Department of Planning, Housing and Infrastructure

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Central-West Orana REZ Transmission

State Significant Infrastructure Assessment Report (SSI 48323210)

June 2024

Acknowledgement of Country

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Preface

This assessment report provides a record of the Department of Planning, Housing and Infrastructure's (the Department) assessment and evaluation of the critical State significant infrastructure (CSSI) application for the Central-West Orana REZ Transmission project located between Cassilis, Wollar and Goolma in central western NSW, lodged by Energy Corporation (EnergyCo). The report includes:

- an explanation of why the project is declared CSSI and who the approval authority is;
- an assessment of the project against government policy and statutory requirements, including mandatory considerations;
- a demonstration of how matters raised by the community and other stakeholders have been considered;
- an explanation of any changes made to the project during the assessment process;
- an assessment of the likely environmental, social and economic impacts of the project;
- an evaluation which weighs up the likely impacts and benefits of the project, having regard to the proposed mitigations, offsets, community views and expert advice; and provides a view on whether the impacts are on balance, acceptable; and
- a recommendation to the decision-maker, along with the reasons for the recommendation, to assist them in making an informed decision about whether development approval for the project should be granted and any conditions that should be imposed.

Executive Summary

This report details the Department's assessment of the critical State significant infrastructure application SSI 48323219 for the Central West Orana Renewable Energy Zone Transmission project. This report will be provided to the Minister for Planning and Public Spaces (the Minister) for their consideration when deciding whether to approve the carrying out of the CSSI.

Project

The Energy Corporation of NSW (EnergyCo) proposes to construct and operate approximately 90 kilometres (km) of 500 kilovolt (kV) transmission lines and associated infrastructure within the Central-West Orana Renewable Energy Zone (CWO REZ).

The project would connect new energy generation and storage projects within the CWO REZ to the National Electricity Market (NEM). This line would run from the planned Elong Elong energy hub, via Merotherie to the existing Wollar Substation where it would connect to the existing NSW transmission network.

The project also includes approximately 150 km of 330 kV transmission lines (secondary infrastructure) which would connect key electricity generating projects (wind, solar and battery storage) within the REZ to the primary infrastructure and then onto the existing NSW transmission network.

The project has a capital investment value of $3.2 billion and is expected to generate up to 1,800 construction jobs and 60 operational jobs. If approved, construction of the project is proposed to commence in late 2024 and take 28 months.

Strategic context

The NSW energy system and broader NEM is undergoing a complex and accelerating transition period with 15,000 MW (63%) of Australia's traditional coal-fired generators set to retire by 2040 and the development of renewable energy sources, like wind, solar and pumped hydro, experiencing rapid growth. As the energy network introduces a greater mix of renewables, the NEM requires additional investment in transmission infrastructure to link these new sources of generation to the energy market.

The project is located in the declared CWO REZ, with an intended network capacity of 4.5 gigawatts. The project is a critical component of the Electricity Infrastructure Roadmap, which is the NSW Government's 20-year plan to ensuring sufficient electricity transfer capacity is available to support the transition of the NEM and is critical to the successful operation of the CWO REZ.

Statutory context

The project is classified as critical State significant infrastructure (CSSI) under section 5.13 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it is listed as CSSI under section 23 of Schedule 5 of *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP). Consequently, the Minister is the approval authority.

Engagement

The Department exhibited the environmental impact statement (EIS) from 29 September until 8 November 2023 (42 days) and received 366 unique submissions (351 objecting, 13 comments and two in support) and 21 submissions from special interest groups (12 objecting, eight comments and one in support). Key reasons for objections from the community include impacts to landscape and visual amenity, agricultural land, socio-economic factors and biodiversity.

The Department received advice from 18 government agencies and submissions from the four host Councils, with Warrumbungle Shire Council objecting to the project. The Department engaged with local Councils and relevant government agencies on key issues and they each recommended the implementation of mitigation and management measures. The Department visited the project area and surrounds on four occasions.

Assessment

The key assessment considerations are energy transition, consideration of project design alternatives, biodiversity impacts, landscape and visual impacts and traffic and transport. The Department has also undertaken a comprehensive assessment of the full range of other potential impacts and recommended a range of detailed conditions, developed in conjunction with agencies and Councils, to ensure all potential impacts are effectively minimised, managed or offset.

Energy transition

The Department considers that the CWO REZ Transmission project would play an important role in:

- enhancing the capacity of the NEM;
- transporting renewable energy from the CWO REZ to energy consumers;
- facilitating the transition to lower carbon emissions energy system as coal fired generators retire; and
- facilitating lower prices for residents of NSW and the broader NEM by establishing the ability to transfer power between regions and encourage more efficient investment in lower cost generation sources.

Consequently, the Department considers that the project is critical for energy security and reliability in NSW and in supporting the transition of the energy system.

Consideration of alternatives

The Department recognises that using underground transmission lines may be feasible in some locations and would further reduce environmental impacts, such as disruptions to aerial firefighting or result in lower visual impacts. However, the Department considers this option would not meet other project objectives and would not allow the timely connection of renewable energy projects in the CWO REZ to energy consumers.

Biodiversity

The Department acknowledges that the construction of 240 km of transmission lines would inevitably result in impacts to biodiversity. Importantly, EnergyCo has designed the project to avoid and minimise impacts on high quality vegetation and habitat as far as practicable, particularly through co-locating sections of the transmission line with existing infrastructure and relocating other sections to avoid key biodiversity features.

In addition, the project involves various other mitigation measures to reduce biodiversity impacts, including partial vegetation clearing beneath the transmission lines. The final detailed design of the transmission line alignment would also be based on further reductions in impacts, wherever practicable.

The project's total construction area footprint is 4,000 ha. Within this footprint, approximately 831 ha of native vegetation would be cleared, and 460 ha would be partially impacted. Importantly, a large proportion of the total vegetation impacts would occur on disturbed, derived grassland or on vegetation that is of low quality.

Overall, the Department considers that subject to the recommended conditions, the project would not significantly impact the biodiversity values of the locality.

Landscape character and visual amenity

The Department acknowledges that the project would have a visual impact on surrounding residents as well as impact the landscape character of the surrounding area. Eighty-three receivers located within 2 km of the project are predicted to potentially experience visual amenity impacts during operation. Fifty-one of these receivers are not hosting project infrastructure (i.e. non-easement affected). Ten of the non-easement affected receivers are predicted to experience moderate visual impacts and one is predicted to experience high visual impacts. The Department has recommended that all 11 receivers should be able to request the implementation of visual mitigation measures, such as vegetation screening, while the one receiver experiencing high visual impacts would require additional measures by EnergyCo during detailed design.

With these measures, the Department considers that the project would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-easement affected dwellings subject to the recommended conditions.

Traffic and transport

The potential traffic and transport impacts would be largely restricted to the construction period, while traffic generation during operation would be minimal, having a negligible impact on roads.

There are 18 roads and intersections identified as potentially requiring upgrades to ensure safe access to construction sites and to allow the movement of over-dimensional vehicles. The Department has recommended conditions requiring EnergyCo to implement all necessary road upgrades in accordance with the relevant standard and timing requirements, as well as the preparation of a Transport Strategy in consultation with the relevant roads authority prior to commencing any road upgrades.

Subject to the recommended conditions, the Department considers that the project would not result in unacceptable impacts on the capacity, efficiency or safety of the road network and any outstanding issues, including intersection design and road crossings, can be resolved following approval with the implementation of the recommended conditions.

Evaluation

The Central-West Orana REZ Transmission project is critical for energy security and reliability in NSW as it would connect the NEM with electricity generating projects proposed in the CWO REZ and would play an essential role in supporting the transition from a long-standing reliance on coal-fired power stations to a reliance on renewable energy.

It would also deliver significant economic benefits to NSW including a capital investment of $3.2 billion and creation of up to 1,800 construction jobs.

Overall, the Department considers that the project has been designed in a way that avoids and minimises social and environmental impacts as far as practicable. The Department has carefully considered the residual potential impacts of the project on the environment. The Department has worked closely with key government agencies to prepare a comprehensive framework of recommended conditions of approval, requiring a range of controls and measures to minimise the impacts of the project.

On balance, the Department considers that the Central-West Orana REZ Transmission project's benefits to energy security and reliability outweigh its costs, and the project is in the public interest and approvable, subject to strict conditions.

Contents

1 Introduction

The Energy Corporation of NSW (EnergyCo) is a statutory authority responsible for leading the delivery of Renewable Energy Zones (REZs) in the NSW Government's Electricity Infrastructure Roadmap. The Central-West Orana (CWO) REZ was formally declared by the then Minister for Energy and Environment under section 19(1) of the *Electricity Infrastructure Investment Act 2020* (the EII Act) in November 2021.

The NSW Government engaged Transgrid in 2020 to carry out early development work to guide the planning of new transmission infrastructure for the CWO REZ. EnergyCo, as the Infrastructure Planner, then took over planning of the transmission corridor and is now seeking approval for the CWO REZ Transmission project (the project). The project would provide the required transmission infrastructure to support the REZ, enabling new energy generation and storage projects to export electricity to the National Electricity Market (NEM), providing clean, affordable and reliable power supply for energy consumers across NSW.

The project would include the construction and operation of approximately 90 kilometres (km) of 500 kilovolt (kV) transmission line (primary infrastructure), which would be the backbone of the CWO REZ transmission network. This line would run from the planned Elong Elong energy hub, via Merotherie to the existing Wollar Substation where it would connect to the existing NSW transmission network.

The project also includes a total of 150 km of 330 kV transmission lines (secondary infrastructure), which would connect key electricity generating projects (wind, solar and battery storage) within the REZ to the primary infrastructure and then onto the existing NSW transmission network.

An overview of the project alignment is provided in **Figure 1**.

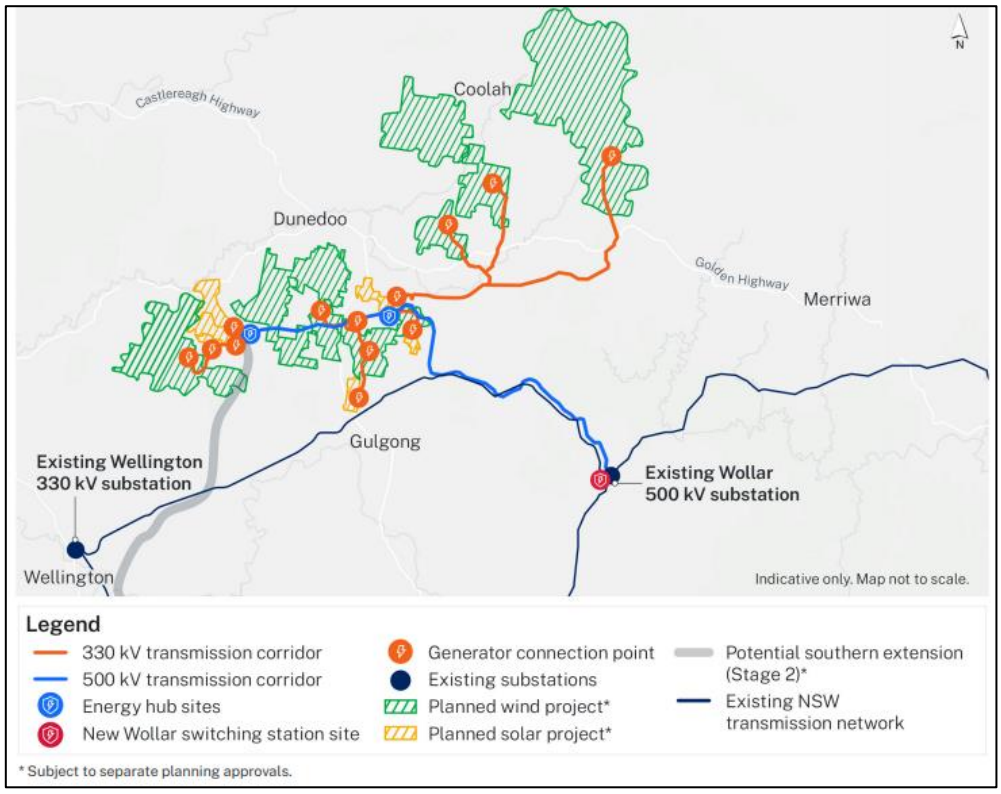


Figure 1 | Project Overview

2 Project

2.1 Project overview

The project involves constructing and operating new transmission lines, in addition to energy hubs and switching stations, which would collect and transform power from the CWO REZ for transmission to the NEM. It includes:

- 90 km of 500 kV transmission lines (primary infrastructure) from Wollar to Elong Elong via Merotherie;
- a total of 150 km of 330 kV transmission lines (secondary infrastructure) between the proposed energy hubs and the nearby renewable energy generation projects;
- associated infrastructure including energy hubs, switching stations and microwave repeater sites; and
- construction facilities, such as construction compounds, access tracks laydown and material sites, accommodation camps, concrete batching plants and brake/winch sites.

The main components of the project are summarised in **Table 1** and shown on **Figure 2** and **Figures A-1** to **A-12** of **Appendix A**, and described in the Environmental Impact Statement (EIS) (see **Appendix B**), Submissions Report (see **Appendix D**), Amendment Report (see **Appendix E**) and additional information provided during the Department's assessment of the project (see **Appendix F**).

Table 1 | Key aspects of the project

Aspect	Description
Project area	• Construction area footprint: 4,000 hectares (ha) • Operational area footprint: 2,700 ha (subject to ongoing refinement)
Transmission lines	• 90 km of twin double circuit 500 kV transmission lines (primary infrastructure) • A total of 150 km of single circuit, double circuit and twin double circuit 330 kV transmission lines (secondary infrastructure) • Easement width: 60 m (for single 330 kV line) to 240 m (where the 500 kV and 300 kV networks are located in the same easement) • Tower height: 65 m to 85 m • Typical spacing between towers: 250 m to 550 m
Energy hubs and switching stations	• Two energy hubs: at Merotherie and Elong Elong which would transform the voltage of energy generated from renewable energy generation projects to 500 kV for export to the project's primary infrastructure. These would comprise 330 kV and 500 kV switchyards with power transformers, synchronous condensers and other supporting equipment • A new 500 kV switching station at Wollar connecting the project to the existing 500 kV network via Transgrid's Wollar Substation • 14 separate 330 kV switching stations along the secondary infrastructure network at Cassilis, Coolah, Leadville, Merotherie, Tallawang, Dunedoo, Cobbora and Goolma

Aspect	Description
Ancillary infrastructure	• Operations and maintenance facility at the Merotherie energy hub • Underground fibre optic communication cables along both the primary and secondary infrastructure easements to monitor and control the network infrastructure and generator performance • A new microwave network with microwave towers at Botobolar and Cope, and microwave repeater sites at Baldy Peak (Kandos) and Magpie Hill (Galambine) to provide a secondary communications link between the project and the existing electricity transmission and distribution network • New access tracks along and to access the transmission easement from the nearest public road • Adjustments and augmentation of Transgrid and Essential Energy's transmission and distribution lines at crossing points with the project
Construction facilities	• Four main construction compounds located at: – new Wollar Switching Station; – Merotherie energy hub; – Elong Elong energy hub; and – Neeleys Lane workforce accommodation camp • Two workforce accommodation camps accommodating up to 1,800 workers at: – Merotherie Road, Merotherie; and – Neeleys Lane, Turill
Access route	• Non-standard or oversized loads would be transported from the Port of Newcastle via gazetted oversize and overmass (OSOM) routes. The OSOM construction route comprises Golden Highway, Spring Ridge Road, Merotherie Road, Ulan Road, Ulan-Wollar Road and Barigan Road • The daily construction route to and from construction areas within the project area comprises the Golden Highway, Castlereagh Highway (highways), Ulan Road, Cope Road (main roads), Wollar Road (regional road) and several local roads
Road upgrades	• Several road and intersection upgrades would be required to ensure safe access to construction sites, access points and to accommodate OSOM movements
Construction	• Enabling works are expected to take 15 months • Main construction is expected to commence late 2024 and take 28 months • Construction hours would generally be Monday to Friday 7am to 6pm, and Saturday 8am to 1pm
Operation	The operational life of the project is not limited
Decommissioning and rehabilitation	The project includes progressively rehabilitating all construction works and decommissioning
Employment	Up to 1,800 construction jobs and 60 operational jobs
Capital investment value	$3.2 billion

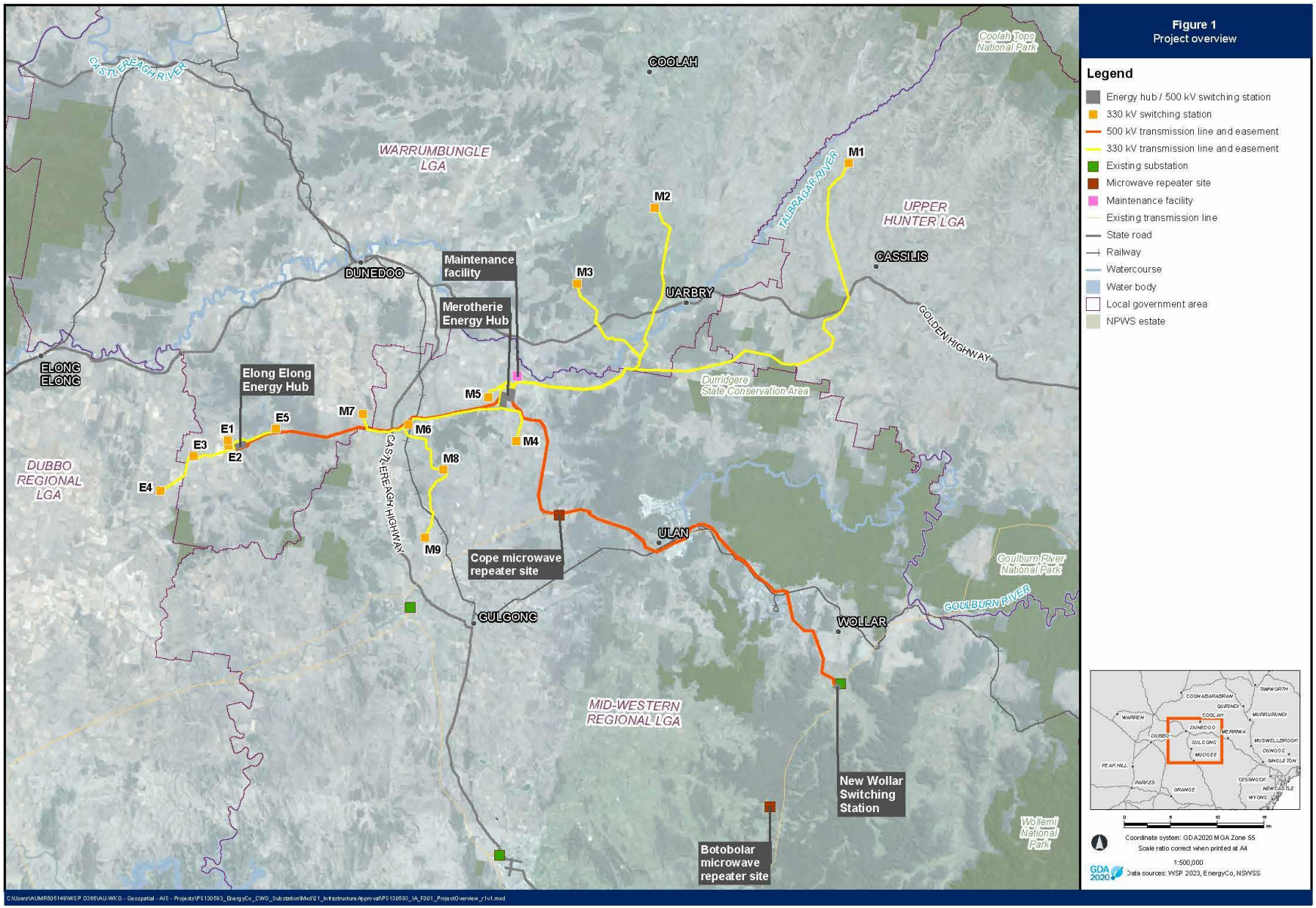


Figure 2 | Operational Project Layout

2.2 Project design

2.2.1 Option analysis

The project has undergone a process of refinement of alternative transmission corridor options from feasibility to early design development. Early development work was undertaken by Transgrid and was built on by EnergyCo. This involved an analysis of opportunities and constraints, including environmental, social, land use and engineering matters such as national parks, intensive agricultural land, heritage conservation areas and residential areas.

The Department acknowledges that the construction of 240 km of new transmission infrastructure would inevitably result in impacts to biodiversity and heritage values, as well as some amenity impacts to the community (such as traffic, noise and visual). Nevertheless, EnergyCo considered several opportunities and constraints in selecting its corridor alignment, with the view to avoid and minimise environmental, heritage, social and land use constraints, including:

- realignment of the eastern section of the preliminary study corridor avoiding a section of intact vegetation and Biophysical Strategic Agricultural Land (BSAL) on the Merriwa Cassilis plateau into previously disturbed mining areas and existing transmission easements;
- selection of Wollar as the preferred connection point to the NSW transmission network (rather than Wellington) due to existing connections to the 500 kV network minimising visual impacts and disruption to the existing transmission network;
- reducing the length of the Cassilis connection (between Merotherie energy hub and Liverpool Range Wind Farm) through Durridgere State Conservation Area (SCA) compared to the alignment approved for the Liverpool Range Wind Farm, with an overall net reduction in disturbance in the SCA and impacts to biodiversity values;
- selection of energy hub locations in strategic areas close to planned generation projects within the CWO REZ to minimise the number and length of transmission line connections. The final location of each energy hub was also subject to options analysis against selection criteria, which resulted in the decision to remove a third energy hub in Uarbry from the project scope;
- exploring the costs and benefits of underground compared to above ground transmission lines, which determined that underground transmission lines were not a viable option for this project;
- inclusion of the 330kV network secondary infrastructure and switching stations for connections between energy generation projects and energy hubs, providing a coordinated network solution for the REZ, reducing the number and length of transmission lines in the network, thereby reducing both costs and environmental impacts; and
- incorporating advice from associated landowners and the surrounding community to minimise impacts on their properties and the surrounding environment, where possible.

Further refinements to the project alignment and construction facilities were made following exhibition of the project to reduce environmental impacts (see **section 4.3**). This included several amendments to the primary

and secondary transmission line alignments in response to landowner feedback to minimise visual impacts at nearby residential dwellings, minimise impacts to vegetation, avoid mine subsidence areas, and to align with updated designs from key energy generation projects.

2.2.2 Indicative transmission line and refinement

There is a well-established process of assessing the nature and scale of potential impacts before determination, while also allowing for further assessment and reduction of impacts post-determination. While there is only an indicative transmission line footprint within a defined 60 m – 240 m wide easement, the Department is confident that the exact location of the transmission line could be sited without materially changing the key environmental impacts of the project (i.e., visual, noise, biodiversity, and heritage). Detailed design of the final transmission line alignment within the easement would be based on further minimising environmental impacts, wherever practicable.

3 Strategic context

3.1 Renewable energy context

The NSW energy system and broader NEM is undergoing a complex and accelerating transition period with 15,000 MW (63%) of Australia's traditional coal-fired generators set to retire by 2040 and the development of renewable energy sources, like wind, solar and pumped hydro, experiencing rapid growth. As the energy network introduces a greater mix of renewables, the NEM requires additional investment in transmission infrastructure to link these new sources of generation to the energy market.

The project is located in the declared CWO REZ, with an intended network capacity of 4.5 gigawatts (GW). The project is a critical component of the Electricity Infrastructure Roadmap, which is the NSW Government's 20-year plan to ensure sufficient electricity transfer capacity is available to support the transition of the NEM.

Several Commonwealth and State policies and strategies underpin the renewable energy context in NSW as summarised in Table 2.

Table 2 | Energy context

Policy/Year	Comments
Australia's Long Term Emissions Reduction Plan (2021) and Nationally Determined Contribution (2022)	Sets a pathway to net zero emissions by 2050 and affirms Australia's commitment to meeting its revised 2030 target (43% below 2005 levels). The plan identifies expansion of electricity transmission networks and associated enabling infrastructure as critical in achieving these targets.
Climate Change (Net Zero Future) Act 2023	Legislates a whole-of-government climate action to deliver net zero by 2050.

Policy/Year	Comments
Australian Energy Market Operator's (AEMO) 2022 Integrated System Plan (ISP) and Draft 2024 ISP	Identifies that investment is needed to install more than 10,000 km of new transmission lines to ensure energy security and reliability, and that this additional transmission plays an essential role in the NEM transition to renewable energy.
NSW: *Climate Change Policy Framework (2016);* *Transmission Infrastructure Strategy (2018);* *Electricity Strategy (2019);* *Electricity Infrastructure Roadmap (2020);* *Net Zero Plan Stage 1: 2020 – 2030 (2020) and Implementation update (2022);* *Central West and Orana Regional Plan 2041*	Relevant aspects of these policy documents include: • aim to achieve net zero emissions in NSW by 2050 and reduce emissions by 70% below 2005 levels by 2035; • note that all coal fired power plants in NSW are scheduled for closure within the next twenty years; • set out how the NSW government will deliver on this objective and fast-track emissions reduction; • identify REZs across NSW, including in the declared CWO REZ, aimed at encouraging investment in electricity infrastructure and unlocking additional generation capacity in order to ensure secure and reliable energy in NSW; • note the need to expand transmission infrastructure into REZs to open new parts of the grid for renewable energy projects; and • unlock regional investment and new energy generation infrastructure.

The project's alignment with existing Commonwealth and State policies and strategies is considered in **section 6.2**.

3.2 Project area and surrounds

3.2.1 Land use

The project is located within the Dubbo Regional, Mid-Western Regional, Upper Hunter Shire and Warrumbungle Shire local government areas (LGAs). The primary land use in the region is agriculture. Other key land uses include national parks, State conservation areas and mining operations. The nearest regional population centres to the project are Gulgong and Dunedoo. The nearest towns and villages are Leadville, Uarbry, Ulan and Wollar, which are located within five kilometres from the project, except for Leadville which is approximately nine kilometres from the project.

Land tenure in the region is predominantly freehold, with some areas of Commonwealth and Crown land, including road reserves, rail corridors, travelling stock reserves, State forests and national parks. Parts of the study area is mapped as Biophysical Strategic Agricultural Land (BSAL). The project area also intersects land owned by three coal mines – Moolarben, Wilpinjong and Ulan.

The majority of the project area and surrounds is zoned RU1 – Primary Production under the relevant Local Environmental Plans (LEP). The broader study area also contains a number of areas reserved under the *National Parks and Wildlife Act 1974* (NP&W Act) and managed by the NSW National Parks and Wildlife Service (NPWS), as well as State forests reserves, biodiversity offset sites or conservation areas under the NP&W Act or *Biodiversity Conservation Act 2016* (BC Act). The transmission alignment intersects Durridgere SCA and runs adjacent to Goulburn River National Park.

The existing Transgrid Wollar 500 kV substation, as well as several existing high voltage transmission lines, are located within and surrounding the project area.

3.2.2 Natural environment

Due to the scale of the project, there is a wide variety of landscape characteristics across the study area generally consistent with four types:

- rural valleys (wide, flat, cleared for agricultural purposes);
- undulating rural hills;
- forested hills and escarpments; and
- mining areas.

Elevations across the study area vary between 350 m and 700 m AHD. The project is located across the Macquarie River (Macquarie-Bogan sub catchment) and Hunter River catchments and crosses the Talbragar River and 28 other ephemeral watercourses. A number of constructed dams are located within the study area, including Burrendong Dam and Windamere Dam, to provide water supply for towns, industry, irrigators, stock and domestic users, as well as flood mitigation and recreation.

Most of the project area has been extensively cleared for agricultural purposes with a mosaic of fragmented patches of woodland. Key landscape features include Goulburn River National Park, Munghorn Nature Reserve, Durridgere State Conservation Area and Tuckland State Forest. Goulburn River National Park contains significant Aboriginal cultural heritage values, mainly associated with the Goulburn River, habitat for threatened species and is a popular camping and hiking destination for locals and tourists. Munghorn Nature Reserve is the second oldest nature reserve in Australia and contains significant Aboriginal cultural heritage values, unique natural rock formations and high bird diversity and offers scenic walks and picnic areas.

4 Statutory context

4.1 Critical State significant infrastructure

The project is classified as critical State significant infrastructure (CSSI) under section 5.13 of the EP&A Act because it is listed as CSSI under section 23 of Schedule 5 of *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP). Consequently, the Minister for Planning and Public Spaces (the Minister) is the approval authority. Under section 2.15 of the Planning Systems SEPP, the project may be carried out without development consent under Part 4 of the EP&A Act.

4.2 Administrative and procedural requirements

Under the EP&A Act and the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation), there are several administrative and procedural requirements that must be met before the Minister may determine

the application, including EnergyCo applying to the Minister for approval, preparing an EIS and responding to submissions, and the Department exhibiting the EIS and making key documents available on the NSW Planning Portal. The Department is satisfied that all requirements have been met and that the Minister may now determine the application.

4.3 Amended application

EnergyCo has sought to amend its application (see **section 5.3**), in accordance with clause 179(2) of the EP&A Regulation.

The Director, Energy Assessments accepted EnergyCo's amended application for the following reasons:

- the project amendments have reduced the impacts of the project as a whole;
- the amended application directly responds to the key issues raised in submissions;
- EnergyCo assessed the impacts of the amended project (see **Appendix E**); and
- the Department made the additional information available online and sent it to the relevant agencies.

4.4 Application of the Biodiversity Conservation Act 2016

The EIS was accompanied by a biodiversity development assessment report (BDAR) in accordance with section 7.9 of the BC Act. The Minister must consider the likely impact of the project on biodiversity values as assessed under the BDAR in accordance with section 7.14 of the BC Act.

The Department has considered the findings of the BDAR (including revisions) and the advice from the Biodiversity, Conservation and Science Group (BCS), in its assessment (see **section 6.4**).

4.5 Exempt approvals

Under section 5.23 of the EP&A Act, the following approvals are not required for CSSI projects:

- a permit under section 201, 205 or 219 of the *Fisheries Management Act 1994*;
- various approvals for State Conservation Areas and heritage under the *National Parks and Wildlife Act 1974* and *Heritage Act 1977*;
- a bushfire safety authority under section 100B of the *Rural Fires Act 1997*; and
- various water-related approvals under sections 89 to 91 of the *Water Management Act 2000*.

However, the assessment of these matters has been integrated with the assessment of all other matters under the EP&A Act. The Department has considered all the relevant matters associated with these in its assessment (see **Section 6**), consulted with the agencies responsible for administering these (see **section 5.6**), and included conditions in the recommended project approval (see **Appendix G**) to ensure EnergyCo minimises the biodiversity, heritage, bushfire and water impacts of the project.

4.6 Environmental planning instruments

AIthough environmental planning instruments do not apply to CSSI projects under section 5.22 of the EP&A Act, the Department has assessed the project against the provisions of several instruments and concluded that the land is suitable for the project, and that the project is not a potentially hazardous or offensive development under the *State Environmental Planning Policy (Resilience and Hazards) 2021* (Resilience and Hazards SEPP).

4.7 Renewable energy zone

The *Electricity Infrastructure Investment Act 2020* (EII Act) coordinates investment in transmission, generation, storage and firming infrastructure in NSW and gives effect to the NSW Government's Electricity Infrastructure Roadmap. Under section 19 of the EII Act, the Minister for Energy may declare a renewable energy zone comprising a specified geographical area of the State, and specified generation, storage or network infrastructure.

This project extends through the geographical area specified in the CWO REZ, which was declared under section 23 of the EII Act.

4.8 Mandatory matters for consideration

When deciding whether or not to approve the carrying out of the project under section 5.19 of the EP&A Act, the Minister is required to consider the reports, advice and recommendations contained in this report, which includes the EIS, public submissions, agency advice, the Department's whole-of government assessment, and the recommended conditions of approval. The Department has considered these matters in its assessment, as summarised in **Section 6** of this report.

4.9 Other NSW approvals

Under section 5.23 of the EP&A Act, a number of other approvals are integrated into the SSI approval process, and consequently are not required to be separately obtained for the project. These include approvals and permits relating to heritage under the EP&A Act, *Heritage Act 1977* and NP&W Act, and certain water approvals under the *Water Management Act 2000*.

Under section 5.24 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any planning approval for the project. These include:

- approvals for works on public roads under the *Roads Act 1993* (Roads Act). This only applies to classified roads and Crown roads for this project, as EnergyCo is a public authority. Consequently, EnergyCo would generally not require consent from the relevant Councils for works in unclassified (local) roads for the project (clause 5(1) of Schedule 2 of the Roads Act). The Department has consulted with the agencies responsible for these approvals in its assessment of the project; and

- an environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997* (POEO Act). It is noted that an EPL is required for the project, specifically for crushing, grinding or separating under Clause 16 of Schedule 1 of the POEO Act.

Under section 138 of the NP&W Act, the project would require approval from the Minister administering the NP&W Act to grant an easement within the Durridgere SCA.

4.10 Objects of the EP&A Act

The Department has assessed the project against the objects in section 1.3 of the EP&A Act, including incorporating ecologically sustainable development principles and promoting the social and economic welfare of the community and a better environment (see **Appendix I**).

4.11 Commonwealth matters

On 2 March 2023, the project was declared (EPBC 2022/09353) to be a 'controlled action' in accordance with the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely significant impacts to listed threatened species and communities (sections 18 and 18A) and listed migratory species (sections 20 and 20A).

The assessment process under the EP&A Act has been accredited under a bilateral agreement with the Australian Government. Accordingly, the NSW Government has undertaken the assessment on behalf of the Australian Government and has assessed matters of national environmental significance (see **section 6.4** and **Appendix J**).

The Department consulted with the Australian Government Department of Climate Change, Energy, the Environment and Water (AG DCCEEW) in accordance with the bilateral agreement and provided draft copies of this assessment report and the recommended conditions of approval to AG DCCEEW for comment.

5 Engagement

5.1 Department's engagement

The Department publicly exhibited the EIS from 29 September 2023 until 8 November 2023 (42 days), advertised the exhibition in several local and national newspapers and notified landowners in proximity to the project. The Department visited the project area and surrounds on 25 September 2023, 16 October 2023, and 30 April 2024.

The Department consulted with relevant Councils and government agencies throughout the assessment.

5.2 EnergyCo's engagement

EnergyCo's engagement with the local community included a dedicated website, interactive mapping tool, phone number and email address, an online engagement tool for stakeholders to provide comments, stakeholder briefings, information sessions, and face-to-face meetings with potentially affected landowners.

EnergyCo also undertook consultation with the Department, relevant government agencies and Councils, Aboriginal stakeholders and developers of renewable generation projects during the assessment process, as well as potentially impacted neighbours and associated landowners to inform the project amendments detailed below.

5.3 Amended application

Following consideration of submissions on the project, EnergyCo amended its application to reduce impacts particularly in relation to land use and property, traffic and access, visual impacts and biodiversity, as detailed in the Amendment Report (**Appendix E**). This included:

- changes to the 500 kV and 330 kV transmission line alignments;
- relocating five 330 kV switching stations and providing an additional 330 kV switching station;
- additional construction compound at the Neeleys Lane workforce accommodation camp, including materials storage and laydown facilities;
- additional brake and winch sites (to facilitate transmission line conductor installation) and changes to the location of brake and winch sites identified as part of the exhibited project;
- confirming the locations of microwave repeater sites;
- refining the alignments of access roads at the energy hubs and new Wollar Switching Station;
- refining the alignments of access tracks and providing additional access tracks along and to the transmission lines;
- refining the alignment and design of local road and intersection upgrades, including bridge and drainage works;
- removing the option for one 200 MW/400 MW per hour battery energy storage system (BESS) at the Merotherie energy hub; and
- adding crushing, grinding and screening plant at switching station M1, at the end of the Cassilis connection.

The Department provided the Amendment Report to government agencies and Councils for comment.

5.4 Summary of submissions

During the exhibition of the EIS, the Department received 374 public submissions of which 366 were unique (351 objecting, 13 comments and two in support) and 21 submissions from special interest groups (12 objecting,

eight comments and one in support). A summary of the proximity of unique submissions is provided in **Table 3** below, and the issues raised in the submissions are summarised in **section 5.5**. All submissions are publicly available on the NSW Planning Portal (see **Appendix C**).

The Department received supplementary submissions from the public following the end of the submissions period. These comments did not raise any issues in addition to those discussed below and have been considered in the assessment process.

The majority (96%) of the submissions received during the public exhibition objected to the project. As shown in **Table 3**, most submissions (61%) came from people living 15 km to more than 50 km from the project.

Table 3 | Summary of submitter distances

Submitter	Objection	Support	Comment	Total
<5 km	60	0	6	66
5-15 km	74	1	1	76
15-50 km	82	0	5	87
>50 km	118	1	1	120
Other state	17	0	0	17
TOTAL	351	2	13	366

5.5 Summary of public submissions

5.5.1 Submissions in objection

The submissions objecting to the project primarily raised concerns about impacts to landscape and visual amenity, agricultural land, socio-economic factors and biodiversity. **Section 6** provides a summary of the Department's consideration of these matters.

Many submitters also criticised the extent and adequacy of engagement from EnergyCo as well as identifying perceived flaws in the EIS.

Other issues raised in submissions included perceived increase in bushfire risks, traffic impacts, property devaluation, health impacts including from electric and magnetic fields (EMF) as well as cumulative impacts in the context of the project's function to unlock other renewable generation projects in the REZ. One submission did not relate to the project.

5.5.2 Submissions in support and comments

Submissions in support noted the benefits of the project in ensuring the future supply of electricity and the transition to cleaner energy sources.

Submissions commenting on the project emphasised the importance of meaningful and ongoing engagement by EnergyCo and raised queries around management of socio-economic impacts, biodiversity, landscape and visual amenity impacts and traffic concerns.

The key matters raised in submissions are summarised in **Figure 3**.

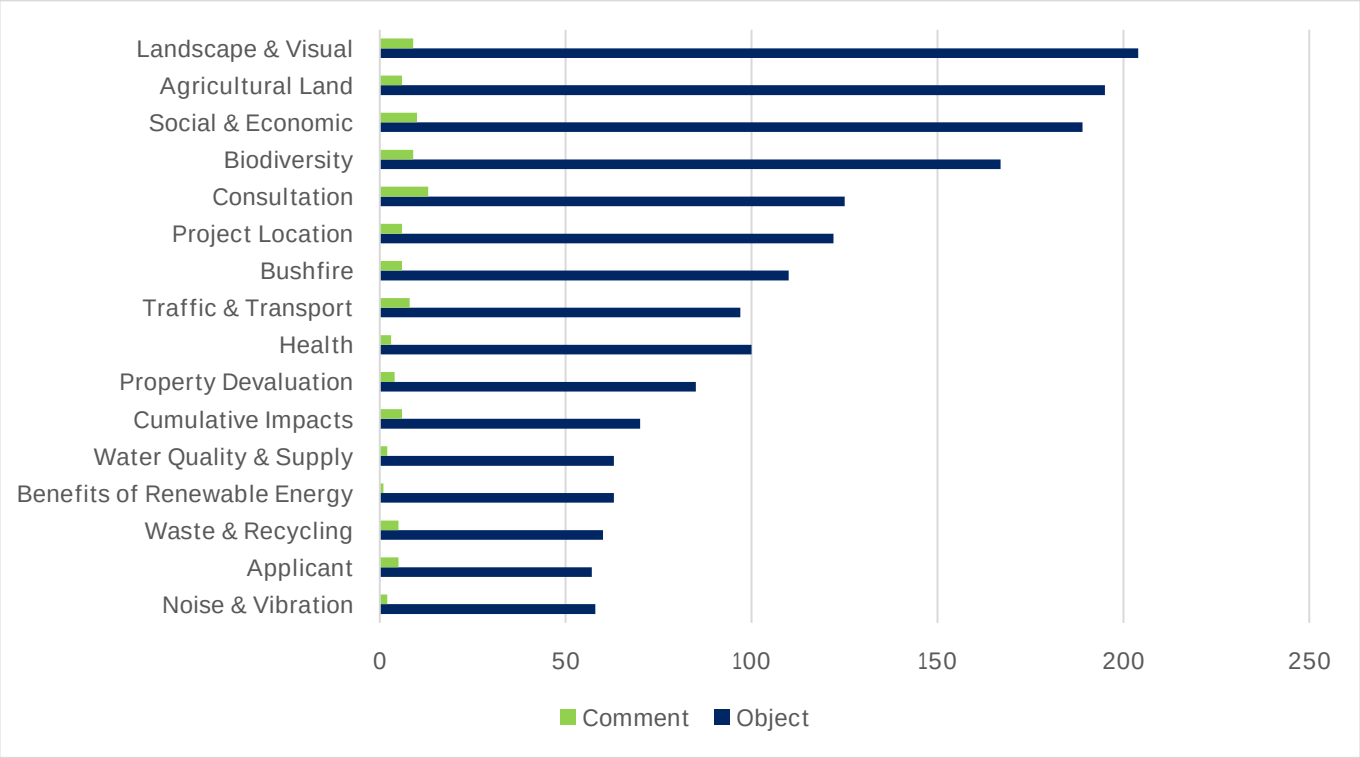


Figure 3 | Key issues raised in public submissions

5.5.3 Special interest groups and organisations

Twenty-one submissions on the project were from special interest groups, with matters raised summarised in **Table 4**.

Table 4 | Summary of matters raised in special interest group and organisation submissions

Position	Groups	Key Issues
Object (12)	Central West Environment Council Climate and Energy Realists Queensland Coolah District Development Group CWO REZist Inc Environmentally Concerned Citizens of Orange Mudgee District Environment Group Rylstone District Environment Society Save Our Surroundings Save Our Woodlands Uarbry Tongy Lane Alliance Inc Wellington Valley Wiradjuri Aboriginal Corporation Wollar Progress Association	• Objection to the REZ as a whole, cumulative impacts and over-reliance on post approval management plans. • Inadequate community consultation, lack of social license, impacts on amenity (i.e. visual, traffic, noise and vibration), natural landscape, social impacts and property values. • Agricultural impacts, temporary workforce and accommodation camps. • Impacts on biodiversity and heritage values, water availability, waste disposal, aviation impacts, EMF. • Bushfire, biosecurity and flooding risks. • Decommissioning and rehabilitation.
Comment (8)	Cassilis District Development Group Central West Cycle Trail Inc Community Power Agency	• Encourage better community engagement. • Inadequacies in the EIS. • Cumulative impacts.

Position	Groups	Key Issues
	Edify Energy Pty Ltd Merriwa-Cassilis Alliance Orange Compass	• Discourage compulsory acquisition. • Transport impacts on cyclists. • Identify social benefit opportunities such as legacy housing initiatives. • Request key plans and strategies be developed pre-approval rather than post-approval.
	Ulan Coal Mines Pty Ltd Wilpinjong Coal	• Request ongoing collaboration around the impact of the project on mine operations, approvals, offset areas and management plans. • Impacts on potential future coal extraction areas.
Support (1)	Yancoal Australia Limited	Request ongoing collaboration around the impact of the project on mine operations, approvals, offset areas and management plans.

5.6 Summary of agency advice and Council submissions

The Department received advice from 18 government agencies and submissions from the four host Councils, with Warrumbungle Shire Council objecting to the project.

A summary and overview of the key comments made by Councils and advice from public authorities is provided in **Table 5**, with full copies available on the NSW Planning Portal (see **Appendix C**).

Where clarification was requested, those matters were addressed through the assessment process and additional information provided by EnergyCo in its Submissions Report. Where relevant, this is summarised in the relevant assessment section.

Table 5 | Summary of Council submissions and government agency advice

Agency/Council	Key matters raised
Agencies	
BCS Group of NSW DCCEEW	• Expressed concern about impacts to potential Serious and Irreversible Impact (SAII) entities, requesting further avoidance and minimisation strategies. • Provided advice around revisions required for inputs into the BDAR, including survey methodology, partial impact assumptions, spatial data and BAMC inputs. • Highlighted concerns around the adequacy of proposed biodiversity offsets. • Recommended further consultation with NPWS around the interface with Goulburn River National Park.
Heritage NSW (ACH)	• Requested clarification around impacts associated with transport route upgrades being subject to separate assessment. • Identified some inconsistencies in the ACHAR relating to consultation, survey methodology, mapping and impacts. • Recommended a number of residual matters be addressed in the Aboriginal Cultural Heritage Management Plan.

Agency/Council	Key matters raised
Heritage Council of NSW	• Supported the proposed methodology to avoid and minimise impacts to nine potential archaeological sites.
Transport for NSW (TfNSW)	• Expressed concern about the level of assessment provided in the EIS and requested additional data and assessment be undertaken. • Raised concerns regarding the scope and timing of proposed road upgrades. • Recommended conditions regarding construction and final design of the transmission lines crossing the state classified road network in consultation with and to the satisfaction of TfNSW. • Confirmed that any outstanding issues, including intersection design and road crossings, can be resolved following approval with the implementation of a Transport Strategy and a Traffic Management Plan.
Department of Primary Industries (DPI) Agriculture	• Supported the development of property plans in consultation with landholders to manage risks such as biosecurity, access to water, aerial agriculture and firefighting.
Crown Lands	• Provided a number of requirements when the project traverses Crown land, which EnergyCo committed to in the Submissions Report.
Environment Protection Authority (EPA)	• Advised that if the project is expected to exceed the threshold quantity for crushing, grinding or separating materials under the POEO Act then an EPL would be required. The construction contractor would obtain the EPL as required in consultation with the EPA. • Requested additional measures for the management of waste, including a Waste Management Plan.
NSW DCCEEW – Water Group (Water Group)	• Provided recommendations regarding water supply, take and licencing, controlled activities on waterfront land, groundwater impacts and wastewater management. • Noted that a secure water supply source was yet to be confirmed, which may require additional impact assessment or acquisition of water licences post approval. • Requested post approval management and reporting for water use, groundwater and surface water, which EnergyCo committed to in the Submissions Report.
WaterNSW	• Requested EnergyCo consult with WaterNSW if any of its assets are encountered during project implementation, which EnergyCo has committed to.
DPI Fisheries	• Recommended guidelines to be followed for the management of waterway crossings and riparian buffer zones.
Fire and Rescue NSW	• Recommended an Emergency Response Plan (ERP) be prepared for the project however withdrew this recommendation following the Amendment Report and the removal of the BESS.
Rural Fire Service	• Recommended several conditions related to bushfire and safety, which EnergyCo addressed in the Submissions Report. • Expressed concern about the potential risk of bushfires caused by electrical infrastructure. Further information provided in the Submissions Report regarding the difference in risk associated with high voltage compared to low voltage transmission lines, addressing this concern.

Agency/Council	Key matters raised
NSW National Parks and Wildlife Service (NPWS)	• Provided advice about the easement in Durridgere SCA and associated access rights. • Advised EnergyCo to negotiate with Tilt Renewables to resolve the infrastructure asset conflicts between the two developments given that only one easement right can be granted for Durridgere SCA. • Requested clarification about the interface between the transmission alignment and Goulburn River National Park, which was resolved in the Submissions Report. • Requested to be recognised as a key stakeholder in the preparation and delivery of the project's management documents and biodiversity offset strategy.
Regional NSW – Mining, Exploration and Geoscience	• Noted EnergyCo's commitment to consultation with exploration licence holders and mining operators.
CASA	• Confirmed that the transmission line would not be a hazard to aircraft operations. • Recommended owners of potentially affected landing areas be consulted and the provision of aviation marker balls be included where necessary. • Recommended condition to consult with landowners and aircraft landing area operators, where transmission lines could impact aerial operations to identify appropriate mitigation arrangements.
Airservices Australia	• No further comment to be provided until detailed design stage.
Department of Defence	• Advised that the project is located within two Danger Areas and one Restricted area. • Confirmed the project is unlikely to impact military flight operations in these areas given that transmission line tower coordinates and elevations would be provided to Airservices Australia to be published on relevant aeronautical charts.
NSW Telco Authority	• Noted that there are NSW Telco Authority Public Safety Network links which traverse the project and advised appropriate clearance distances from those links. Potential obstructions would be reviewed at detailed design in consultation with NSW Telco Authority.
APA Group	• Identified the Central Ranges pipeline located within the project area and advised that any proposed works within the pipeline easement would require APA approval. The construction area does not cross the pipeline easement.
Councils	
Dubbo Regional Council	• Expressed concerns around workforce accommodation arrangements. Requested further detail clarifying cumulative impact scenarios and waste management approach. Concerns regarding waste management were resolved in the Submissions Report.
Upper Hunter Shire Council	• Requested clarification around accommodation camps, cumulative traffic impacts, agricultural loss and road upgrades. Proposed conditions to manage road upgrade issues. These issues were resolved in the Submissions Report.
Warrumbungle Shire Council	• Objected to the project. • Requested clarification around management of several community issues including, local employment, accommodation camps, waste management, water supply as well as raised concerns regarding cumulative visual impacts, flooding, economic impacts, bushfire management, impacts on the local road network and road maintenance.

Agency/Council	Key matters raised
Mid-Western Regional Council	• Requested firmer commitments around management plans be made prior to determination. • Sought further clarification around approach to managing social and community issues including worker accommodation camps, visual impacts, availability of services for workers, extended construction hours, waste disposal, water supply and local road impacts. • Recommended upgrades to the Neeleys Lane / Ulan Road intersection due to the amended project, including a construction compound at the Neeleys Lane accommodation camp. • Requested that koalas be identified as occurring within the project area and that relevant assessment and mitigation measures be provided. • Recommended conditions relating to traffic, waste, the accommodation camps and the Social Impact Management Plan.

5.7 Response to submissions and amendment report

Following the public exhibition period, the Department asked EnergyCo to respond to the issues raised in submissions and the advice received from government agencies.

EnergyCo provided a submissions report, amendment report and additional information during the Department's assessment (**Appendix D**, **Appendix E** and **Appendix F**).

The Department published the submissions report and amendment report on the NSW Planning Portal and referred them to relevant government agencies and Councils for comment.

6 Assessment

6.1 Overview

The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the key issues, including energy security and reliability; biodiversity; landscape character and visual amenity and traffic and transport.

The Department acknowledges that the project has been designed to minimise potential impacts, including revising sections of the transmission line alignment to reduce the visual impacts for residences along the transmission line easement and avoid areas of high biodiversity value.

The Department has also considered the full range of potential impacts associated with the project and has included a summary of its assessment of these matters in **section 6.7**.

6.2 Energy transition

The project is consistent with a range of national and state policies, which identify the need for additional transmission capacity within the CWO REZ to connect proposed renewable energy generation projects within the REZ to the NEM, and to support energy security and reliability, including the:

- NSW Government's *Transmission Infrastructure Strategy* – which highlights the need for prioritising increasing transmission capacity in the CWO REZ;
- NSW Government's *Electricity Strategy and Electricity Infrastructure Roadmap* – which support transmission upgrades in the CWO REZ; and
- *2022 Integrated System Plan (ISP)* and the draft 2024 ISP – which identifies the project as a priority transmission project in NSW and highlights the importance of the resource diversity that would be opened up by the State's REZ network.

The Department considers that the project would play an important role in:

- enhancing the capacity of the NEM;
- transporting renewable energy from the CWO REZ to energy consumers;
- facilitating the transition to lower carbon emissions energy system as coal fired generators retire; and
- facilitating lower prices for residents of NSW and the broader NEM by establishing the ability to transfer power between regions and encourage more efficient investment in lower cost generation sources.

EnergyCo has identified 11 "candidate foundational generators" to connect to the project within the CWO REZ, with a total generating capacity of up to 6.2 GW. The project is essential to connect these new generation and storage projects to the NEM.

Consequently, the Department considers that the project is critical for energy security and reliability in NSW and in supporting the transition of the energy system.

6.3 Consideration of alternatives

A number of public submissions raised concerns regarding the impacts of installing transmission lines above ground, suggesting the transmission lines should instead be installed underground. These concerns included impacts on biodiversity values, visual amenity, disruptions to agricultural land uses, ignition risk from overhead transmission lines and impacts to aerial firefighting capabilities.

The Standing Committee on the Feasibility of Undergrounding the Transmission Infrastructure for Renewable Energy Projects tabled a report to the Parliament of NSW in March 2024. The report recommended that EnergyCo consider opportunities for a hybrid approach to undergrounding transmission infrastructure for transmission projects.

In its EIS and Submissions Report, EnergyCo noted that installing the transmission lines underground was considered during the development of the projects design. EnergyCo determined that placing the transmission lines underground would result in:

- more extensive land clearing and vegetation clearance;
- restrictions to agricultural practices over the transmission line trenches;
- diminished efficiency of energy transmission;
- difficulties in fault repair and servicing; and
- increased construction costs and duration.

EnergyCo also noted that the recent Standing Committee report to the Parliament of NSW on the feasibility of undergrounding the transmission infrastructure for renewable energy projects, noted that the risk of a bushfire being ignited by high voltage transmission lines is low and vegetation could be managed to ensure safe clearances are achieved during operation.

The Department recognises that using underground transmission lines may be feasible in some locations and may further reduce some impacts to the community, such as disruptions to aerial firefighting or result in lower visual impacts. However, the Department considers this option is significantly constrained in meeting other project objectives and would not allow the timely connection of renewable energy projects in the CWO REZ to energy consumers.

6.4 Biodiversity

The project has the potential to impact biodiversity values during construction of the transmission line through native vegetation clearing and direct and indirect impacts to listed threatened flora and fauna species and vegetation communities. There are also other potential impacts during operation including bird and bat 'strike' with the transmission line.

Many community objections raised the issue of biodiversity impacts and it has been the key focus of the Department's assessment.

While the majority of the project area is used for livestock grazing and cropping, there is also a range of native vegetation along the proposed corridor, which is primarily dry sclerophyll forests and grassy woodlands. There are also a number of cliff lines, caves, crevices and rocky outcrops in the area.

In NSW, to achieve the transition to renewable energy, there will need to be a number of new large-scale transmission lines developed in rural and regional areas connecting into the existing network. While the majority of this new transmission infrastructure will likely occur on previously disturbed land, it is inevitable that some sections of this linear infrastructure will involve crossing areas of native vegetation.

The main spine (90 km) of this project stretches from the existing network at Wollar west to Elong Elong, with additional lines (150 km) out to solar and wind farms, and it is not possible for a total of 240 km of transmission lines to completely avoid native vegetation.

6.4.1 Biodiversity assessment process

EnergyCo commissioned WSP to prepare a BDAR as part of the EIS. EnergyCo revised its BDAR to address advice from BCS and comments raised in public submissions, and to address the changes to the project identified in the amendment report. EnergyCo provided a range of additional information during the Department's assessment, including a peer review by Umwelt of some key aspects of its biodiversity assessment.

The Department considers that the biodiversity assessment process has been comprehensive for this project. The BDAR and revised BDAR are extremely long and detailed documents (over 3,000 pages each), and there are hundreds of pages of other advice and information provided by BCS and EnergyCo throughout the assessment process. There was also substantial engagement through the assessment process between the Department, EnergyCo and BCS on a range of key biodiversity impacts and technical aspects of the BDAR.

The Department acknowledges that impacts to nature are an increasingly important part of its assessments and recognises the need to aim for nature positive outcomes. However, many industry stakeholders have raised concerns that the requirements of the Biodiversity Assessment Methodology (BAM) are very difficult to apply to large-scale developments, particularly long linear infrastructure projects. Nevertheless, in that context, EnergyCo, BCS and the Department have collectively worked to ensure there is sufficient information to make a reasonable decision on the project, and to impose suitable conditions, where necessary.

Throughout the assessment process, BCS has raised a range of technical concerns about the methodology underpinning some aspects of the EnergyCo's biodiversity assessment. For a project of this scale and technical complexity, this is not necessarily unexpected and EnergyCo has responded to all of BCS's concerns in various subsequent documents. The Department notes that it is not unusual for experts to disagree about some technical aspects of complex biodiversity assessments, particularly in relation to survey methods and identification or allocation of specific species or communities.

There are two key residual methodological issues that BCS raised in its most recent correspondence which relate to the allocation of plant community types (PCTs) (particularly in one of the six biogeographic subregions – the Kerrabee subregion) and the application of species polygons for 13 species. EnergyCo has addressed these

issues in a variety of information throughout the assessment process. The Department has carefully reviewed these two issues and sought preliminary advice from an independent ecological expert, Land Eco.

PCT allocation

For this project, BCS noted that it undertook an audit of a selection of the 383 plots and reported "*many of the PCTs did not best reflect the floristic information collected in the BAM plot*". However, the Department has not received any specific information about the particular PCT allocation options within the Kerrabee subregion or associated potential consequences on credit obligations.

In this case, the Department's independent expert (Land Eco) notes that questioning PCT allocation based purely on floristic data is not robust, as PCT assignation must consider a range of factors including but not limited to landscape position, hydrology, geology and floristic assemblage. Land Eco did not conclude that any further PCT analysis was required, and the Department considers that the PCT allocations within the Kerrabee subregion provided by EnergyCo's accredited assessor are fit for purpose and can be relied upon.

Species polygons

BCS has raised some technical concerns about the preparation of polygons for 13 species.

Following careful review, the Department does not have any residual concerns about three of the 13 species – the glossy black cockatoo, barking owl and masked owl. For the glossy black cockatoo, BCS acknowledges that it has requested revisions to the polygons that go beyond the requirements of the BAM. For the barking owl and masked owl, BCS has requested changes based on new guidance that was published after EnergyCo completed its surveys. In these instances, the Department does not consider that any changes are warranted.

For one other species, the koala, BCS has requested changes to assume presence in all unsurveyed patches under 5 ha in size, which includes 467 ha of small patches spread across the 240 km of transmission line. The majority of these small patches are located in fragmented landscape in thinned condition, generally associated with agricultural use. All other patches with larger sizes (i.e. more than 5 ha), most of which comprise higher quality vegetation and are more likely to contain koalas, were subject to detailed surveys.

Across the entire area of survey, there were no observed koalas and no recorded scats that would indicate koala usage. On that basis, the Department considers that it is highly unlikely that any koalas would be present in the remaining unsurveyed, small fragment patches less than 5 ha. However, the Department considers a precautionary approach is warranted and has recommended a condition requiring EnergyCo to undertake additional survey prior to any impacts occurring. In the unlikely event that koalas are identified, EnergyCo would be required to provide additional offsets.

For the remaining 9 of the 13 species, EnergyCo maintains that adequate surveys were undertaken and that the species polygons were prepared appropriately. This includes the large-eared pied bat, eastern cave bat, large bent-winged bat, southern myotis, squirrel glider, *Swainsona sericea*, pink-tailed legless lizard, little eagle, and square-tailed kite.

The disagreements between BCS and EnergyCo on these matters are complex technical issues related to the specific species, which would require substantial time and resources to review in detail. The Department's independent expert expressed a preliminary view that the BCS concerns are generally valid and recommended that EnergyCo should provide further justification post-determination.

Consequently, the Department has requested EnergyCo provide the credit obligations of those 10 species based on assumed presence, and has incorporated this into the worst-case scenario for its assessment of biodiversity impacts. However, the Department has recommended that an independent expert should review EnergyCo's process for preparing species polygon species for those 10 species, which may lead to a reduction in credit obligations.

6.4.2 Avoidance and mitigation

EnergyCo has designed the project to avoid and minimise impacts on high quality vegetation and habitat as far as practicable, including:

- **Co-location**: co-locating sections of the transmission line with existing infrastructure or in disturbed mining or cleared areas where native vegetation and species habitat is in the poorest condition;
- **Re-location**: re-locating the corridor to avoid impacts on listed (and potential SAII entities) communities and species (specifically avoiding known populations of threatened species at Cobbora);
- **Partial clearing**: implementing partial vegetation clearing measures between and adjacent to transmission line towers within the easement, limited to vegetation with potential height of 2 m or above;
- Project design and alterations:
  - locating a large proportion of alignment along valley floors dominated by active coal mines and existing transmission lines, avoiding national parks and state forests;
  - replacing the proposed Uarbry energy hub with 330 kV switching stations within the development footprints of the approved Liverpool Range Wind Farm and proposed Valley of the Winds Wind Farm projects;
  - replacing the alignment approved for Liverpool Range Wind Farm transmission connection through Durridgere SCA with a shorter alignment, reducing impacts, with only one easement progressing within the SCA with NPWS preferred alignment being that of the project;
  - avoiding impacts to better condition remnant Box Gum woodland (19% of all Box Gum Woodland) resulting in the larger proportion of impact being in derived native grassland (54%), and a large proportion of the Box Gum Woodland impacted being low quality vegetation and grassland that does not generate biodiversity offsets (23%);
  - avoiding impacts to larger more intact mapped important areas of regent honeyeater habitat;
- **Network design**: inclusion of the 330 kV transmission line connections to renewable energy generation projects, to provide an optimised transmission network solution that would reduce the number and length of transmission lines within the REZ;
- **Access**: using existing access tracks where possible to minimise vegetation clearing;

- **Site selection**: locating energy hubs and ancillary infrastructure to largely avoid impacts on listed (and potential SAII entities) communities and species; and
- **Micro-siting**: utilising opportunities in the detail design phase to micro-site project features away from areas of high biodiversity values.

6.4.3 Native vegetation

The construction area footprint is 4,000 ha. There would be approximately 831 ha of native vegetation cleared and 460 ha partially impacted. Importantly, a large proportion of the total vegetation impacts would occur on disturbed, derived grassland or on vegetation that is of low quality.

Appendix H provides a summary of the vegetation types that would be impacted by the indicative development footprint, as well as the ecosystem credit liability under the under the *NSW Biodiversity Offset Scheme*.

The project would also impact areas of native vegetation which have been established as offset sites under the development consents for the Ulan, Wilpinjong and Moolarben coal mines (mine offset areas). EnergyCo is proposing additional offset measures to address impacts to the mine offset areas, which is discussed in **section 6.4.8**.

EnergyCo has also provided an additional liability for an area of 63.61 ha that has been mapped within the revised BDAR as non-native vegetation and has been identified by BCS as requiring further justification on the presence of exotic vegetation. The area has been conservatively assigned to PCT 266 in derived native grassland form associated with Box Gum Woodland CEEC. This liability would be subject to the independent expert review.

EnergyCo has committed to monitoring clearing within the easement. The Department has recommended that the Biodiversity Management Plan include an on-site verification process within three months of the commencement of construction to confirm if any changes are required to the vegetation clearing protocols. Further monitoring and verification would also occur during ongoing operations through the regular Independent Environmental Audit process.

Partial impacts

EnergyCo has applied a conservative approach to assessing and offsetting partial impacts to vegetation (see **Table** 6). The partial impact areas would typically include:

- an inner maintenance zone where vegetation above 2 m high would be trimmed (identified as disturbance area B) (see **Figure 4**); and
- an outer maintenance zone adjacent to disturbance area B where there would be impacts to selected trees that are within the risk category height range of 20–30 m and have poor structural stability posing a risk of falling (identified as disturbance area HZ) (see **Figure 5**).

Table 6 | Clearing management zones

Management zone	Impact area (ha)
Disturbance area A – full impact	831.10
Disturbance area B – partial impact	456.22
Disturbance area Hazard Tree Zone (HZ) – partial impact	3.33

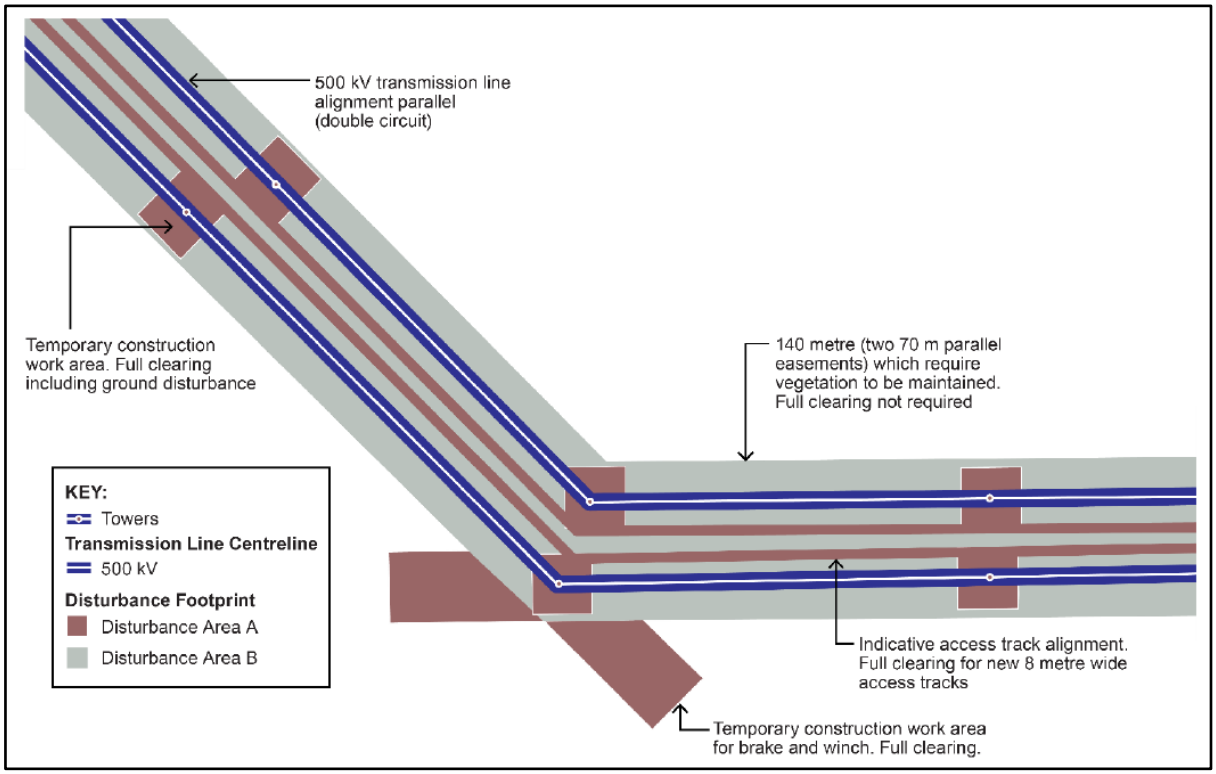


Figure 4 | Indicative disturbance areas for a typical 500kV transmission line section

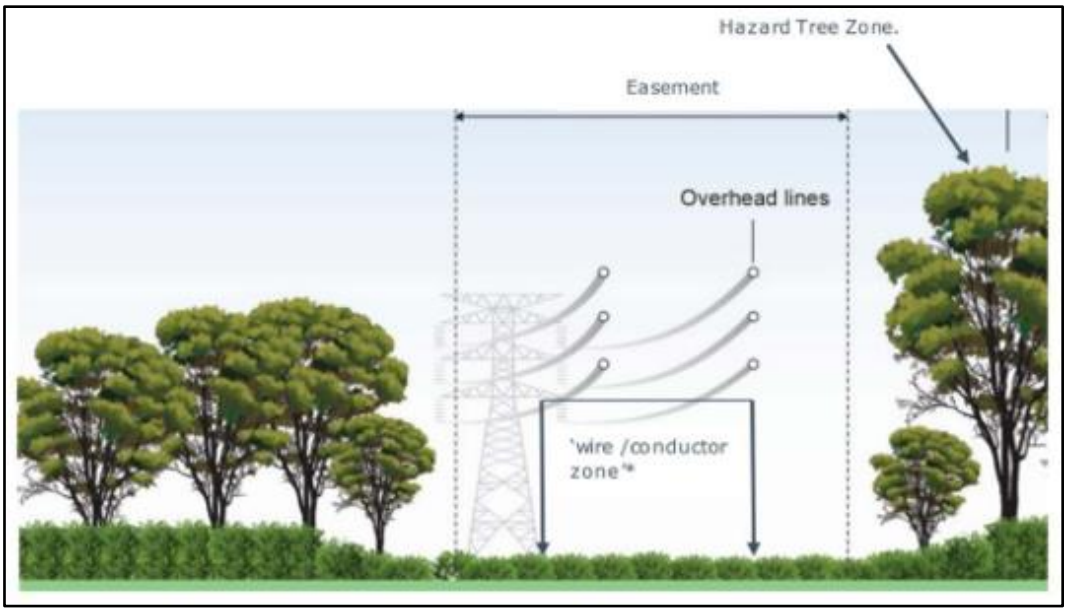


Figure 5 | Typical easement and operational disturbance areas

Partial impacts to vegetation are specifically addressed in the BAM and transmission lines are commonly assessed in the same way that EnergyCo has done, including in the two recent EnergyConnect projects.

However, BCS has raised concerns about species that may be present in the partially impacted vegetation and has recommended that a complete loss of habitat value should be calculated for 11 species. The 11 species are glossy black cockatoo, superb parrot, masked owl, barking owl, eastern cave bat, large-eared pied bat, eastern pygmy possum, pale-headed snake, regent honeyeater, squirrel glider and koala.

BCS's recommendation to assume complete loss of habitat value is not specifically required under the BAM or other guidance document. Nevertheless, EnergyCo has offered to assume complete loss of habitat value for three of the 11 species (glossy black cockatoo, superb parrot and masked owl) where the credits for those species is entirely generated by the presence of breeding habitat, and where the removal of the canopy would fully impact the potential breeding habitat.

EnergyCo commissioned a peer review by Umwelt which concluded that EnergyCo's approach "*follows sound ecological processes*" and its revised offer to assume full loss of habitat value for three species "*is fair and reasonable*".

However, the Department's independent expert (Land Eco) has also identified three more species (squirrel glider, pale-headed snake, and southern myotis) that may be entirely impacted by canopy removal and "*should for consistency*" be considered for full loss calculations by EnergyCo. However, it is not clear whether the basis for assuming complete loss is the same, particularly in relation to whether the credits for those species are entirely generated by the presence of breeding habitat.

For these three additional species, as a precautionary step, the Department requested that EnergyCo provide the credit obligations of the full habitat loss and incorporated that into the worst-case scenario for its assessment of biodiversity impacts. Further, the Department has recommended an independent review is undertaken (prior to any impacts occurring), which may give EnergyCo an opportunity to reduce its credit offset obligations for these three species.

6.4.4 Threatened flora

The project has the potential to impact flora species listed under the BC Act and EPBC Act through direct loss from vegetation clearing, and from indirect impacts.

Targeted surveys recorded the presence of five threatened flora species listed under the BC Act within the construction area footprint, two of which are also listed under the EPBC Act. Based on desktop assessment, presence of suitable habitat and field observations, EnergyCo has assumed presence of an additional 11 threatened flora species, nine of which are also listed under the EPBC Act.

Table H-3 of **Appendix H** details the impacts and species credit liability for threatened flora species potentially impacted by the project.

6.4.5 Threatened fauna

The project has the potential to impact fauna species through direct habitat loss from vegetation clearing, and indirectly due to the potential for avifauna to collide with the transmission lines and from EMF impacts for birds nesting in the transmission towers. Prescribed impacts may also occur due to fragmentation caused by the clearing of the easement, resulting in biodiversity connectivity impacts.

Direct Habitat Loss

Seven threatened fauna species listed under the BC Act were recorded (or evidence of foraging was recorded) within the construction area, three of which are also listed under the EPBC Act. EnergyCo has conservatively assumed presence of habitat for an additional eight species listed under the BC Act, four of which are also listed under the EPBC Act. A further two species credit species were identified by BCS and incorporated to account for unresolved survey information (square-tailed kite and large bent-winged bat).

Direct impacts resulting from the construction area footprint include loss of habitat for these 17 threatened fauna species identified or predicted to occur as ecosystem credit species under the BC Act. Potential impacts on these species would be offset via the ecosystem credit offsets detailed in **Table H-1** of **Appendix H**. Three of the threatened fauna species are at risk of SAII.

The project area is within the mapped important habitat area for regent honeyeater (*Anthochaera phrygia*). The regent honeyeater is a critically endangered species under the BC Act and EPBC Act and is a potential SAII entity. The project would impact around 116 ha of mapped important habitat for the regent honeyeater (and potentially up 132.58 ha conservatively including an additional 16.4 ha of potential habitat), however, most of these impacts are in isolated remnants and fringes of larger intact areas. The Department notes that the project alignment has been designed to minimise the extent of regent honeyeater habitat impacted by the project.

EnergyCo has proposed establishing a land based offset area (discussed further in **section 6.4.8**) with known regent honeyeater breeding habitat as a minimisation measure on top of offsetting the credit liability generated for impacts to this species. The offset site is located adjacent to the Capertee National Park and is proposed to be included within the National Park boundary once established.

Tables H-4 and **H-5** of **Appendix H** detail the direct impacts and species credit liability for threatened fauna species.

Indirect Impacts

There is the potential for indirect impacts on avifauna species due to the risk of line strike and EMF impacts on birds nesting in transmission line towers. **Table H-7** of **Appendix H** details the potential indirect impacts and species credit liability for these species. In addition to offsetting potential indirect impacts, EnergyCo has committed to install bird diverters to minimise the risk of birds colliding with the transmission lines and deter birds from roosting in towers.

Prescribed Impacts

There are some potential biodiversity impacts like 'habitat connectivity impacts' and 'transmission line strike' that are dealt with in a different way to other biodiversity impacts. They are considered a 'prescribed impact', as opposed to a 'direct impact' (like clearing and habitat loss) or an 'indirect impact' (such as impacts of predation, and weed invasion, edge effects in adjacent habitat). Direct impacts and indirect impacts are discussed above.

Prescribed impacts are impacts on biodiversity values which are not related to, or are in addition to, native vegetation clearing and habitat loss. There is no policy on how to calculate or quantitatively assess prescribed impacts relating to habitat connectivity or transmission line strike, and there is no identified requirement to provide biodiversity offset credits.

EnergyCo's assessment found that three sections of the alignment that bisect larger patches of vegetation may result in habitat connectivity impacts to squirrel gliders. EnergyCo proposed to mitigate this risk by establishing connectivity corridors in the form of glider poles under the transmission lines. While there is no requirement to provide offsets, EnergyCo also proposed additional species credits to compensate any residual impacts (see **Table H-6** of **Appendix H)**. This approach is consistent (or even more conservative) than other recent linear energy projects, including both EnergyConnect projects and the Snowy 2.0 Transmission project.

BCS suggested up to 12 more sections of habitat connectivity could be affected by the proposed transmission line, however EnergyCo has advised that these are distinct from the three that it identified which are all new 'greenfield' connectivity breaks. The Department notes that focussing on greenfield connectivity impacts is consistent with recent projects as it presents the greatest risk to fauna. For example, the recent Inland Rail project involving a long stretch of railway (approximately 73 km) through a greenfield area of the Pilliga State Forest, resulted in the proponent offering substantial additional offset obligations.

EnergyCo also assessed the potential fauna impacts of transmission line strike. While there are few rivers and wetlands with bird habitat close to the proposed transmission line, EnergyCo has committed to mitigating potential impacts by installing bird diverters ('flappers') within 1 km of any riverine or wetland habitats. EnergyCo also proposed additional species credits to compensate for residual impacts to four bird species with the highest risk of strike.

EnergyCo commissioned a peer review by Umwelt, which noted that there is "*limited applicable guidance available*" on prescribed impacts and concluded EnergyCo's approach "*is fair and reasonable*".

6.4.6 Serious and Irreversible Impacts

BCS has stated that there is likely to be serious and irreversible impacts on four SAII entities, which are Box Gum Woodland, regent honeyeater, eastern cave bat and large-eared pied bat.

The BioNet Threatened Biodiversity Data Collection lists all four of these as potential entities at risk of SAII. Box Gum Woodland and the regent honeyeater are both listed based on Principle 1 (in a rapid rate of decline) and Principle 2 (a very small population size). The eastern cave bat and large-eared pied bat are both listed on the basis of Principle 4 (unlikely to respond to measures to improve its habitat and vegetation integrity).

Under clause 6.7 of the *Biodiversity Conservation Regulation 2017* (BC Regulation), an impact is to be regarded as serious and irreversible if it is "likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct" on the basis of four principles.

The BCS website notes that impact thresholds for potential SAII entities are available in the BioNet Threatened Biodiversity Data Collection, but there are no impact thresholds for any of these four entities. Further, in its advice on these four entities, BCS has not provided a quantitative assessment of how much impact would amount to a serious and irreversible impact, or importantly the relevant question of whether the project's impact is likely to contribute significantly to the entity becoming extinct.

Instead, BCS has noted that there would be impacts that relate to the principles for which the entity is listed and then stated that "*as such SAII is considered likely*". While not expressly stated, this would imply that BCS's position is that any impact on a SAII entity, even if very small, is automatically considered to constitute a significant contribution to the risk of extinction.

The Department notes that none of the relevant statutory documents relating to SAII state that 'any loss' of a species or community would necessarily contribute significantly to the risk of extinction.

In terms of forming an opinion about whether there is likely to be a serious and irreversible impact on the four SAII entities, the Department notes EnergyCo's accredited assessor and BCS have come to contrasting conclusions. In the context of these varying positions, it is important to focus on whether the project is "*likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct"* as required under the BC Regulation.

The current list of SAII entities contains a wide range of ecological communities (53 in total) and species (401 in total) with widely variable population sizes, geographic distributions, rates of decline and responsiveness to mitigation measures. Whether a project would cause SAII to a specific community or species is a matter of fact and degree, and there is no simple 'rule' or 'formula' that can be applied to all communities and species. The risk of extinction for a specific SAII entity must be assessed on a case-by-case basis, with a particular focus on the relevant principles for which it has been included as a potential entity at risk of SAII.

For both Box Gum Woodland and regent honeyeater, it is important to focus on the impacts of the project on the rate of decline and population size, which are the relevant principles for which they have been included as potential entities at risk. For the two bat species (eastern cave bat and large-eared pied bat), it is important to consider its responsiveness to measures to improve its habitat and vegetation integrity.

The Department has also carefully considered the five assessment provisions in sections 9.1.1 and 9.1.2 of BAM 2020, and the *'Guidance to assist a decision-maker to determine a serious and irreversible impact (*NSW DPIE – EES, 2019*)'*.

Box Gum Woodland

The Department notes that in 2006, the Threatened Species Scientific Committee estimated that the extent of Box Gum Woodland was 250,729 ha, and the Committee's more recent 2020 advice also refers to that figure.

Based on that figure, the BDAR estimates that current extent would now be 234,694 ha when combined with estimated annual losses since then.

There is also a more recent Commonwealth Conservation Advice (AG DCCEEW, 2023), however it is not directly relevant and more conservative, as it is aimed at protecting higher condition remnants listed under the EPBC Act, and it excludes many areas that are included in the NSW listing under the BC Act.

The Department understands that many ecologists consider that the numbers derived from 2006 are out-of-date and likely to substantially underestimate the actual extent of Box Gum Woodland, as listed in NSW. Using the recent State-wide Vegetation Type Map (SVTM) released in 2022, there have been numerous efforts to provide a more up-to-date and accurate estimate of the extent of Box Gum Woodland under the NSW listing.

The revised BDAR for this project provides an estimated current extent of 1,657,493 ha (including derived) or 1,370,658 ha (excluding derived) based on the NSW SVTM data set for relevant PCTs. EnergyCo's accredited assessor states that this estimate more accurately reflects the extent of the community as currently listed under the BC Act than the 2006 figure "*which is based on only the better quality remnants representative of the Commonwealth's minimum condition requirements*".

Similarly, Dr Col Driscoll recently provided relevant information in relation to the Moolarben Coal Project, which is based on the recent NSW SVTM and estimates that the *"there is approximately 1,788,703 ha of extant Box-Gum Woodland CEEC within the SVTM in woodland form*". Dr Driscoll also estimated that there is approximately 5,315,040 ha of derived native grassland form, which results in a total of 7,103,743 ha of Box Gum Woodland in NSW.

The project would impact up to 720.83 ha of Box Gum Woodland, which includes 168.29 ha of degraded vegetation with a Vegetation Integrity score less than 15 that does not trigger a requirement for offsetting under the BAM. There is also potentially an additional area of up to 63.61 ha of Box Gum Woodland associated with the Category-2 Regulated Land discussed above. Therefore, a total impact area of 781.44 ha is a conservative, worst case scenario.

As Box Gum Woodland is listed on the basis of 'population size' and 'rate of decline', it is particularly relevant to consider the project's potential impacts on Box Gum Woodland against the total area remaining in NSW. While the Department considers the estimates of total area based on the recent SVTM are likely to be more appropriate for the NSW listing, it has also considered the updated 2006 figure for comparative purposes. Using Dr Driscoll's estimate, the BDAR estimate and the updated estimate from the 2006 Final Determination, the project would represent an impact of 0.01%, 0.05% and 0.33% of the total remaining area in NSW, respectively.

The Department considers that it would be very difficult to conclude that an impact in the 0.04%-0.33% range is likely to contribute significantly to the extinction of Box Gum Woodland.

However, there are a large number of upcoming projects in the CWO region, including multiple wind farms, solar farms and coal mining projects, and the Department is looking carefully at potential cumulative impacts on biodiversity, particularly in relation to Box Gum Woodland. Based on the next 10-12 projects at various stages of the planning process in the CWO region (including this project), the Department conservatively estimates that there could be a total area of impact of up to 2,000 ha of Box Gum Woodland. Using the recent estimates, this

would represent between 0.03% and 0.15% of the total area of Box Gum Woodland, or between 0.85% using the estimates based on the updated 2006 figure.

The Department considers that it would be reasonable to conclude that a cumulative impact of less than 1% using the most conservative assumptions is still unlikely to contribute significantly to extinction of Box Gum Woodland, and therefore unlikely to be SAII. However, the Department acknowledges that a precautionary approach may be appropriate and has been advising proponents to seek a 'nature positive' outcome that may help to further protect the Box Gum Woodland community.

In that regard, EnergyCo has offered additional measures to minimise the impacts on Box Gum Woodland, which involves securing and conserving additional land within a Biodiversity Stewardship Agreement (BSA) beyond those already required. EnergyCo's accredited assessor has developed a formula for calculating the additional measures, which involves converting the Vegetation Integrity (VI) score into a percentage and providing that percentage of impacted Box Gum Woodland as an additional area. For example, if there is an impacted area of 'excellent' condition Box Gum Woodland with an average VI score of 91.5, then EnergyCo would provide an additional 91.5% of that area of Box Gum Woodland for conservation within a BSA over and above its offset credit liability. EnergyCo initially offered to apply this formula to areas of full impact however the Department has requested this also be applied to areas of partial impact but at a lower rate (i.e. equivalent area to 50% of the VI score).

The Department considers that this is a reasonable method for providing additional measures for Box Gum Woodland impacts. For this project, this would result in the conservation of an additional area of 241 ha of Box Gum Woodland within a BSA (over and above the relevant credit obligations), and would ensure that there is a net benefit for the Box Gum Woodland community from this project. Consequently, the Department is satisfied that the project's impacts would not contribute significantly to the risk of extinction, and would not constitute SAII.

Regent honeyeater

The Department notes that in 2010 the Threatened Species Scientific Committee estimated that the population of the regent honeyeater in NSW in 1997 was up to 1,000 birds, but had reduced to fewer than 250 mature individuals by 2010. The Committee noted that there had been an "*apparent loss of some of its minor breeding populations (e.g. Warrumbungle National Park, Pilliga forests), as well as declines at its two major breeding sites; Capertee Valley and Bundarra-Barraba.*"

As described above, the project has been designed to avoid and minimise impacts to regent honeyeater habitat. However, the project would result in residual impacts on up to 132.58 ha of mapped 'important habitat', which conservatively includes an additional 16.4 ha of potential habitat. There are no areas of known breeding habitat in the 132.58 ha.

As the regent honeyeater is listed on the basis of 'population size' and 'rate of decline', it is particularly relevant to consider the project's potential impacts on habitat against the total area in NSW. The project's impact area

of 132.58 ha, when compared against the total 173,984 ha of mapped 'important habitat' in NSW, represents approximately 0.076%.

The Department considers that an impact on 0.076% of the mapped important habitat, and no impacts on known breeding habitat, is not likely to contribute significantly to the extinction of the regent honeyeater.

However, the Department acknowledges that a precautionary approach may be appropriate and notes that EnergyCo has sought to achieve a 'nature positive' outcome that goes beyond the ordinary biodiversity offset regime and would help to further protect the regent honeyeater population.

In that regard, EnergyCo worked with the NPWS to identify and acquire a property in Home Hills, which contains a breeding population of the regent honeyeater adjacent to one of the two key breeding areas in the Capertee National Park. EnergyCo has advised that it is working with NPWS to transfer the management responsibilities to NPWS for the long term conservation of the property. EnergyCo has committed to securing the conservation of an additional 132.58 ha of regent honeyeater habitat within the Home Hills site, over and above the relevant credit obligations.

Overall, the conservation of the entire Home Hills site would result in the protection over 1,000 ha of known habitat for regent honeyeater in perpetuity, and would ensure that there is a net benefit for the regent honeyeater from this project. Consequently, the Department is satisfied that the project's impacts would not contribute significantly to the risk of extinction, and would not constitute SAII.

Eastern cave bat and large-eared pied bat

Female bats give birth and form nursery colonies at maternity sites (also known as 'maternity roosts' or 'maternity camps'). The features of suitable maternity roosts for the eastern cave bat and large-eared pied bat (e.g. caves in scarps, cliffs and rock overhangs as well as disused mines) cannot be re-created and are considered irreplaceable.

For that reason, the relevant SAII principle for these two species is the lack of responsiveness to measures to improve its habitat and vegetation integrity (Principle 4). This is a relatively unique principle that only applies to 18 fauna species on the list of 401 potential SAII species, most of which are bats and frogs that have specific, relatively unusual habitats.

As described in the 2021 BAM Guide for 'Species credit threatened bats and their habitats', any potential SAII for these two species is related to impacts to its breeding habitat. This requires a particular focus on any impacts to the irreplaceable aspect of the habitat, which is the physical structures containing the maternity roosts (e.g. caves and cliffs).

For this project, 75 potential breeding structures (67 caves and 8 mine shafts) were identified within the study area. Seven of these sites were identified as 'high active use', and were subject to further survey effort (harp trapping). No evidence of breeding individuals was found at any of the 75 sites. Importantly, none of the 75 structures, which is the focus of the SAII Principle 4, would be directly impacted by the project. Consequently, the Department is satisfied that the project's impacts would not contribute significantly to the risk of extinction, and would not constitute SAII.

Leafless indigo and rough eyebright

Two flora species assumed to be present are potential SAII entities. The leafless indigo *(Indigofera efoliata)* and rough eyebright *(Euphrasia arguta)* have been assumed present in the revised BDAR.

Both are extremely rare species that were previously considered extinct and only recently rediscovered. The leafless indigo is known from a single location near Geurie (more than 40 km from the project) and the rough eyebright was rediscovered near Nundle (more than 100 km from the project) according to the final determination. BCS concluded that SAII were unlikely to occur for both species if further targeted surveys were undertaken to demonstrate that the species are not present, hence impacts would be avoided.

The Department considers that it is highly unlikely that any leafless indigo or rough eyebright would be present in the area of assumed presence. However, the Department considers a precautionary approach is warranted and has recommended a condition requiring EnergyCo to undertake additional surveys prior to any impacts on leafless indigo or rough eyebright.

6.4.7 Significance of impacts on Commonwealth listed species and communities

EnergyCo identified and addressed all threatened species and communities included in the Commonwealth Referral Decision (EPBC 2022/09353) (Referral Decision).

Assessments of significance were undertaken for threatened species and communities that were recorded during field surveys or were identified as having a moderate or higher potential to occur within the project area, including two threatened ecological communities, 11 threatened flora species, 22 threatened fauna species and eight migratory species.

Assessments of significance concluded that there would be significant impacts on one threatened ecological community (White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland) and one threatened fauna species (regent honeyeater).

The Department considered Commonwealth matters in consultation with BCS and AG DCCEEW, including consideration of EnergyCo's assessments of significance and the relevant approved conservation advice, recovery plans and threat abatement plans (TAPs). A summary of this assessment is provided in **Appendix J**.

6.4.8 Biodiversity offsets

Credit liability

Under the BC Act, the impact on native vegetation and species would generate 24,174 ecosystem credits and 63,020 species credits.

Table 7 summarises the estimated biodiversity credit liability requirements under the *NSW Biodiversity Offset Scheme* for the project.

Table 7 | Native vegetation and threatened species biodiversity offset liability

Impact	Total Area (ha)	Credit Liability
Native vegetation	1,227.35	23,077
Scattered Trees		16
Unresolved land mapped as non-native vegetation within Category-2 Regulated land	63.31	1,081
Total Ecosystem Credits		24,174
Threatened Flora	462.77	8,303
Threatened Fauna	1,362.36	50,649
Additional species credits for indirect impacts to habitat connectivity		291
Additional credits for indirect impacts due to bird strike and EMF		3,777
Total Species Credits		63,020

Measures for mine offset areas

The project would impact approximately 135.62 ha of existing offset areas committed to, and established under, three development consents for the Ulan, Wilpinjong and Moolarben coal mines (mine offsets). The mine offset areas are generally highly disturbed and subject to edge effects associated with the existing transmission line, roads and mine infrastructure, and the conditions of consent relevant to the mine offsets provide limited requirements for the project for specific biodiversity values or areas to be rehabilitated.

In addition to the mine offsets being included in the credit liability shown in **Table 7** to be offset, EnergyCo has committed to the provision of additional alternative offsets for the mine offset areas being impacted by the project aiming to deliver improved conservation outcomes from the current mine offset commitments. EnergyCo has proposed an additional land based offset ratio to offset the mining offsets which include:

- the provision of remnant vegetation (moderate to good condition) at a 1:1 ratio; and/or
- the provision for any derived native grasslands (or poor condition vegetation) at 1:1 ratio; and/or
- the incorporation of additional areas of higher conservation values (Box Gum Woodland) in remnant condition at a 2:1 ratio.

EnergyCo has purchased a property located adjacent to Goulburn River National Park for the purpose of creating BSAs or to function as additional reserve estate under agreement with NPWS.

The property is referred to as the Ulan offset in the Biodiversity Offset Package and is 645 ha in size, containing predominantly native vegetation in high to very high condition. The property can meet 75.5% of offset liability with the residual 24.5% (44.31 ha of Box Gum Woodland) to be addressed through the purchase of equivalent areas of credit if not secured by newly identified BSAs.

EnergyCo would support the relevant mining operators in modifying the required mine development consents and management plans.

Biodiversity offset strategy

EnergyCo would offset the residual biodiversity impacts of the project in accordance with the NSW Biodiversity Offset Scheme, which includes the following options:

- creating Biodiversity Stewardship Agreements (BSAs) on local land, including EnergyCo-owned or third-party private land. EnergyCo is actively progressing a number of potential BSAs that have been identified to contain like for like biodiversity values to those identified within the disturbance area;
- purchasing and retiring biodiversity credits from the biodiversity credit register; and/or
- making contributions to the Biodiversity Conservation Fund.

Additional strategies include acquiring land to establish BSAs dedicated to the NPWS, direct payments into the Biodiversity Conservation Fund, partnerships with the NSW Credit Supply Taskforce for sourcing credit liabilities, and funding biodiversity conservation actions.

EnergyCo has secured two initial offset areas that contribute to the projects offset liability, providing over 2,200 ha of land towards the expansion of existing NPWS estate, improvements in regional landscape connectivity, protection of regionally important waterways and critical breeding habitat for the regent honeyeater. These two sites provide the required conservation outcomes for the project's potential impacts on potential SAII entities, impacts to mine offset lands and a significant portion of the project's credit liability in accordance with BAM.

EnergyCo is also proposing funding of biodiversity conservation actions for the following species: *Thesium australe*, eastern cave bat, *Eucalyptus camaldulensis* population in the Hunter catchment, *Euphrasia arguta*, *Zieria ingramii*, regent honeyeater, south-eastern glossy black cockatoo, *Tylophora linearis*.

This commitment would satisfy a proportion of the residual credit liability for these species.

The Department has recommended conditions requiring EnergyCo to develop a Biodiversity Offset Package in consultation with BCS prior to carrying out any development that could impact biodiversity values. The Department notes that with further avoidance measures during detailed design and the conservatism for assumed presence of some species, the number and class of credits required to be offset is likely to be lower than the calculations presented above. The Biodiversity Offset Package would include:

- details of the specific biodiversity offset measures to be implemented and delivered including confirming the offset liability; and
- the timing and responsibilities for the implementation of the actions.

The credits would be re-calculated when the final layout design of the project is known to confirm the final number and class of biodiversity credits required to be offset.

This approach also provides an incentive to EnergyCo to avoid and minimise impacts on biodiversity values through the detailed design process to limit the offset liability for the project. Subject to the recommended conditions, the Department and BCS are satisfied that the project could be undertaken in a manner that improves, or at least maintains, the biodiversity values of the locality over the medium to long term.

EnergyCo has secured funding from Clean Energy Finance Corporation (CEFC) including $320 million for biodiversity offsets, which would be used to implement the Biodiversity Offset Package. If EnergyCo did not meet its requirements in the Biodiversity Offset Package, these funds would be used to make an equivalent payment into the Biodiversity Conservation Fund.

6.4.9 Recommended conditions

The Department has recommended conditions requiring EnergyCo to:

- minimise the clearing of native vegetation and key fauna habitat, including hollow bearing trees and habitat for threatened bird and bat populations, within the project footprint and protect native vegetation and key fauna habitat outside the approved disturbance area in accordance with limits in the recommended conditions;
- prepare and implement a Biodiversity Management Plan which would include a description of the measures to:
  - implement clearing and operational management protocols;
  - avoid and minimise impacts on potential SAII entities and provide minimisation measures for these entities to mitigate harm to these communities;
  - minimise the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species;
  - offset impacts of the project to the mine offset areas;
  - implement a connectivity strategy and hollow and nest strategy;
  - measures to rehabilitate and restore temporary disturbance areas and maximise the salvage of resources within the approved disturbance area for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the project area; and
  - control weeds;
- provide a detailed program to monitor and report on the effectiveness of these measures;
- prepare and implement a Biodiversity Offset Package;
- securing funding to ensure offsets are implemented.

6.4.10 Conclusion

The Department acknowledges that biodiversity impacts are unavoidable when constructing 240 km of transmission lines. The construction area footprint is 4,000 ha. There would be approximately 831 ha of native vegetation cleared and 460 ha partially impacted. Importantly, a large proportion of the total vegetation impacts would occur on disturbed, derived grassland or on vegetation that is of low quality. However, the Department considers that the project has been designed to avoid and minimise impacts on high quality vegetation and habitat as far as practicable, particularly through co-locating sections of the transmission line with existing infrastructure and relocating other sections to avoid key biodiversity features.

The Department considers that the biodiversity assessment process has been comprehensive for this project and has taken a conservative approach to include additional species credit liability for a total of 10 species and an additional area of derived native grassland. The Department has included conditions requiring verification of potential impact to certain species through surveys or independent expert should review.

In addition, the project involves various other mitigation measures to reduce biodiversity impacts, including partial vegetation clearing beneath the transmission lines. Importantly, the final detailed design of the transmission line alignment would also be based on further reductions in impacts, wherever practicable.

EnergyCo would be required to offset the impacts of the project in accordance with a Biodiversity Offset Package. In addition, EnergyCo would provide areas over and above the project's offset liability for mine offsets, Box Gum Woodland and regent honeyeater. With these measures the Department is satisfied that the project's impacts would not contribute significantly to the risk of extinction, and would not constitute SAII. The Department considers that subject to the recommended conditions, the project would not significantly impact the biodiversity values of the locality.

6.5 Landscape character and visual amenity

EnergyCo commissioned a Landscape and Visual Impact Assessment (LVIA) as part of its EIS and provided additional information, including further assessment of receivers and more wireframes, during the Department's assessment. The Department also visited the project area to assess the landscape character and potential visual impacts.

The landscape surrounding the project area consists mainly of rural land cleared for agriculture interspersed with rural dwellings, local roads and highways, areas of native and exotic vegetation, existing electricity transmission infrastructure and mining infrastructure.

The project transmission towers would range from 65 m to 85 m in height and typically be spaced at intervals of 250 m to 550 m.

Of the receivers within 2 km of the project, 83 were predicted to potentially experience visual amenity impacts during operation. Of those 83, 51 are not hosting project infrastructure (i.e. non-easement affected) and four are hosting infrastructure on lots that are separate to the dwelling.

6.5.1 Avoidance and mitigation

The Department acknowledges that undergrounding the transmission lines may have a lower visual impact but as discussed in **section 6.3**, this option has other impacts and would result in the project not meeting the project objectives.

EnergyCo has located the transmission line corridor and associated infrastructure to avoid and minimise visual impacts, including:

- selection of energy hub sites in strategic areas close to planned generation projects in the CWO REZ; and

- realignment of the 500 kV and 330 kV transmission line and 330 kV switching station locations to minimise visual impacts at nearby residential dwellings.

EnergyCo proposes to address the residual visual impacts by:

- providing vegetation screening at non-easement affected receivers where there is a residual visual impact rating of moderate or high, in consultation with the affected landowner;
- retaining vegetation that provides screening of the project to the furthest extent possible;
- utilising shielded fittings at ancillary infrastructure to minimise off-site lighting impacts; and
- reducing the duration of night lighting of ancillary infrastructure by using sensors to activate lighting.

The Department notes that easement affected receivers would have a negotiated landholder agreement that would form compensation for the impacts of the project. As such, the Department has not considered visual impacts to these receivers.

6.5.2 Impact assessment

The Department's assessment of predicted visual impacts on non-easement affected receivers, as well as public viewpoints surrounding the project, is discussed below.

Impact assessment approach

In assessing the visual impacts of the project, the Department has considered:

- **visual magnitude** – the apparent size of the project within the viewshed;
- **visual sensitivity** – the relative importance of viewpoints and the value that the community or visitors may place on landscapes viewed from public use areas, public travel ways and private receivers such as dwellings; and
- **scenic quality** – the relative scenic, cultural or aesthetic value of the landscape within the viewshed based on the presence or absence of key landscape features known to be associated with community perceptions of low, moderate or high scenic quality.

Views from receivers

EnergyCo's LVIA considered impacts on receivers within 2 km of the project, 51 of which are non-easement affected. The assessment concluded that the majority of receivers would experience a negligible to low impact, with 10 receivers experiencing a moderate visual impact and one receiver experiencing a high visual impact. The Department's assessment of key non-easement affected receivers is presented in **Table 8**.

The Department has also assessed impacts on two easement-affected receivers as the dwellings associated with these receivers are located on a separate lot than the project easement. This is also presented in **Table 8**.

The visual sensitivity for some receivers is considered to be moderate, where the primary views from the receiver (i.e. views from the front or rear of a dwelling) are oriented towards the project and remaining receivers are considered to have a moderate or low visual sensitivity.

The scenic quality in the area around the project is considered to range from low to moderate, with wide flat areas of cleared land used for agriculture, gently undulating plains, modified watercourses, stands of native and exotic vegetation and existing transmission and mining infrastructure. Based on the expected visual magnitude impacts, the visual sensitivity of the receiver and the landscape quality of the area, receivers 207, 350, 354, 357, 373, 539, 672, 717, 719 and 1195 are expected to experience a moderate overall visual impact, while one receiver is expected to experience a high overall visual impact due to its proximity to the operational easement (receiver 198).

EnergyCo has committed to managing the predicted visual impacts of the project by implementing appropriate mitigation measures in consultation with the landowners of potentially impacted receivers. Accordingly, the Department has recommended conditions requiring EnergyCo to implement appropriate mitigation measures (such as landscaping and vegetation screening) in consultation with receivers 198, 207, 350, 354, 357, 373, 539, 672, 717, 719 and 1195. The Department has also recommended additional measures to be considered during detailed design for receiver 198, which is expected to experience high visual impact.

Key public viewpoints

The LVIA considered 26 representative viewpoints, mainly from local roads and highways in the vicinity of the project. Within 4 km of the project, there were no public areas of open space, lookouts or other recreational areas identified that would have a view to the project. Of the 26 viewpoints, visual impact was assessed as negligible to low at eight locations. Ten viewpoints were rated as low-moderate impact where views of the project would be fleeting and largely limited to traffic travelling along highways.

The eight remaining viewpoints assessed as experiencing moderate visual impacts include viewpoints on the local road network, including from Birriwa Bus Route South (VP8 and VP9), Blue Springs Road (VP10, VP11 and VP12), Spring Ridge Road (VP22 and VP23) and from the Castlereagh Highway (VP19). Views along these routes include the energy hubs and transmission lines within the existing rural character.

While views of the project from portions of some local roads would be direct, views would be short duration and between existing vegetation. The Department considers that there would be limited traffic utilising these roads and would largely be restricted to local traffic accessing dwellings in the vicinity of the project. As such, the Department considers that visual impacts at public viewpoints would not be significant.

Night-time amenity impacts

Night-time visual amenity impacts associated with the operation of the energy hubs at Merotherie and Elong Elong would result in a moderate character impact. No lighting of the transmission lines and structures is proposed during operation. The Department has recommended conditions requiring EnergyCo to minimise the off-site visual impacts of lighting associated with the project.

Table 8 | Visual impact assessment - View from receivers

Receiver ID	Distance to operational easement (m)	Magnitude	Visual Sensitivity	Scenic Quality	Visual Impact Rating	Recommended Mitigation
198	220	High	Moderate	Low	High*	Additional measures required Vegetation screening on request
207	500	Moderate	Moderate	Low	Moderate	Vegetation screening on request
350	660	Moderate	Moderate	Moderate	Moderate	Vegetation screening on request
354	350	High	Moderate	Low	Moderate	Vegetation screening on request
357	650	High	Moderate	Moderate	Moderate	Vegetation screening on request
373	640	Moderate	Moderate	Low	Moderate	Vegetation screening on request
539	560	Moderate	Moderate	Low	Moderate	Vegetation screening on request
636	1320	Low	Moderate	Moderate	Low	Not required
663/659	980	Low	Moderate	Moderate	Low	Not required
672**	930	Moderate	Moderate	Moderate	Moderate	Vegetation screening on request
717**	490	Moderate	Moderate	Moderate	Moderate	Vegetation screening on request
719	980	Moderate	Moderate	Moderate	Moderate	Vegetation screening on request
1037	1220	Low	Moderate	Moderate	Low	Not required
1195	520	High	Moderate	Moderate	Moderate	Vegetation screening on request

** High due to distance from operational easement*

*** Receiver is easement-affected, however the dwelling is located on a separate landholding/lot to the easement*

Landscape impacts

The project area extends across four broad landscape types, where the visual impact of the development would range from negligible to moderate. These landscape types are discussed in more detail below.

Rural valley landscape - creek and river valleys and cleared agricultural land and is generally low lying and flat to gently undulating with existing electricity transmission infrastructure (Wollar to Mount Piper 500 kV and Wellington to Wollar 330 kV) and existing substation south of Wollar. The landscape is considered have a low sensitivity to change and would experience a low-moderate to moderate character impact.

Forested hills landscape - rural valleys and hilly ridges and escarpments with areas of continuous native bushland, exotic vegetation and areas of sandstone plateau, parts of Goulburn River National Park and elements of historical mining activity near the town of Ulan and existing transmission line infrastructure. The landscape is considered to have a moderate sensitivity to change and would experience a moderate character impact.

Mining landscape - underground and surface coal mining activities between Wollar and Ulan, including Ulan, Moolarben and Wilpinjong coal mines. Visible within this landscape is infrastructure associated with mining activities, transmission infrastructure and a railway line. The landscape is considered to have a very low sensitivity to change and would experience a very low character impact.

Undulating rural hills - undulating landforms cleared for agricultural use, modified and natural waterways, lower scale transport infrastructure and existing transmission lines. Rural residences are scattered on the low hills and flatter areas of the landscape. The landscape is considered have a low sensitivity to change and would experience a low character impact.

6.5.3 Recommended conditions

The Department has recommended conditions requiring EnergyCo to:

- implement appropriate visual impact mitigation measures, such as landscaping and/or vegetation screening at receivers 198, 207, 350, 354, 357, 373, 539, 672, 717, 719 and 1195 residences upon receiving a written request from the owners of these residences;
- provide additional visual impact measures at receiver 198 during detailed design;
- ensure that external lighting is minimised and complies with the relevant Australian Standards;
- prohibit any signage or advertising on the site, unless it is for safety purposes; and
- ensure ancillary facilities, accommodation camps and earthwork material sites are rehabilitated.

6.5.4 Conclusion

The Department considers that the project would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-easement affected receivers subject to the recommended conditions.

6.6 Traffic and transport

Construction of the project involves the delivery of plant, equipment and materials, including the movement of over-dimensional and heavy vehicles, which has the potential to impact on the local and regional road network.

Public submissions raised the potential traffic impacts of the project, including increased vehicle movements, access to property, road safety and impacts to road conditions.

EnergyCo commissioned WSP Australia to undertake a Traffic Impact Assessment (TIA) to assess project-related traffic impacts which accompanied the EIS and proposed to assess and determine local road, bridge and intersection works separately outside of this application. In response to submissions received from Councils, TfNSW, community organisations and the public, EnergyCo amended the project to include and assess these works as part of the amended project.

As part of its project amendments, EnergyCo also refined local road, bridge and intersection upgrades, including:

- a new bridge on Merotherie Road at its crossing of the Talbragar River to replace the existing crossing;
- a new bridge on Spring Ridge Road at its crossing of Laheys Creek to replace the existing causeway;
- upgrades to Neeleys Lane from the Neeleys Lane / Ulan Road intersection to the entrance of the Neeleys Lane workforce accommodation camp; and
- minor changes to the alignment of access roads and tracks.

EnergyCo supplemented its TIA with an addendum to assess these proposed amendments and consider all local road, bridge and intersection works as part of this assessment. As a result, the Department has assessed the project inclusive of amended local road, bridge and intersection upgrades.

6.6.1 Transport route and site access

EnergyCo has identified the primary access route that would be used to access the project area. Non-standard or oversized loads would be transported from the Port of Newcastle via gazetted routes for over-dimensional vehicles, comprising the Golden Highway, Spring Ridge Road, Merotherie Road, Ulan Road, Ulan-Wollar Road and Barigan Road.

In addition, EnergyCo has identified construction routes to and from construction areas within the project, which would be used regularly by both light and heavy vehicles, as shown in **Figure 6**. These roads comprise the Golden Highway, Castlereagh Highway (highways), Ulan Road, Cope Road (main roads), Wollar Road (regional road) and several local roads.

Although the recommended conditions of approval require all vehicles related to the development to travel to the project area via the nominated transport route, this does not preclude EnergyCo from requesting approval for vehicles to access the project area via secondary access routes.

6.6.2 Traffic volumes

The transport assessment identified the over-dimensional, heavy and light vehicle transport requirements, including the vehicle type and number that would be required to transport all infrastructure components to the project area. The estimated peak daily vehicle movements (i.e. two-way trips) generated from each traffic-generating site during construction are shown in Table 9. These movements would be distributed on the construction routes shown in **Figure 6**. Over-dimensional vehicles are included in the heavy vehicle movements for the primary access route provided in **Table 9.**

Table 9 | Peak construction vehicle movements

	Movements per hour			Movements per day		
Traffic-generating site	Light vehicles	Heavy vehicles	Total	Light vehicles	Heavy vehicles	Total
Merotherie Energy Hub and Camp	40	30	70	342	392	734
Neeleys Lane Camp	32	34	66	410	290	700
New Wollar switching station	4	20	24	44	198	242
Elong Elong Energy Hub	4	20	24	44	198	242
Switching stations (typical)	12	1	13	34	38	72
Access gate (typical)	12	20	32	148	194	342

Peak vehicle movements during construction would occur on roads adjacent to the construction compounds and accommodation camps, with most movements occurring around Merotherie energy hub and accommodation camp (up to 392 heavy and 342 light vehicle movements per day). Other areas of the project would have lower traffic volumes for intermittent periods of time, including for works at switching stations and access gates.

While the additional traffic movements would bring a noticeable change to the local road environment, all local roads would still operate within capacity. Most local roads that form part of the construction routes within and between sites would maintain similar levels of service as existing conditions, with the exception of Ulan-Wollar Road, Cope Road, Spring Ridge Road and Cassilis Road. These local roads are anticipated to experience some decrease in level of service during peak periods when project-related traffic is combined with projected traffic from other developments in the area. Despite the reduced level of service at these locations, traffic is anticipated to remain operating at near free flowing conditions.

During operation, traffic generation would be minimal, having a negligible impact on roads.

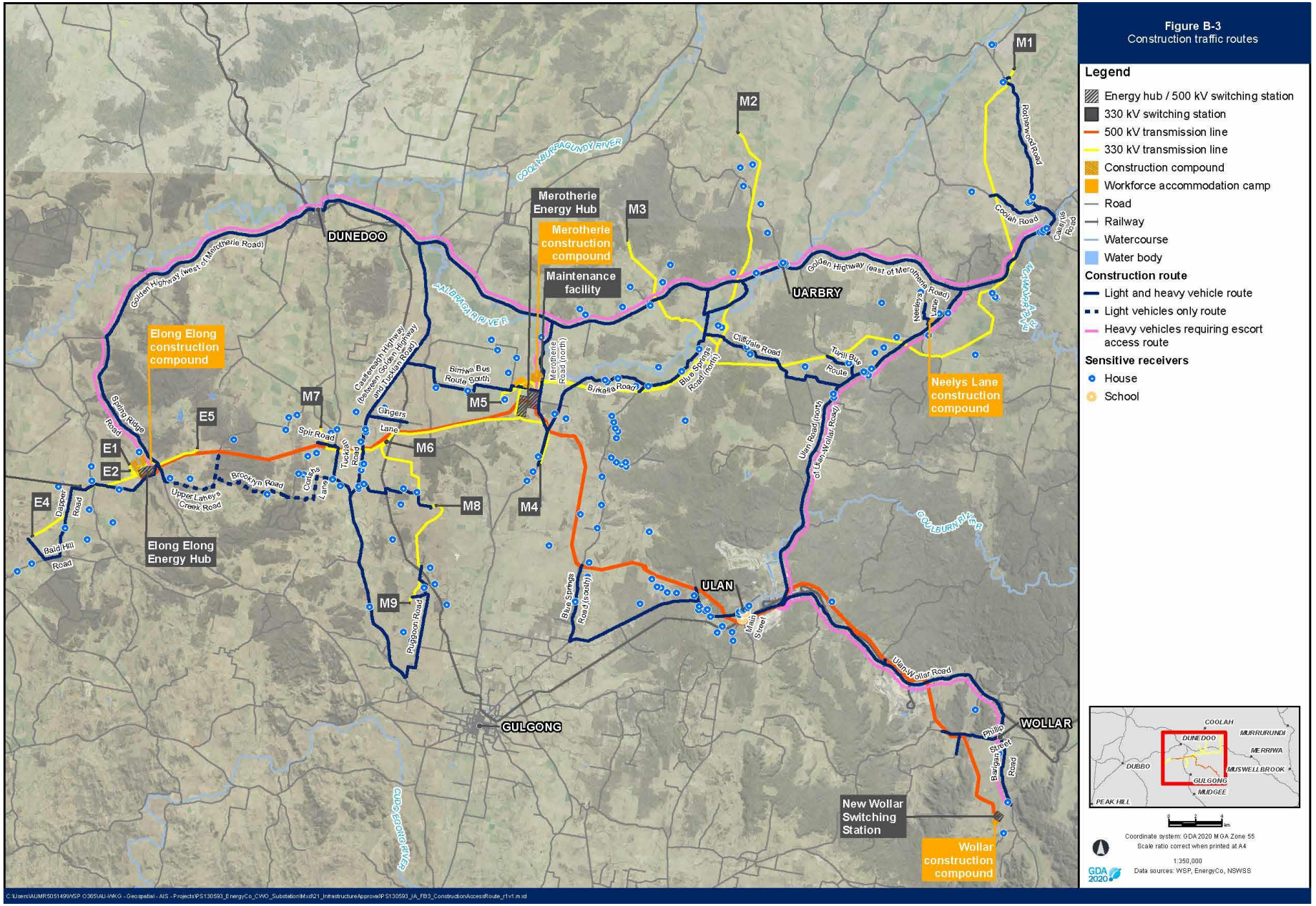


Figure 6 | Construction traffic routes

6.6.3 Over-dimensional vehicles

Over-dimensional vehicles would be required to deliver infrastructure such as transformers. The majority of over-dimensional vehicles would travel from the Port of Newcastle to the energy hubs at Elong Elong and Merotherie, and the New Wollar Switching Station.

EnergyCo proposes to transport large plant, equipment and materials to the project area with heavy vehicles requiring escort along a route that would be developed as part of EnergyCo's separate project for Port to CWO REZ road upgrades. Following development, this route would be gazetted for over-dimensional vehicles.

Project-specific over-dimensional movements would also be required in excess of those developed as part of the Port to CWO REZ road upgrades. EnergyCo has committed to seeking travel permits for over-dimensional movements outside of existing approved routes from the National Heavy Vehicle Regulator. The over-dimensional movements would need to travel along some roads which are not gazetted for use by over-dimensional vehicles, including:

- Spring Ridge Road between the Golden Highway and the Elong Elong Energy Hub access point;
- Merotherie Road between the Golden Highway and the Merotherie Energy Hub access point; and
- Ulan Road, Ulan-Wollar Road, Barigan Street, Wollar Road and Barigan Road to access the New Wollar Switching Station.

As discussed in **section 6.6.4**, EnergyCo would upgrade roads and intersections, including Spring Ridge Road and Merotherie Road, to a standard that would allow for the use of the route by over-dimensional vehicles.

6.6.4 Road upgrades and maintenance

EnergyCo has identified road and intersection upgrades would be required to ensure safe access to construction sites and to allow the movement of over-dimensional vehicles. The upgrades proposed by EnergyCo include:

- Merotherie Road, including the installation of a new bridge on Merotherie Road at its crossing of the Talbragar River to replace the existing crossing and widening/upgrade between the Golden Highway and Merotherie Energy Hub access;
- Spring Ridge Road, including the installation of a new bridge on Spring Ridge Road at its crossing of Laheys Creek to replace the existing causeway;
- Dapper Road upgrading to tie into the upgraded Spring Ridge Road;
- Spring Ridge Road/Dapper Road intersection;
- Golden Highway/Spring Ridge Road intersection;
- Neeleys Lane upgrading between the Neeleys Lane/Ulan Road intersection to the entrance of the Neeleys Lane workforce accommodation camp;
- Neeleys Lane/Ulan Road intersection;
- Golden Highway/Ulan Road intersection;

- Merotherie Energy Hub Access Road/Merotherie Road intersection;
- Merotherie Road/Golden Highway intersection;
- Cassilis Road/Golden Highway intersection, if identified as required as part of detailed design;
- Blue Springs Road/Golden Highway intersection, if construction traffic cannot be restricted to within the existing operational capacity of the intersection; and
- Access gate intersection upgrades, including for gates on Golden Highway, Castlereagh Highway, Ulan Road, Wollar Road, Cope Road and minor access points from other non-State roads.

TfNSW raised concerns regarding the scope of intersection upgrades proposed by EnergyCo and the proposed timing of these upgrades. In particular, TfNSW advised that without further detailed assessment and strategic concept designs, it was unable to confirm the scope of required intersection upgrades and the need for upgrades to the following additional intersections:

- Neeleys Road/Golden Highway intersection;
- Laheys Creek Road/Castlereagh Highway intersection;
- Whistons Lane/Castlereagh Highway intersection;
- Tucklan Road/Castlereagh Highway intersection; and
- Puggoon Road/Castlereagh Highway intersection.

In consultation with TfNSW, the Department has recommended conditions requiring EnergyCo prepare a Transport Strategy for the project to confirm the scope of required intersection upgrades. The outstanding matters raised by TfNSW are technical issues related to the traffic numbers and types of vehicles using the intersections and associated swept paths, which would require substantial time and resources to review in detail. The Transport Strategy would require the additional assessment being requested by TfNSW, including preparation of strategic concept designs and swept paths for all proposed intersection upgrades to ensure that intersections are suitable for the proposed design vehicles, anticipated traffic volumes and that intersection upgrade works are contained within the construction footprint. The Transport Strategy would be prepared in consultation with TfNSW and relevant Councils and require approval from the Planning Secretary prior to commencement of construction.

Some local roads and intersections would also require upgrading as a result of the project. The Department has recommended conditions requiring all local road upgrades used as traffic routes for the project be considered within the Transport Strategy.

It is best practice for the proponent to have the road upgrades in place prior to project construction traffic commencing use of the relevant intersection or road. EnergyCo has advised that the construction program does not allow this to occur and meet the project timeframe. The Department, in consultation with TfNSW, accepts an alternate approach in this instance in order to meet the timeframes of this critical project and allow commencement of the upgrades at the same time as project construction traffic starts to use a road or intersection. The Department notes that the roads and intersections would be under traffic management to

manage safety and implemented in accordance with the Traffic Management Plan and works would need to be completed promptly.

The Department has also recommended conditions requiring EnergyCo to implement all necessary road upgrades in accordance with the relevant standard and timing requirements, to the satisfaction of the relevant roads authority, and to regularly maintain all roads along the transport route and repair any damage to the road network caused by any project-related traffic.

6.6.5 Road crossings

Transmission lines would be strung over several roads, including the Golden Highway, Castlereagh Highway and multiple local roads. This would result in temporary closure or disruption to these roads. TfNSW raised concerns with the level of detail provided for construction methodology and structures required to support the transmission line crossing Golden Highway and Castlereagh Highway.

In consultation with TfNSW, the Department has recommended conditions requiring EnergyCo provide detailed procedures and strategic concept designs for each transmission line crossing.

All stringing across roads would occur in consultation with the relevant road authority and in accordance with a road occupancy licence as required.

6.6.6 Recommended conditions

The Department has recommended the following conditions:

- undertake all necessary road upgrades to satisfaction of the relevant road authority;
- undertake dilapidation surveys of the relevant local roads along the transport routes prior to construction, upgrade and decommissioning, on an annual basis during construction, within one month of the completion of the constructions, upgrade and decommissioning and repairing any damage resulting from construction traffic;
- prepare a Transport Strategy in consultation with the relevant road authority that:
  - identifies the location and type of necessary road upgrades, including whether they would be permanent or temporary;
  - ensures that road upgrades comply with relevant guidelines unless the relevant road authority agrees otherwise; and
  - includes a detailed assessment of potential impacts of road upgrades;
- prepare a Traffic Management Plan in consultation with the relevant roads authority that includes provision for:
  - temporary traffic controls, including detours and signage;
  - notifying the local community about development-related traffic impacts;
  - minimising potential for conflicts with school buses routes, in consultation with local schools, and stock movements;

- implementing measures to minimise development-related traffic on the public road network outside of standard construction hours;
- responding to any emergency repair or maintenance requirements during construction and/or decommissioning;
- a traffic management system for managing over-dimensional vehicles; and
- a driver's code of conduct that addresses travelling speeds, fatigue management and procedures to ensure that drivers implement safe driving practices; and

- ensure that vehicles requiring escort vehicles to adhere to specified routes.

6.6.7 Conclusion

With suitable road upgrades, regular road maintenance, and the implementation of a Transport Strategy and Traffic Management Plan, the Department considers that the project would not result in unacceptable impacts on the capacity, efficiency or safety of the road network. The roads authority is satisfied that any outstanding issues, including intersection design and road crossings, can be resolved following approval with the implementation of the recommended condition.

6.7 Other issues

The Department's consideration of other issues is summarised in **Table 10** below.

Table 10 | Assessment of other issues

Findings and conclusions	Recommended conditions
Noise and Vibration	
• EnergyCo prepared a Noise Impact Assessment (NIA) for the project and an additional assessment addressing project amendments, in accordance with the relevant guidelines. The noise assessment is considered conservative, assuming all plant and equipment is used concurrently. <u>Construction Noise</u> • The NIA predicts that over the duration of the construction period, 75 receivers may experience noise levels greater than noise management levels during standard daytime hours across the project area. These noise exceedances would primarily be due to transmission line construction earthworks. The exceedances at 53 of these receivers would be considered minor (less than 10dB above the noise management level) and one receiver is predicted to exceed the 'highly noise affected' criterion of 75 dB(A). Additional noise impacts would be expected where helicopters are required for line stringing. • The Department has recommended conditions requiring EnergyCo implement all reasonable and feasible measures to minimise construction noise in accordance with the requirement of the *Interim Construction Noise Guideline* (DECC 2009) (ICNG), as well as to implement noise mitigation measures to reduce impacts to below the 'highly noise affected' criteria at impacted sensitive receivers. • The Department notes that due to the geographic scale and linear nature of the project, transmission line construction noise impacts experienced at individual receivers are likely to be of a short duration while works are occurring in proximity to that receiver. The exceedances would not be sustained for the duration of the project construction phase. • However, the construction and operation of the construction compounds and accommodation camps would result in more sustained noise impacts over the duration of the construction period. The NIA predicts that around 13 sensitive receivers may experience exceedances of construction noise management levels and/or sleep disturbance criteria during construction and operation of these facilities. Given the extended duration of these impacts, the Department has recommended conditions requiring EnergyCo implement noise mitigation measures to reduce impacts to below the 'noise affected' noise management levels and/or sleep disturbance criteria at each relevant sensitive receiver. • There is the potential for concurrent construction activities occurring in proximity to noise sensitive receivers located within approximately 2 km of simultaneous construction activities from more than one work stage. This is	• Minimise noise during construction by implementing noise mitigation measures set out in the ICNG, including scheduling activities to minimise noise, using quieter equipment, consulting with affected residences prior to undertaking noisy construction works and establishing a complaint handling procedure. • Restrict construction to standard construction hours (i.e. 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday). • Limit blasting to between 9am and 5pm Monday to Friday and between 9am to 1pm on Saturday. • Implement noise mitigation measures to reduce noise impacts at any 'highly noise affected' receivers to below the highly noise affected criteria. • Implement noise mitigation measures to reduce noise impacts at receivers surrounding the construction compounds and accommodation camps to below the 'noise affected' noise management levels or sleep disturbance criteria. • Prepare a Noise and Vibration Management Plan that evaluates and reports on the effectiveness of the noise and vibration management systems and identifies a process for the consideration, management and approval of works outside standard construction hours.

Findings and conclusions	Recommended conditions
considered most likely to occur at isolated rural properties in noise catchment areas 4 and 5, where transmission line construction may coincide with work at the Merotherie energy hub. • EnergyCo is seeking approval to undertake construction seven days per week between 7 am and 7 pm. The NIA predicts the number of sensitive receivers potentially experiencing noise criteria exceedances outside of standard hours increases to 144, with potential sleep disturbance at around 47 receivers. • For this reason, the Department has recommended that construction be limited to standard construction hours. • It is acknowledged however that there may be some instances where construction activities can occur, or are required to occur, outside of standard hours, including activities such as transmission line construction across a main road, emergency works, works that are inaudible at receivers or where agreement is reached with affected receivers. The Department has recommended a condition to establish a protocol for the consideration, management and approval of works outside standard hours, including a requirement for the Planning Secretary's approval prior to undertaking any high risk activities outside standard hours. • EnergyCo has committed to implementing all reasonable and feasible construction noise mitigation measures, including controls such as screening, use of noise attenuated equipment, selection of quieter plant or construction methods, scheduling of activities and limiting the hours and duration of noise intensive activities. EnergyCo has also committed to notifying potentially affected receivers of upcoming works and undertaking noise monitoring to confirm noise levels at receivers when complaints are received. <u>Construction Road Traffic Noise</u> • Construction traffic on public roads has the potential to result in exceedances of the Road Noise Policy (RNP) criteria at 32 receivers, primarily during night time hours. These are mostly residents directly adjacent to Golden Highway, Castlereagh Highway and Ulan Road. • The Department has recommended a condition requiring EnergyCo to take all reasonable and feasible steps to minimise construction traffic noise associated with the project in accordance with the RNP. <u>Construction Vibration</u> • Three unlisted non-Aboriginal heritage sites, and one Aboriginal heritage item are located within the minimum working distances for vibration intensive construction equipment. • Another non-Aboriginal heritage item (Lahey's Creek Cemetery) is located outside the minimum working distances for heritage items, however due to the condition of some items within the cemetery, this site has been identified as potentially highly vibration sensitive. • Up to nine structures are within the recommended minimum working distances for potential cosmetic damage, all of which are unoccupied houses or sheds. • EnergyCo has committed to mitigation measures including substituting lower vibration-intensive plant, pre and post condition surveys and sequencing to minimise vibration intensive activities.	• Implement all reasonable and feasible noise mitigation measures, determined in accordance with the NPfI, at receivers predicted to experience corona discharge noise levels or circuit breaker noise levels that exceed the project trigger noise levels identified in the NPfI.

Findings and conclusions	Recommended conditions
Blasting • Blasting may be required during earthworks, which has the potential for blast overpressure and ground borne vibration at nearby receivers. • Specific blasting and seismic details would be assessed on a site- and blast- specific basis, once a detailed construction methodology is available. The Department has included conditions requiring blasting to be undertaken during standard construction hours only, and requiring compliance with overpressure and ground vibration criteria. Operational Noise • No exceedances of operational noise criteria are expected from the operation of either energy hub. • Corona discharge noise, which is characterised by a crackling sound resulting from an accumulation of pollution and / or water droplets on the conductor surface of the transmission lines, is predicted to impact up to two easement affected receivers, resulting in a negligible exceedance (1 dB(A)) of the project trigger noise level at receiver 531, and a significant exceedance (6dB(A)) at receiver 371, during night time hours only. • Based on the historical meteorological data and conditions in the locality, noise exceedances are predicted to occur for up to 24% of days in the year during wet and misty conditions. However, these conditions would typically occur for short durations on these days and, during heavier rain events, the rain would result in higher ambient noise levels that may mask the corona discharge noise. • Two easement affected receivers (880 / 876) are predicted to experience exceedances of the awakening trigger levels (L_{Amax}) due to infrequent and brief noises from circuit breaker switches from the operation of switching station M5. However, when adjusted for internal noise levels, exceedance of the relevant criteria is unlikely. Considering the switches would be triggered infrequently, these infrequent and brief noises are not expected to result in sleep disturbance. • EnergyCo has committed to undertaking further noise monitoring following commissioning of the project at each residence where potential operational noise exceedances are predicted. If exceedances are confirmed, receiver-based treatment options are proposed as mitigation, such as upgrading windows or glazing and sealing doors and windows.	
Aboriginal Heritage	
• EnergyCo prepared an Aboriginal Cultural Heritage Assessment Report (ACHAR) accompanying the EIS and an addendum report addressing project amendments and concerns raised by Heritage NSW. The addendum included the results of additional field survey and test excavation undertaken following submission of the EIS. • 50 Aboriginal heritage sites were identified within the construction area, and potentially subject to direct impact. • EnergyCo has identified that 23 of these Aboriginal sites of moderate to high significance could be avoided through ongoing design refinements and micro-siting. The remaining 27 sites subject to direct impacts include 5	• Ensure the development does not cause any harm to any Aboriginal heritage items located outside the construction area. • Implement all reasonable and feasible measures to avoid and minimise harm to heritage items located within the construction area.

Findings and conclusions	Recommended conditions
culturally modified trees, nine high density artefact scatters, 11 moderate density artefact scatters and 1 background artefact scatter. • EnergyCo's assessment determined that larger creek lines within the construction area were major centres of past Aboriginal activity and have committed to undertaking archaeological salvage excavations at tower locations within 150 m of Laheys Creek, Sandy Creek, Tallawang Creek, Wilpinjong Creek and Bora Creek. • Those sites that cannot be avoided would be salvaged and relocated to suitable alternative locations in consultation with Aboriginal stakeholders, as required. • Heritage NSW noted residual concerns regarding the potential for construction-related vibration impacts on sensitive Aboriginal sites, as well as the potential for further test excavations to be required in the main channel of the Talbragar River. Heritage NSW recommended these matters be addressed in the Heritage Management Plan required for the project. • Accordingly, the Department has recommended a condition requiring EnergyCo to implement all reasonable and feasible measures to avoid and minimise harm to these sites, and provide a detailed justification where impacts cannot be avoided.	• Prepare and implement a Heritage Management Plan, in consultation with Aboriginal stakeholders, including procedures for unexpected finds and detailed photographic archival records.
Historic Heritage	
• No heritage items listed on Commonwealth, National or State registers are located within or near the project area. • Two items listed as being of local heritage significance under the Mid-Western LEP are within or near the project area: – Wandoona Homestead, which falls partially within the construction area; and – Goulburn River National Park, adjacent to the construction area. • A further 26 unlisted items assessed as having local heritage significance and negligible to low cultural heritage sensitivity are located within or near the project area. • Additional ground penetrating radar surveys undertaken for the Amendment Report identified a moderate to high likelihood of potential graves and surviving architectural fabric at two of the previously identified sites, Tallawang Catholic Church and Tallawang Union Church, and low likelihood at one site, Spir Road Cottage. • The project has the potential to directly impact 17 of the locally significant heritage sites within the project area and indirectly impact a further three, including Tallawang Catholic Church, Tallawang Union Church and Laheys Creek Cemetery. • EnergyCo has committed to avoiding impacts to Tallawang Catholic Church and Union Church Cemeteries and establishing restricted access zones within proximity to suspected graves. Access within this zone would be restricted to essential movements only, excavation and ground disturbance would be avoided and protocols established for clearing.	• Ensure the development does not cause any direct or indirect impacts on any historic heritage items located outside the construction area. • Prepare and implement a Heritage Management Plan, including procedures for avoiding impacts to Laheys Creek Cemetery and potential graves and surviving architectural fabric at Tallawang Catholic Church and Tallawang Union Church, as well as procedures for unexpected finds and detailed photographic archival records.

Findings and conclusions	Recommended conditions
• Similarly, EnergyCo has committed to establishing an exclusion zone to avoid construction-related impacts at the Laheys Creek Cemetery. • Subject to the implementation of the recommended conditions, the Department considers the potential impacts on heritage values would be appropriately managed. Any unexpected finds of potential heritage significance could be appropriately managed by an unexpected finds protocol.	
Land Use	
• The project would have an operational area of around 2,665 ha and a construction area of around 4,000 ha. • The project area is dominated by agricultural land uses, covering 93% of the construction area. Other land uses include mining, transport and conservation land, including the Durridgere SCA. • The project would require the permanent acquisition of around 30 parcels of land for project infrastructure including energy hubs, switching stations and workforce accommodation camp. <u>NPWS Land</u> • The project would result in an approximately 60 m wide permanent transmission line easement within Durridgere SCA, impacting around 15 ha of land within the SCA. • NPWS raised concerns regarding potential conflicts with an alternative easement associated with the approved Liverpool Range Wind Farm. NPWS advised it would only authorise one easement within the SCA, with the preferred alignment being that of the project. EnergyCo confirmed that the easement proposed by the project would replace the easement previously approved for the Liverpool Range Wind Farm, and that authorisation would only be sought for one easement within the SCA. <u>Coal Mines</u> • Wilpinjong, Moolarben and Ulan coal mines are located in the south eastern portion of the study area and consist of both surface and underground mining operations. EnergyCo has developed the transmission line alignment in consultation with the mine operators and would continue to coordinate with them to manage and minimise temporary construction impacts. • Construction of the project would impact 98 ha of land identified for enhancement and conservation areas for Wilpinjong mine, as well as land secured for offsets for Moolarben mine and Ulan mine (discussed in section 6.4). EnergyCo has committed to securing alternative offsets to achieve the required biodiversity outcomes and would support mining operators in modifying required development consents and management plans. • Part of the transmission line alignment is located within the Mudgee Mine Subsidence District. EnergyCo amended the transmission alignment in Bungaba to avoid potential mine subsidence impacts associated with this subsidence district. • Under the *Mine Subsidence Compensation Act 2017*, approval from Subsidence Advisory is required for development within a Mine Subsidence District. Subsidence Advisory has approved construction of the project	• Committed mitigation measures considered adequate. No additional conditions considered necessary.

Findings and conclusions	Recommended conditions
within the Mine Subsidence District, on the condition that construction not commence prior to January 2025 in order to avoid expected subsidence associated with mining operations at Moolarben. Agricultural Land • The project area is predominantly used for agricultural purposes, including livestock grazing and cropping. • During the three-year construction period, up to 3,755 ha of agricultural land would be unavailable for agricultural activities, resulting in a total productivity loss of around $3.95 million. This loss is equivalent to around 0.2% of the total gross value of agricultural production across the four impacted LGAs over the same period. • During operation, the project would have a permanent direct impact on around 795 ha of agricultural land. The loss of agricultural productivity associated with this loss is estimated to be around $285,900 per year. • The Department acknowledges that the project would directly impact around 50 ha of land classed as BSAL, with a further 120 ha of BSAL located within the transmission line easement where continued agricultural use may be possible. The Department is satisfied that EnergyCo has demonstrated appropriate avoidance of BSAL through its project design, which involved re-routing the transmission line alignment to avoid large contiguous areas of important agricultural land. • Impacts to agricultural land and disruptions to landholders would be mitigated through ongoing consultation with landholders, the development of individual Property Management Plans and Biosecurity Management Plan, limiting new access tracks and ongoing weed management. • DPI Agriculture agrees that once operational, typical local livestock grazing and dryland cropping activities can largely continue within transmission easements, minimising impacts on agricultural productivity. • The Department and DPI Agriculture are satisfied that the overall impact of the project on agricultural land and productivity is small and can be appropriately managed by implementing the mitigation measures proposed by EnergyCo. Other Potential Land Use Conflicts • The project alignment intersects with a number of other planned and approved renewable energy projects within the REZ. • The Department notes that the project alignment has been in development since 2020 and undergone significant refinement based on a range of community, environmental, land use and technical constraints, as well as feedback received during community and stakeholder consultation. This has included consultation with renewable energy project proponents in the region. • The Department acknowledges that the project alignment has the potential to impact on at least one planned renewable energy project that is yet to be submitted for assessment in the planning system. Noting the length of time that the project alignment has been in development and available publicly, the Department considers that	

Findings and conclusions	Recommended conditions
projects yet to enter the planning system would be aware of the alignment and have had reasonable opportunity to consider the project alignment and design their projects accordingly.	
Social	
• EnergyCo prepared a Social Impact Assessment (SIA) as part of the EIS, which identified a range of potential social impacts, both positive and negative. These include: – decreased community cohesion between hosting landowners and neighbours; – amenity impacts, including air and noise emissions, road traffic, safety and visual; – increased employment opportunities and training initiatives; and – local business opportunities and economic stimulus. • Submitters and Councils raised concerns about the social impacts of the project, in particular, concern was raised regarding the limited availability of accommodation and housing in the region, perceived negative behaviours associated with worker accommodation camps and impact on local services such as health and emergency services. • The Merotherie and Neeley's Lane workforce accommodation camps would provide accommodation for up to 1,800 construction workers and ease pressure on availability of local housing and accommodation and is proposed to be staged as the workforce size changes with construction works. • The workforce accommodation camp would be managed in accordance with an Accommodation Camp Management Plan, which would include a code of conduct for workers and cultural awareness training for the workforce. • The project would generate direct and indirect benefits to the local community including: – up to 1,800 construction jobs and 60 ongoing jobs during operation; – expenditure in the local economy by workers who would reside in the area; and – the procurement of goods and services by EnergyCo and associated contractors. • EnergyCo has committed to preparing a pre-construction and construction Communication and Engagement Plan to ensure landowners, businesses and local residents with the potential to be affected by construction activities are promptly notified about upcoming activities and potential impacts. This plan would also include consultation with local health and emergency services to establish processes for managing potential increased demands due to the non-resident workforce. • EnergyCo has also committed to preparing and implementing a Local Workforce Participation Strategy that will investigate opportunities for the delivery of training and upskilling programs for the local labour force. The strategy will also include initiatives to promote local employment, such as early engagement with local employment agencies and council.	• Prepare an Accommodation Camp Management Plan and a Local Business Employment Strategy for the project in consultation with relevant Councils, with consideration to prioritising the employment of local workers. • Prepare and implement a Social Impact Management Plan in consultation with Councils and affected stakeholders, with the intent of enhancing positive social impacts from the development.

Findings and conclusions	Recommended conditions
• The Department has considered all these impacts in its assessment and recommended appropriate conditions where relevant to avoid and mitigate adverse impacts.	
Water use and supply	
• The amount of water required for the construction period is estimated to be around 700 ML per year, of which approximately 450 ML would be potable and 250 ML would be from non-potable sources. • EnergyCo proposes to prioritise use of non-potable water for construction, including from rainwater harvesting, reuse and treated mine water before utilising water from existing unregulated surface water sources (under water access licences), new groundwater bores or other potable water sources. • Potable water would be sourced from existing regulated and unregulated surface water sources (under water access licences) and from Council-owned potable water supplies where possible. • Wastewater treatment facilities would be established at both worker accommodation camps and at construction compounds. • Councils and public submitters raised concerns around the availability of water required for construction and the potential impacts to water distribution for the community. • The Department, including the Water Group, and WaterNSW are satisfied that the project's water use is unlikely to have any significant impact on water supply and demand in the region. However, the Water Group noted that any water sourced for the project is required to be appropriately licensed.	• Ensure the development has adequate water supplies for the project and that it obtains any necessary licences under the *Water Act 1912* or *Water Management Act 2000*. If necessary, adjust the scale of the project to match the available water supply. • Prepare and implement an Accommodation Camp Management Plan in consultation with Councils, including measures to ensure water and wastewater utilities are designed and located in accordance with Council specifications.
Surface Water	
• The transmission line would cross the Talbragar River and several other smaller creeks. Transmission line towers would be constructed at least 50 m from the edge of major watercourses, and drones, helicopters or watercraft would be used to string lines where temporary crossings cannot be used. Temporary watercourse crossings may be required during construction where alternative access routes are impractical. • The project would involve construction of a new bridge over the Talbragar River on Merotherie Road, downstream of an existing bridge which would be demolished, and a new bridge over Laheys Creek on Spring Ridge Road which would replace the existing causeway. Due to the existing poor condition of the Talbragar River and Laheys Creek, the construction of the new bridge crossings has the potential to result in erosion and changes in the shape of the channel both upstream and downstream of the works. Design measures such as scour protection would be incorporated into the road design to manage the increase in scour potential within the road corridor. • The Department has recommended a condition requiring EnergyCo to ensure that all activities on waterfront land (including waterway crossings) are constructed in accordance with the relevant guidelines and the geomorphic condition of the major rivers and channels crossed by the development is not impacted.	• Comply with legislation to ensure no pollution of waters • Ensure the geomorphic conditions of major watercourses are not impacted by the project except for Talbragar River crossings on Merotherie Road and the Laheys Creek crossing at Spring Ridge Road which would be remediated as soon as practical following construction. • Ensure all works on waterfront land and within watercourses comply with the relevant policies and guidelines. • Minimise erosion and control sediment generation.

Findings and conclusions	Recommended conditions
• Riparian vegetation subject to removal would be appropriately offset and riparian areas subject to disturbance would be progressively stabilised and rehabilitated. The Water Group and DPI Fisheries confirmed they are satisfied with the conditions. • Neither the EPA nor the Water Group have raised concerns about the project area's erosion potential, and the Department considers that with the implementation of best practice control measures, any risks can be adequately managed. The Department also notes that it is a strict liability offence to pollute any waters under the *Protection of the Environment Operations Act 1997*. <u>Flooding</u> • Community submissions and Warrumbungle Shire Council raised concerns around Merotherie Road, which is the major access route for Merotherie energy hub, being subject to flooding. As part of the Amendment Report, EnergyCo proposed a new bridge on Merotherie Road over the Talbragar River and road upgrades to mitigate this risk. • Sections of the Elong Elong energy hub construction compound could be affected by mainstream flooding from Laheys Creek. EnergyCo is planning to refine the layout of the compound to avoid areas at risk of mainstream flooding where practicable. • The widening and sealing of Merotherie Road and sections of Spring Ridge Road has the potential to obstruct floodwaters and alter overland flow patterns. EnergyCo has proposed detailed design measures to control external catchment runoff such as table drains, transverse drainage structures and energy dissipation measures. • The remaining energy hubs and switching stations are generally located in areas which are not subject to mainstream flooding however have the potential to become inundated by overland flow which would be managed by diversion channels and culverts. • The Department has recommended a condition requiring EnergyCo to ensure the development is designed, constructed and maintained in such way that it does not materially alter the flood storage capacity, flows or characteristics in the development area. The Department is satisfied that the flood impacts would be appropriately managed through recommended conditions.	
Groundwater	
• Piling for the transmission tower components would generally range from 5 m to 20 m deep. Excavations for the energy hub foundations would be 10 m to 15 m deep. These would not remain open and not result in permanent inflow or take of groundwater. • Extracted groundwater of up to 124 ML at each energy hub would potentially be used for non-potable uses such as dust suppression and landscaping, which has been assessed as having no more than minimal harm to groundwater resources, other users or GDEs.	• Ensure the development obtains any necessary licences under the *Water Act 1912* or *Water Management Act 2000*.

Findings and conclusions	Recommended conditions
• Two registered bores were identified within the construction area however EnergyCo proposes to avoid impacts to these, or to replace in consultation with landowner if impact is unavoidable.	
Waste	
• Councils and several public submissions raised concerns about the inability of local waste facilities to handle the types and volumes of waste estimated to be generated by the construction of the project. • EnergyCo has committed to disposing of waste at the nearest suitable licenced facility where capacity is available and recognises that this would potentially require transportation of waste over longer distances to reach facilities with capacity. • EnergyCo has also committed to preparing a Waste Management Plan that would detail measures to reduce waste generated by the project. • The Department considers that the waste generated by the project could be appropriately managed.	• Require waste be dealt with in accordance with the following hierarchy of: – avoid or reduce where possible; – re-use, recycle and recover; – treat or dispose of to a licenced facility. • Prepare and implement a Waste Management Plan in consultation with the EPA and Councils.
Economic	
• The project would deliver significant economic benefits to NSW, including a capital investment of $3.2 billion. • The project would generate direct and indirect benefits to the local community, particularly during construction, including: – creating up to 1,800 direct jobs during the construction period and facilitating another 430 indirect jobs in the regional economy and another 1,600 in the NSW economy – Creation of up to 60 ongoing jobs for the operational life of the project – expenditure on accommodation and business in the local economy by workers who would reside in the area; and – the procurement of goods and services by EnergyCo and associated contractors. • Once operational, the project is unlikely to result in significant demand on community services and infrastructure given the relatively low level of local employment generated. • EnergyCo has sought to consult with all impacted landowners, including discussions regarding areas of agricultural land which should be avoided, and has committed to continuing this consultation during the detailed design stage. • The Department has recommended EnergyCo prepare and implement a Local Business and Employment Strategy in consultation with the four Councils, investigating options for prioritising the employment of local and Aboriginal workforce and suppliers. • The Department considers that with the recommended conditions of approval, the project would provide economic benefits for the local community.	• Prepare and implement a Local Business and Employment Strategy in consultation with the relevant Council.
Contamination	

Findings and conclusions	Recommended conditions
• The EIS includes a contaminated land risk assessment. • Potential sources of contamination identified within the construction area include the existing Wollar Substation site, the three mining lease areas, farm structures and farm dams. • EnergyCo proposes to avoid areas identified as having a medium to high risk of contamination wherever possible, and undertaking soil testing at construction locations on the Wilpinjong mining lease and within 50 m of farm structures or farm dams to confirm the presence/absence of contaminants prior to construction occurring. • With the implementation of these measures the Department is satisfied that any contamination risks can be appropriately managed. • No known occurrences of naturally occurring asbestos were identified within the project area.	• Committed mitigation measures considered adequate. No additional conditions considered necessary.
Bushfire Hazard	
• The project would introduce additional risks for on-site ignitions which may result in a fire escaping to the surrounding state forests or National Park. These may arise from electrical failure, contact between conductors and vegetation, or hot works during construction or operation. Community submissions raised concern for these risks as well as the capacity of local emergency services to respond to a perceived increase in bushfire events. • Parts of the project area is classed as bushfire prone land. EnergyCo would be required to maintain asset protection zones (APZ) around the construction site, accommodation camps and substations. • Vegetation removal and trimming along the transmission line easement and APZ surrounding the switching stations, energy hubs and accommodation camps would be undertaken to maintain appropriate clearances to manage bushfire risk. • EnergyCo would also be required to comply with the RFS's *Planning for Bushfire Protection (2019)* and prepare an Emergency Plan to manage the fire risk. • In addition, EnergyCo has committed to a number of mitigation measures and strategies, including the preparation of an Emergency Management Plan, a Bushfire Risk Management Plan, an Emergency Response Manual. • The Department considers that the bushfire risks can be suitably managed through the implementation of standard fire management plans and procedures.	• Ensure that the project complies with relevant requirements in the RFS's *Planning for Bushfire Protection 2019* (or equivalent) and Australian Standard AS3959-2018. • Ensure the project is suitably equipped to respond to fires on site, including the provision of a 20,000 litre water tank at each construction compound and accommodation camp. • Prepare and implement an Emergency Plan.
Aviation Safety	
• The Aviation Impact Study concluded that the transmission towers, lines and associated construction cranes would not infringe any certified airport Obstacle Limitation Surfaces, nor impact any take off and landing operations at aircraft landing area. • The study determined that the project is compatible with aerial baiting operations conducted by NPWS.	• Committed mitigation measures considered adequate. No additional conditions considered necessary.

Findings and conclusions	Recommended conditions
• The majority of the transmission line is located within Special Use Airspace associated with military flying operations, however given the existence of similar transmission infrastructure within the airspace, is unlikely to have any adverse impact. • There would be no adverse impact on aviation communication and navigation or to aerial agricultural activities. • EnergyCo has committed to continual consultation with Airservices Australia, NPWS and the Department of Defence during detailed design. Final design details would also be provided to nearby landowners and owners of local aircraft landing areas. • CASA has no further concerns subject to the implementation of the recommended conditions. The Department considers that the project is unlikely to result in any significant aviation hazards or impacts to aerial agricultural activities	
Air quality	
• The Department considers the potential air quality impacts associated with the construction of the project would be minimal. • EnergyCo has committed to minimising air quality emissions by utilising a range of best practice dust mitigation measures.	• Minimise emissions of dust, fume, blast and other air pollutants of the development. • Minimise surface disturbance of the project area.
Electric and Magnetic Fields	
• Like other electrical equipment, the project's transmission lines, substation and interconnecting cabling would generate EMF. It is noted that EMF also comes from natural sources such as the Earth's magnetic field. • Predicted EMF levels associated with the project are well below the relevant International Commission on Non-Ionizing Radiation Protection EMF criteria of 2,000 milligauss (mG) for general public exposure. The substation would be designed to ensure predicted EMF exposure limits would be within the EMF reference levels. • The Department is satisfied the development is unlikely to cause any significant EMF-related impacts.	• Comply with the applicable EMF criteria.
Radio and Telecommunications	
• Electromagnetic signals transmitted for telecommunication systems (such as radio, televisions, mobile phones and mobile/fixed radio transmitters) function most efficiently where a clear line of sight exists between the transmitting and receiving locations. • Transmission lines have negligible impact on ultra-high frequency (UHF) signals that range from 300 MHz to 3GHz. Both mobile phone coverage and emergency services radio frequencies use UHF. However, the design and placement of transmission line towers has the potential to obstruct point to point microwave links, which transmit microwave signals.	• Implement all reasonable and feasible measures to avoid construction of towers within the 100 m of the link path. • Where a 100 m exclusion zone cannot be maintained, ensure there is no disruption to the Public Safety Network microwave link paths in the area in consultation with the

Findings and conclusions	Recommended conditions
• The NSW Telecommunications Authority advised that a clearance distance of 100 m from the direct line between two microwave link points (referred to as link path) would reduce the potential for interruptions to the Public Service Network (PSN), and that failure to meet this clearance requirements would require a detailed impact analysis. • EnergyCo has designed the placement of towers to be placed 100 m outside of link path, where practicable. However, there are four towers that would be within 100 m of the link path due to other environmental constraints. EnergyCo has committed to review these locations during detailed design to determine if there would be any effect on the microwave link. • Accordingly, the Department has recommended a condition requiring EnergyCo implement all reasonable and feasible measures to avoid constructing towers within 100 m of the link path, and consulting with NSW Telecommunications Authority where the minimum 100 m distance cannot be achieved.	NSW.Telecommunications Authority prior to constructing towers within the exclusion zone. • Make good any disruption to radio communications services in the area cause by the project as soon as possible following the disruption, and no later than 1 month following the disruption of the service unless the relevant service provider or user or Planning Secretary agrees otherwise.
Cumulative Impacts	
• Within the CWO region, a significant number of new developments are proposed, approved or under construction, including renewable energy generation and storage projects, as well as other infrastructure and mining projects. These developments are expected to result in substantial investment, economic benefits and job opportunities in the region, however, cumulative social and environmental impacts would also occur. • Where construction schedules overlap, these projects would also potentially place pressure on existing communities and services such as accommodation, health services, retail, hospitality, emergency services and waste facilities. Development of these projects would also have the potential for cumulative amenity impacts associated with visual, traffic, noise and air quality impacts during construction. Cumulative impacts during construction would be temporary and vary depending on the extent of activity occurring at each project concurrently. Each project would implement mitigation measures to minimise their potential impacts. Long-term cumulative impacts, such as land use, agriculture, and visual impacts, would occur when all the projects are operational. • Several public submissions and the host Councils commented on the cumulative impacts of the project, some of which suggested that the project needed to be considered together with the candidate generator projects given that they are co-dependent. • The broader declaration of the CWO REZ has been considered at a strategic level by the NSW Government. It is recognised that not all REZ related cumulative impacts can be addressed through a project-level approach alone, instead requiring a strategic and collaborative approach. The CWO REZ Steering Committee (the committee) was established in July 2023 to ensure whole of government REZ coordination and accountability for delivery of actions to mitigate cumulative impacts and provide community benefits in the CWO REZ. The committee is made up of host Councils, EnergyCo and NSW Government departments.	• Addressed through implementation of committed mitigation measures and recommended conditions.

Findings and conclusions	Recommended conditions
• EnergyCo prepared its cumulative impact assessment in accordance with the *Cumulative Impact Assessment Guidelines for State Significant Projects*. The cumulative impact assessment for the project assesses the potential impacts of the project alongside the potential impacts of other relevant proposed projects.	
Rehabilitation	
• EnergyCo proposes progressive site rehabilitation following the completion of construction, involving the removal of all materials not required for operation. This would include the removal/remediation of the construction compounds and accommodation camp sites. These areas would be restored to the previous natural conditions as far as possible. • To ensure that redundant infrastructure is removed, and the areas rehabilitated appropriately, the Department has recommended conditions requiring EnergyCo to rehabilitate and revegetate temporary disturbance areas and make good any project related damage.	• Progressively rehabilitate the project area. • Comply with rehabilitation objectives, including removing construction infrastructure, restoring rural land capability and vegetation, and ensuring public safety.

7 Evaluation

The Central-West Orana REZ Transmission project is critical for energy security and reliability in NSW as it would connect the NEM with electricity generating projects proposed in the CWO REZ. Consequently, the Minister for Planning and Public Spaces declared the project to be critical State significant infrastructure.

The Central-West Orana REZ Transmission project would play an essential role in supporting the transition from a long-standing reliance on coal-fired power stations to a reliance on renewable energy. It is also consistent with AEMO's roadmap for the NEM, the *Integrated System Plan* and relevant strategic NSW planning and policy documents, including the *Transmission Infrastructure Strategy*, the *Electricity Strategy*, and more broadly the *Climate Change Policy Framework and Net Zero Stage 1: 2020 – 2030*.

It would also deliver significant economic benefits to NSW including a capital investment of $3.2 billion and creation of 1,800 construction jobs.

Overall, the Department considers that the project has been designed in a way that avoids and minimises social and environmental impacts as far as practicable. The Department has carefully considered the residual potential impacts of the project on the environment. The Department has worked closely with key government agencies to prepare a comprehensive framework of recommended conditions of approval, requiring a range of controls and measures to minimise the impacts of the project.

The Department has carried out a detailed assessment of the merits of the project in accordance with all relevant NSW legislation, policies and guidelines. It has also consulted widely with the community and key government agencies, and closely considered the issues they have raised during this consultation in its assessment.

The Department considers the key impacts are biodiversity, landscape character and visual amenity impact and traffic and transport impacts. The Department has also considered a range of other impacts in its assessment including heritage, land use, hazards, water, noise, air quality, social, economic and cumulative impacts. The Department considers these impacts can be appropriately mitigated and/or offset in accordance with NSW government statutory requirements, guidelines and policy requirements.

The Department has carefully weighed the impacts of the project against the benefits. The project would have long-term benefits for the transmission of electricity in NSW and the broader NEM, would support the transition of the NEM away from long-standing reliance on coal-fired power stations and would transport renewable energy from the CWO REZ to energy consumers.

On balance, the Department considers that the Central-West Orana REZ Transmission project benefits to energy security and reliability outweigh its costs, and the project is in the public interest and approvable, subject to strict conditions.

8 Recommendation

It is recommended that the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **accepts and adopts** the findings and recommendations in this report as the reasons for making the decision to grant approval to the application;
- **considers** any advice provided by the Minister having portfolio responsibility for the project;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants approval** for the application in respect of Central-West Orana Renewable Energy Zone Transmission (SSI 48323210) as amended, subject to the conditions in the attached infrastructure approval; and
- signs the attached infrastructure approval (**Appendix G**).

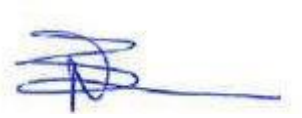
Prepared by:

Natasha Homsey, Team Leader

Kurtis Wathen, Senior Environmental Assessment Officer

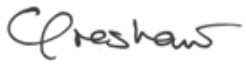
Julia Green, Senior Environmental Assessment Officer

Recommended by



Nicole Brewer
Director
Energy Assessments
20 June 2024

Recommended by



Clay Preshaw
Executive Director
Energy and Resources Assessment
21 June 2024

David Gainsford
Deputy Secretary
Development Assessment and Sustainability

21 June 2024

9 Determination

The recommendation is **adopted** by:

The Hon Paul Scully MP
Minister for Planning and Public Spaces 26/6/24

Glossary

Abbreviation	Definition
AHD	Australian height datum
BCS	Biodiversity Conservation and Science Division within the NSW Department of Climate Change, Energy, the Environment and Water
BSAL	Biophysical Strategic Agricultural Land
CASA	Civil Aviation Safety Authority
Crown Lands	Crown Lands division of the Department of Planning, Housing and Infrastructure
CSSI	Critical State significant infrastructure
CWO REZ	Central-West Orana Renewable Energy Zone
AG DCCEEW	Australian Government Department of Climate Change, Energy, the Environment and Water
Department	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries within the Department of Regional NSW
EII Act	*Electricity Infrastructure Investment Act 2020*
EIS	Environmental impact statement
EMF	Electric and magnetic fields
EnergyCo	The Energy Corporation of New South Wales constituted by section 7 of the Energy and Utilities Administration Act 1987 as the NSW Government statutory authority responsible for the delivery of NSW's Renewable Energy Zones.
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment protection licence
ESD	Ecologically sustainable development
GW	Gigawatt
Heritage NSW	Heritage NSW (ACH), within the NSW Department of Climate Change, Energy, the Environment and Water
kV	Kilovolt
LEP	Local environmental plan
Minister	Minister for Planning and Public Spaces

Abbreviation	Definition
NEM	National Electricity Market
NPWS	National Parks & Wildlife Service within the NSW Department of Climate Change, Energy, the Environment and Water
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021
REZ	Renewable Energy Zone
SEARs	Planning Secretary's Environmental Assessment Requirements
Secretary	Secretary of the Department of Planning, Housing and Infrastructure
SEPP	State environmental planning policy
SSI	State significant infrastructure
TfNSW	Transport for NSW
Water Group	Water Group within the NSW Department of Climate Change, Energy, the Environment and Water

Appendices

Appendix A – Summary of key amendments to the project

Since lodgement, some key aspects of the project have been amended in response to public submissions, agency advice and at the request of the Department via an amendment report.

A summary of the key amendments is provided in **Table A-1** and the amended project construction layout is shown in **Figures A-1** to **A-12**.

Table A-1 | Key amendments

Aspect	Original project in EIS	Amended project	Difference
Transmission line alignment	Proposed alignment included: • twin double circuit 500 kV transmission lines and towers, which extend for around 90 km, to connect the Merotherie and Elong Elong energy hubs to the New Wollar Switching Station; and • 330 kV network infrastructure around 150 km in length, connecting selected renewable energy generation projects within the REZ to the Merotherie Energy Hub and Elong Elong Energy Hub.	Proposed alignment amendments include: • Amending the 330 kV network alignment to minimise visual impacts to dwellings around Cassilis, Turill and Uarbry; and • Amending the 330 kV network alignment in Bungaba to avoid the Mudgee Mine Subsidence District and reduce impacts on vegetation clearing.	Amendments to transmission network alignments in response to feedback from affected landowners.
Relocation or additional proposed electrical infrastructure	13 330 kV switching stations proposed along the 330 kV network to allow connection to selected renewable energy generation projects within the REZ.	Proposed amendments include: • Relocating switching stations E1, M2, M3 and M7; • A new switching station (E5) and 330 kV transmission line at Dunedoo; • Amend the twin 500 kV transmission line alignment to run along the southern side of the Elong Elong Energy Hub	Amendments to switching station locations and transmission alignments in response to feedback from generation projects and to optimise the operation of the network.
BESS at the Merotherie Energy Hub	200 MW / 400 MWh BESS proposed at the Merotherie Energy Hub	Removal of option to install a BESS at Merotherie Energy Hub	No BESS proposed as part of the project
Local road and intersection upgrades	Upgrades proposed include: • Merotherie Road; • Spring Ridge Road; • Dapper Road;	Amendments included: • installing a new bridge on Merotherie Road at its crossing of the Talbragar	Additional road upgrades identified to address concerns from Councils and community.

Aspect	Original project in EIS	Amended project	Difference
	• Spring Ridge Road and Dapper Road intersection; • Neeleys Lane and Ulan Road intersection; • Golden Highway and Ulan Road intersection; • Intersection of Merotherie Road with the access road to the Merotherie Energy Hub; • Merotherie Road and Golden Highway intersection; and • intersection of Barigan Road with the existing access road to the existing Transgrid Wollar Substation.	River to replace the existing crossing; • installing a new bridge on Spring Ridge Road at its crossing of Laheys Creek to replace the existing causeway; • upgrading Neeleys Lane from the Neeleys Lane and Ulan Road intersection to the entrance of the Neeleys Lane workforce accommodation camp; and • removing the upgrade of the intersection of Barigan Road with the existing access road to the existing Transgrid Wollar Substation, as these works have already been completed as part of the Wollar solar farm development.	

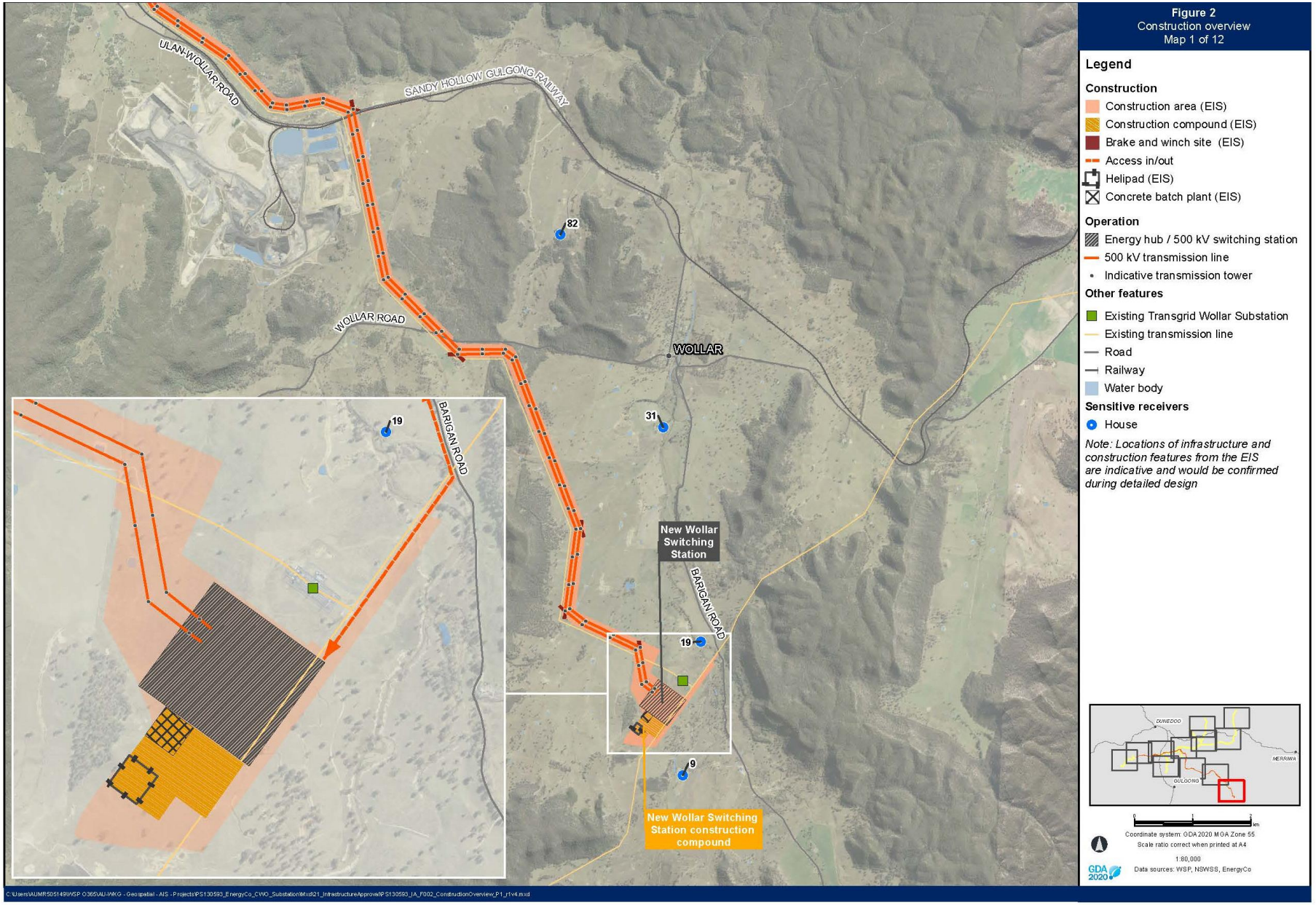


Figure A-1 | Construction Overview 1 of 12

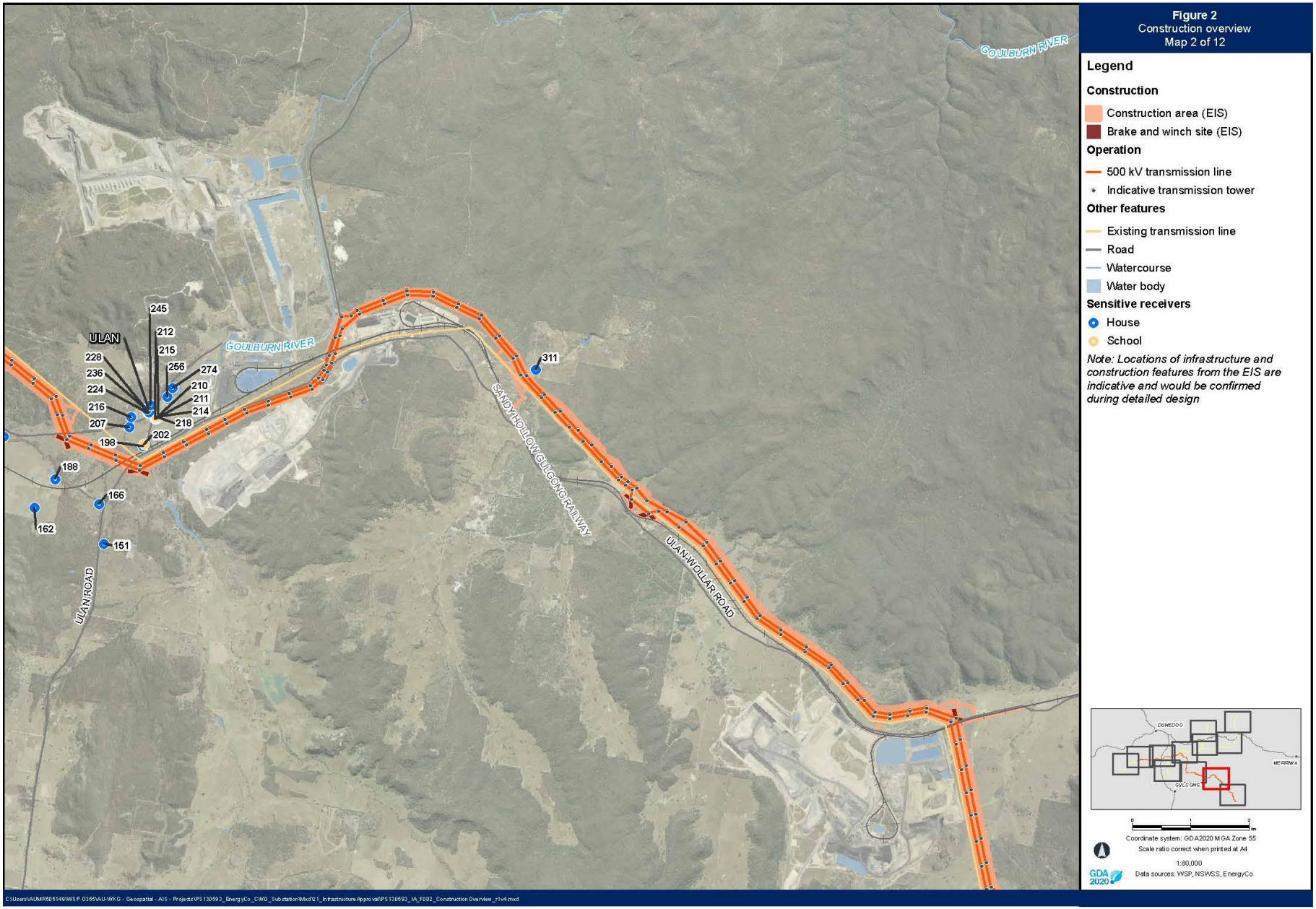


Figure A-2 | Construction Overview 2 of 12

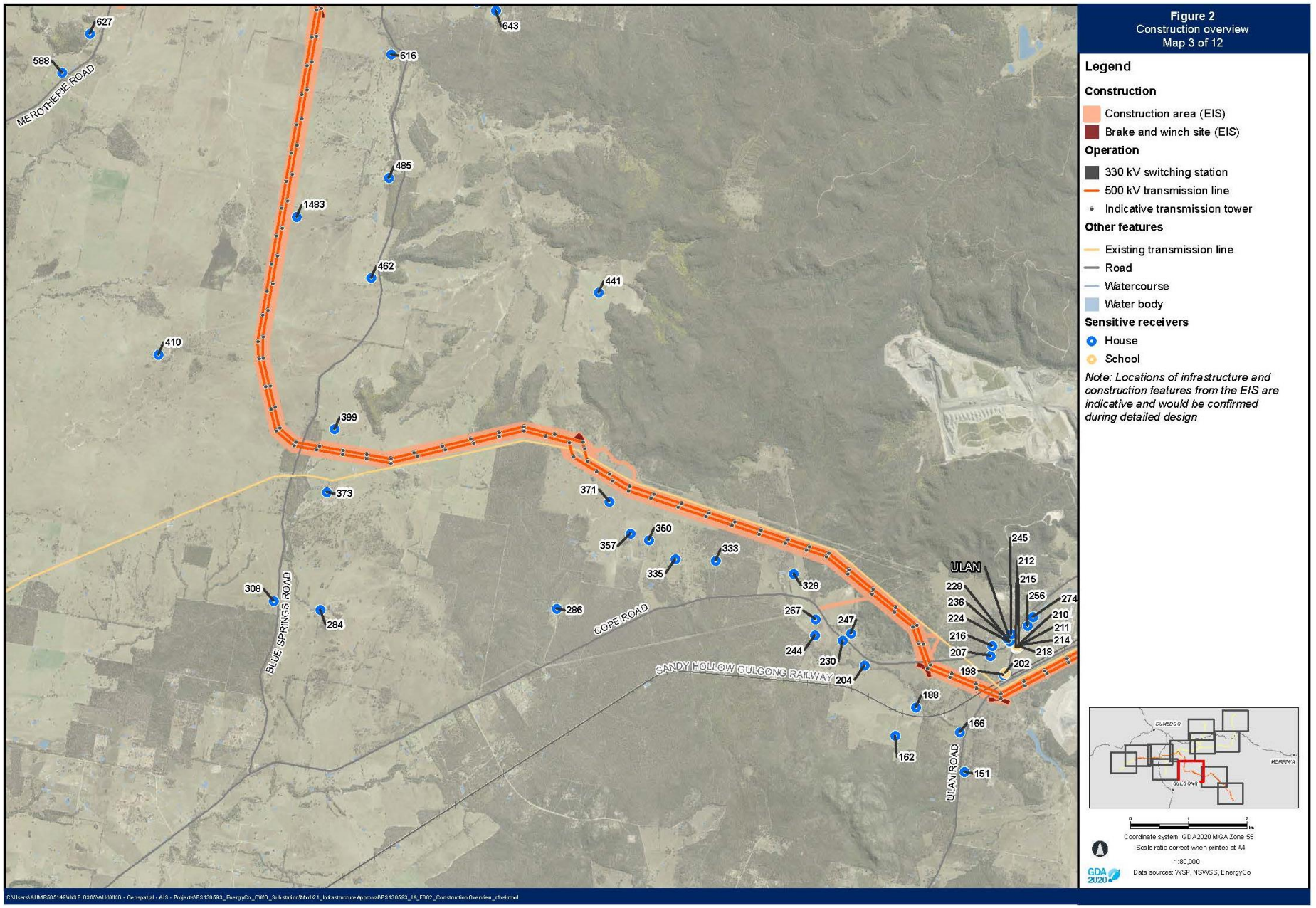


Figure A-3 | Construction Overview 3 of 12

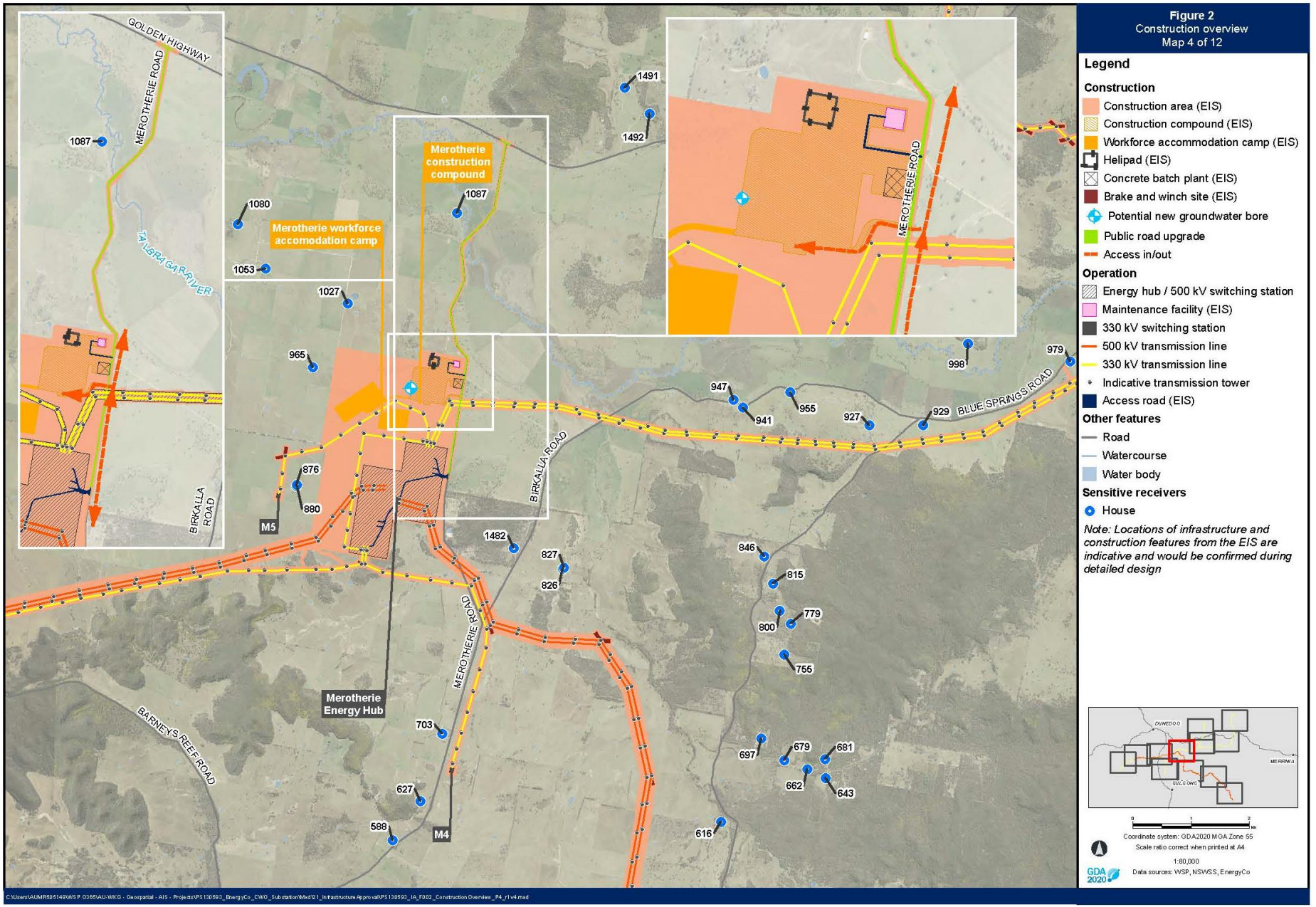


Figure A-4 | Construction Overview 4 of 12

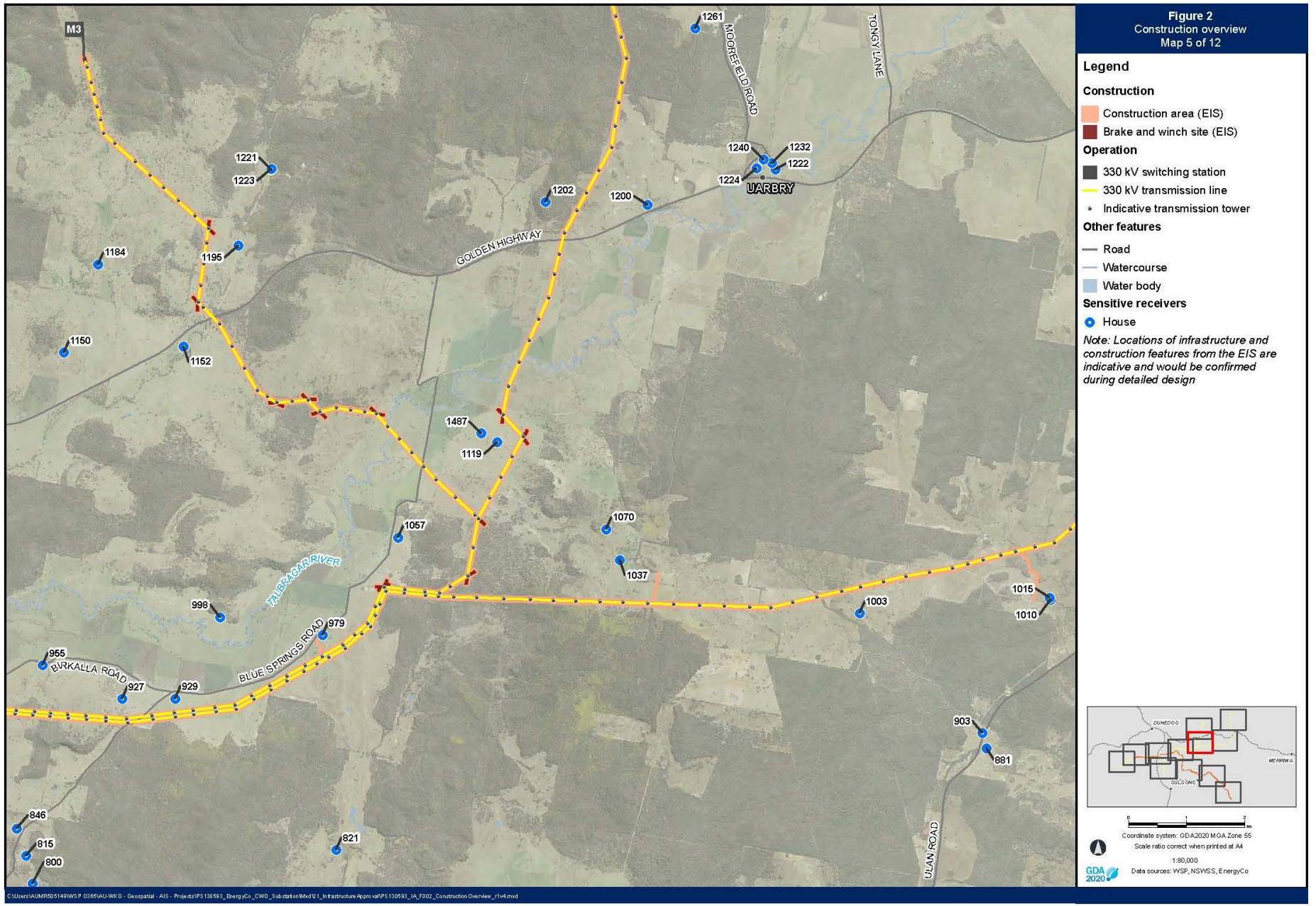


Figure A-5 | Construction Overview 5 of 12

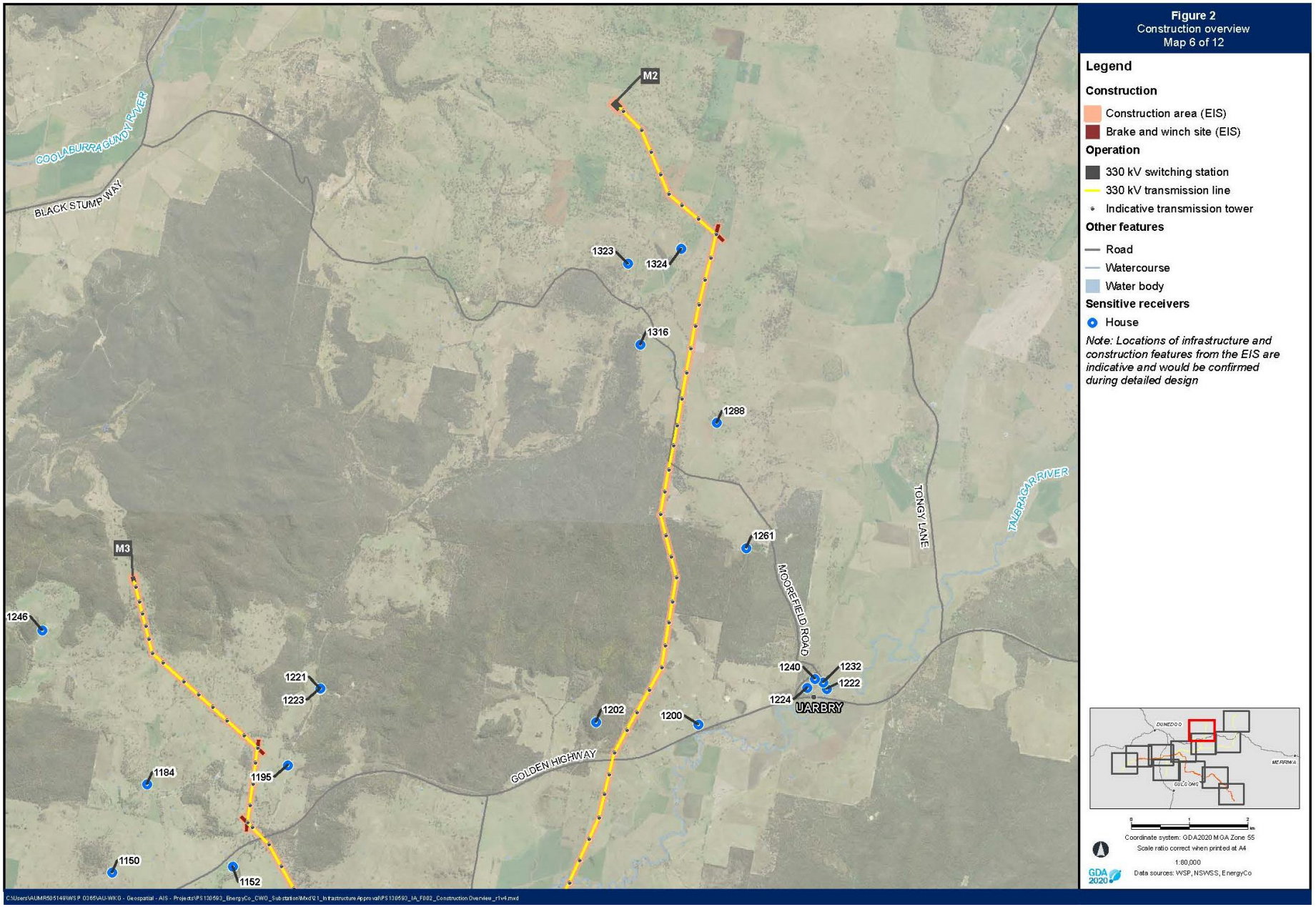


Figure A-6 | Construction Overview 6 of 12

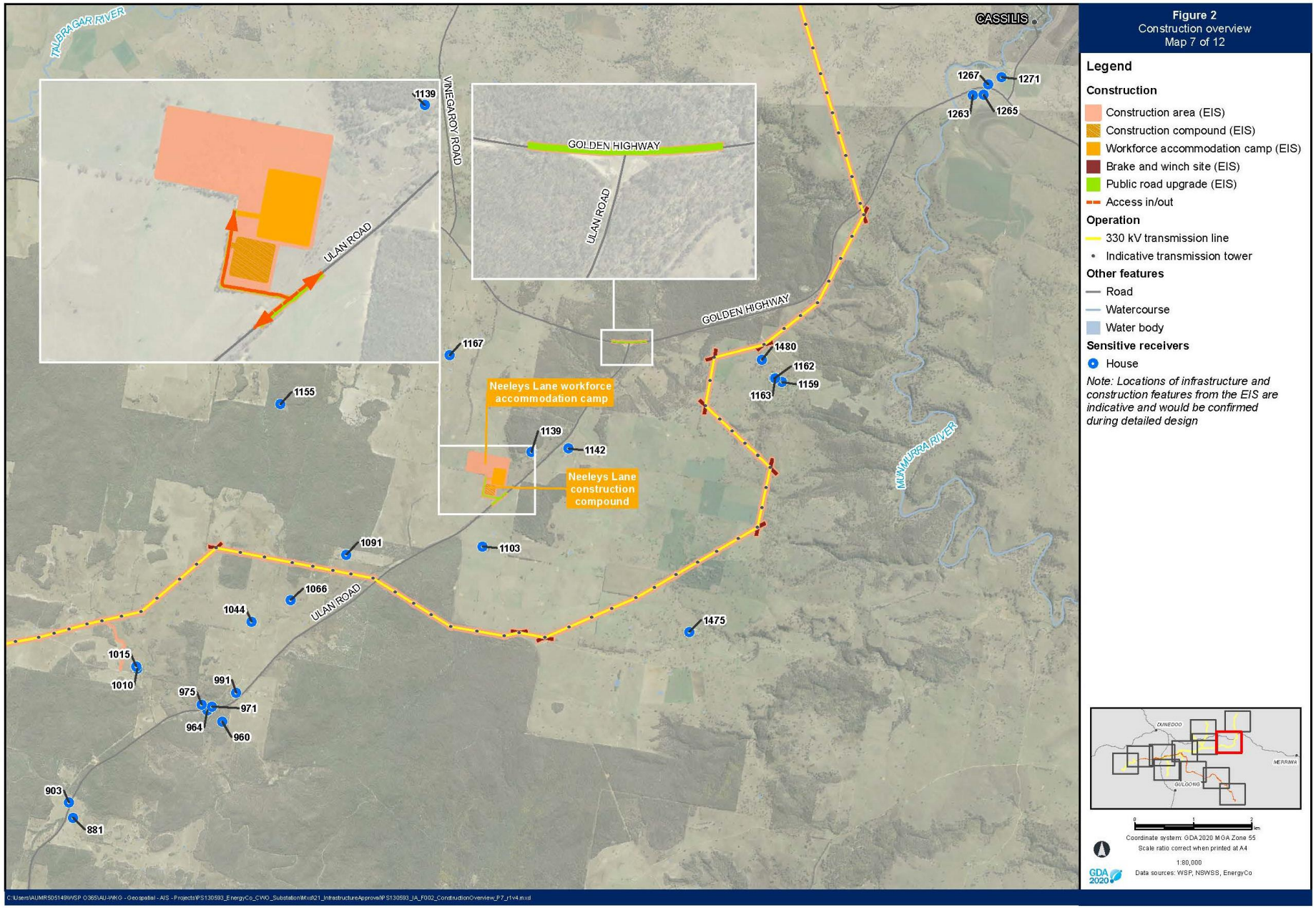


Figure A-7 | Construction Overview 7 of 12

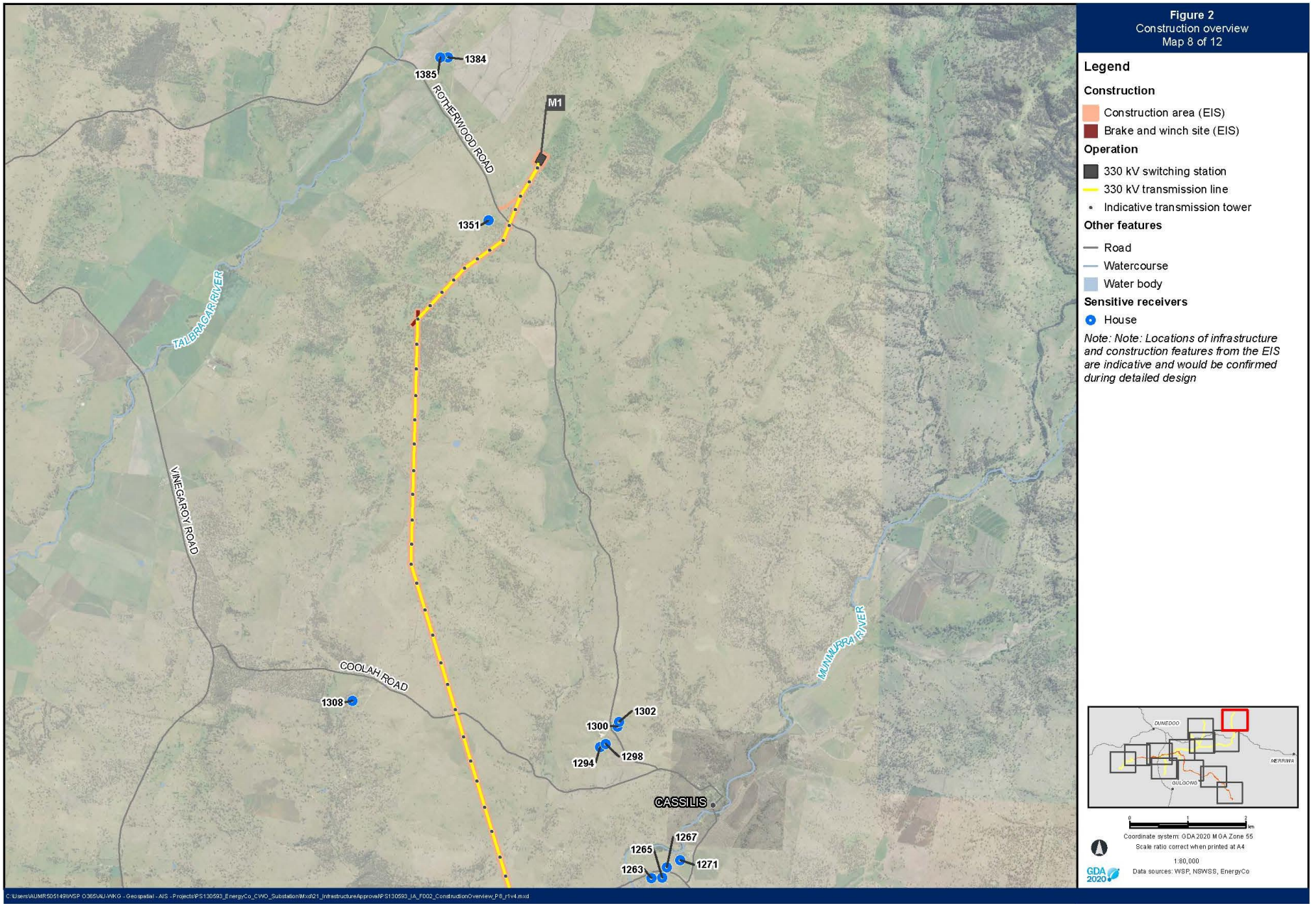


Figure A-8 | Construction Overview 8 of 12

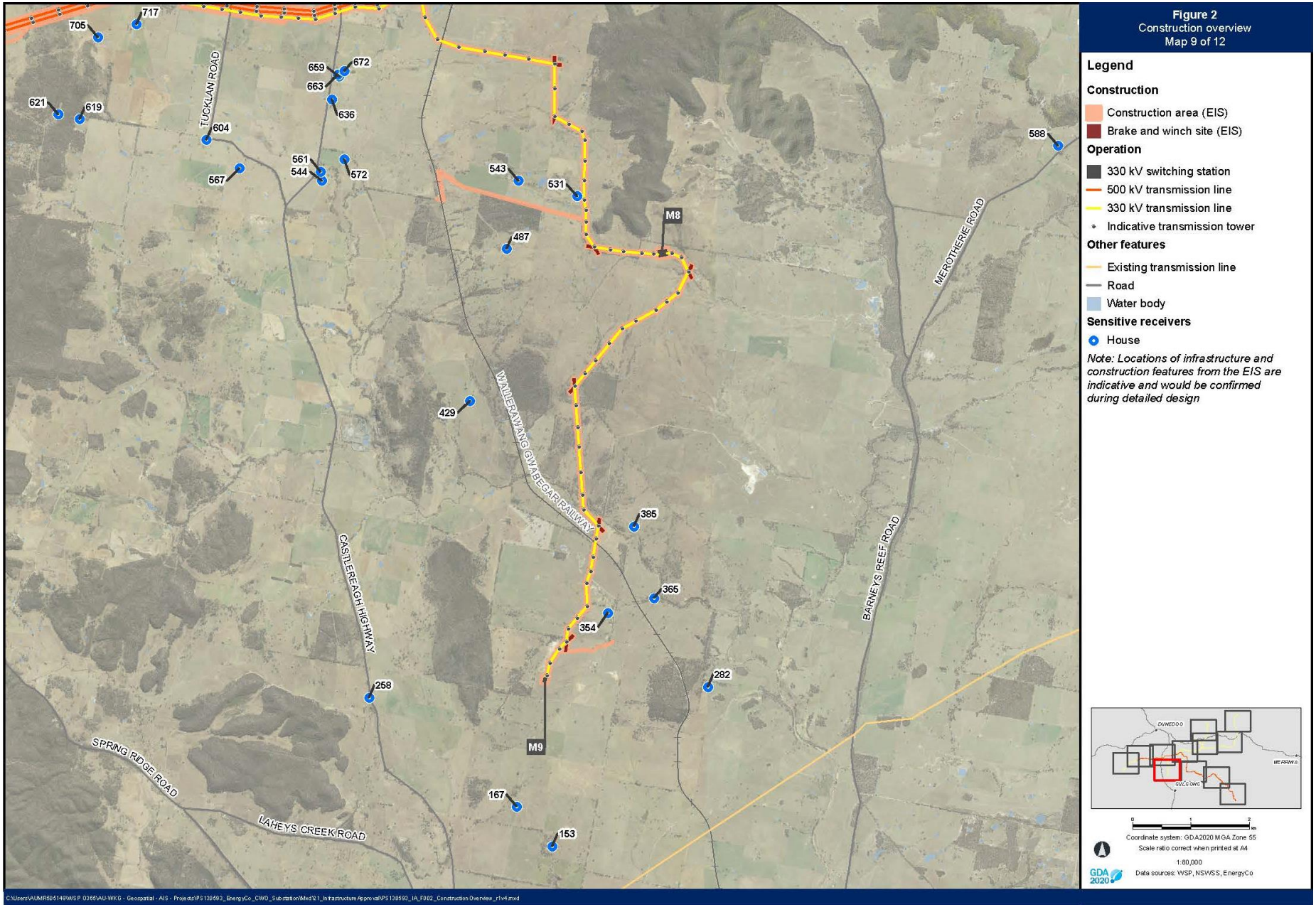


Figure A-9 | Construction Overview 9 of 12

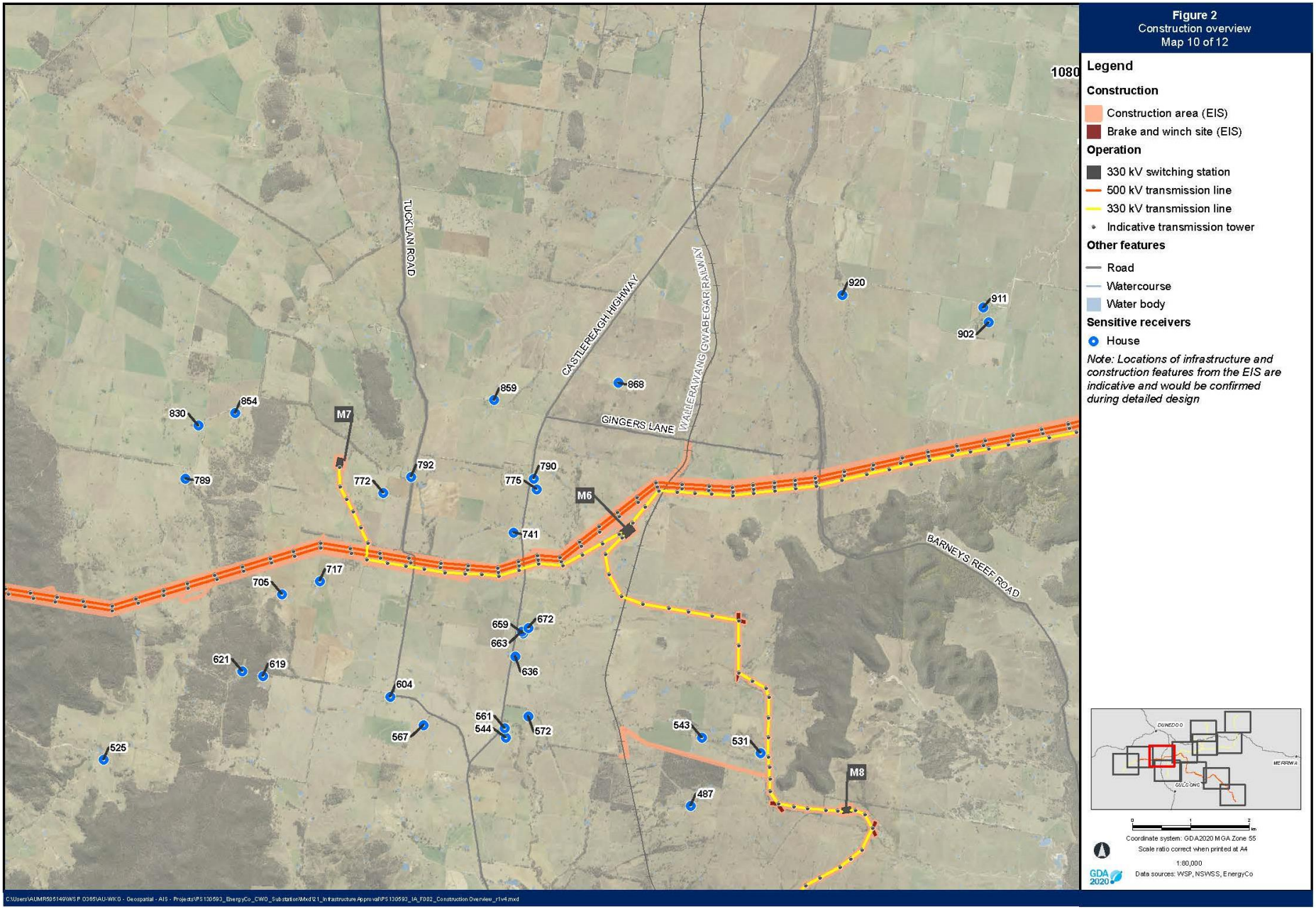


Figure A-10 | Construction Overview 10 of 12

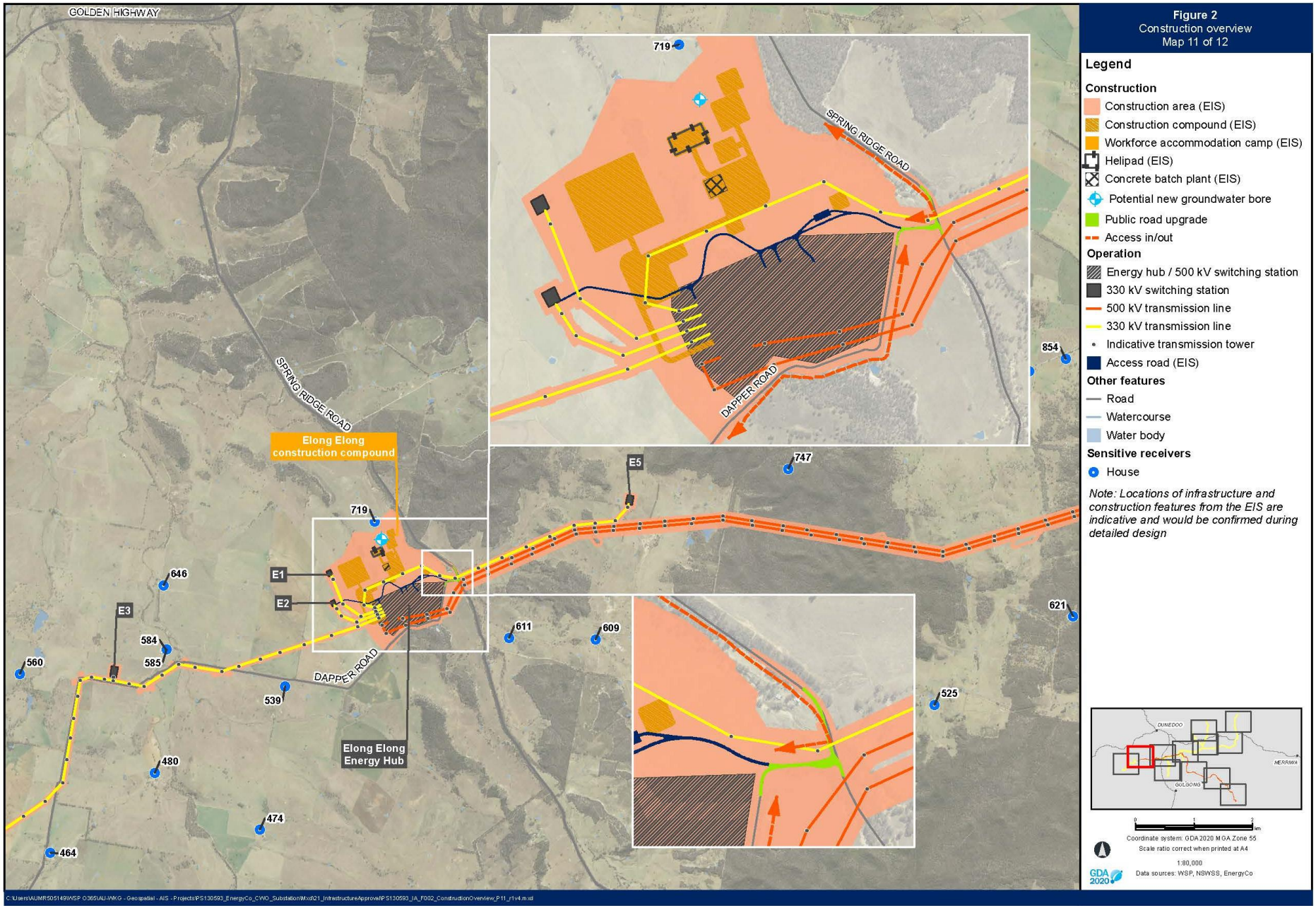


Figure A-11 | Construction Overview 11 of 12

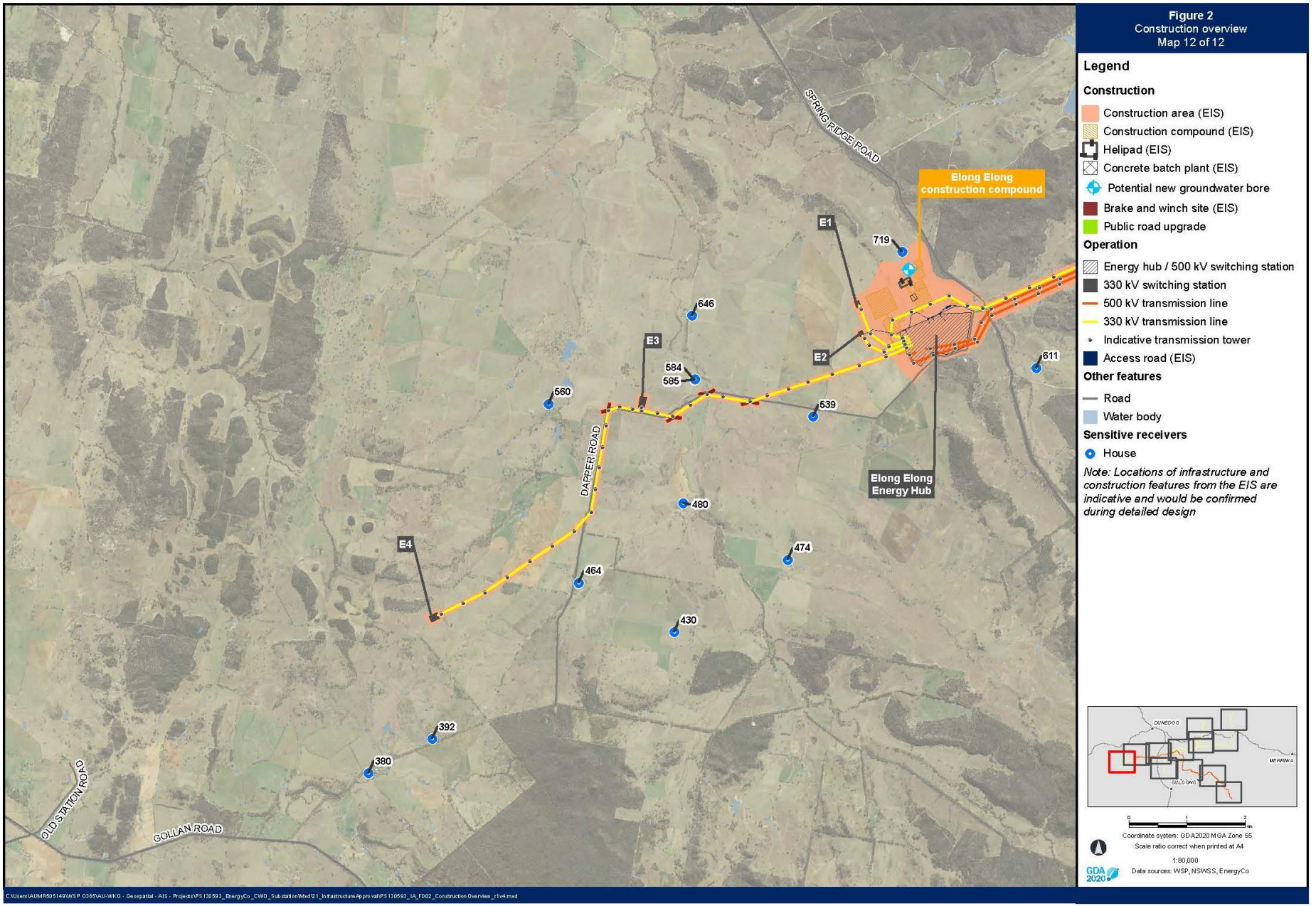


Figure A-12 | Construction Overview 12 of 12

Appendix B – Environmental Impact Statement

Appendix C – Submissions and government agency advice

Appendix D – Submissions Report

Appendix E – Amendment Report

Appendix F – Additional information

Appendix G – Recommended Instrument of Approval

Appendices B to F available at: https://www.planningportal.nsw.gov.au/major-projects/projects/central-west-orana-rez-transmission

Appendix H – Biodiversity impact summary tables

Table H-1 | Native vegetation impacts

Vegetation community	Conservation status*		Potential SAII	Disturbance Area (ha)				Ecosystem Credit Liability
	BC Act	EPBC Act		A	B	HZ	Total	
PCT 42 - River Red Gum/River Oak riparian woodland wetland in the Hunter Valley	-	-	-	0.18	0.27	0	0.44	19
PCT 81 - Western Grey Box – cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion	E	E	-	10.46	3.17	0.06	13.70	203
PCT 84 - River Oak – Rough-barked Apple – red gum – box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion	-	-	-	0.08	0.37	0	0.44	5
PCT 202 - Fuzzy Box woodland on colluvium and alluvial flats in the Brigalow Belt South Bioregion (including Pilliga) and Nandewar Bioregion	E	-	Yes	3.07	1.34	0.03	4.44	125
PCT 266 - White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	CE	CE	Yes	16.39	7.79	0.06	24.25	444
PCT 277 - Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	CE	CE	Yes	87.93	10.75	0.09	98.77	1,406
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	CE	CE	Yes	220.11	88.31	0.78	309.20	7,316
PCT 330 - Mugga Ironbark – Black Cypress Pine – Red Stringybark – Blakely's Red Gum – Red Ironbark woodland on hillslopes and in valleys on ranges in the NSW central western slopes	-	-	-	0.99	1.64	0	2.63	82
PCT 393 - White Box shrubby woodland of the western Liverpool Range, Warrumbungle Range and south-west Pilliga forests, Brigalow Belt South Bioregion	-	-	-	3.83	2.68	0	6.51	133

Vegetation community	Conservation status*		Potential SAII	Disturbance Area (ha)				Ecosystem Credit Liability
	BC Act	EPBC Act		A	B	HZ	Total	
PCT 394 - Narrow-leaved Ironbark – White Cypress pine woodland on slopes and flats in the Coonabarabran - Pilliga Scrub regions	-	-	-	11.02	10.41	0	21.43	267
PCT 399 - Red gum – Rough-barked Apple +/- tea tree sandy creek woodland (wetland) in the Pilliga – Goonoo sandstone forests, Brigalow Belt South Bioregion	-	-	-	3.47	5.24	0	8.71	101
PCT 401 - Rough-barked Apple – Blakely's Red Gum – Black Cypress Pine woodland on sandy flats, mainly in the Pilliga Scrub region	CE	CE	Yes	15.98	19.91	0	35.89	945
PCT 440 - Red Stringybark – Narrow-leaved Ironbark – Black Cypress Pine – hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion	-	-	-	49.52	17.04	0.07	66.63	966
PCT 461 - Tumbledown Gum woodland on hills in the northern NSW South Western Slopes Bioregion and southern Brigalow Belt South Bioregion	-	-	-	25.55	29.92	0.44	55.92	1,016
PCT 468 - Narrow-leaved Ironbark – Black Cypress Pine +/- Blakely's Red Gum shrubby open forest on sandstone low hills in the southern Brigalow Belt South Bioregion (including Goonoo)	-	-	-	5.17	11.29	0.20	16.66	256
PCT 477 - Inland Scribbly Gum – Red Stringybark – Black Cypress Pine – Red Ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion	-	-	-	1.96	2.62	0	4.58	90
PCT 478 - Red Ironbark – Black Cypress Pine – stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong – Mendooran region, southern Brigalow Belt South Bioregion	-	-	-	9.13	22.32	0.11	31.57	740
PCT 479 - Narrow-leaved Ironbark – Black Cypress Pine – stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	-	-	-	72.21	88.39	0.61	161.21	3,090

Vegetation community	Conservation status*		Potential SAII	Disturbance Area (ha)				Ecosystem Credit Liability
	BC Act	EPBC Act		A	B	HZ	Total	
PCT 481 - Rough-barked Apple – Blakely's Red Gum – Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	-	-	-	27.26	27.47	0.12	54.85	778
PCT 483 - Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	CE	CE	Yes	59.42	34.28	0	93.69	2,301
PCT 589 - White Box – White Cypress Pine – Silver-leaved Ironbark grassy woodland on mainly clay loam soils on hills mainly in the Nandewar Bioregion	CE	CE	Yes	10.24	1.97	0	12.21	236
PCT 599 - Blakely's Red Gum – Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion	CE	CE	Yes	3.53	3.89	0	7.41	175
PCT 618 - White Box x Grey Box – red gum – Rough-barked Apple grassy woodland on rich soils on hills in the upper Hunter Valley	CE	CE	Yes	105.65	33.50	0.25	139.40	1,408
PCT 956 - Mugga Ironbark – Inland Grey Box shrubby woodland of the Brigalow Belt South Bioregion	-	-	-	10.62	4.07	0	14.70	116
PCT 1177 - Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion	-	-	-	7.33	14.67	0.28	22.28	426
PCT 1610 - White Box – Black Cypress Pine shrubby woodland of the Western Slopes	-	-	-	6.70	12.91	0.21	19.82	433
			Total	767.80	456.22	3.33	1,227.35	23,077
							Scattered Trees	16
							Total ecosystem credit liability	**23,093**

** 'CE' denotes critically endangered, 'E' denotes endangered and 'V' denotes vulnerable*

Table H-2 | Summary of the ecosystem credit liability for unresolved land mapped as PCT 0 within Category 2 Regulated land

Plant Community Type	Disturbance Area (ha)	Credit Liability
266 – White Box grassy woodland in the upper slopes sub-region of the NSW South-Western Slopes Bioregion	63.61	1,081[1]

[1] Credit liability based on average credit generated from derived native grassland conditions of 17 credit per ha and subject to peer review.

Table H-3 | Threatened flora species impacts

Flora Species	Conservation status		Potential SAII	Impact (ha)			Species Credit Liability
	BC Act	EPBC Act		Known	Assumed	Total	
Acacia ausfeldii/Ausfeld's wattle	V	-	-	17.58	3.55	21.13	541
Dichanthium setosum/bluegrass	V	V	-	4.57	2.28	6.85	109
Diuris tricolor/pine donkey orchid	V	-	-	0	26.46	26.46	421
Eucalyptus camaldulensis population in the Hunter catchment	E	-	-	5.6	0	5.6	140
Euphrasia arguta	CE	CE	Yes	0	107.8	107.8	2,404
Homoranthus darwinioides/fairy bells	V	V	-	0	3.39	3.39	102
Indigofera efoliata/leafless indigo	E	E	Yes	0	0.82	0.82	23
Leucochrysum albicans subsp. tricolor/hoary sunray	E	E	-	6 plants	0	6 plants	12
Pomaderris cotoneaster/cotoneaster pomaderris	E	E	-	0	4.35	4.35	157
Pomaderris queenslandica/scant pomaderris	E	-	-	0.57	1.78	2.35	71
Prasophyllum petilum/tarengo leek orchid	E	E	-	0	76.3	76.3	1,003
Swainsona recta/small purple-pea	E	E	-	0	53.64	53.64	729
Swainsona sericea/silky swainson-pea	V	-	-	0	316	316	2168[1]
Thesium australe/austral toadflax	V	V	-	0	0.54	0.54	13
Tylophora linearis/tylophora linearis	V	E	-	0	12.37	12.37	351
Zieria ingramii/Keith's zieria	E	E	-	0	1.88	1.88	59
						Total Flora Species Credit Liability	**8,303**

[1] Species credit totals include additional credits provided from unresolved survey information identified by BCS and subject to peer review.

Table H-4 | Threatened fauna species - partial impacts

Fauna Species	Conservation status		Potential SAII	Impact (ha)			Species Credit Liability
	BC Act	EPBC Act		Known	Assumed	Total	
Anthochaera phrygia/regent honeyeater	CE	CE	Yes	132.58	0	132.58	4,606[1]
Aprasia parapulchella/pink-tailed legless lizard	V	V	-	1.22	39.6	40.82	919[1]
Cercartetus nanus/eastern pygmy-possum	V	-	-	78.91	162.78	241.69	5,774
Chalinolobus dwyeri/large-eared pied bat	V	V	Yes	88.69	32.59	123.99	5,668[1]
Delma impar/striped legless lizard	V	V	-	0	65.80	65.80	1,087
Hieraaetus morphnoides/little eagle	V	-	-	1.34	12.71	14.05	155[1]
Hoplocephalus bitorquatus/pale-headed snake	V	-	-	0	130.77	130.77	3,127
Keyacris scurra/Key's matchstick grasshopper	E	-	-	0	116.09	116.09	1,489
Lophoictinia isura/square-tailed kite	V	-	-	0	3.63	3.63	40[1]
Miniopterus schreibersii subsp. Oceanensis/large bent-winged bat	V	-	-	0	35.30	35.30	1,412[1]
Myotis macropus/southern myotis	V	-	-	0	1.22	1.22	34[1]
Petaurus norfolcensis/squirrel glider	V	-	-	109.36	346.36	455.72	11,892[1]
Phascolarctos cinereus/koala	E	E	-	0	31.83	31.83	2,101
Vespadelus troughtoni/eastern cave bat	V	-	Yes	88.69	35.29	123.98	4,942[1]
Total Fauna Species Credit Liability for partial impacts							**43,246**

[1] Species credit totals include additional credits provided from unresolved survey information identified by BCS and subject to peer review.

Table H-5 | Threatened fauna species - full impacts

Fauna Species	Conservation status		Potential SAII	Impact (ha)			Species Credit Liability
	BC Act	EPBC Act		Known	Assumed	Total	
Calyptorhynchus lathami lathami/south-eastern glossy black-cockatoo	V	V	-	0	10.00	10.00	488
Polytelis swainsonii/superb parrot	V	V	-	0	3.39	3.39	120
Tyto novaehollandiae/masked owl	V		-	0	10.83	10.83	504

Fauna Species	Conservation status		Potential SAII	Impact (ha)			Species Credit Liability
	BC Act	EPBC Act		Known	Assumed	Total	
Hoplocephalus bitorquatus/pale-headed snake	V	-	-	-	130.77	130.77	1,573[1]
Petaurus norfolcensis /squirrel glider	V	-	-	109.36	346.36	455.72	4,684[1]
Myotis Macropus/southern myotis	V	-	-	-	1.22	1.22	34[1]
Total Fauna Species Credit Liability for full impact							**7,403**

[1] Species credit totals include additional credits identified by BCS and subject to peer review.

Table H-6 | Summary of proposed additional species credits for indirect impacts to habitat connectivity

Habitat patch	Direct Impact to habitat	Indirect impact (area), 10% of direct area	Proposed additional species credits (based on generation of 28 credits/ha)
Patch 1 (Inland slopes adjacent to Tucklan SF)	56.26	5.63	158
Patch 2 (Kerrabee)	34.48	3.45	97
Patch 3 (Pilliga)	13.00	1.30	36
Total proposed additional species credits			**291**

Table H-7 | Summary of proposed additional species credits for indirect impacts due to bird strike and EMF

Species name	Common name	BC Act	SAII	Indirect impact (area), 10% of direct area	Proposed additional species credits (based on 10% of ecosystem credits)
Hieraaetus morphnoides	Little eagle	V	No	62.76	1,252
Lophoictinia isura	Square-tailed kite	V	No	75.81	1,324
Polytelis swainsonii	Superb parrot	V	No	36.17	663
Haliaeetus leucogaster	White-bellied sea-eagle	V	No	28.98	538
Total proposed additional species credits					**3,777**

Appendix I – Statutory considerations

Objects of the EP&A Act

A summary of the Department's consideration of the relevant objects (found in section 1.3 of the EP&A Act) are provided in **Table I-1** below.

Table I-1 | Objects of the EP&A Act and how they have been considered

Summary
Objects of the EP&A Act
The objects of most relevance to the approval authority's decision on whether to approve the project are found in section 1.3(a), (b), (c), (e), (f), (g), (h), (i) and (j) of the EP&A Act. The Department considers the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 1.3(c)), particularly as the project: • is a permissible land use on the subject land; • is able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard; • would contribute to a more diverse local industry, thereby supporting the local economy and community; • would not fragment or alienate resource lands in the LGAs; and • is consistent with the goals of NSW's *Climate Change Policy Framework* and *Net Zero Plan Stage 1: 2020-2030* and *Implementation update* (2022) and would assist in meeting Australia's renewable energy targets whilst reducing greenhouse gas emissions. Ecologically Sustainable Development (ESD) (Object 1.3(b)) has been considered in the Department's assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. In addition, the Department considers that appropriately designed transmission infrastructure facilitating connection to renewable energy generation projects, in itself, is consistent with many of the principles of ESD. The proponent has also considered the project against the principles of ESD. Consideration of the key principles of ESD is detailed below. Precautionary Principle The Department has considered the Precautionary Principle and assessed the project's potential direct and indirect environmental impacts and considers that there is sufficient scientific certainty regarding environmental impacts and residual risks to enable determination of the application. The EIS contains a number of specialist environmental impact assessments and a number of design and operation measures to mitigate, remediate or offset potential impacts. The Department has also recommended conditions of approval that further mitigate potential residual impacts of the project such as limits on clearing, measures to protect key habitat features and requiring EnergyCo to retire biodiversity offsets. The Department considers that the recommended conditions can provide an appropriate level of protection to environmental values in the region. Inter-generational equity The Department recognises that the NSW energy market is in a state of transition from one dominated by coal-fired power stations to a renewable energy mix. Whilst this transition is being fuelled by investment in renewable energy zones and increased battery storage systems, increased interconnection between regions of the NEM will play a crucial role in the transition of the energy market. The Department recognises that climate change and reducing greenhouse gas emissions are key considerations for intergenerational equity and consider that the project contributes to reducing potential climate impacts by linking new renewable sources of generation to the energy market. Conservation of biological diversity and ecological integrity

Summary

The project's potential impacts on biodiversity were an important consideration of the Department's assessment of the project. As described in section 6.4 and Appendix J, the Department considers that direct and indirect impacts on biodiversity and on EPBC matters, including the likely impacts to listed threatened species and communities, can be minimised through proposed mitigation measures and offsets.

Improved valuation, pricing and incentive

This principle of ESD emphasises the internalisation of environmental costs in the pricing of assets and services. The Department's assessment has sought to apply the 'polluter pays principle', insofar as EnergyCo would be required to offset or remediate potential environmental impacts. As such, the Department has conditioned that biodiversity impacts be offset, wastewater treatment facilities will be required for both workforce accommodation camps and that the project's crushing and screening plants would operate under an Environment Protection Licence issues by the EPA. As such, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD.

Consideration of environmental protection (Object 1.3(e)) is provided in section 6 of this report. The Department considers that the project is able to be undertaken in a manner that would at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits.

Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is provided in section 6 of this report. The Department considers the project would not significantly impact the built or cultural heritage of the locality, and any residual impacts can be managed and/or mitigated by imposing appropriate conditions.

Consideration of good design and the amenity of the built environment (Object 1.3(g)) is provided in section 6 of this report. The Department recognises that, while the transmission lines would create a linear corridor across the landscape, this would not change the prevailing character and nature of the surrounding environment. Nonetheless, the proposed mitigation measures and conditions would require the proponent to implement appropriate visual impact mitigation measures, such as landscaping and/or vegetation screening at select receivers and to rehabilitate work areas.

The Department has considered the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants (Object 1.3(h)) and consider the mitigation measures for fire safety and minimise bushfire risks would provide acceptable levels of protection for the health and safety of occupants of the accommodation camps during construction, the overall project area and surrounding residents. The Department has also conditioned further requirements including finalisation of emergency planning and construction and demolition conditions to ensure structural adequacy of the buildings and safe demolition of temporary facilities at the end of construction period.

The Department notified and consulted with four local Councils being Dubbo Regional Council, Upper Hunter Shire Council, Warrumbungle Shire Council and Mid-Western Regional Council and NSW government authorities (including further discussion of key issues with BCS and TfNSW) throughout the assessment of the project and carefully considered all responses in its assessment. The Department has also consulted with the AG DCCEEW throughout the assessment due to the assessment process under the EPBC Act.

Regarding opportunity for community participation in environmental planning and assessment (Object 1.3(j)), the Department publicly exhibited the application and EIS and made all relevant documents publicly available on its website (see section 5 of this report). All public submissions have been considered by EnergyCo and the Department during the assessment process.

Appendix J – Assessment of Matters of National Environmental Significance

In accordance with the Bilateral Agreement between the Australian Government and NSW Government, the Department provides the following additional information required by the Commonwealth Minister, in deciding whether to approve a proposed action (i.e. the project) under the EPBC Act.

The Department's assessment has been prepared based on the assessment contained in the Central-West Orana Renewable Energy Zone Transmission Environmental Impact Statement (EIS), Submissions Report, Amendment Report, revised Biodiversity Development Assessment Report (BDAR) and additional information provided during the assessment process, public submissions, and advice provided by the BCS, other NSW government agencies and the AG DCCEEW.

This Appendix is supplementary to, and should be read in conjunction with, the assessment included in **section 6.4** of this report, which includes consideration of impacts to listed threatened species and communities, and mitigation and offsetting measures for threatened species and communities, including Matters of National Environmental Significance (MNES).

Identifying MNES

The Commonwealth Referral Decision (EPBC 2022/09353) (Referral Decision) was based on likely significant impacts on one threatened ecological community (TEC), one threatened fauna species and one migratory species. An additional 31 threatened species and 8 migratory species were identified as possibly being at risk of being impacted.

The revised BDAR for the project identified and addressed all the listed threatened species and communities and migratory species included in the Referral Decision.

Assessments of significance were undertaken for the threatened communities and species recorded during field surveys or were identified as having a moderate or higher potential to occur within the project area, including two ecological communities, 11 threatened flora species and 22 threatened fauna species.

EnergyCo assessed the significance of the impacts on these listed species and communities using the methodology outlined in the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (2013) as documented in Appendix C of the revised BDAR.

Impact on EPBC Listed Threatened Species and Communities

Impacts on threatened ecological communities

EnergyCo assessed the potential impacts of two listed threatened ecological communities (TEC) with known habit within the project, area:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia - Endangered

- White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered.

One additional TEC - Coolibah - black box woodlands of the darling riverine plains and the brigalow belt south bioregions (Endangered) was requested for consideration of significant impact based on preliminary documentation provided. However, as this community was not recorded within the subject land during surveys, this community was not assessed.

EnergyCo has committed to minimise clearing of TECs where feasible via micro-siting at the detailed design stage, and to offset the residual biodiversity impacts of the project in accordance with the requirements of NSW Biodiversity Offset Scheme. The Department considers that impacts to these TECs would be appropriately offset via the ecosystem credit requirements detailed in section 6.4.8 of this report.

Impacts on threatened flora species

EnergyCo assessed the potential impacts of 11 threatened flora species listed under the EPBC Act, considered to have a moderate likelihood of occurrence, being:

- *Dichanthium setosum* (bluegrass) – Vulnerable
- *Euphrasia arguta* – Critically Endangered
- *Homoranthus darwinioides* – Vulnerable
- *Indigofera efoliata* – Endangered
- *Leucochrysum albicans* var. tricolor (syn. *Leucochrysum albicans* subsp. tricolor) (hoary sunray) – Endangered
- *Pomaderris cotoneaster* (cotoneaster pomaderris) – Endangered
- *Prasophyllum petilum* (Tarengo leek orchid) - Endangered
- *Swainsona recta* (small purple-pea) – Endangered
- *Thesium australe* (austral toadflax) – Vulnerable
- Tylophora linearis (syn. Vincetoxicum forsteri) – Endangered
- *Zieria ingramii* (Keith's zieria) – Endangered.

EnergyCo's assessment determined that the project is unlikely to have a significant impact on these threatened flora species.

The Department and BCS agree with the outcome of EnergyCo's assessment and consider that the potential impacts on these species would be appropriately offset via the species credit requirements detailed in section 6.4.8 of this report.

Impacts on threatened fauna species

EnergyCo determined that there is predicted habitat or identified known habitat within the project area for 22 threatened fauna species listed under the EPBC Act which have been identified to have a moderate likelihood

of occurrence or higher. Assessments of significance were carried out for these species, summarised in Table C.8 of the BDAR.

The assessments of significance for these species determined that the project is unlikely to have a significant impact on any threatened fauna species with the exception of regent honeyeater (*Anthochaera phrygia*) – Critically Endangered. The project will impact 116.18 ha of regent honeyeater important habitat and 1,036.26 of foraging habitat for this species.

BCS agreed with this assessment and also provided advice that all impacts to swift parrot (*Lathamus discolor*) should also be considered significant.

The Department considers that the species identified would be appropriately offset via the ecosystem and species credit requirements detailed in **section 6.4.8** and **Appendix H** of this report. The Department has recommended conditions and additional measures to avoid or minimise impacts on threatened fauna species as detailed in **section 6.4.9** of this report.

Impacts on migratory species

The following EPBC Act listed Migratory species are considered moderately likely to occur in, or adjacent to, the project area based on the presence of suitable habitats:

- Migratory marine birds – fork-tailed swift.
- Migratory wetland species – common sandpiper, sharp-tailed sandpiper, Latham's snipe.
- Migratory terrestrial species - satin flycatcher, white-throated needletail, black-faced monarch, yellow wagtail and rufous fantail.

None of these EPBC Act listed Migratory species were recorded during field surveys.

EnergyCo's assessments of significance concluded that while some migratory birds may use the project area, it is not considered important habitat for these species and would therefore not have a significant impact on these species. The Department and BCS agree with the outcome of EnergyCo's assessment.

Conservation Advice

In its MNES assessment, EnergyCo has appropriately referred to the Conservation Advice for Grey Box Woodland TEC and Box Gum Woodland CEEC (Appendix C of the BDAR) in relation to the relevant recovery and threat abatement actions for each TEC relevant to the proposal.

Conservation Advice for *Dichanthium setosum*, *Euphrasia arguta, Homoranthus darwinioides, Leucochrysum albicans* var. Tricolor, *Prasophyllum petilum, Pomaderris cotoneaster, Thesium australe, Tylophora linearis*, pink-tailed legless lizard, striped legless lizard, regent honeyeater, gang-gang cockatoo, south-eastern glossy black cockatoo, brown treecreeper (south-eastern), grey falcon, painted honeyeater, white-throated needletail, swift parrot, hooded robin (south-eastern), superb parrot, diamond firetail, large-eared pied bat, yellow-bellied glider (south-eastern), koala, spotted-tailed quoll, New Holland mouse, Pilliga mouse and grey-headed flying fox are also appropriately referred to (Appendix C of the BDAR) to inform habitat requirements for each species.

The Department notes the key threats to species and communities include landscape fragmentation, introduction of weeds, competition for land, habitat degradation (particularly by rabbits, unmanaged goats, and feral pigs), climate change, disease transmission (particularly by feral pigs), biological effects associated with invasive species and predations (particularly by feral cats and foxes).

The Department's recommended conditions require EnergyCo to prepare and implement a Biodiversity Management Plan detailing how these risks would be minimised and managed, including measures to:

- ensure the development does not adversely affect the native vegetation and habitat outside the disturbance footprint;
- minimise the clearing of native vegetation and habitat within the disturbance footprint;
- minimise the impacts of the development on threatened flora and fauna species within the disturbance footprint and its surrounds;
- rehabilitate and revegetate temporary disturbance areas;
- protect native vegetation and key fauna habitat outside the approved disturbance footprint;
- maximise the salvage of resources within the approved disturbance footprint – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and revegetation of the project area;
- collect and propagate seed (where relevant);
- control weeds and feral pests;
- control erosion; and
- manage bushfire.

EnergyCo would be required to prepare the Biodiversity Management Plan in consultation with BCD and the AG DCCEEW, and ensure the plan is prepared by a suitably qualified and experienced biodiversity expert.

In addition, EnergyCo is required to ensure impacts on species and communities are avoided and minimised, where practicable during detailed design, and offset the residual biodiversity impacts of the project in accordance with the NSW Biodiversity Offset Scheme.

Recovery Plans

Recovery plans for Box Gum Woodland TEC, *Leucochrysum albicans var. Tricolor, Pomaderris cotoneaster, Swainsona recta, Zieria ingramii*, striped legless lizard, regent honeyeater, swift parrot, malleefowl, superb parrot, large-eared pied bat, koala, spotted-tailed quoll and grey-headed flying fox are referenced in Appendix C of the BDAR. Recovery Plans have generally been referenced to inform the identification of areas of important habitat for the above species.

Threat Abatement Plans

The relevant Threat Abatement Plans that apply to the project include:

- Threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads (Australian Government Department of Sustainability, Environment, Water, Population and Communities, 2011);
- Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs *(Sus scrofa*) (Australian Government Department of the Environment and Energy, 2017);
- Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomic (Australian Government Department of the Environment and Energy, 2018);
- Threat abatement plan for predation by feral cats (Australian Government Department of the Environment, 2015);
- Threat abatement plan for predation by the European red fox (Australian Government Department of the Environment, Water, Heritage and the Arts, 2008);
- Threat abatement plan for competition and land degradation by rabbits (Australian Government Department of the Environment and Energy, 2016); and
- Threat abatement plan for competition and land degradation by unmanaged goats (Australian Government Department of the Environment, Water, Heritage and the Arts, 2008).

The Department has included measures for the control of feral animals under the recommended Biodiversity Management Plan for the project, including specific requirements for the Applicant to consider the actions identified in relevant Threat Abatement Plans. With these measures in place, the Department considers that the action can be carried out in a manner which is compatible with the relevant Threat Abatement Plans.

Subject to the recommended conditions, the Department considers that the project can be carried out in a manner that is consistent with the relevant conservation advice, recovery plans and threat abatement plans.

Review of EPBC listed threatened species and communities

Table J-1 provides a detailed review of whether the assessment documentation (i.e. the EIS, Submissions Report, Amendment Report and BDAR) includes all relevant required information.

Table J-1 | BCS advice to the Department on EPBC Act listed threatened species and communities

The Department notes that impact tables in **Appendix H** supersede the areas of impact and credit liabilities referenced in **Table J-1** due to additional areas being included in assumptions.

Requirement	Information	Reference (BAM / BLA[1])
Background & Description of Action	Does the EIS/BDAR[2]: ☒ clearly show how operational and construction footprints, including clearing boundaries, structures to be built and elements of the action are situated with regard to MNES ☒ depict stages and timing of the action that may impact on MNES ☒ provide a map(s) of the subject land boundary showing the final proposal/disturbance footprint with respect to location of MNES, including GIS shape files Include references to where this detail is provided.	BAM Chapters 3, 4, 5 and 8
	Provide advice on the adequacy of the background and action description with respect to MNES and identify any recommended additional information requirements: The bilateral assessment for this project relates to the construction of new electricity transmission infrastructure, new energy hubs and switching stations and ancillary works required to connect new renewable energy generation and storage projects within the Central West Orana Renewable Energy Zone (REZ) to the NSW transmission network. The key components of the project are: • 14 switching stations • approximately 240 kms of transmission lines and associated infrastructure • 2 energy hubs • underground fibre optic cables • microwave repeater sites • maintenance facility • establishment of new and upgrade of existing tracks • property adjustment works • utility adjustment works	

[1] Bilateral agreement (BLA) made under section 45 of the EPBC Act, including Amending Agreement No. 1 (2020)

[2] Or revisions of the BDAR and associated documentation made as a result of previous reviews or project changes post-exhibition.

Requirement	Information	Reference (BAM / BLA[1])
	• construction compound. The Biodiversity Development Assessment Report (BDAR), dated 11 September 2023, initially formed Technical Paper 4 of the Environmental Impact Statement (EIS) for the project. The BDAR was subsequently updated, with the current version labelled Technical Paper 4 and dated 18 March 2024 (all references to the 'BDAR' in this assessment refers to the current version). The proposed project is a staged project (see section 1.1.4.3 of the BDAR). EnergyCo are proposing a staged construction to align with various renewable energy projects being bought online. Under the *Biodiversity Conservation Act 2016* (BC Act), consent to a staged development application provides for a corresponding staged retirement of biodiversity credits before each stage of development is carried out. Credits relating to Matters of National Environmental Significance (MNES) entities are included in each stage. The project is divided into 6 stages, comprised of: • CFG connection to Spicers Creek Wind Farm Stage • CFG connection to Tallawang Stage • RNI1 Stage • Stubbo Stage • Valley of the Winds Stage • Liverpool Range Stage Figure 14-13 and Figure 14-15 of the BDAR shows the location of MNES in relation to the project footprint. The proponent provided BCS with spatial data corresponding to the maps in the BDAR on 21 March and 4 April 2024. BCS identified numerous inconsistencies relating to impact area figures and biodiversity credits during a data audit comparing data between the BDAR, spatial data and Biodiversity Assessment Method Calculator (BAM-C). BCS is satisfied that information entered in the BAM-C reflects impact areas identified in the spatial data, however the BDAR is not always consistent with the other two data sets. For example, the ecosystem credit obligations listed in Table 10-4, Table 10-6, and Table 10-10 of the BDAR are not consistent with the associated BAM-C cases. The credit reports for BAM-C case 38891 have not been included in the BDAR and the scattered tree credit obligation has not been accounted for in section 10 of the BDAR. The credit obligation for *Cotoneaster pomaderris* and fairy bells (*Homoranthus darwinioides*) in Table 10-17, Table 10-19 and Table 11-2 of the BDAR are inconsistent with the BAM-C cases. Minor inconsistencies exist between the BAM-C and BDAR for some vegetation zones in the Inland Slopes and Kerrabee RNI 1 stages. There appears to be a significant transcription error for the Pilliga Valley of the Winds	

Requirement	Information	Reference (BAM / BLA[1])
	stage (Table 8-25) in the BDAR, but this is unlikely to affect the credit obligation as the vegetation zones have been entered into the associated BAM-C case correctly.	
Landscape Context of the MNES	**Provide advice on the adequacy of the landscape context information and identify any additional information requirements:** Section 3 'Site context' of the BDAR (pages 58 to 68) describes the landscape context and features for the project. This section includes information which meets the requirements of the BAM. No additional information was required.	BAM Section 3.1 BLA clause 7.4
EPBC Act Listed Threatened Species & Communities	Verify that the EIS/BDAR includes relevant information on the identification of all EPBC Act listed threatened species and communities on the site or in the vicinity[3] via: ☒ field based survey effort ☒ published peer reviewed literature ☒ local data ☒ supporting databases (such as the NSW BioNet Vegetation Classification, NSW BioNet Threatened Biodiversity Data Collection, NSW BioNet Atlas, Commonwealth Species Profile and Threats Database search results) ☒ Verify that the EIS/BDAR includes appropriate mapping of all EPBC Act listed threatened species and communities in accordance with the relevant Commonwealth Listing Advice. The EIS/BDAR should include important populations and critical habitat as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans.	BAM Chapters 4 and 5
	Provide advice on the adequacy of the identification methods and mapping information / any additional information requirements: *Field-based survey effort:* Survey methodology for native vegetation (vegetation integrity plots) are provided in section 2.2 of the BDAR. Floristic and vegetation integrity data was collected in accordance with the minimum requirements of the BAM. Threatened flora survey methods are provided in section 2.3.2 of the BDAR and threatened fauna survey methods in section 2.4.2. Further information regarding threatened species surveys is provided in section 5.3 (Tables 5-23 and 5-24) of the BDAR.	

[3] On land to which impacts may extend

Requirement	Information	Reference (BAM / BLA[1])
	Justification was provided in section 5.4 (Table 5-29) for surveys conducted outside of timeframes specified in the Threatened Biodiversity Data Collection (TBDC). The BDAR states for multiple fauna species that *"Additional surveys were not undertaken to determine breeding habitat outside of the nominated survey period, but for detection of the species only*." Section 5.4 does not provide any justification for the survey effort in project stages that do not have any surveys within the appropriate survey windows. Additional targeted surveys have occurred for some candidate species since exhibition of the EIS, however other species have not been addressed. MNES that have not been adequately surveyed across all stages of the development include large-eared pied bat, glossy black- cockatoo and koala. The vegetation surveys identified Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered) (Grey Box Woodlands TEC) and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered) (Box Gum Woodland CEEC) on site. The following *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed threatened flora species were found on the project site: • bluegrass (*Dichanthium setosum)* • hoary sunray *(Leucochrysum albicans subsp. tricolor).* The following EPBC Act-listed threatened fauna species were found on the project site: • glossy black-cockatoo (*Calyptorhynchus lathami*) • large-eared pied bat (*Chalinolobus dwyeri*) • brown treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*) • hooded robin (south-eastern form) *(Melanodryas cucullata cucullate).* The following species were assumed to be present in areas lacking survey where there was associated plant community types (PCTs) and/or potentially suitable habitat: • bluegrass (*Dichanthium setosum*) • *Euphrasia arguta* • *Pomaderris cotoneaster* • *Prasophyllum petilum* • *Swainsona recta* • *Thesium australe*	

Requirement	Information	Reference (BAM / BLA[1])
	• *Tylophora linearis* • *Zieria ingramii* • koala (*Phascolarctos cinereus*) • glossy black-cockatoo • superb parrot (*Polytelis swainsonii*) • regent honeyeater (*Anthochaera phrygia*) • pink-tailed legless lizard (*Aprasia parapulchella*) • striped legless lizard (*Delma impar*) Section C3.4 of Appendix C of the BDAR states that no EPBC Act-listed migratory species were recorded on the project site. This is contradictory to Map 3 of Figure 14-13 which provides locations of white-throated needletail records. *Published peer reviewed literature:* The section 'References' of the BDAR and Section C4 of Appendix C includes peer-reviewed papers that were used for the assessment of MNES entities. There are a number of references to NSW or Commonwealth Government websites, and these are considered to be current and contain reliable information about all MNES considered for this project. A broad range of peer-reviewed literature has generally been used to underpin decision-making in the BDAR. *Local data:* Local data has been used to assess habitat suitability for some threatened species. Data from recent BDARs undertaken in the locality for other major projects was also used as more appropriate local data. Several threatened species were recorded at Moolarben Coal Mine in 2021 including pink-tailed legless lizard and *Pomaderris cotoneaster*. This data was used to guide field surveys and used to inform the assessment of likely presence of these species within the subject land. *Supporting databases:* The following databases were cited as being used for the MNES assessment: 1. Atlas of Living Australia 2. DPE BioNet Vegetation Classification Database 3. DPE BioNet Threatened Biodiversity Data Collection	

Requirement	Information	Reference (BAM / BLA[1])
	4. DPE BioNet Atlas 5. DCCEEW EPBC Protected Matters Search Tool (PMST). *Appropriate mapping of all EPBC Act-listed species and communities in accordance with relevant Commonwealth Listing Advice:* Inconsistencies exist between the BDAR, spatial data and BAM-C cases for candidate threatened species. Inadequate survey effort has been undertaken, or surveys have been completed that are not consistent with relevant species survey guidelines. These inconsistencies and non-compliant BAM survey methods are likely to underestimate the quantum of impact for threatened flora and fauna and the corresponding credit calculation and are not consistent with section 5.2 of the BAM. As at the Response to Submissions (RTS) phase of the project, BCS considers that the full area of impact has not been correctly identified for the mapping of Box Gum Woodland CEEC and the regent honeyeater. Species polygons are provided in Figure 14-13 of the BDAR for: • *Dichanthium setosum* • *Euphrasia arguta* • *Homoranthus darwinioides* • *Indigofera efoliata* • *Pomaderris cotoneaster* • *Prasophyllum petilum* • *Swainsona recta* • *Thesium australe* • *Tylophora linearis* • *Zieria ingramii* • koala • large-eared pied bat • glossy black-cockatoo • superb parrot • regent honeyeater	

Requirement	Information	Reference (BAM / BLA[1])
	• pink-tailed legless lizard • striped legless lizard. Although hoary sunray was recorded in the project footprint, species credits were not calculated for all of the individuals likely to be impacted by the project. *Any important populations and critical habitat, as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans:* The subject land is within a mapped important habitat area for regent honeyeater.	
	† *Confirm that all EPBC Act listed threatened species and communities that occur on the subject land, or in the vicinity, have been identified in the BDAR/EIS including those that are ecosystem credit species.* † *If any species and communities identified in the referral documentation (provided by DAWE) have been ruled out because they don't occur on or near the site, verify that there is robust analysis and justification for why these species can be ruled out.* † *Provide advice on whether there are any other MNES species or communities that are missing from the assessment based on BCS knowledge and experience.*	
	Advise whether there is appropriate justification and supporting evidence for the addition and/or exclusion of any EPBC Act listed threatened species and/or communities from the list (if applicable): All species and communities identified in the referral documentation except for the following have been assessed: • *Androcalva procumbens/Commersonia procumbens* – the species was surveyed for in Pilliga sandstone areas in intact habitats, burnt habitats and disturbed roadside areas and was not recorded. This species is a disturbance specialist and therefore it is difficult to confirm presence in areas where disturbance has not occurred. No species polygons have been created and therefore no species credits have been applied to this species (see Table 5-5). • Australian painted snipe – the species was not assessed, not discussed, and no justification was provided. The species was not recorded within the subject land. This species may occur on wetland margins within the project area.	

Requirement	Information	Reference (BAM / BLA[1])
	• Coolibah - black box woodlands of the darling riverine plains and the brigalow belt south bioregions – the community was not recorded within the subject land. • Giant barred frog – the species was not assessed, not discussed, and no justification was provided. The species was not recorded within the subject land. • Migratory species (including fork-tailed swift, sharp-tailed sandpiper, Latham's snipe, white-throated needletail, black-faced monarch, yellow wagtail, rufous fantail, and common sandpiper) – none of the species (except for white-thoated needletail) were recorded during surveys. It was determined that the subject land does not contain important habitat for these species, important foraging grounds are not present, and there is no habitat at the limit of any of the species' range (see Appendix C3.4). • Murray cod – not included in the BDAR. • *Ozothamnus tesselatus* – the species is known to occur at Wollar near the subject land as outlined in the Wilpinjong Extension Project BDAR. The species was not recorded in targeted surveys, so no species polygon was prepared and no species credits have been created (see Table 5-5). • Pilotbird – the species was not assessed, not discussed, and no justification was provided. The species was not recorded within the subject land. • Pink cockatoo – the species was excluded from assessment as it was considered a vagrant to the region (see Table 5-4 and Table C.3). • *Pultenaea glabra* - no known or predicted habitat is present within the subject land. All known populations occur within the Blue Mountains local government area, therefore the species was not considered applicable to this project (see Appendix C3.2).	
Avoidance, Minimisation, Mitigation & Management	Verify that the EIS/BDAR demonstrates all feasible alternatives and efforts to avoid and minimise impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including an analysis of alternative: ☒ designs and engineering solutions ☒ modes or technologies ☒ routes and locations of facilities ☒ sites within the subject site ☒ Verify that the EIS/BDAR identifies any other site constraints in determining the location and design of the proposal (such as bushfire protection requirements, flood planning levels, servicing constraints, etc). Verify that the EIS/BDAR provides feasible measures to mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including:	BAM Chapters 6, 7 and 8 BLA clause 7.1

Requirement	Information	Reference (BAM / BLA[1])
	☒ techniques, timing, frequency and responsibility ☒ identify measures for which there is risk of failure ☒ evaluate the risk and consequence of any residual impacts ☒ any adaptive management strategy proposed to monitor and respond to impacts.	
	Provide advice on whether all feasible impact avoidance, minimisation, mitigation and management measures have been considered and are adequately justified: Section 7 of the BDAR '*Avoid and minimise impacts'* addresses the measures that have been taken to avoid and minimise impacts to biodiversity. Section 8.4 '*Mitigating residual impacts – management measures and implementation'*, particularly Table 8-56, summarises the proposed mitigation measures relating to residual impacts from the project to native vegetation and threatened species habitat. Section C2.4 of Appendix C of the BDAR '*Summary of Mitigation Measures'* is a direct copy of Table 8-56. Section C2.2 of Appendix C of the BDAR '*selection of the preferred corridor'* states that vegetated areas that aligned with mapped threatened ecological communities and Box Gum Woodland CEEC were key avoidance areas when determining the preferred corridor. While avoiding biodiversity values was recognised as a requirement of the BC Act, other important factors like offset distances to dwellings, avoiding biophysical strategic agricultural land (BSAL) and co-locating renewable energy development meant that avoidance was not always possible. The BDAR states that micro-siting of project features will occur to further avoid and minimise impacts to biodiversity values where possible. Good quality Box Gum Woodland CEEC or other TECs will be avoided where possible in this process. Specific comments on avoidance and minimisation of impacts to MNES entities are included below: <u>Box Gum Woodland CEEC & Grey Box Woodland TEC</u> Section 7.1.2.1 of the BDAR discusses the option of undergrounding the transmissions lines. It is stated that *'Undergrounding power lines would not avoid biodiversity impacts generally or impacts to Box Gum Woodland. Undergrounding has the potential for significant disturbance to biodiversity in general and to Box Gum Woodland as well as increasing project costs for construction and maintenance, compared to overhead transmission lines.'*	

Requirement	Information	Reference (BAM / BLA[1])
	The revised study corridor that was released in February 2022 is discussed in section 7.1.2.2 of the BDAR. It states that the revised study corridor *'avoided areas of moderate-good quality box gum woodland north of the Goulburn River National Park and has a narrower traverse of vegetated areas near Tuckland State Forest and avoidance of impact to Tuckland State Forest.'* Identification of the energy hubs is discussed in section 7.1.2.3 of the BDAR. It is stated throughout this section that design decisions have been made to avoid impacts to Box Gum Woodland CEEC and Grey Box Woodland TEC. <u>*Zieria ingrammii* and *Homoranthus darwiniodes*</u> Section 7.1.2.3 of the BDAR states *'the project has successfully avoided locations of threatened plant species that were identified during field surveys. Surveys undertaken in 2021 located threatened plant species in the area of preliminary alignment options including Zieria ingrammii and Homoranthus darwiniodes'* <u>Regent honeyeater</u> Identification of the energy hubs is discussed in section 7.1.2.3 of the BDAR. It states '*realigning the transmission alignment through Moolarben, minimised the extent of mapped Important Regent Honeyeater Habitat impacted by the project*'. <u>Superb parrot</u> The BDAR recognises that threatened bird species may be subjected to indirect impacts due to line strike and electrical and magnetic field (EMF) impacts. As a result, an additional 663 credits have been added to the superb parrot credit obligation which equates to 10% of the direct impact area. **Verify that the EIS/BDAR provides feasible measures to mitigate and/or manage impacts** Table C.5 in Appendix C details all the specific mitigation measures that will be implemented to minimise impacts to MNES. This includes: • determining the presence of large-eared pied bats prior to construction activities commencing within 100m of rocky areas containing caves, overhangs or crevices, cliffs or escarpments during the breeding season and determining suitable mitigation measures • installing under-transmission glider poles • installing nest boxes/hollows prior to clearing works	

Requirement	Information	Reference (BAM / BLA[1])
	• installing tree protection measures for trees to be retained in the hazard tree zone • completing pre-clearing surveys to identify fauna that can be relocated prior to clearing • installing bird diverters on transmission lines to reduce the likelihood of collision.	
Impact Assessment	Verify that the EIS/BDAR: ☒ identifies the residual adverse impacts likely to occur to **each** EPBC Act listed threatened species and/or community after the proposed avoidance and mitigation measures are taken into account ☒ provides adequate justification and evidence for the predicted level of impact, with reference to the: • Commonwealth's Significant Impact Guideline*:* *https://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf* • DPIE Guidance to Assist a Decision-Maker to Determine a Serious and Irreversible Impact (SAII): (*https://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf)*	BAM Chapters 8 and 9 BLA clauses 6.2(b)(i)-(ii) and 7.1
	Complete the following information for each EPBC Act listed threatened species and/or community (add/remove rows as necessary): • EPBC Act listed threatened species and/or community • nature and consequences of impacts (i.e. direct and indirect) • duration of impact (e.g. construction, operation, life of project) • quantum of impact • consequences of impacts on the species, the population and / or extent of the community at local, state and national scales Confirm the level of predicted impact (cross appropriate): ☒ high risk of impact (requiring offsets)[#] or SAII ☒ Low risk of impact (not requiring offsets) [#] For purposes of EPBC approval, as a minimum, significant adverse residual impacts **must** be offset (significant impact can be evaluated with reference to the significance impact guidelines) **Adequate justification and evidence for predicted level of impact**	

<table>
<tr><th>Requirement</th><th>Information</th><th>Reference (BAM / BLA[1])</th></tr>
<tr><td></td><td>
BCS has identified instances where it is likely that the area of impact to Box Gum Woodland CEEC has been under-estimated in the BDAR:

Approximately 63 ha of land has been mapped as ‘PCT 0’ and as such a credit obligation has not been generated. Some of this land may conform to Box Gum Woodland CEEC.
The PCTs assigned in the Kerrabee subregion do not always reflect the best fit based on the floristic information collected in the BAM plots. This may have resulted in an under-estimation of Box Gum Woodland CEEC.

Edits have occurred to the area of the project footprint that impacts on regent honeyeater important habitat mapping. The recognised review process has not been enacted for these changes. The species polygon totals 116.18 ha, but the full area of impact if no edits were made is 132.58 ha. Part of the 16 ha in question may legitimately not be regent honeyeater habitat, but the formal review process has not been enacted to determine this.

Many of the entities have all or part of their area of impact (and therefore credit obligation) calculated through assumed presence. While this provides a precautionary, upper quantum area of impact, any future targeted surveys completed prior to construction commencing could refine and reduce the area of impact.

A partial loss calculation of impact has been applied to threatened fauna species which are reliant on the tree canopy where trees will be completely removed from the project footprint (but where vegetation less than 2 m in height will remain). BCS’s position is that a total loss of habitat value should be calculated for these species. Currently, BCS considers the following species impacts and credits to be under-estimated – regent honeyeater, koala, glossy black-cockatoo, superb parrot, and large-eared pied bat.

The BDAR completed a risk assessment on the potential impact of birds colliding with the transmission lines. The assessment considered a high risk would occur to four species, including the superb parrot. To calculate indirect impacts, 10% of the direct impact area was considered to be subject to indirect impacts (36.17 ha) and an additional 663 credits were added to the superb parrot credit obligation.

BCS has identified that the survey effort for some threatened species was inadequate and some surveys were not consistent with relevant survey guidelines. This may have resulted in under-estimated areas of impact and subsequent credit obligations. This may affect the large-eared pied bat, koala, glossy black-cockatoo, pink-tailed legless lizard and striped legless lizard.
<table>
<tr><th>MNES Entity</th><th>SAII</th><th>Direct/Indirect</th><th>Duration</th><th>Area of Impact (ha)</th></tr>
<tr><td>Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia</td><td></td><td>Direct</td><td>Life of project</td><td>5.32</td></tr>
</table>
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Requirement	Information					Reference (BAM / BLA[1])
	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Yes	Direct	Life of project	441.65	
	Bluegrass (*Dichanthium setosum*)		Direct	Life of project	6.85	
	Euphrasia arguta		Direct	Life of project	107.8	
	Fairy Bells *(Homoranthus darwinioides)*		Direct	Life of project	8.18	
	Leafless Indigo *(Indigofera efoliata)*		Direct	Life of project	0.82	
	Hoary Sunray *(Leucochrysum albicans subsp. tricolor)*		Direct	Life of project	6 plants (count)	
	Cotoneaster Pomaderris *(Pomaderris cotoneaster)*		Direct	Life of project	4.35 (Inconsistent figures in the BDAR)	
	Tarengo Leek Orchid *(Prasophyllum petilum)*		Direct	Life of project	76.3	
	Small Purple-pea *(Swainsona recta)*		Direct	Life of project	53.64	
	Austral Toadflax *(Thesium austral*)		Direct	Life of project	0.54	
	Tylophora linearis		Direct	Life of project	12.37	
	Keith's Zieria *(Zieria ingramii)*		Direct	Life of project	1.88	
	Regent Honeyeater (foraging) *(Anthochaera phrygia)*	Yes	Direct	Life of project	1036.26	
	Regent Honeyeater (*Anthochaera phrygia)* (important habitat)	Yes	Direct	Life of project	116.18	

Requirement	Information					Reference (BAM / BLA[1])
	Pink-tailed Legless Lizard (*Aprasia parapulchella*)		Direct	Life of project	22.2	
	Gang-gang Cockatoo *(Callocephalon fimbriatum)*		Direct	Life of project	432.66	
	Glossy Black-Cockatoo (foraging) *(Calyptorhynchus lathami)*		Direct	Life of project	281.42	
	Glossy Black-Cockatoo (breeding) *(Calyptorhynchus lathami lathami)*		Direct	Life of project	13.85 (Inconsistent figures in the BDAR)	
	Spotted-tailed Quoll *(Dasyurus maculatus)*		Direct	Life of project	731.92	
	Striped Legless Lizard (*Delma impar)*		Direct	Life of project	65.80	
	Yellow-bellied Glider *(Petaurus australis)*		Direct	Life of project	43.71	
	New Holland Mouse *(Pseudomys novaehollandiae)*		Direct	Life of project	135.10	
	Pilliga Mouse *(Pseudomys pilligaensis)*		Direct	Life of project	15.22	
	Koala *(Phascolarctos cinereus)* (ecosystem credit area)		Direct	Life of project	1227.33	
	Koala *(Phascolarctos cinereus)* (species credit area)		Direct	Life of project	31.83	
	Grey-headed Flying-fox (foraging) *(Pteropus poliocephalus)*		Direct	Life of project	726.79	
	Large-eared Pied Bat (foraging) *(Chalinolobus dwyeri)*		Direct	Life of project	724.88	

Requirement	Information					Reference (BAM / BLA[1])
	Large-eared Pied Bat (breeding) *(Chalinolobus dwyeri)*		Direct	Life of project	89.53	
	Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)		Direct	Life of project	746.62	
	Grey Falcon *(Falco hypoleucos)*		Direct	Life of project	0.44	
	Painted Honeyeater *(Grantiella picta)*		Direct	Life of project	1227.33	
	Corben's Long-eared Bat *(Nyctophilus corbeni)*		Direct	Life of project	1021.82	
	White-throated Needletail *(Hirundapus caudacutus)*		Direct	Life of project	1227.33	
	Swift Parrot (*Lathamus discolor)*		Direct	Life of project	1227.33	
	Malleefowl *(Leipoa ocellata)*		Direct	Life of project	38.57	
	Hooded Robin (south-eastern form) *(Melanodryas cucullata cucullate)*		Direct	Life of project	746.18	
	Superb Parrot (foraging) *(Polytelis swainsonii)*		Direct	Life of project	610.45	
	Superb Parrot (breeding) *(Polytelis swainsonii)*		Direct	Life of project	3.4 (Inconsistent figures in the BDAR)	
	Superb Parrot (breeding) *(Polytelis swainsonii)*		Indirect (line collision)	Life of project	36.17	
	Diamond Firetail *(Stagonopleura guttata)*		Direct	Life of project	726.79	

Requirement	Information					Reference (BAM / BLA[1])
	MNES Entity	**Area of impact (ha)**	**Local consequence**	**State consequence**	**National consequence**	
	Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	5.32	Occurs in the NSW South West Slopes IBRA region (inland Slopes sub-region) and Brigalow Belt South IBRA region (Talbragar Valley subregion). The subject land is the eastern-most occurrence of this community. The project will further fragment this community in an already fragmented landscape.	The estimated extent in NSW in 2010 (Threatened Species Scientific Committee) was between 300,000 and 330,000 ha. The amount of this community to be impacted is small in the context of the NSW community occurrence (0.002% of the estimated NSW extent).	The estimated national extent in 2010 (Threatened Species Scientific Committee) was around 534,500 ha. The amount of this community to be impacted is small in the context of the NSW community occurrence (0.001% of the estimated national extent).	
	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	441.65	The project will increase fragmentation of this community within the landscape.	Current extent in NSW is approximately 250,000 hectares. The amount of this community to be impacted is small in the context of the NSW community occurrence (0.12% of the estimated NSW extent).	Current national extent of approximately 416,000 hectares. The amount of this community to be impacted is small in the context of the NSW community occurrence (0.07% of the estimated national extent).	
	Bluegrass (*Dichanthium setosum*)	6.85	Recorded within the subject land. Assumed habitat within the locality and IBRA subregions is	Occurs chiefly on the Northern Tablelands. This project will have a minor impact on the NSW extent.	This project will have a minor impact on the national extent.	

Requirement	Information					Reference (BAM / BLA[1])
			extensive. The species is not restricted to the subject land. This project will have a minor impact on the local extent.			
	Euphrasia arguta	107.8	Not recorded within the subject land. In the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	Currently known from six sites in the area of Nundle State Forest, southeast of Tamworth. Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Fairy bells *(Homoranthus darwinioides)*	8.18	Not recorded within the subject land. In the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Although within the known general distribution of the species the small area of impact is unlikely to have a significant impact.	Occurs in the central tablelands and western slopes of NSW, from Putty to the Dubbo district. Several populations occur in Goulburn River National Park. Although within the known general distribution of the species the small area of impact is unlikely to have a significant impact.	Although within the known general distribution of the species the small area of impact is unlikely to have a significant impact.	
	Leafless indigo *(Indigofera efoliata)*	0.82	Not recorded within the subject land. In the absence of targeted survey in	Historically recorded in the Dubbo – Geurie area. Thought to be extinct, recent 2021	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	records show that the species is still present near Geurie. Unlikely to have a significant impact.		
	Hoary sunray *(Leucochrysum albicans subsp. tricolor)*	1.31 6 plants (count)	The project is likely to result in the removal of 6 plants from a known population, leading to a long-term decrease in the regional population size.	In NSW and ACT, the species occurs at relatively high elevations in woodland and open forest communities, in an area roughly bounded by Goulburn, Albury and Bega. Unlikely to have a significant impact to the NSW population.	Unlikely to have a significant impact.	
	Cotoneaster Pomaderris *(Pomaderris cotoneaster)*	4.35 (Inconsistent figures in the BDAR)	Not recorded within the subject land. In the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	This species has not been recorded within the subject land to date. Known subpopulations of the species mostly occur to the south of the study area, with the closest population recorded in Lue, NSW (~25km south). Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Tarengo leek orchid *(Prasophyllum petilum)*	76.3	Not recorded within the subject land. In	Natural populations are limited to one	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	population of the northern border of the ACT and to four known locations in NSW: Boorowa, Queanbeyan, Ilford and Delegate. Unlikely to have a significant impact.		
	Small purple-pea *(Swainsona recta)*	53.64	Not recorded within the subject land. In the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	Known populations of the species mostly occur to the south of the study area, with the closest population recorded in Mudgee, NSW (~20km south). Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Austral toadflax *(Thesium austral*)	0.54	Not recorded within the subject land. In the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	Found mainly in the Northern to Southern Tablelands. Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Tylophora linearis	12.37	Not recorded within the subject land. In the absence of targeted survey in some areas,	Found mainly in the central western region. Unlikely to	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	have a significant impact.		
	Keith's Zieria *(Zieria ingramii)*	1.88	Not recorded within the subject land. In the absence of targeted survey in some areas, associated PCTs have been assumed to be habitat for the species. Unlikely to have a significant impact.	The species is currently known only from Goonoo SF, north-east of Dubbo. Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Spotted-tailed quoll *(Dasyurus maculatus)*	731.92	Not recorded within the subject land. Assumed present. The project is unlikely to fragment better quality habitat as full clearing not always required. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Yellow-bellied glider *(Petaurus australis)*	43.71	Not recorded within the subject land. Assumed present. There are extensive areas of habitat in the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
	New Holland mouse *(Pseudomys novaehollandiae)*	135.10	Not recorded within the subject land but there are records less than 400m from the subject land. Assumed present. As full clearing is not always required the project is unlikely to have a significant impact as the core habitat requirements of this species will be retained.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Pilliga mouse *(Pseudomys pilligaensis)*	15.22	Not recorded within the subject land. Assumed present. The nearest species records were found near Coonabarabran over 90km from the subject land. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Koala *(Phascolarctos cinereus)*	1227.33 plus 31.83	Not recorded within the subject land. Assumed present. There are at least 50 records within ten km of the study area. Clearing will reduce and fragment the available habitat for local populations.	The area of occupancy for this species is extensive. Unlikely to have a significant impact.	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
	Grey-headed flying-fox (foraging) *(Pteropus poliocephalus)*	726.79	Not recorded within the subject land. Assumed present. The project would reduce the availability of suitable foraging habitat. However, given the surrounding landscape and remaining habitat availability it is unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Large-eared pied bat (foraging) *(Chalinolobus dwyeri)*	724.88 (foraging) 89.53 (breeding)	Recorded in the project area with many records in the region. No caves are likely to be directly impacted although some foraging habitat in the vicinity of caves is likely to be impacted by the project. While the project may impact the movement of this aerial species due to the placement of powerlines and towers, it is unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Corben's long-eared bat *(Nyctophilus corbeni)*	1021.82	Not recorded within the subject land. Assumed present. While the project may	Unlikely to have a significant impact.	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			impact the movement of this aerial species due to the placement of powerlines and towers, it is unlikely to have a significant impact.			
	Regent honeyeater *(Anthochaera phrygia)*	1036.26 (foraging) 116.18 (important habitat)	Not recorded within the subject land. Assumed present. The project traverses a mapped important habitat area for this critically endangered species. All impacts to habitat is considered significant.	The project traverses one of four mapped important habitat area for this critically endangered species. All impacts to habitat is considered significant.	All impacts to habitat is considered significant.	
	Gang-gang cockatoo *(Callocephalon fimbriatum)*	432.66	Not recorded within the subject land. Assumed present. There are extensive areas of habitat in the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Glossy black-cockatoo *(Calyptorhynchus lathami)*	281.42 (foraging) 13.85 (breeding)	Not recorded within the subject land. Assumed present. There are inconsistencies in the BDAR regarding the area of breeding habitat. There are extensive areas of habitat in the region.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			Unlikely to have a significant impact.			
	Superb parrot (breeding) *(Polytelis swainsonii)*	610.45 (foraging) 3.4 (breeding)	Assumed present. There are inconsistencies in the BDAR regarding the area of breeding habitat. There are extensive areas of habitat in the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Brown treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)	746.62	Recorded in multiple locations through the study area. There are extensive areas of habitat in the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Grey falcon *(Falco hypoleucos)*	0.44	Not recorded within the subject land. Assumed present. Vagrant to the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Painted honeyeater *(Grantiella picta)*	1227.33	Assumed present. There are extensive areas of habitat in the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	White-throated needletail *(Hirundapus caudacutus)*	1227.33	Assumed present. There are extensive areas of habitat in the region. There is	Unlikely to have a significant impact.	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			potential for birds to strike transmission lines. The current mitigation measures (line markers) may reduce impact where these are installed but these are likely to be installed in limited sections of the project. The population is extremely mobile, unlikely to have a significant local impact.			
	Swift parrot (*Lathamus discolor)*	1227.33	Not recorded within the subject land. Assumed present. The species is critically endangered and there are records in the vicinity of the subject land. There is potential for birds to strike transmission lines. While the species is very mobile, all impacts to habitat should be considered significant.	All impacts to habitat is considered significant.	All impacts to habitat is considered significant.	
	Malleefowl *(Leipoa ocellata)*	38.57	Not recorded within the subject land. Assumed present. The species is very rare in the region. There are	Unlikely to have a significant impact.	Unlikely to have a significant impact.	

Requirement	Information					Reference (BAM / BLA[1])
			extensive areas of habitat in the region. Unlikely to have a significant impact.			
	Hooded robin (south-eastern form) *(Melanodryas cucullata cucullate)*	746.18	Many records within ten kilometres of the project study area. Assumed present. There are extensive areas of habitat in the region. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Diamond firetail *(Stagonopleura guttata)*	726.79	Recorded in the study area. The Project will result in fragmentation but functional connectivity between habitats is likely to be retained as the alignment will not be completely cleared. Unlikely to have a significant impact.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Pink-tailed legless lizard (*Aprasia parapulchella*)	22.2	Not recorded within the subject land. Assumed present. The project is considered unlikely to impact upon habitats in which this species is most likely to occur.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	
	Striped legless lizard *(Delma impar)*	65.80	Not recorded within the subject land.	Unlikely to have a significant impact.	Unlikely to have a significant impact.	

<table>
<tr><th>Requirement</th><th>Information</th><th>Reference (BAM / BLA[1])</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td></td><td>Assumed present. The nearest records are approximately 90 kilometres away and occur in the Hunter subregion. Unlikely to have a significant impact.</td><td></td><td></td></tr>
</table>
</td><td></td></tr>
<tr><td>Offsets</td><td>Verify that the EIS/BDAR:
☐ identifies any MNES that haven’t been offset using the BAM
☒ identifies how impacts requiring offsets correlate to MNES impacts
☒ identifies the plant community types (PCTs) requiring offset and the number and type of ecosystem credits required for impacts to MNES
☒ identifies threatened species requiring offset and the number of species credits required for impacts to MNES
☐ correctly uses the BAM (and BAM calculator) to identify the number and class of biodiversity credits that need to be offset to achieve a standard of ‘no net loss’ of biodiversity
☐ identifies if ecological rehabilitation and/or biodiversity conservation actions are proposed for offsetting
☒ if known, identifies any other offsetting approach proposed, such as land-based offsets, retiring credits by payment into the Biodiversity Conservation Fund and/or through supplementary measures[#].

[#] In accordance the BAM there is no longer a requirement to define the offsetting approach at EIS stage.

Complete the Impacts and Offsets Summary table below (Table 2)</td><td>BAM Chapter 10
BLA clauses 7.1 and 7.2</td></tr>
</table>

Requirement	Information	Reference (BAM / BLA[1])
	The discussion on page 10 of this report outlines the MNES that have not been offset or have not been assessed via the BAM. BCS's comments in Table 2 below outline instances where the BAM has not been applied correctly when determining the number of biodiversity credits. Ecological rehabilitation is not proposed as an offset approach. Biodiversity conservation actions are proposed as part of the biodiversity offset package (see the discussion immediately below), however the final actions to be funded have not yet been articulated.	
	Provide advice on the adequacy of the proposed offsets in meeting the requirements of the BAM: Section 8.6 of the BDAR outlines the proposed biodiversity offset strategy which includes creating Biodiversity Stewardship Agreements (BSAs) on EnergyCo-owned land and private land, purchasing and retiring credits from the biodiversity credit register, and making contributions to the Biodiversity Conservation Fund (BCF). Since submission of the RTS report and updated BDAR, EnergyCo has elected to enact the deferred biodiversity offset obligation policy. A draft Biodiversity Offset Package has been prepared and is currently being updated by EnergyCo for consideration by DPHI.	
Other Considerations	Verify if any relevant Commonwealth guidelines and policy statements are applicable to the action and listed threatened species and/or community, including but not limited to: ☒ International environmental obligations ☒ Recovery Plans ☒ Approved Conservation Advice ☒ Threat Abatement Plans *The relevant Commonwealth guidelines and policy statements for each species and community are available at: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl*	BLA clauses 6.2(b)(iv), 7.2(c), 7.3 and 7.4
	For each EPBC Act listed threatened species and/or community, provide advice on whether the assessment has been adequately informed by applicable Commonwealth guidelines and/or policy statements. For example, the interaction between the proposed action and important populations or critical habitat identified in policy documents and/or the interaction between the proposed action and threatening processes or recommended conservation actions outlined in Commonwealth policies and plans.	

Requirement	Information	Reference (BAM / BLA[1])
	International environmental obligations The proponent does not discuss impacts to MNES in relation to Australia's international obligations. Section C3.4 of Appendix C of the BDAR discusses migratory species. The bilateral migratory bird agreements are not discussed. The proposal site does not impact on any Ramsar wetlands. *Recovery Plans* Recovery plans for Box Gum Woodland TEC, *Leucochrysum albicans var. Tricolor,* P*omaderris cotoneaster, Swainsona recta, Zieria ingramii,* striped legless lizard, regent honeyeater, swift parrot, malleefowl, superb parrot, large-eared pied bat, koala, spotted-tailed quoll and grey-headed flying fox are referenced in Appendix C. Recovery Plans have generally been referenced to inform the identification of areas of important habitat for the above species. Examples of these references are: Superb parrot – the EPBC Act Assessment of Significance for this species (found in Appendix C) references the national recovery plan to identify the types of habitat and if the study area contains any areas of breeding, foraging or long-term maintenance habitat for the species. Regent honeyeater – the EPBC Act Assessment of Significance for this species (found in Appendix C) references the recovery plan to identify areas of critical habitat. *Conservation Advices* Conservation Advices for Grey Box Woodland TEC and Box Gum Woodland CEEC are referenced in Appendix C in relation to the relevant recovery and threat abatement actions for each TEC relevant to the proposal. Conservation Advices for *Dichanthium setosum, Euphrasia arguta, Homoranthus darwinioides, Leucochrysum albicans var. Tricolor, Prasophyllum petilum, Pomaderris cotoneaster, Thesium austral, Tylophora linearis*, pink-tailed legless lizard, striped legless lizard, regent honeyeater, gang-gang cockatoo, south-eastern glossy black-cockatoo, brown treecreeper (south-eastern), grey falcon, painted honeyeater, white-throated needletail, swift parrot, hooded robin (south-eastern), superb parrot, diamond firetail, large-eared pied bat, yellow-bellied glider (south-eastern), koala, spotted-tailed quoll, New Holland mouse, Pilliga mouse and grey-headed flying fox are referenced in Appendix C to inform habitat requirements for each species. *Threat Abatement Plans* Appendix C discusses threat abatement plans in relation to MNES. It identified the following:	

<table>
<tr><th>Requirement</th><th>Information</th><th>Reference (BAM / BLA[1])</th></tr>
<tr><td></td><td>
<table>
<tr><th>Species/TEC</th><th>Threat Abatement Plans</th></tr>
<tr><td>Box Gum Woodland TEC</td><td>• threat abatement plan for the biological effects, including lethal toxic ingestion, caused by cane toads
• threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs
• threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi</td></tr>
<tr><td>Dichanthium setosum, Euphrasia arguta, Homoranthus darwinioides, Prasophyllum petilum, Thesium austral and pink-tailed legless lizard</td><td>• threat abatement plan for competition and land degradation by rabbits</td></tr>
<tr><td>Striped legless lizard</td><td>• threat abatement plan for competition and land degradation by rabbits
• threat abatement plan for predation by feral cats
• threat abatement plan for predation by the European red fox</td></tr>
<tr><td>Malleefowl</td><td>• threat abatement plan for predation by feral cats
• threat abatement plan for competition and land degradation by rabbits
• threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs
• threat abatement plan for competition and land degradation by unmanaged goats
• threat abatement plan for predation by the European red fox</td></tr>
<tr><td>New Holland mouse</td><td>• threat abatement plan for predation by feral cats
• threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi</td></tr>
</table>
</td><td></td></tr>
</table>

Requirement	Information	Reference (BAM / BLA[1])
	Pilliga mouse • threat abatement plan for predation by feral cats • threat abatement plan for predation by the European red fox • threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs *Key Threatening Processes* There is no detailed discussion around Key Threatening Processes (KTP's) in the BDAR. There is reference to KTP's in Section 9.1 of the BDAR in relation to Box Gum Woodland CEEC, regent honeyeater and large-eared pied bat, however there is no detailed discussion.	
Recommended Conditions	**Provide advice on any recommended conditions and reasons for imposing the conditions:** BCS provided a formal response (dated 24 April 2024) to DPHI on the version of the BDAR submitted with the RTS report. Numerous residual issues remain unresolved. BCS has not received draft conditions for review as at the time of preparing this report and therefore recommendations on potential conditions cannot be provided.	BLA clause 6.2(c)(iii)

Table J-2 | MNES impact and offset summary

The figures provided below are the figures presented in the BDAR. It should be noted that the area of impact and the credit liability for a number of the species requires review. Due to data inconsistencies and non-compliant survey methods it likely that the quantum of impact and the corresponding credit calculation is underestimated.

Threatened Species / Community listed under EPBC Act	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS, BDAR)
Ecological Communities					
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	PCT 81	5.32	763	EnergyCo are proposing to enact the deferred biodiversity offset obligation policy and therefore will be preparing a biodiversity offset package outlining how the credit obligation will be met.	Appendix C, Table C.1 Appendix C, Table C.6
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	PCT 266 PCT 277 PCT 281 PCT 401 PCT 483 PCT 589 PCT 599 PCT 618	441.65	6,730 BCS does not accept this offset liability. Data inconsistencies and non-compliant BAM survey methods are likely to underestimate the quantum of impact and the corresponding credit calculation. Section 5.2 of the BAM has not been applied correctly.		Appendix C, Table C.1 Appendix C, Table C.6 Table ES-3
Ecosystem Credit					
Regent honeyeater (foraging) *(Anthochaera phrygia)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 399, 440, 461, 468, 479, 481,	1036.26	No figure provided in the BDAR.	EnergyCo are proposing to enact the deferred biodiversity offset obligation policy and	Appendix C, Table C.8

	483, 589, 599, 618, 956, 1176, 1610		18,926 (calculated by BCS)	therefore will be preparing a biodiversity offset package outlining how the credit obligation will be met.	
Gang-gang cockatoo *(Callocephalon fimbriatum)*	PCT 42, 266, 277, 281	432.66	9,185		Appendix C, Table C.8
Glossy black-cockatoo (foraging) *(Calyptorhynchus lathami)*	PCT 42, 81, 202, 266, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599	281.42	5,281		Appendix C, Table C.8
Brown treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599, 956, 1177, 1610	746.62	14,760		Appendix C, Table C.8
Spotted-tailed quoll *(Dasyurus maculatus)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599, 1177, 1610	731.92	14,644		Appendix C, Table C.8
Grey falcon *(Falco hypoleucos)*	PCT 84	0.44	5		Appendix C, Table C.8
Painted honeyeater *(Grantiella picta)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401,440, 461, 468, 477, 478, 479, 481, 483, 589, 599, 618, 956, 1177, 1610	1227.33	23,077		Appendix C, Table C.8
White-throated needletail *(Hirundapus caudacutus)* Not listed under the BC Act	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 478, 479, 481, 483, 589, 599, 618, 956, 1177, 1610	1227.33	23,077 This species is not listed under the BC Act. This figure represents ecosystem credits. There is no evidence in the		Appendix C, Table C.8

			BDAR that the Commonwealth DCCEEW has been consulted regarding offsets for this species.		
Swift parrot (foraging) (*Lathamus discolor)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 478, 479, 481, 483, 589, 599, 618, 956, 1177, 1610	1227.33	23,077		Appendix C, Table C.8
Malleefowl *(Leipoa ocellata)*	PCT 330, 468, 477, 956	38.57	544		Appendix C, Table C.8
Hooded robin (south-eastern form) *(Melanodryas cucullata cucullate)*	PCT 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599, 956, 1177, 1610	746.18	14,741		Appendix C, Table C.8
Yellow-bellied glider *(Petaurus australis)*	PCT 394, 1177	43.71	693		Appendix C, Table C.8
Superb parrot *(Polytelis swainsonii)*	PCT 81, 84, 202, 266, 277, 281, 330, 393, 399, 440, 461, 477, 956	610.45	11,795		Appendix C, Table C.8
New Holland mouse *(Pseudomys novaehollandiae)* Not listed under the BC Act	PCT 330, 399, 401, 440, 468, 477	135.10	2,571 This species is not listed under the BC Act. This figure represents ecosystem credits. There is no evidence in the BDAR that the Commonwealth DCCEEW has been consulted		Appendix C, Table C.8

			regarding offsets for this species.		
Pilliga mouse *(Pseudomys pilligaensis)*	PCT 393, 399	15.22	234		Appendix C, Table C.8
Grey-headed flying-fox (foraging) *(Pteropus poliocephalus)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599, 956, 1177	726.79	14,119		Appendix C, Table C.8
Diamond firetail *(Stagonopleura guttata)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599, 956, 1177	726.79	14,119		Appendix C, Table C.8
Large-eared pied bat *(Chalinolobus dwyeri)*	PCT 42, 202, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 589, 599, 956	724.88	14,126		Appendix C, Table C.8
Corben's long-eared bat *(Nyctophilus corbeni)*	PCT 81, 84, 202, 266, 330, 393, 399, 401, 440, 461, 468, 477, 589, 599, 956, 1177	1021.82	5,021		Appendix C, Table C.8
Koala *(Phascolarctos cinereus)*	PCT 42, 81, 84, 202, 266, 277, 281, 330, 393, 394, 399, 401, 440, 461, 468, 477, 478, 479, 481, 483, 589, 599, 618, 956, 1177, 1610	1227.33	23,077		Appendix C, Table C.8
Species Credit					
Regent honeyeater (breeding) (*Anthochaera phrygia)*	Species Credit	116.18	4,167 BCS does not accept this credit liability. Inconsistencies and non-compliant survey methods are likely to	EnergyCo are proposing to enact the deferred biodiversity offset obligation policy and therefore will be preparing a biodiversity offset package outlining how the	Appendix C, Table C.8

			underestimate the quantum of impact and the corresponding credit calculation and are not consistent with section 5.2 of the BAM.	credit obligation will be met.	
Pink-tailed legless lizard (*Aprasia parapulchella*)	Species Credit	22.20	500 BCS does not accept this credit liability. The species polygon for this species does not contain all associated PCT's.		Appendix C, Table C.8
Glossy black-cockatoo *(Calyptorhynchus lathami lathami)*	Species Credit	13.85 Inconsistent figures in the BDAR. Examples Table 8-33 states 10 Table 8-36 and 8-39 total 10.1 Table 8-59 states 10	304 BCS does not accept this credit liability. The credit calculation for this species has applied partial loss and therefore does not contain all associated loss.		Appendix C, Table C.8 Table ES-4
Large-eared pied bat *(Chalinolobus dwyeri)*	Species Credit	89.53	4,289 BCS does not accept this credit liability. The species polygon for this species does not contain all associated PCT's.		Appendix C, Table C.8
Striped legless lizard *(Delma impar)*	Species Credit	65.80	1,087		Appendix C, Table C.8

			BCS does not accept this credit liability. The BDAR does not provide sufficient evidence to support the species polygon presented.		
Bluegrass (*Dichanthium setosum*)	Species Credit	6.85	109		Appendix C, Table C.4 & Table C.7
Euphrasia arguta	Species Credit	107.8	2,404		Appendix C, Table C.4 & Table C.7
Fairy bells *(Homoranthus darwinioides)*	Species Credit	8.18	250		Appendix C, Table C.4 & Table C.7
Leafless indigo *(Indigofera efoliata)*	Species Credit	0.82	23		Appendix C, Table C.4 & Table C.7
Hoary sunray *(Leucochrysum albicans subsp. Tricolor)*	Species Credit	6 plants (count)	12 BCS does not accept this credit liability as not all recorded individuals have been included in the final credit calculation.		Appendix C, Table C.4 & Table C.7
Koala *(Phascolarctos cinereus)*	Species Credit	31.83	2,101 BCS does not accept this credit liability. The credit calculation for this species has applied partial loss and therefore does not contain all associated loss.		Appendix C, Table C.8

Superb parrot *(Polytelis swainsonii)*	Species Credit	3.4 Inconsistent figures in the BDAR. Table C.4 – 3.39 Table 10-25 totals 3.41 36.17 (Indirect impacts)	101 BCS does not accept this credit liability. The credit calculation for this species has applied partial loss and therefore does not contain all associated loss. 663 (indirect impacts)		Appendix C, Table C.8
Cotoneaster Pomaderris *(Pomaderris cotoneaster)*	Species Credit	4.35 Inconsistent figures in the BDAR. Table 8-33 – 9.85 Table 8-59 – 9.85 Section 10.1.2, Tables 10-14 – 10-26 total 3.53	157		Appendix C, Table C.4 & Table C.7
Tarengo leek orchid *(Prasophyllum petilum)*	Species Credit	76.3	1003		Appendix C, Table C.4 & Table C.7
Small purple-pea *(Swainsona recta)*	Species Credit	53.64	729		Appendix C, Table C.4

			There are inconsistencies in the BDAR for this figure. Appendix C, Table C.7 is incorrect.		Table 11-2
Austral toadflax *(Thesium austral*)	Species Credit	0.54	1872		Appendix C, Table C.4 & Table C.7
Tylophora linearis	Species Credit	12.37	298		Appendix C, Table C.4 & Table C.7
Keith's Zieria *(Zieria ingramii)*	Species Credit	1.88	59		Appendix C, Table C.4 & Table C.7

Additional EPBC Act Considerations

Table J-3 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act that are additional to those already discussed.

Table J-3 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act Section	Considerations	Conclusion
Mandatory considerations		
136(1)b	Economic and social matters are discussed in **sections 2.1** and **6.7** of this report.	The project would provide benefits for the local and regional economy and is of public benefit. Up to 1,800 workers would be required during the construction period. Up to 60 ongoing jobs would be required for operation of the project. Impacts on the local community would primarily occur during the construction period, which has been considered in the assessment report. The recommended conditions require EnergyCo to minimise potential traffic and amenity impacts including noise, dust and visual impacts. Social impacts will also be managed through a Social Impact Management Plan.
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular: • the long term and short term economic, environmental, social and equitable considerations that are relevant to this decision; • conditions that restrict environmental impacts and impose monitoring and adaptive management, reduce any lack of certainty related to the potential impacts of the project; • conditions requiring the project to be delivered and operated in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance; • advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in relation to all of the controlling provisions for this project; and	The Department considers that the project, if undertaken in accordance with the recommended conditions of consent, would be consistent with the principles of ESD.

EPBC Act Section	Considerations	Conclusion
	• mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the proponent to mitigate the environmental impacts of the project.	
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account in its assessment.
139(1)	Requirements for decisions about threatened species and endangered communities	Recovery plans and threat abatement plans are addressed above. Australia's obligations under the Convention on Biological Diversity (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and by appropriate funding. The recommendations of this assessment report are consistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended development consent requires avoidance, mitigation and management measures for listed threatened species, and all information related to the project is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity. There are no additional requirements for decisions about threatened species and endangered communities that apply to the project. The Apia convention and CITES are not relevant to the project.
Factors to have regard to		
176(5)	Bioregional plans	There is no approved bioregional plan related to the activity.
Consideration on deciding conditions		
134(4)	Must consider:	All project related documentation is available on the NSW Planning Portal - www.planningportal.nsw.gov.au.

EPBC Act Section	Considerations	Conclusion
	• Information provided by the person proposing to take the action or by the designated Applicant of the action; and • The desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	The Department considers that the recommended conditions at **Appendix G** are a cost effective means of achieving their purpose. The conditions are based on material provided by the Applicant that was prepared in consultation with the Department, BCS and other government agencies.

Conclusions on Controlling Provisions

For the reasons set out in s**ection 6.4** of this report and this Appendix, the Department considers that the impacts of the action would be acceptable, subject to the avoidance and mitigation measures described in the EIS, Amendment Report and the recommended instrument of approval in **Appendix G**.