NSW Electricity Strategy* (DPIE, 2019a) and the *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a). The indicative location of the Central-West Orana REZ is shown in Figure 1-1
- **Wollar Substation Upgrade project:** the project the subject of this ESR, including substation upgrade and transmission line connection works, as described in detail in Chapter 3
- **Shared Network Infrastructure project:** the new transmission lines and substation infrastructure required to connect the Central-West Orana REZ and the existing electricity transmission network. Community engagement and corridor analysis for the Shared Network Infrastructure project is ongoing and a separate ESR would be prepared for the Shared Network Infrastructure project

> **Project area**: the area in which the **Wollar Substation Upgrade project** would be located, including the existing Wollar substation site and adjacent land, as shown in Figure 3-1.

1.8 Limitations

The assessments undertaken for this report have been based on publicly available data and predominantly desktop specialist investigations, with the addition of ecological fieldwork.

Further detailed investigations of potential environmental issues, including further field inspections for relevant environmental issues, would be undertaken during the preparation of the EIS for the Project.

2. Strategic Context and Justification

2.1 Strategic Context

Australia's power system is experiencing its largest transformation since it was established. TransGrid has an unprecedented level of generation connection enquiries across NSW with over 55,000 MW of potential solar, wind and hydro projects at various stages of development. At the same time, as large traditional generators are projected to retire, the integration of new generation and improvements to the transmission network are essential to maintain secure supply and provide effective competition in the wholesale market (TransGrid, 2019).

The next decade will see energy supply shift away from coal-fired generation in the Sydney, Newcastle and Wollongong areas to renewable generation in regional NSW. The transmission network will provide the platform to transport energy from large scale generation to major load centres in order to meet the predicted supply shortfall following the expected retirement of traditional generators.

2.1.1 NSW Transmission Infrastructure Strategy

The *NSW Transmission Infrastructure Strategy* (DPIE, 2018) presents the NSW Government's plan to unlock private sector investment in new interconnectors and REZs. The strategy includes a framework to encourage investment in the new energy infrastructure needed to unlock more secure, affordable and clean energy for households and businesses.

NSW already has a substantial investment pipeline of new wind, solar, gas and generator upgrade projects that have received or are seeking planning approval, driving the energy transformation across the state. However, the existing energy network only has enough capacity to connect around one in 20 of these projects. Upgrading NSW's transmission network is fundamental to the state's energy future so that projects are connected efficiently, and energy generated from new sources is transported to customers who need it.

One of the key aims of the strategy is to increase NSW's energy capacity by prioritising the development of 'Energy Zones' to deliver affordable electricity into the future. The Central-West Orana region was identified as one of five regions being prioritised by the NSW Government for development as an Energy Zone; an area with high energy potential where planned transmission infrastructure upgrades are able to connect multiple projects at a lower cost. Strategic infrastructure upgrades to unlock these priority Energy Zones will leverage investment opportunities, boosting regional economies and build the state's resilience by ensuring there are enough new energy projects coming online to replace the retiring traditional power stations.

2.1.2 NSW Electricity Strategy

The *NSW Electricity Strategy* (DPIE, 2019a) is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The purpose of the strategy is to improve the efficiency and competitiveness of the NSW electricity market and encourage investment in new price-reducing generation and energy saving technology. This strategy builds on the *NSW Transmission Infrastructure Strategy* (DPIE, 2018) outlined above.

The strategy identifies the role REZ development will play in supporting a competitive and low-cost electricity market as well as reducing the risk for investors. The Central-West Orana REZ is proposed to be at least a 3,000 MW pilot REZ that would produce enough energy to power up to 1.4 million homes each year. The strategy also highlights the need to coordinate the delivery of new generation projects with transmission network investment, to ensure the benefits of development of the pilot Central-West Orana REZ are fully realised.

2.1.3 NSW Electricity Infrastructure Roadmap

The *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a) builds on the *NSW Electricity Strategy* and the *NSW Transmission Infrastructure Strategy* and outlines the plan to transition the electricity sector to a cheaper, cleaner and more reliable one. The Roadmap is a coordinated framework to deliver major infrastructure needed to modernise the state's electricity system. It is a whole of system approach to deliver new generation, transmission, long duration storage and firming. A clear and coordinated Roadmap will drive investment in new electricity infrastructure where it is needed, coordinating new generation without congesting the grid, delivering cheaper energy to households and businesses, and providing new jobs and industries for state regions.

The Roadmap identifies the NSW Government's priority in delivering the Central-West Orana REZ, which will play a crucial role in delivering reliable, affordable and clean energy to help replace the state's existing power stations as they retire over the next 15 years. Developing REZs will unlock a substantial pipeline of large-scale renewable energy and storage projects and deliver lasting benefits for NSW.

The Roadmap introduces new elements to remove more barriers to investment and maximise REZ benefits for communities, including the Transmission Development Scheme aimed to de-risk REZ investment and the Electricity Infrastructure Investment Safeguard to unlock new generation in REZs and increase competition in the energy market.

2.1.4 Electricity Infrastructure Investment Act 2020

The *Electricity Infrastructure Investment Act 2020* (EII Act) was enacted into law on 2 December 2020 and gives effect to the *NSW Electricity Infrastructure Roadmap* (DPIE, 2020a). The Act and the Roadmap together detail the NSW Governments commitment to declare five REZs, including the Central West Orana REZ, and establishing the Electricity Infrastructure Investment Safeguard and Transmission Development Scheme outlined above. It will also commit to the establishment of the Electricity Infrastructure Jobs Advocate and NSW Renewable Energy Sector Board, which will ensure locally manufactured and supplied goods and services are used and engagement of suitably qualified local workers is maximised.

Under the EII Act, the Minister can declare access schemes for REZs. An access scheme authorises or prohibits access to, and use of, specified network infrastructure in a REZ by network operators and operators of generation and storage infrastructure. The purpose of access schemes is to encourage investment in the network and reduce the risk for investors, by giving assurance to investors that their projects will be authorised to access a stable grid connection.

2.1.5 2020 Integrated System Plan

The 2020 ISP aims to provide a least-regret, dynamic and resilient development path through Australia's energy transition, as well as increasing system resilience to better deal with future challenges and energy needs. The ISP forecasts the transition of the NEM toward a highly diverse make up of renewable, conventional and distributed generation.

Targeted augmentation of the transmission grid will be required to support the change in energy generation mix. Strategically placed interconnectors and REZs, coupled with energy storage, will be the most cost-effective way to add capacity and balance variable resources across the whole NEM. The optimal development path in the ISP includes network projects and ISP developments that together will develop the identified REZs, including the Central-West Orana REZ. The ISP recognises new transmission infrastructure to enable the Central-West Orana REZ as an important element in this optimal development path.

The 2020 ISP identifies new transmission infrastructure to enable the Central-West Orana REZ as an 'Actionable' ISP transmission project, because it is considered a critical project to address cost, security and reliability issues within the energy network. The ISP has prioritised REZ developments in three overlapping phases, with Central-West Orana REZ being included as part of Phase 1 as it forms part of the NSW Electricity Strategy.

The Project, in conjunction with the Shared Network Infrastructure project, would enable the development of variable renewable energy within the Central-West Orana REZ and provide transfer capacity between the REZ and the major load centres of NSW. The Project, as part of the Central-West Orana REZ Transmission, would therefore progress Phase 1 of the *NSW Electricity Strategy*.

2.2 Progress towards Developing the Central-West Orana REZ

Renewable Energy Zones will play a vital role in delivering energy to help replace the state's existing power stations as they retire over the next 15 years. The Central-West Orana REZ will be the first REZ to be rolled out under the NSW Government's *Electricity Strategy* and *Electricity Infrastructure Roadmap*.

The Central-West Orana REZ is expected to:

> Unlock at least 3,000 MW of new electricity generation capacity by the mid-2020s
> Attract up to $5.2 billion in private investment into the Central-West Orana region
> Support around 3,900 construction jobs at its peak in the local region.

The NSW Government is leading the delivery of REZs in the state and the Government controlled statutory corporation, the Energy Corporation of NSW, will coordinate electricity infrastructure delivery in the REZs and engage with communities regarding local expectations and to realise local benefits.

The NSW Government is continuing to engage with the market, local councils and affected local communities with respect to the future development of the Central-West Orana REZ, and anticipates proceeding with a competitive tendering process commencing in 2021 and concluding in 2022 to determine which energy generation and storage projects will comprise the Central-West Orana REZ.

Development of new transmission infrastructure and targeted augmentation of existing transmission infrastructure will support the development of the Central-West Orana REZ by providing transmission infrastructure ready for connection of future variable renewable energy projects, and transfer capacity to transport electricity produced in the Central-West Orana REZ to customers who need it.

2.3 Need for the Central-West Orana REZ Transmission

Development of new energy generation and storage projects in the Central-West Orana REZ will require new transmission infrastructure to connect with the electricity transmission network. The NSW Government strategies outlined above all recognise the importance of coordinating the planning and delivery of such transmission infrastructure so that it is ready for connection of new energy generation and storage projects located in the REZ.

As outlined in the 2020 ISP, new transmission for the Central-West Orana REZ is needed to increase the capability of the transmission network to enable the connection of expected renewable energy generation and storage projects in the Central-West Orana REZ.

The Central-West Orana REZ Transmission is being developed by TransGrid, in close coordination with the Energy Corporation of NSW, as an appropriate response to both the NSW electricity infrastructure policies and the optimal network development path described in the 2020 ISP.

The Central-West Orana REZ Transmission would:

> Increase the electricity transfer capacity between expected renewable energy generation and storage projects in the Central-West Orana REZ and the existing 500 kV transmission network
> Ensure network performance standards are met by providing sufficient resilience to avoid material reductions in electricity transfer capacity during an outage in part of the electricity transmission network.

2.4 Justification for the Project

The Wollar Substation Upgrade project is required to facilitate the proposed Central-West Orana REZ Transmission. The Project would ensure sufficient reserve of energy can be maintained in the transmission network during an outage of a 500 kV transmission line connecting to Wollar substation and minimise constraints on the Central-West Orana REZ generation. Without the proposed substation upgrades, the generation output of the REZ will be constrained to around 1,000 MW under certain network operating conditions and when energy demand in NSW is at a medium to high level.

2.5 Options Identification and Project Area Development

The Project would involve an expansion of infrastructure on the Wollar substation site and new and modified connections with the existing 500 kV transmission lines 5A3, 5A4 and 5A5 that are adjacent to the site. By necessity, these works would need to be carried out on or around the Wollar substation site and there are limited opportunities for alternatives to the upgrade works.

The design of the Project has been developed taking into account environmental constraints applicable to the Wollar substation site and the surrounding land. Identification of environmental constraints has been informed by preliminary desktop assessments and supported by initial ecological fieldwork. The design of the Project would continue to be developed in response to further information that may be gathered through environmental investigations and engagement with landowners, the community and other stakeholders.

Key factors that have influenced the design of the Project and the associated Project area in which proposed works would be carried out include:

- A desire to carry out Project works close to the existing Wollar substation and existing transmission lines 5A3, 5A4 and 5A5 to limit the extent of new disturbance areas, facilitate easy access for construction, minimise project costs and provide for an efficient design for ongoing operation and maintenance
- Avoidance of Wollar Creek/ Barigan Creek and its riparian zone to the east of the Wollar substation site, mainly for drainage, ecological and potential Aboriginal cultural heritage reasons
- A desire to avoid impacts to remnant native vegetation.

3. The Project

The Project would involve substation upgrade and transmission line works on and adjacent to the existing Wollar substation site, in the Mid-Western Regional local government area (LGA). The Wollar substation site is around seven kilometres south of the township of Wollar, off Barigan Road.

3.1 The Project Area

The Project area includes part of the existing Wollar substation site and adjacent land and is shown in Figure 3-1.

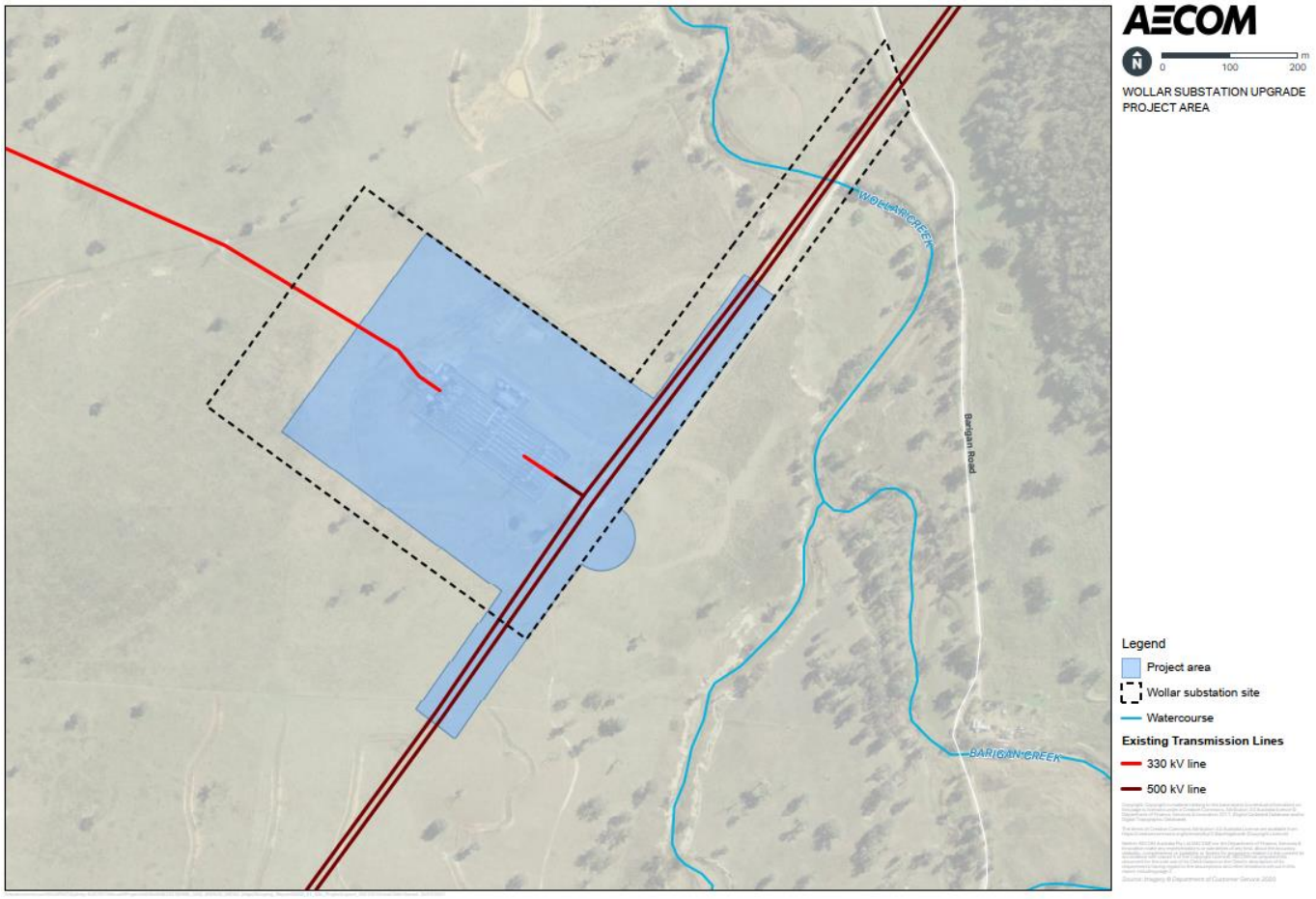

Figure 3-1 Wollar Substation Upgrade Project area

3.2 Description of the Project

3.2.1 Key Components of the Project

The key components of the Project are summarised in Table 3-1 and presented in Figure 3-2.

Table 3-1 Summary of key components of the Project

Project component	Description
Existing Wollar 500 kV substation upgrades	The existing Wollar 500 kV substation would be upgraded including: > Extension of the existing substation hardstand area to the south west, including earthworks and drainage works > Expansion of switchyard to include transmission line towers and new electrical equipment such as surge arrestors, coupling capacitors, line traps, circuit breaker and earth switches > Minor electrical works within parts of the existing substation.
500 kV transmission line cut-in works	New and modified cut-ins with existing 500 kV transmission lines 5A3, 5A4 and 5A5 as follows: > New cut-in of the existing 500 kV transmission line 5A3, including: – Removal of an existing transmission line tower and associated landing span to the south of the tower – Construction of a new 5A3 cut-in transmission line tower, including earthworks and footing construction – Electrical works to connect the transmission line from the north via the new 5A3 cut-in transmission line tower to the existing Wollar substation infrastructure – Electrical works to connect the transmission line from the south via the new 5A3 cut-in transmission line tower to the new switch bays – Structural strengthening work on towers as a result of the new cut-in designs > Modification of the existing cut-in of 500 kV transmission line 5A4 and 5A5 including: – Modification of the existing 5A4 cut in transmission line tower – Construction of a new 5A5 cut-in transmission line tower, including earthworks and footing construction – Electrical works to connect the transmission line from the south via the new 5A5 cut-in transmission line tower to the new switch bays – Structural strengthening work on towers as a result of the new cut-in designs.

3.2.2 Ancillary Works

Transmission line towers along the existing 500 kV transmission lines 5A3 and 5A4 may be upgraded to meet transmission line tension requirements if required. The upgrades would include minor works at existing transmission line towers to the north-east and to the south-west of the Wollar substation site.

As part of the Project TransGrid would also relocate the proposed access road to Wollar Solar Farm to facilitate the upgrade. The new access road would run on Barigan Road, before being diverted around the north-western side of the substation.

Figure 3-2 Key components of the Wollar Substation Upgrade project

3.3 Project Timeframes

Subject to securing necessary approvals, construction of the Wollar Substation Upgrade project is likely to commence in early 2023 and would be completed by around the first half of 2024. Enabling works for the Project may commence in late 2022 subject to approval.

3.4 Construction of the Project

Construction activities would be undertaken within the identified Project area, as shown in Figure 3-2. Construction works would typically include the following activities (but not be limited to):

- Early works which may include:
  - Establishment of construction ancillary facilities
  - Establishment of transmission line easements
  - Vegetation clearance
- Civil works associated with the proposed transmission line structures may include:
  - Providing safe access for construction machinery and materials to the proposed transmission line structure sites, which may require earthworks
  - Earthworks and foundation preparation at each transmission line structure, including boring and/or excavation, steel fabrication works and concrete pours
  - Erection of the new transmission line structures
  - Stringing of the conductors and overhead earth wires and optical ground wires
  - Installation of earthing conductors
- Civil and building works associated with the Wollar substation upgrade may include:
  - Bulk earthworks and slab construction
  - Installation of new substation equipment.

As part of the Project TransGrid would also relocate the proposed access road to Wollar Solar Farm to facilitate the upgrade. The new access road would run on Barigan Road, before being diverted around the north-western side of the substation.

3.5 Commissioning and Operation of the Project

Testing of the expanded substation and transmission line components would be undertaken prior to energisation of the Project. Key activities that would be undertaken before commissioning of the Project would include testing and operational checks of equipment and testing of control and metering systems.

During operation the upgraded substation would be inspected by field staff and contractors on a regular basis, with other operational activities occurring in the event of an emergency (as required). Likely maintenance activities would include:

- Regular inspection (ground and aerial) and maintenance of electrical equipment
- General building, asset protection zone and landscaping maintenance
- Fire detection system inspection and maintenance
- Stormwater maintenance.

4. Planning and Assessment Process

Environmental planning approval for the Project would be required in accordance with the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) would also be submitted. This would be a precautionary referral based on the conclusion that the Project is unlikely to have a significant impact on Commonwealth matters and therefore is unlikely to be deemed a controlled action.

4.1 NSW Environmental Planning Approvals

4.1.1 Permissibility

The Project is permissible without development consent under clause 41 of *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) being "development for the purpose of an electricity transmission or distribution network, carried out by, or on behalf of, an electricity supply authority or public authority without consent on any land". The Project is characterised as an electricity transmission network under the Infrastructure SEPP which defines an "electricity transmission or distribution network" to include:

> Above or below ground electricity transmission or distribution lines (and related bridges, cables, conductors, conduits, poles, towers, trenches, tunnels, ventilation and access structures)

> Above or below ground electricity kiosks or electricity substations, feeder pillars or transformer housing, substation yards or substation buildings.

TransGrid is defined as an electricity supply authority under clause 40 of the Infrastructure SEPP being both an energy services corporation under the NSW *Energy Services Corporations Act 1995* and also a transmission operator under the NSW *Electricity Supply Act 1995*. Therefore, the proposed electricity transmission works are permissible without consent pursuant to clause 41 of the Infrastructure SEPP.

4.1.2 State Significant Infrastructure

On 23 November 2020, the Minister for Planning and Public Spaces made the *Environmental Planning and Assessment Amendment (Central-West Orana Renewable Energy Zone Transmission Order) 2020*. The Order declares the whole Central-West Orana REZ Transmission to be State Significant Infrastructure.

The Wollar Substation Upgrade project, as part of the Central-West Orana REZ Transmission, is therefore declared to be State Significant Infrastructure. The Minister for Planning and Public Spaces is the approval authority for the Project and an EIS for the Project would be prepared and publicly exhibited.

4.1.3 Critical State Significant Infrastructure

The *Environmental Planning and Assessment Amendment (Central-West Orana Renewable Energy Zone Transmission Order) 2020* also declares the whole Central-West Orana REZ Transmission to be Critical State Significant Infrastructure, by adding it to Schedule 5 of *State Environmental Planning Policy (State and Regional Development) 2011*. In making the declaration, the Minister for Planning and Public Spaces was satisfied that the Central-West Orana REZ Transmission is essential to the State for economic, environmental or social reasons.

The Wollar Substation Upgrade project, as part of the Central-West Orana REZ Transmission, is therefore declared to be Critical State Significant Infrastructure. The declaration provides greater certainty in the delivery of the Wollar Substation Upgrade project and the Central-West Orana REZ Transmission by limiting certain legal appeal rights under the EP&A Act and restricting the application of some orders, directions and notices under separate environmental legislation.

4.1.4 Other Relevant NSW Environmental Legislation

4.1.4.1 Approvals or Authorisations that are Not Required or Cannot be Refused

Under Division 5 of the EP&A Act, approvals required under legislation specified in section 5.23 do not apply to State Significant Infrastructure and approvals required under legislation specified in section 5.24 cannot be refused and must be substantially consistent with the State Significant Infrastructure approval.

Approvals that may be of relevance to the Project, which are not required under Section 5.23, include:

- An Aboriginal heritage impact permit under Section 90 of the NSW *National Parks and Wildlife Act 1974* (NP&W Act)
- Approvals under the NSW *Water Management Act 2000*, including a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91.

Section 5.23 of the EP&A Act also specifies directions, orders or notices that cannot be made or given so as to prevent or interfere with the carrying out of approved Critical State Significant Infrastructure. Those of potential relevance to the Project include:

- An interim protection order (within the meaning of the NP&W Act or the NSW *Biodiversity Conservation Act 2016* (BC Act))
- An order under Division 1 (Stop work orders) of Part 6A of the NP&W Act
- An environment protection notice under Chapter 4 of the *Protection of the Environment Operations Act 1997* (PoEO Act)
- An order under section 124 of the *Local Government Act 1993*.

Section 5.24 of the EP&A Act identifies approvals or authorisations that cannot be refused if they are necessary for carrying out approved State Significant Infrastructure and are substantially consistent with the approval under Division 5.2. These include:

- Environment protection licences (EPLs) under Chapter 3 of the PoEO Act
- Consent (Road Occupancy Licence) under section 138 of the NSW *Roads Act 1993* from the relevant roads authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road.

Schedule 1 of the PoEO Act does not define electrical transmissions lines or substations as a scheduled activity requiring an EPL.

The Project may potentially require temporary/partial closure of classified and unclassified roads for the construction of the Project. TransGrid is a private entity, however under Clause 5 of Schedule 2 of the *Roads Act 1993,* a network operator under the *Electricity Supply Act 1995* does not require a section 138 consent in respect of unclassified roads. Therefore TransGrid would not require consent to undertake work on classified and Crown roads.

4.1.4.2 Other NSW Legislation

Other NSW environmental legislation that may be of relevance to the Project is outlined in Table 4-1. The applicability of this legislation would be considered in the EIS.

Table 4-1 Other NSW environmental legislation of potential relevance to the Project

Legislation	Requirement
Water Management Act 2000	The NSW Aquifer Interference Policy (Department of Primary Industries, 2012) documents the NSW Government's intention to implement the requirement for approval of 'aquifer interference activities' under the *Water Management Act 2000*. It is not anticipated that the Project would interfere with any aquifers as the Project would unlikely require excavation to a sufficient depth to intercept an aquifer or result in drawdown. This would be confirmed as part of ongoing design development for the Project including the extension of the hardstand area and construction of tower footings (where deep excavation is required) and the depth of groundwater in these areas.
Contaminated Land Management Act 1997	This Act outlines the circumstances in which the NSW Environment Protection Authority (EPA) must be notified regarding the contamination of land. There is potential for land affected by the Project to have been contaminated as a result of historical development, and this would be considered as part of the EIS.
Biodiversity Conservation Act 2016	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. It is not anticipated that the Project would significantly impact on ecological values, however, further ecology assessments would be undertaken as part of the EIS (refer to Section 6.3).
Noxious Weeds Act 1993	This Act would apply to the control of all noxious weeds encountered during the construction of the Project. The EIS would assess potential ecological impacts associated with noxious weeds.
Waste Avoidance and Resource Recovery Act 2001	This Act encourages the most efficient use of resources in order to reduce environmental harm. Waste and resource impacts associated with the Project would be considered as part of the EIS.

4.1.5 Coordination and Interface with the Shared Network Infrastructure project

The Wollar Substation Upgrade project is one of two components that make up the broader Central-West Orana REZ Transmission, with the Shared Network Infrastructure project being the second component. These components together aim to provide a transmission connection between the Central-West Orana REZ and the existing electricity transmission network.

Although the Wollar Substation Upgrade project and the Shared Network Infrastructure project would be assessed as separate but interdependent projects, and would be subject to separate approvals, the coordination between the two components would be necessary in order to achieve the broader objectives of the Central-West Orana REZ Transmission. Cumulative impacts of the Wollar Substation Upgrade project with the Shared Network Infrastructure project would be considered in the EIS assessments for both projects where relevant. A separate ESR would be prepared for the Shared Network Infrastructure project where the project would be described in greater detail.

4.2 Commonwealth Environmental Approvals

4.2.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act requires referral to the Commonwealth Minister for the Environment and Energy for any actions that are likely to have a significant impact on the following:

- Matters of National Environmental Significance (MNES)
- An action by the Commonwealth or a Commonwealth agency which has, will have or is likely to have a significant impact on the environment
- An action which has, will have or is likely to have a significant impact on the environment on Commonwealth land, no matter where it is to be carried out.

TransGrid is not a Commonwealth agency and a preliminary assessment of the Project indicates there would not be a significant impact to Commonwealth land or MNES. A precautionary referral under the EPBC Act would be submitted. This is based on the conclusion that the Project is unlikely to have a significant impact on Commonwealth matters and therefore is unlikely to be deemed a controlled action.

The assessment and approval process for State Significant Infrastructure (and Critical State Significant Infrastructure) under the NSW EP&A Act and the EPBC Act is shown in Figure 4-1.

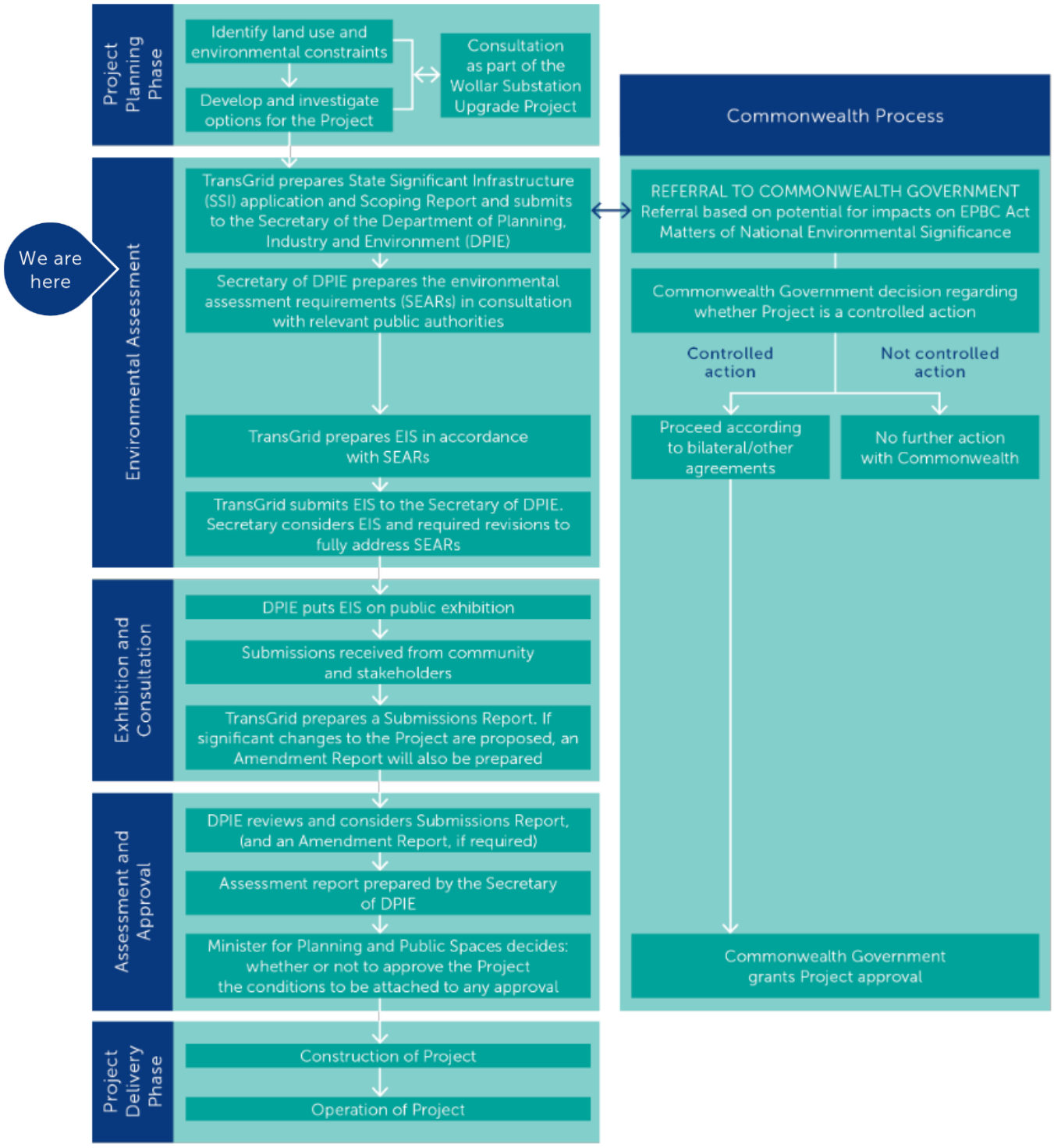

Figure 4-1 Assessment and approval process

5. Engagement

5.1 Introduction

TransGrid is committed to a proactive engagement process that is transparent and represents a genuine desire to work with its stakeholders. TransGrid recognises that a two-way feedback process is the key to understanding the needs and views of communities and stakeholders that are directly and indirectly affected by its operations. During the development of the Central-West Orana REZ Transmission, TransGrid will engage with affected and interested parties so that project planning is informed by input from communities and stakeholders in line with both regulatory requirements and TransGrid internal policies and standards.

5.2 Engagement Considerations and Principles

TransGrid has based its approach to engagement on a structured process to ensure consistent, targeted and meaningful engagement. Community and stakeholder engagement plans have been developed that focus on the engagement and communication approach to be undertaken on the Central-West Orana REZ Transmission. They provide the framework for community and stakeholder engagement for the Central-West Orana REZ Transmission and would be updated as required to align with the relevant phase of works. Community and stakeholder engagement has been carried out and would continue to be carried out for the Wollar Substation Upgrade project in accordance with these community and stakeholder engagement plans.

TransGrid recognises the importance of early and effective engagement with the community and stakeholders and is committed to the following:

> Undertaking a structured, transparent and meaningful approach to working with stakeholders indirectly and directly affected by the Central-West Orana REZ Transmission (including the Project)

> Tailoring engagement and communications to consider different stakeholder needs and expectations, particularly for directly affected stakeholders

> Providing stakeholders with opportunities to participate and providing sufficient and timely information to enable them to provide informed feedback

> Providing stakeholders with information on how their feedback has been utilised in the decision-making process.

5.3 Key Stakeholders

TransGrid has identified relevant stakeholders across the Central-West Orana REZ Transmission. Table 5-1 provides a list of stakeholder organisations and groups that have been engaged and would continue to be engaged during the development of the Central-West Orana REZ Transmission, and specifically for the Wollar Substation Upgrade project. Consultation with the wider community has also commenced and would continue during the development of the Project.

In addition to TransGrid's own engagement activities with these stakeholder organisations and groups, it will continue to be involved in other engagement activities led by the Energy Corporation of NSW, including council briefings and deliberative forums. TransGrid will also continue to participate in the Energy Corporation of NSW's Regional Reference Group (RRG) for the Central-West Orana REZ as a project partner. The RRG meets quarterly and will be the main communication and engagement forum for the Energy Corporation of NSW, local government and other key stakeholders to discuss the delivery of the Central-West Orana REZ.

Table 5-1 Key stakeholders

Stakeholder Group	Description
Key project partners	The Energy Corporation of NSW Clean Energy Finance Corporation (CEFC) Australian Renewable Energy Agency (ARENA)
Project approval authority	NSW Department of Planning, Industry and Environment – Planning and Assessment (DPIE – Planning and Assessment) Commonwealth Department of Agriculture, Water and the Environment (DAWE) (if deemed by to be a controlled action by DAWE – refer to section 4.2.1)
Industry bodies	Energy Networks Australia Australian Energy Council Clean Energy Council Australian Industry Group
Local councils	Mid-Western Regional Council Mayor and Councillors
Directly impacted landowners, residents and businesses	Peabody Wollar Solar Farm
Traditional Owners and other Aboriginal groups	Mudgee Local Aboriginal Land Council
Generators	Existing and proposed wind and solar farm and energy storage developers in proximity to the Project area
Representative and advocacy groups	Energy Consumers Australia Public Interest Advocacy Centre NSW Farmers Energy Users Association of Australia
Energy regulators and operators	Australian Energy Market Operator Australian Energy Regulator Australian Energy Market Commission Energy Security Board

5.4 Engagement Activities Carried Out to Date

A wide-ranging engagement program has been developed to consider the range of stakeholders that may be potentially impacted by or interested in Central-West Orana REZ Transmission. Engagement activities that have been undertaken to date for the Wollar Substation Upgrade project are outlined below in Table 5-2.

Table 5-2 Engagement activities

Activity/Consultation method	Summary
Letters	An introductory letter was sent to Peabody in December 2020 to provide information regarding the Wollar Substation Upgrade project and the Shared Network Infrastructure project and to set up meetings.
Briefings	Briefings with key stakeholders were undertaken in September and October 2020 including Council executives and local councillors, MPs (State and Commonwealth) and relevant government agencies and departments. The objectives of these briefings were to provide a high-level overview of the Central-West Orana REZ Transmission and to confirm arrangements for ongoing engagement. The briefings were also used as an opportunity to identify relevant Traditional Owners and Aboriginal stakeholder groups relevant to the Wollar Substation Upgrade project. Briefings are ongoing and will continue during the development, statutory approvals and implementation phases of the Wollar Substation Upgrade project.
Meetings	A meeting was held with Peabody in March 2021, where TransGrid provided information on the Central-West Orana REZ Transmission and more specifically, the upgrade works involved with the Wollar Substation Upgrade project, potential construction impacts and potential access requirements.
Direct communication	Direct communication including emails, letters and phone calls have been undertaken with Peabody to provide information and to set up meetings.
Central-West Orana REZ Transmission webpage	The Central-West Orana REZ Transmission webpage (https://www.transgrid.com.au/centralwestorana) went live in June 2020 to raise awareness about the Central-West Orana REZ Transmission project and includes details for the Wollar Substation Upgrade project. The objective of the webpage is to provide general information about the Central-West Orana REZ Transmission and help facilitate feedback processes. The webpage will be used as a centralised portal for all information and updates, and to provide a link to the Energy Corporation of NSW's website for information about the Central-West Orana REZ. The Central-West Orana REZ Transmission webpage also includes downloadable fact sheets and FAQs.
Fact sheets	Fact sheets are available on the Central-West Orana REZ Transmission webpage and have also been sent out to landowners. The fact sheets provide more detailed information on key aspects of the Central-West Orana REZ Transmission including the Wollar Substation Upgrade project.
1800 number and community email address	A community information number (1800 313 212) and project email address (cwo@transgrid.com.au) are available for queries and feedback on the Central-West Orana REZ Transmission.

5.5 Planned Future Engagement Activities

Engagement will continue with the key stakeholders identified in Table 5-1 on specific issues relevant to inform the preparation of the EIS for the Wollar Substation Upgrade project, as well as general engagement regarding Central-West Orana REZ Transmission more broadly. The next stage of community and stakeholder engagement will build on relationships established through early engagement activities and will complement formal consultation required under the EP&A Act, including engagement activities that may be stipulated in the SEARs.

TransGrid will continue to engage with the adjacent landowner Peabody, and surrounding landowners in relation to the Wollar Substation Upgrade Project.

More broadly, a variety of engagement activities are planned to be undertaken to reach different stakeholder groups and encourage participation in the development of the Central-West Orana REZ Transmission, including study corridor/ Project area development, the statutory environmental assessment and approvals process, and subsequent project implementation. These activities will also be used to inform stakeholders in a consistent and coordinated manner, helping them to understand key information about the Central-West Orana REZ Transmission.

Stakeholder engagement outcomes will continue to be collected and recorded in a structured and formal manner, through the use of TransGrid's internal database system. Engagement approaches will be periodically evaluated and reviewed to ensure they are providing adequate participation opportunities and responding to stakeholder needs and expectations.

Communications and engagement for the Central-West Orana REZ Transmission will continue to be coordinated with communications that the Energy Corporation of NSW are leading for the Central-West Orana REZ.

6. Key Assessment Issues

TransGrid recognises the need to carefully consider potential impacts on the environment and local communities, and to minimise these impacts wherever reasonable and feasible to do so. In taking this approach, the benefits of the Project can be realised while ensuring impacts on the environment and the community are minimised.

6.1 Identification of Key Assessment Issues

Based on a desktop review of publicly available data and mapping of environmental constraints and opportunities, key issues for the environmental impact assessment of the Project have been identified and are discussed below. Key issues have been identified as those that may require a detailed level of assessment because they:

> Have the potential to result in a significant impact if not adequately mitigated
> Have been identified as likely to be of particular interest to landowners or other stakeholders.

A detailed level of assessment may be required for these issues to identify and demonstrate the adequacy of mitigation and management measures. Key issues identified at this stage of the Project include potential impacts associated with:

> Land use and property
> Ecology
> Landscape character and visual amenity.

Other issues that would be assessed in the EIS, in addition to key issues, are discussed in Chapter 7 of this ESR.

Identification of key issues and other issues would be reviewed and confirmed periodically during development of the Project and preparation of the EIS, and in response to ongoing community and stakeholder engagement activities.

6.2 Land Use and Property

A desktop assessment has been completed using land use zoning maps and development controls under the *Mid-Western Regional Local Environmental Plan 2012* (Mid-Western Regional Council, 2012) and associated plans and policies made by the Mid-Western Regional Council. Aerial photography has been used to appreciate existing development patterns in and around the Project area.

6.2.1 Existing Environment

The land use and development patterns in and around the Project area are shown in Figure 6-1.

The Project would be located within the Mid-Western Regional LGA, approximately seven kilometres south of Wollar. The Project area, including the Wollar substation site, and the land around it are all zoned RU1 Primary Production under the Mid-Western Regional LEP 2012. Properties in this zone are relatively large rural lots.

The existing Wollar substation is situated on land owned by Electricity Transmission Ministerial Holding Corporation and leased to TransGrid, however adjacent land within the Project area is privately owned. Land surrounding the Project area is largely cleared and predominantly used for agricultural purposes, including cattle grazing and horticultural land. Most properties are characterised by small dams and water storage areas, within the Wollar Creek catchment (including the sub catchments of Spring Flat Creek and Barigan Creek).

The existing 500 kV transmission lines 5A3 and 5A4 aligned along the south-eastern boundary of the Wollar substation site are a prominent existing infrastructure development in the landscape. The 330 kV transmission line 79 connects from the Wollar substation to the north-west towards Ulan. These transmission lines are within formal easements.

The approved Wollar Solar Farm is proposed to be located to the west of the existing Wollar substation. The development site boundary for Wollar Solar Farm includes the existing Wollar substation site, however infrastructure associated with the solar farm will be located approximately one kilometre to the west of the substation site (NGH Environmental, 2020).

The proposed Wollar Solar Farm site is traversed by an existing TransGrid operated 330 kV transmission line that currently connects into the Wollar substation. This transmission line would be diverted in order to connect the proposed solar farm into the existing transmission network (NGH, 2019).

Other infrastructure around the Project area is limited, with the main access to the Wollar substation site provided via a local access road off Barigan Road to the east. Other local access roads provide connections to properties around the Wollar substation site, with most ultimately connecting to Barigan Road to the east and north (towards Wollar), or Maree Road to the south (towards Tichular).

Wollar Creek runs along the northern and eastern boundary of the Project area and is approximately 330 metres to the east of the existing substation. There are six dwellings located within approximately four kilometres of the Project area, which are generally located along Wollar Creek. No dwellings are located within the Project area, with the closest dwellings approximately 650 metres from the existing substation to the north and to the east.

There are no Commonwealth land holdings within proximity to the Project area.

6.2.2 Issues for Consideration

The Project would involve substation upgrades and transmission connection works on land and in areas already subject to development for infrastructure of this nature. The Project would therefore not result in a fundamental change in the character of existing development in or around the Project area. Notwithstanding this, there would be an expansion of transmission infrastructure which may be considered by some stakeholders as an intensification of the existing development.

Design development for the Project is currently ongoing and would inform the final locations and footprints for temporary and permanent land requirements for construction and operation of the Project. Upgrade works to the Wollar substation would be contained within the property leased by TransGrid and would not affect private properties. New and modified tie in works and potential tower upgrades to existing 500 kV transmission lines 5A3 and 5A4 would require occupation of private properties during construction and may require changes to existing transmission line easements on private properties. The extent of these impacts is likely to be limited to areas in relative proximity to the Wollar substation site. Affected landowners would be consulted during the design development for these works to ensure that acceptable outcomes can be achieved.

The Project, as part of the Central-West Orana REZ Transmission, would indirectly facilitate changes to land use, development and properties over time by supporting the development of the Central-West Orana REZ. These changes would be considered as part of the environmental impact assessments of individual renewable energy generation and storage projects in the REZ, and more strategically through Energy Corporation of NSWs facilitation of the delivery of the REZ as a whole. TransGrid is working closely with Energy Corporation of NSW to ensure that development of the Central-West Orana REZ and the Central-West Orana REZ Transmission are closely coordinated, and that information provided to stakeholders about both is consistent and complementary.

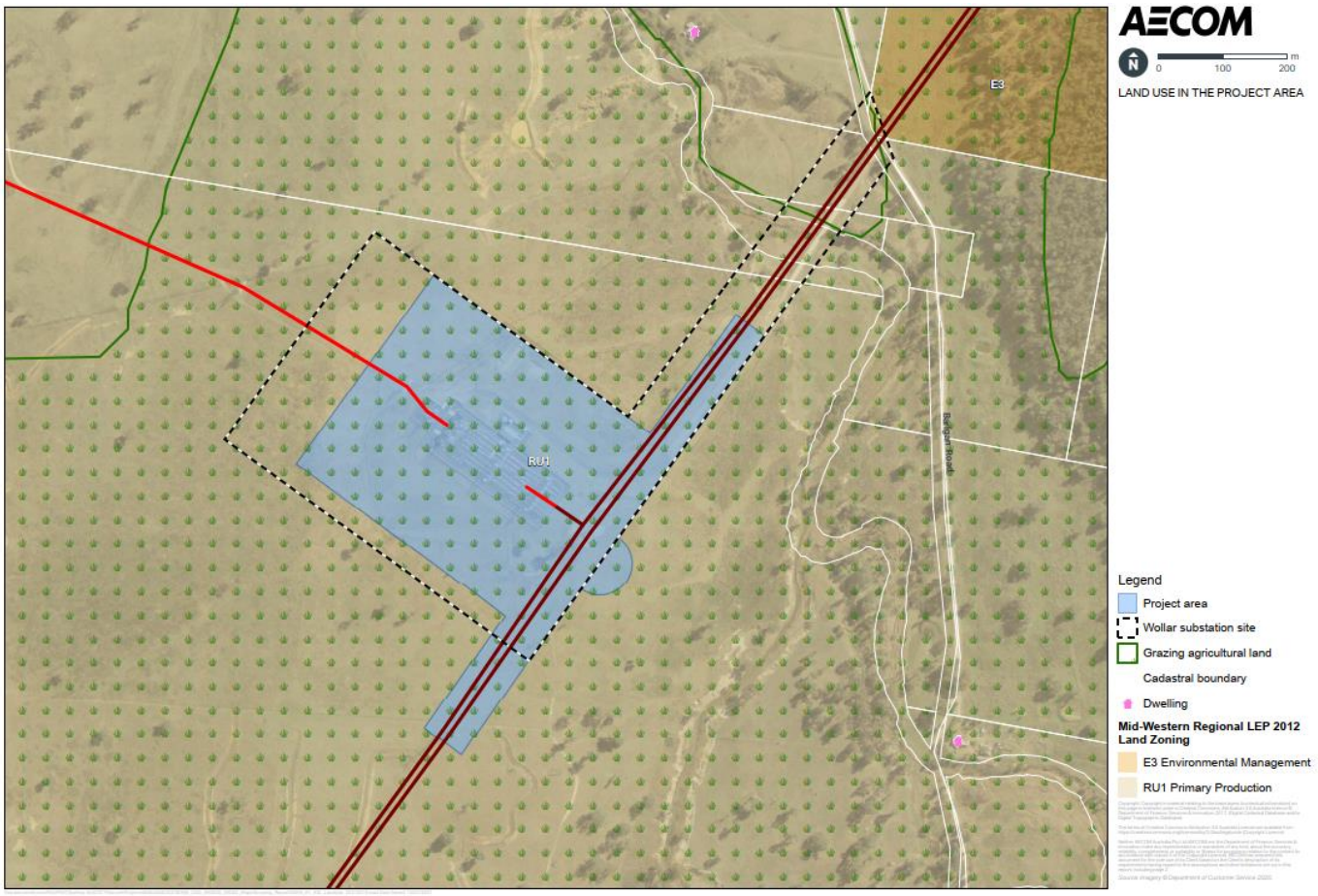

Figure 6-1 Land use and development in and around the Project area

6.2.3 Method of Assessment

The EIS would assess potential impacts of the Project on land use, existing developments and property during construction and operation. This would include consideration of:

- The potential for the Project to affect existing development and permissible development types on land within and around the Project area
- The compatibility of the Project with land use planning within and around the Project area
- The extent of occupation of land, impacts to private properties and property access arrangements during construction of the Project
- Property impacts during operation of the Project, particularly any need for changes to existing transmission line easements.

Potential property and development impacts would be informed by the outcomes of engagement with affected landowners and other stakeholders.

6.3 Ecology

Preliminary ecology assessments of the potential impacts of the Project on ecology have been undertaken in line with the NSW Biodiversity Assessment Method (BAM) (Niche 2021). The assessments included desktop assessment, field surveys in February and May 2021 and a subsequent assessment of significance for threatened ecological communities identified during the field survey.

6.3.1 Existing Environment

The Project is located within the Sydney Basin Interim Biogeographical Regionalisation of Australia (IBRA) Bioregion, in the Kerrabee IBRA Subregion. Within this subregion, the Project area is situated in the Upper Goulburn Valleys and Escarpment Landscape. The Project area does not intersect with an area that has been declared an Area of Outstanding Biodiversity Value in accordance with the BC Act.

Land within and around the Project area is largely cleared of woody vegetation as a consequence of historical and ongoing agricultural land uses. Remnant native trees remain as isolated individuals and copses, with more significant contiguous vegetation associated with the Wollar Creek and Barigan Creek riparian zones around 330 metres to the east of the Project area. Prominent ridgelines around one kilometre to the east and around 3.5 kilometres to the west of the existing substation are the closest areas of undisturbed native vegetation.

Desktop Assessment

A review of literature, databases and existing vegetation mapping was undertaken in February 2021 to identify threatened biodiversity within the potential to occur within and surrounding the Project area. The following resources were used for this purpose:

- Database searches:
  - NSW *BioNet Atlas Database* (DPIE, 2021) for spatial records of threatened flora and fauna listed under the BC Act within a 10 kilometre radius of the Project area (Accessed 19/02/2021)
  - *EPBC Act Protected Matters Search Tool* (PMST) (Department of Agriculture, Water and the Environment, 2021) for flora, fauna and ecological communities identified as MNES known from or with potential habitat within a 10 kilometre radius of the Project area (Accessed 28/03/2021)
- BAM Calculator tool (using benchmark condition for previously mapped Plant Community Types (PCTs) to identify candidate species credit species and predicted ecosystem credit species known or predicted to occur within the IBRA subregion
- Vegetation mapping: existing vegetation mapping (State Vegetation Type Map: Upper Hunter v1.0. VIS_ID 4894) (DPIE, 2019b) was examined prior to the field surveys to determine the vegetation communities likely to be present in the Project area.

Five categories for likelihood of occurrence were attributed to threatened biodiversity after considering the number and proximity of known records, presence or absence of preferred habitat types (e.g. native vegetation types and microhabitats) and professional judgement.

This analysis identified eight threatened species and one Threatened Ecological Community (TEC) considered to have a ‘moderate’ likelihood of occurring in the Project area. These included:

- Threatened flora:
  - Small Purple-pea (*Swainsona recta*)
  - Silky Swainson-pea (*Swainsona sericea*)
  - Austral Toadflax (*Thesium australe*)
- Threatened fauna:
  - Varied Sittella (*Daphoenositta chrysoptera*)
  - Black Falcon (*Falco subniger*)
  - Little Eagle (*Hieraaetus morphnoides*)
  - Square-tailed Kite (*Lophoictinia isura*)
  - Diamond Firetail (*Stagonopleura guttata*)

- TEC
  - Box Gum Woodland (White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions).

Field Survey

Based on the outcomes of the desktop assessment, the following field surveys were undertaken:

- Rapid Data Points (RDPs) and flora habitat assessment – February 2021
- BAM plots, vegetation mapping, threatened flora searches and habitat assessment – May 2021.

For the purposes of this ESR, the term "survey area" includes the existing Wollar substation, adjacent lands and the area within which field surveys were conducted. The term "Project footprint" includes the area where the key components of the construction and operation of the proposed action would occur (an area smaller than the Project area). These areas are presented in Figure 6-2. A conservative approach was adopted for the field surveys which were conducted in an area larger than the Project footprint.

TECs

The results of the field surveys identified the survey area as being in low ecological condition due to cattle grazing and the dominance of weed species. However, notwithstanding the general condition of the survey area, the two following PCTs were confirmed present:

- PCT 1303: White Box – Grey Gum – Kurrajong grassy woodland on slopes of the northern Capertee Valley, Sydney Basin Bioregion (moderate and poor condition)
- PCT 281: Rough-Barked Apple – red gum – Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion (moderate condition).

Figure 6-2 shows that the majority of the survey area was identified as PCT 1303 in a moderate condition, with only a narrow strip of PCT 281 along Wollar Creek. Box-Gum Woodland was found present within the Project footprint predominantly in a derived form; being open grassland with scattered canopy trees only (including two mature live hollow-bearing trees), and with no midstorey present. Although in a modified state, the species composition of PCT 1303 within the Project footprint meets the definition of Box Gum Woodland. This species is listed as critically endangered under the BC Act and EPBC Act. The PCT 1303 that was found in poor condition does not align with the TEC under the BC Act or under Commonwealth conservation advice due to a low vegetation integrity score.

Figure 6-2 Key ecological values within the survey area

Weeds

Five high threat weed species were recorded within the Project footprint. The most abundant species were Saffron Thistle (*Carthamus lanatus)* and Dallas Grass (*Paspalum dilatatum).* One priority weed for the Central Tablelands, St. John's Wort (*Hypericum perforatum),* was also recorded within the Project footprint.

Threatened flora

None of the five threatened flora species identified in the desktop assessment were recorded during field surveys. Although surveys were undertaken outside of the recommended survey period, based on the results of the field survey and habitat assessment, candidate flora species are considered to be absent from the area of disturbance.

Fauna and fauna habitats

Common fauna species observed within the survey area included the Eastern Rosella (*Platycercus eximius*), Red-rumped Parrot (*Psephotus haematonotus)*, Laughing Kookaburra *(Dacelo novaeguineae*), Australian Magpie *(Cracticus tibicen)*, and an unidentified quail (Coturnix sp.*).*

Two threatened species including the Large-eared Pied Bat (*Chalinolobous dwyeri*) and Regent Honeyeater (*Anthochaera phrygia*), are candidate species which are assumed to be present. The Large-eared Pied Bat has been assumed to be present due to nearby records and availability of suitable breeding habitat nearby. The two mature hollow-bearing trees within the Project footprint are mapped as important habitat for the Regent Honeyeater.

6.3.2 Issues for Consideration

The discussion of potential ecological impacts below are with regard to the 'Project footprint' which includes all the key components of the Project, not inclusive of the strengthening of the two transmission line towers which is not anticipated to have any ecological impact (such as removal of vegetation).

The Project has the potential to affect the following ecological values, principally through vegetation clearing associated with upgrades to the Wollar substation and new and modified transmission line cut-ins. Clearing of vegetation may be required for the extension of the substation hardstand area, footings for new transmission line towers, and for relocating the proposed access track to Wollar Solar Farm. Ongoing design development for the Project would aim to avoid and minimise impacts on remnant native vegetation within the Project footprint.

Based on a worst-case scenario considering full clearing, the potential impact of the Project would include:

- Removal of approximately 7.77 ha of native vegetation (PCT 1303) containing one critically endangered ecological community in moderate condition (Box Gum Woodland)
- Removal of approximately 7.77 ha of fauna habitat (native vegetation) including potential low-quality habitat for threatened fauna for the Regent Honeyeater and Large-eared Pied Bat. This would include the potential removal of the two mature hollow-bearing trees shown in Figure 6-2.

The actual area of vegetation clearing is likely to be less as the proposed works would not require entire vegetation removal, particularly in areas where installation of transmission line is required; however, a worst-case scenario considering full clearing has been assessed.

Biodiversity offsets would also likely be required for unavoidable and residual impacts of the Project.

6.3.3 Method of Assessment

The EIS would include a Biodiversity Development Assessment Report (BDAR) to document the outcomes of an assessment of the potential impacts of construction and operation of the Project on ecological values within and around the Project area. The assessment would be carried out in accordance with the BAM under the BC Act. If protected ecological matters under the EPBC Act may be affected by the Project, the assessment would also take into account the requirements of *Matters of National Environmental Significance: Significant Impact Guidelines 1.1 – Environment Protection and Biodiversity Conservation Act 1999* (DoE, 2013).

The BDAR would also identify suitable avoidance and mitigation measures to be implemented to minimise or mitigate potential ecological impacts.

A precautionary referral under the EPBC Act would be submitted for the Project's potential impact on MNES.

6.4 Landscape Character and Visual Amenity

A desktop assessment of potential landscape character and visual amenity issues has been carried out, based on review of land use and development patterns, aerial photography and observations made during ecological site inspections (refer to Section 6.2).

6.4.1 Existing Environment

Land within the Project area and the broader visual catchment is used for agricultural purposes, including cropping and grazing. The landscape is predominantly flat and cleared of vegetation. Existing high-voltage transmission lines, and the existing Wollar substation are currently part of the visual landscape. Once completed, Wollar Solar Farm will also form part of the visual landscape surrounding the Project, with solar farm infrastructure located approximately one kilometre to the south-west of the Wollar substation site.

There are no major roads, tourist routes or major towns within proximity of the Project area. The nearest established township to the Project area is Wollar, around seven kilometres north of the Project area.

There are no sensitive visual receivers within proximity to the Project area. No dwellings are located near the existing substation, with the closest dwellings located approximately 650 metres to the north and to the east.

6.4.2 Issues for Consideration

As the visual landscape currently includes the existing substation and transmission lines, the Project is unlikely to result in additional visual impacts that are not in line with the existing visual amenity of the site. Notwithstanding, changes associated with the Project, including new transmission line towers and expansion of the substation footprint are likely to lead to a noticeable but relatively minor change in the visual appearance of the Wollar substation and the transmission lines that connect to it.

During construction, the presence of plant and vehicles may result in short-term temporary visual impacts. Ground disturbance during construction works would result in localised visual impacts. The key visual receivers that would need to be considered during construction and operation would be existing rural residential dwellings around the Project area.

6.4.3 Method of Assessment

The EIS would include an assessment of visual impacts during construction and operation, including a description of existing landscape character and potential visual receivers, and identification of measures to be used to minimise visual impacts.

7. Other Issues

As outlined in Section 6.1, this section discusses issues relevant to the Project that have not been identified as key issues.

7.1 Hazards and Risk

Hazards and risks relevant to the Project include bushfire risks, risks associated with electric and magnetic fields and potential aviation hazards. A preliminary desktop review of potential hazards and risks has been completed.

7.1.1 Existing Environment

Bushfire Risk

Much of the Project area is mapped as Category 2 Bush Fire Prone Land, where Bush Fire Prone Land is considered an area of land that can support a bush fire or is likely to be subject to bush fire attack. Categories and types of vegetation determine the risk of bush fire to the land, with vegetation Category 2 representing lower risk vegetation parcels. These vegetation parcels represent a lower bush fire risk to surrounding development and consist of either remnant vegetation or land with ongoing land management practices that actively reduces bushfire risk. As much of the land within and surrounding the Project area is cleared and predominantly used for agricultural purposes, there is a lower risk for bush fires to occur within the area.

The Project and its surrounding area are not located in any Bush Fire Management Zones identified as part of the Mid-Western Regional Council's Bush Fire Risk Management Plan.

Electric and Magnetic Fields

Electric and magnetic fields (EMF) occur naturally in the environment, as well as being generated by human activities. Electric fields are present in the atmosphere 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, electrical equipment and even household appliances all produce power frequency EMF. Every time voltage runs through a wire, an electric field is produced. The higher the voltage, the stronger the electric field. Electric fields are strongest closest to the wires and reduce quickly with distance.

Magnetic fields are produced by the flow of an electric current through a wire. The higher the current, the greater the magnetic field. Like electric fields, magnetic fields are highest closest to the wire and reduce quickly with distance. Together, the electric and magnetic fields are referred to as EMF.

The existing Wollar substation and high-voltage (330 kV and 500 kV) transmission lines within the Project area are a current source of EMF.

Aviation Hazards

The Project area is not located within proximity to any licensed airports or aerodromes, although there is an unlicensed airstrip located approximately three kilometres to the north and three kilometres to the south. The existing Wollar substation and connecting transmission lines do not pose a significant aviation hazard for aircraft using the unlicensed airstrip.

7.1.2 Issues for Consideration

Bushfire Risk

Given the low bushfire risk of vegetation within and around the Project area, and the application of good construction practice, there would be a low risk of construction activities initiating or contributing to bushfires.

Bushfires can be caused by a variety of factors, including lightning strikes, sparks from farm machinery and electrical incidents such as fallen power lines. TransGrid's risk approach to asset management assumes that every transmission line has the potential to be impacted by fire, or to initiate fire, including bushfire. The design, operation and maintenance of the Project would consider vegetation management within the asset protection zone around the substation and transmission lines.

Electric and Magnetic Fields

The Project would involve expansion of the existing 500 kV switchyard at Wollar substation as well as changes to connections with the 500 kV transmission lines 5A3 and 5A4. These works would result in changes to EMF around the Wollar substation and associated transmission lines.

The Project would be designed and built to ensure that EMF exposure levels are within the limits recommended by the International Commission on Non-ionizing Radiation Protection Guidelines (2010).

Aviation Hazards

Given the scale of the Project and its distance from the closest unlicensed airstrip, it is unlikely to pose a significant aviation hazard. There are no licensed facilities within close proximity to the Project.

7.1.3 Method of Assessment

TransGrid's risk approach to asset management is to minimise the likelihood that an asset will initiate a fire, irrespective of the location of that asset. The EIS will consider the bushfire hazard and risks of ignition associated with the Project.

Potential impacts of EMF from the Project would be considered as part of the EIS. This would include consideration of potential health risks for adjacent residents resulting from EMF associated with the proposed upgrade works.

As far as feasible, design development for the Project would ensure that unlicensed airstrips are not impacted or pose a significant aviation hazard to the Project. Offset distances to unlicensed airstrips would be determined during design development in consultation with affected landowners. Given the distance to the nearest airstrip, the Project works are unlikely to affect the nearest unlicensed airstrips.

7.2 Noise and Vibration

A desktop review of potential noise and vibration issues has been carried, based on the location of potential noise receivers around the study and the likely noise and vibration that may be generated by the Project during construction and operation.

7.2.1 Existing Environment

The Project area is located in a relatively remote, rural location with the nearest established population centre of Wollar around seven kilometres to the north. There are few rural residential dwellings around the existing substation, with the closest located approximately 650 metres to the north and to the east.

Existing noise conditions in the Project area are limited to current noise generated by the Wollar substation, noise generated by agricultural practices such as machinery and grazing cattle, and background environmental noise (including wind, birds, etc). There are no major roads within proximity to the Project area, however occasional vehicles using the access tracks and unsealed access road leading to the Wollar substation site may generate occasional noise.

7.2.2 Issues for Consideration

Construction of the Project would generate noise and vibration as a result of various activities such as heavy vehicle and machinery operation, earthworks and excavations, increased traffic volumes and potential construction of access tracks.

Operation of the Project is not anticipated to generate additional noise due the minor nature of the upgrade works.

7.2.3 Method of Assessment

Potential noise and vibration impacts from the Project on the surrounding environment would be assessed in a noise and vibration impact assessment to be included in the EIS. The assessment would be conducted in accordance with:

- *Interim Construction Noise Guideline* (DECC, 2009)
- *Draft Construction Noise Guideline* (EPA, 2020)
- *Noise Policy for Industry* (EPA, 2017)
- *Assessing Vibration: A Technical Guideline* (DEC, 2006).

The noise and vibration impact assessment would include:

- Identification of sensitive receivers that may be affected by noise and vibration impacts and identification of background noise levels
- Identification of construction and operation noise and vibration goals in accordance with relevant guidelines and legislation
- Predictions of noise and vibration emission levels from construction and operation activities
- Assessment of potential noise and vibration impacts
- Recommendation of mitigation measures to minimise construction noise and vibration impacts, where reasonable and feasible.

7.3 Aboriginal Cultural Heritage

A desktop assessment of potential Aboriginal cultural heritage impacts has been carried out based on a review of existing literature, a search of the Aboriginal Heritage Information Management System (AHIMS) database and development of a predictive model for potential Aboriginal cultural heritage for the broader Central-West Orana REZ Transmission.

7.3.1 Existing Environment

The Project area is located on land within the responsibility of the Mudgee Local Aboriginal Land Council. There is one active native tile claim (NC2018/002 Warrabinga-Wiradjuri #7) that covers more than 14,000 square kilometres across the Central-West Orana region, including the Project area.

A search of Aboriginal objects, sites and places registered on AHIMS identified four sites within proximity of the Project area. These sites are stone artefacts and are located along Wollar Creek and are shown in Figure 7-1. While not mapped, a previous archaeological assessment undertaken for Wollar substation (Susan McIntyre Tamwoy, 2005) identified another AHIMS site (36-3-0076) located about 200 metres north-west of where site 36-3-0335 is located on Figure 7-1. The presence of areas of Potential Archaeological Deposit (PAD), which often span larger areas than a single geographic point, was also identified near site 36-0-3-0076. In addition, based on the curtilage for site 36-3-0075 shown in the 2005 report, the site may extend into the north-eastern most part of the Project area, however is unlikely to be located within the Project footprint.

Generally, the Project area is highly disturbed as a result of historical and ongoing agricultural activities, land clearing and the development of the existing Wollar substation and associated transmission lines. The disturbed nature of the Project area is likely to mean that there would be a low risk of finding any Aboriginal cultural heritage sites remaining in the area.

The predictive model developed for the Central-West Orana REZ Transmission identifies watercourses as being the landscape feature with the greatest potential for the presence of Aboriginal cultural heritage sites. The nearest watercourse to the Project area, Wollar Creek, is 330 metres to the east. Consistent with the predictive model, registered Aboriginal cultural heritage sites and previously identified sites have been identified in association with Wollar Creek.

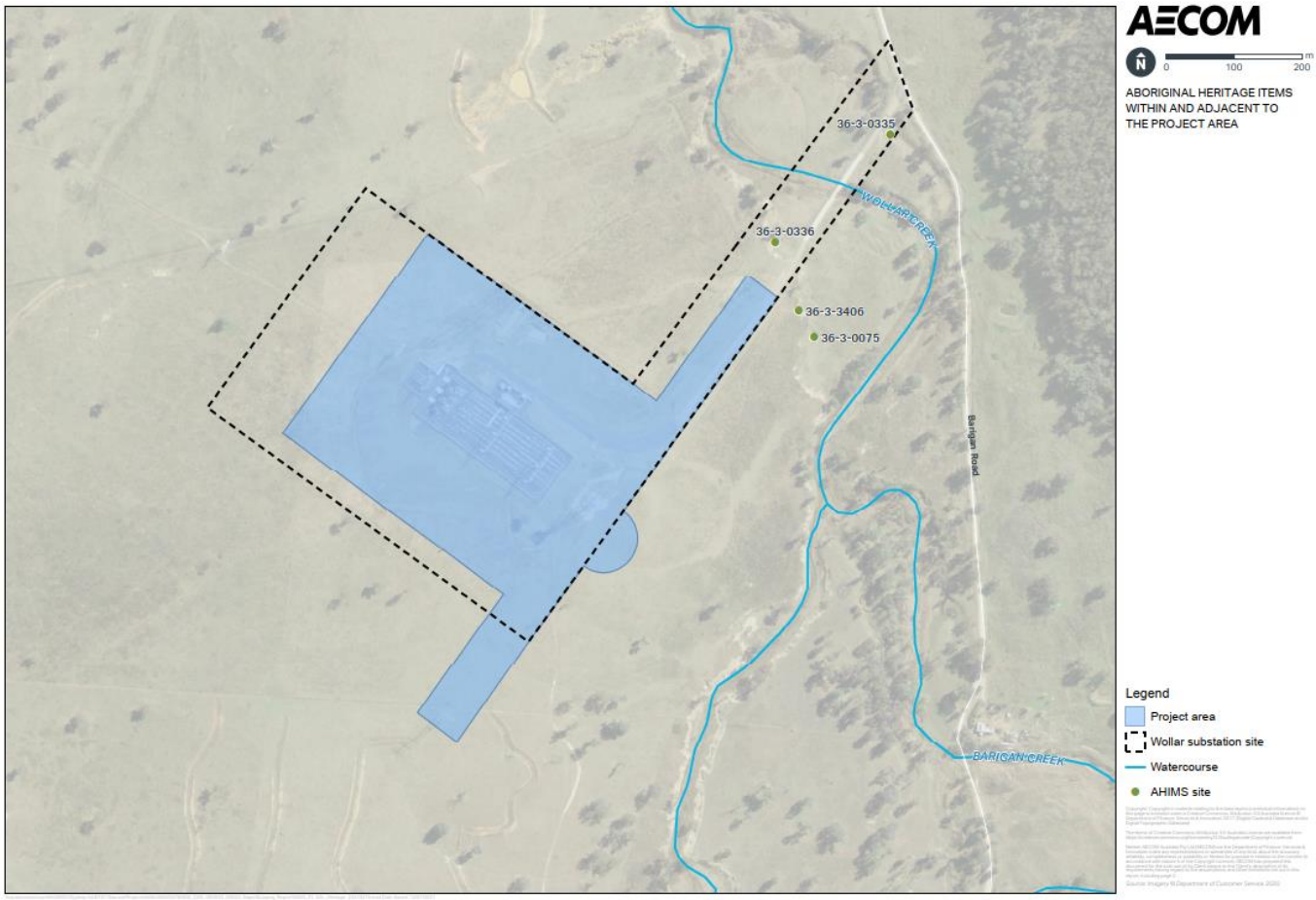

Figure 7-1 AHIMS sites in and around the Project area

7.3.2 Issues for Consideration

AHIMS sites require further investigation as often the dataset can be inconsistent with the existing environment at the site. The actual geographic location of AHIMS sites may differ slightly from what is currently depicted in Figure 7-1. In addition, sites may be larger than a singular geographic point and may contain large areas of PAD. Susan McIntyre Tamwoy (2005) which contains details of two AHIMS sites near the Project area (36-3-0075 and 36-3-0076) suggests that there would be a low potential of discovering further sites and areas of PAD along Wollar Creek. However, further testing would be required to validate the current extent of existing sites and potential for unknown sites. This would be undertaken to inform the EIS.

Overall the risk for construction of the Project to affect remnant and unregistered Aboriginal cultural heritage sites is likely to be low due to the highly disturbed nature of the land within the Project area. However, further investigation of known sites and unknown potential sites would be required. Notwithstanding the findings of Susan McIntyre Tamwoy (2005) and based on the Aboriginal cultural heritage predictive model, there is potential for discovering Aboriginal cultural heritage sites within proximity to Wollar Creek. Operation of the Project is unlikely to pose a risk of ongoing heritage impacts.

7.3.3 Method of Assessment

Aboriginal cultural heritage assessments would be undertaken as part of the EIS, to ensure that Aboriginal cultural heritage values are properly identified, assessed and avoided where possible. This would include appropriate field surveys and further investigation of previous archaeological reports and the existing environment. The existing Aboriginal cultural heritage sites in Figure 7-1 and other potential non-mapped AHIMS sites would be further investigated in the EIS to verify the sites and determine site extents.

An Aboriginal Cultural Heritage Assessment Report would be prepared in accordance with the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (DECCW, 2011) and *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010).

7.4 Traffic and Access

Potential traffic and access issues associated with the Project have been identified through desktop review of existing transport routes around the Wollar substation site.

7.4.1 Existing Environment

The Project area is located in a relatively remote rural area, with limited road infrastructure in the surrounding area. The nearest formal named road to the Project area is Barigan Road, which begins in Wollar and runs south past the existing substation on the eastern side of Wollar Creek.

Access to the existing Wollar substation site is via an existing access road, approximately 600 metres in length that runs off Barigan Road and over Wollar Creek to the existing Wollar substation site. Both the existing access track and Barigan Road are unsealed roads, however Barigan Road is currently being upgraded with some sections of the road now sealed. Once these upgrade works are complete, Barigan Road would be sealed from the township of Wollar to the access road used to enter the Wollar substation site.

7.4.2 Issues for Consideration

An increase in local and regional traffic would be likely to occur during the construction of the Project including over-size and non-standard loads. Bulk movements of spoil and fill may be required, as well as the transportation of large pieces of infrastructure. Estimates of truck and vehicle movements would be confirmed during subsequent stages of design development and would depend on the adopted construction methodology and staging plans.

Given the remote location of the Project, it's unlikely that additional traffic movements during the construction phase would have significant impacts on road users in the local area. Any impacts or disruptions to traffic would be temporary in nature and only for the duration of the construction phase.

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.

7.4.3 Method of Assessment

An assessment of potential traffic and access impacts during construction and operation of the Project would be undertaken as part of the EIS. This would involve a description of the existing road network conditions, assessment of construction and operational traffic impacts, the need for additional access roads and connection to the road network and identification of mitigation measures to minimise traffic and access impacts.

The traffic and transport assessment would consider the movements of large equipment and large components (transmission line towers), as well as spoil and waste on the local and wider road network. The EIS would also consider management measures for traffic impacts on the road network.

7.5 Non-Aboriginal Heritage

Potential non-Aboriginal heritage impacts have been considered through a desktop review of heritage lists and databases.

7.5.1 Existing Environment

No non-Aboriginal heritage items have been identified within or in proximity to the Project area.

7.5.2 Issues for Consideration

Whilst there are no known non-Aboriginal heritage items within the Project area, the Project has the potential to impact on previously unrecorded non-Aboriginal heritage items and/or archaeology. These impacts could occur through excavations and surface disturbances associated with ground disturbance activities such as, construction of the substation extension and ancillary activities, new transmission line structures and access tracks.

7.5.3 Method of Assessment

A non-Aboriginal heritage assessment would be undertaken as part of the EIS and would consider potential impacts on the values, settings and integrity of heritage areas and items and archaeological resources in the Project area. The assessment would be undertaken in accordance with principles of The Australian International Council on Monuments and Sites, Charter for Places of Cultural Significance (also known as the Burra Charter, Australian ICOMOS 2013) and the *NSW Heritage Manual* (NSW Heritage Office, 1996).

7.6 Surface Water and Hydrology

7.6.1 Existing Environment

The Project area is located within proximity to Wollar Creek, which runs to the north and east of the Project area. The creek is approximately 330 metres from the existing substation at the closest point. There are no other major waterways, waterbodies or watercourses within proximity to the Project area.

According to the Australian Groundwater Explorer database of groundwater, there are no groundwater bores located in the Project area or within proximity (Bureau of Meteorology, 2021).

The Project area is not within land mapped as a flood planning area or as having groundwater vulnerability under the Mid-Western Regional LEP 2012.

7.6.2 Issues for Consideration

Subject to good environmental management during construction of the Project, the potential for runoff from the site to affect Wollar Creek would be low. Good environmental management would include measures to mitigate erosion and sedimentation during soil disturbance and vegetation clearing activities.

The increase in non-permeable surfaces that would result from the upgrade works within the Wollar substation site and associated with transmission line tower footings could increase surface water runoff. Any increase in runoff would be minor, and the design development for the Project would consider accommodating additional runoff through existing drainage infrastructure in the Project area.

It is not anticipated that the Project would interfere with any aquifers as the Project would unlikely require excavation to a sufficient depth to intercept an aquifer or result in drawdown. This would be confirmed as part of ongoing design development for the Project including the extension of the hardstand area and construction of tower footings (where deep excavation is required) and the depth of groundwater in these areas. The location of the Project relative to local watercourses and outside flood planning areas supports a conclusion that the proposed works are unlikely to raise significant flooding risks.

7.6.3 Method of Assessment

Impacts of the Project on surface water quality, flooding and groundwater would be considered during the EIS. The EIS would identify mitigation measures to be applied during construction and operation to manage potential impacts.

7.7 Soils and Contamination

A desktop review of soils and contamination issues has been conducted to identify potential impacts during construction and operation of the Project.

7.7.1 Existing Environment

The Project is located within the Sydney Basin IBRA Bioregion, in the Kerrabee IBRA Subregion. Within this subregion, the Project area is situated in the Upper Goulburn Valleys and Escarpment Landscape. The Kerrabee IBRA Subregion is characterised by shallow sandy profiles and bare rock outcrops on plateaus. Basalts have red brown structured loams and clay loams, often buried by slope debris where the volcanic necks form depressions (NSW National Parks and Wildlife Service, 2003).

The Project area is located in the 'Barigan Creek' soil landscape. The topography is characterised by lower slopes of sandstone escarpments, with low undulating rises and creek flats. Elevations vary from 360 metres to 470 metres above sea level (Murphy and Lawrie, 1998). The predominant land use within this soil landscape is grazing.

Soils within the landscape are largely characterised as Yellow Podzolic Soils. The topsoil is a bright to dark reddish-brown sandy loam, with the subsoil layer a bright reddish-brown light medium clay with moderate structure (Murphy and Lawrie, 1998). Inherent soil fertility is considered moderately low.

According to the NSW Government's Heads of Asbestos Coordination Authorities no naturally occurring asbestos is mapped within the Project area or in surrounding areas (2018). The Australian Soil Resource Information System maps the Project and the surrounding area as category 'B: Low Probably of Occurrence' according to the Atlas of Australian Acid Sulphate Soils (2010). Surrounding areas are mapped as category 'C: Extremely Low Probability of Occurrence'. Given the Project area or surrounds are not near any mapped sites that contain a high probability of acid sulfate soils occurrence, it is unlikely that acid sulfate soils would be uncovered during construction.

The NSW Land and Soil Capability (LSC) assessment scheme (2012) defines LSC classes based on biophysical features of the land and soil including landform position, slope gradient, drainage, climate, soil type and soil characteristics. The purpose of the LSC class is to give an indication of the land management practices that can be applied to a parcel of land without causing degradation of the land and soil on-site, and to the environment and infrastructure off-site.

The Project area is categorised as LSC class 5 (severe limitations). This LSC class is considered moderate to low capability land where land has high limitations for high-impact land uses. Land uses should largely be restricted to low-impact practices such as grazing, some horticulture, forestry and nature conservation. Soil erosion can be severe without adequate erosion control measures.

There is potential for contamination to be present from the use of oil filled equipment at the existing Wollar substation. Given the existing surrounding site characteristics largely consist of predominately undeveloped rural land, it is anticipated that existing on-site contamination risks would be minimal. There are no registered contaminated sites within proximity to the Project area.

7.7.2 Issues for Consideration

The primary concern associated with impacts on soils from the Project would generally be from excavation works during construction. Soil disturbance activities, such as excavation works, may lead to erosion and sediment runoff. Mitigation measures to prevent runoff and sedimentation impacts would be identified in the EIS, consistent with good environment practice during construction.

While there are no known areas of naturally occurring asbestos, there is a small residual risk of encountering contaminated soils during construction of the Project as the result of historical agricultural activities and construction, as well the use of oil filled equipment at the existing Wollar substation. Appropriate mitigation measures to manage the potential presence of naturally occurring asbestos within the Project area would be outlined in the EIS in accordance with relevant legislation and guidelines.

Operation of the Project is unlikely to increase potential impacts on soil and contamination. The existing site includes oil containment systems and there are operational management plans including spill and leak avoidance.

7.7.3 Method of Assessment

Geotechnical assessments would be undertaken during the EIS to identify any management measures that may be necessary for soil types encountered by the Project. The risk of encountering contaminated soils during construction of the Project would be considered in the EIS, including a review of the site history, identification of current or historical contaminating activities and the potential for site sampling to confirm any contamination that may be present.

Potential impacts to waterways, namely Wollar Creek, and site run-off would be considered in the EIS with the identification of appropriate mitigation measures to be applied during construction to manage these potential impacts.

7.8 Air Quality

A desktop review of potential air quality issues associated with construction and operation of the Project has been carried out.

7.8.1 Existing Environment

The ambient air quality within the Project area would be characteristic of a relatively remote rural area. Given the remote location of the site, existing sources of air pollution within the local setting would be limited, consisting primarily of dust and vehicle/machinery exhaust emissions associated with nearby agriculture practices. The region surrounding the Project area is sparsely populated, with most of the land comprised of rural properties and agricultural land.

7.8.2 Issues for Consideration

Impacts on local air quality may occur during construction of the Project due to dust from activities such earthworks and exhaust emissions from the operation of vehicles and machinery. There is also potential for dust to be stirred up from the use of unsealed access tracks and roads within and around the Project area. The primary sensitive receivers of concern during construction would be nearby rural residences. There are limited residential dwellings located within proximity to the existing substation, with the closest situated approximately 650 metres to the north and to the east.

The use of construction equipment and manufacture of materials would consume resources associated with greenhouse gas emissions. In addition, substation equipment and switchgear such as circuit breakers and disconnectors may contain sulfur hexafluoride (SF^6) which is a greenhouse gas.

The Project is not anticipated to generate substantial air quality impacts during operation.

7.8.3 Method of Assessment

An assessment of air quality impacts during construction would be undertaken in the EIS, in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2016). Recommended mitigation and management measures would also be identified to reduce construction emissions and associated impacts.

7.9 Socio-economics

7.9.1 Existing Environment

Potential socio-economic impacts have been identified through desktop review of the social and economic context of the locality around the substation and a socio-economic data analysis of the Central-West Orana region and Mid-Western Regional LGA.

The Project is located in the Mid-Western Regional LGA. The population of the Mid-Western Regional LGA was recorded as 24,076 in the 2016 Census (Australian Bureau of Statistics (ABS), 2016). The nearest township to the Project area is Wollar, located approximately seven kilometres to the north. The population of Wollar in the 2016 Census was recorded as 69 people (ABS, 2016).

Of the employed people in the Mid-Western LGA, 13.7% worked in coal mining, the most populated industry of employment for the LGA. Other major industries of employment included Beef Cattle Farming (Specialised) 2.9%, Primary Education 2.7%, Supermarket and Grocery Stores 2.7% and Aged Care Residential Services 2.6% (ABS, 2016). The land zoning immediately surrounding the Project area is currently zoned 'RU1 Primary Production' and 'E3 Environmental Management', which is indicative of farming industries in closer proximity to the Project area.

The unemployment rate for Mid-Western Regional LGA in 2016 was 6.5 per cent, which was higher than the regional NSW unemployment rate (6.3 per cent) at the time. The median weekly household income was $1,131 for the LGA, lower than both the Australian and NSW median weekly household incomes.

7.9.2 Issues for consideration

It is unlikely the Project would result in negative socio-economic impacts to the local community and the majority of local businesses given the remoteness of the Project location. Construction of the Project may support short term economic benefits within the region associated with support services for construction employees and local procurement where possible.

The scale and nature of works are relatively small scale, and mostly limited to the existing Wollar substation with minor encroachments into adjacent land as shown in Figure 3-1. As such the Project would only affect a small number of dwellings nearby, is unlikely to affect the areas sense of place or change employment patterns, land uses or demographics.

7.9.3 Method of Assessment

The EIS would consider the potential social and economic impacts and benefits of the Project, on both a broader regional and local scale. Potential social and economic impacts and benefits would also be considered in the broader context of the Central-West Orana REZ Transmission.

DPIE has recently released draft guidelines for Social Impact Assessment (SIA) (DPIE, 2020b). The social impact assessment as part of the EIS would be undertaken generally in accordance with these guidelines. These guidelines include a number of steps in order to inform the consideration of potential social impacts, one of which is to define both actual or perceived social impacts through a variety of categories including:

- **Way of life**
- Community
- **Accessibility**
- **Culture**
- **Health and wellbeing**
- **Surroundings**
- Livelihoods
- Decision-making systems.

The categories likely to be relevant for this Project are shown in bold and these categories would be considered in the EIS. The social impact assessment prepared as part of the EIS for the Project would:

> Confirm the social locality and likely social impacts
> Provide a detailed impact assessment
> Recommend social impact enhancement and mitigation measures to address residual impacts.

The outcome of this analysis would also help inform the EIS engagement strategy.

7.10 Waste Management and Resources

Waste management and resource issues have been considered based on experience with existing substation and transmission line developments.

7.10.1 Existing Environment

Due to the remote location of the Project, access to existing waste management facilities is not readily available.

7.10.2 Issues for Consideration

The construction of the Project would result in a range of typical waste materials including:

> Spoil from excavation and access track works
> Surplus construction materials
> Vegetation
> General domestic waste from construction and maintenance personnel
> Waste from construction compounds.

Anticipated waste generated by the Project's operation would include low levels of domestic waste from infrequent visits of operation and maintenance personnel and low levels of waste from maintenance activities.

The disposal of waste generated during the construction and operation of the Project is not anticipated to result in significant adverse environmental impacts. Removal of waste generated during construction and operation would be addressed through the application of standard environmental management measures which would be identified as part of the EIS.

7.10.3 Method of Assessment

The EIS would identify potential waste streams associated with construction 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.

7.11 Cumulative Impacts

The Project forms part of the broader Central-West Orana REZ Transmission, and would facilitate development of the Central-West Orana REZ. Cumulative impacts across these developments may arise.

7.11.1 Overview

Cumulative impacts are impacts that arise from the effect of multiple actions or impacts. When considered together, cumulative impacts can have a different and/or more substantial impact than one single action or impact assessed on its own. Cumulative impacts can arise when other development activities, or concurrent activities associated with a Project occur, resulting in successive, incremental, and/or combined effects.

The degree to which another development could interact with the construction and/or operation of the Project would depend on its scale, location and/or timing of construction. Generally, the largest cumulative impacts would be expected to occur in situations where multiple long-duration construction activities are undertaken close to, and over a similar timescale to, construction activities for another project.

7.11.2 Issues for Consideration

Consideration of cumulative impacts for the Project would largely be associated with large scale renewable energy generation and storage projects proposed within the surrounding area. The main development that would need to be considered in assessing cumulative impacts is the Wollar Solar Farm located to the west of the Project. The development site boundary for the Wollar Solar Farm includes the existing Wollar substation, however infrastructure associated with the solar farm will be located approximately one kilometre to the west of the substation site.

The proposed site for the Wollar Solar Farm is traversed by an existing TransGrid operated 330 kV transmission line that currently connects into the Wollar substation. The existing 330 kV transmission line would be diverted in order to connect the proposed solar farm into the Wollar substation (NGH Environmental, 2019).

Construction of the Wollar Solar Farm commenced in late 2020 and is anticipated to take around 12-18 months to be completed. Cumulative impacts associated with the Project and Wollar Solar Farm are not anticipated to be significant, as construction works are unlikely to overlap (refer to Section 3.4). However, potential cumulative impacts associated with the operation of both projects would need to be considered in the EIS.

The Project may also raise cumulative impacts with the Shared Network Infrastructure project. This may be particularly the case in relation to region-scale issues such as ecology and the identified threatened ecological communities, Aboriginal cultural heritage, land use and property, and landscape character and visual amenity.

7.11.3 Method of Assessment

A cumulative impact assessment would be undertaken in the EIS and would screen any identified developments nearby that may have overlapping environmental or social impacts with the Project. This would include whether any aspects of the identified developments would occur concurrently with the Project, particularly construction works. The focus would be on developments within the surrounding area of the Project, predominantly large-scale renewable energy projects.

For the developments included in the cumulative impact assessment, the EIS would consider potential interaction of the Project's potential impacts with the identified relevant developments.

As the Project is one of two components that make up the Central-West Orana REZ Transmission, the cumulative impacts of the Project with the Shared Network Infrastructure project would also be considered in the EIS.

8. Conclusions

This ESR has been prepared to support the Critical State Significant Infrastructure application for the Wollar Substation Upgrade project, and to inform the preparation of SEARs for that project under Division 5.2, Part 5 of the EP&A Act.

The key environmental assessment issues identified for the Wollar Substation Upgrade project, and which would be assessed in more detail during the preparation of the EIS are:

- Land use and property
- Ecology
- Landscape character and visual amenity.

Other environmental issues that would be considered in the EIS but are not considered likely to result in significant impacts include:

- Hazards and risk
- Noise and vibration
- Aboriginal cultural heritage
- Traffic and access
- Non-Aboriginal heritage
- Surface water and hydrology
- Soils and contamination
- Air quality
- Socio-economics
- Waste management and resources.

Cumulative impacts have also been identified as an issue for environmental assessment and would be assessed in further detail during the EIS process.

As part of the preparation of the EIS, further assessments (as proposed in Chapter 6 and Chapter 7) would be carried out in conjunction with the development of the design for the Project. In assessing 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.

Mitigation and management measures to minimise impacts on the environment would also be identified in the EIS.

Consultation with affected landowners, stakeholders and the local community will continue throughout the Project assessment, design, and construction phases. The outcomes of such consultation, where relevant to this assessment, would be detailed in the EIS.

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