

State Planning Commission

# ASSESSMENT REPORT

## PROJECT ENERGY CONNECT – SA-NSW INTERCONNECTOR PROJECT

ElectraNet PL



December 2021

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## 1. Milestones and Key Dates

| Milestone   | Date             |
|---|------------------|
| Declaration of Major Development  | 21 June 2019     |
| Proposal determined to be a 'controlled action' under the Commonwealth EPBC Act 1999. | 17 July 2019     |
| Release of Guidelines and Level of Assessment   | 20 November 2019 |
| Release of EIS for public comment   | 12 May 2021      |
| Submission of Final Response document   | 1 November 2021  |
| Release of Public Submissions   | 1 December 2021  |
| Release of Response Document  | 1 December 2021  |

## 2. Executive Summary

A high-voltage interconnector with associated infrastructure between Robertstown in South Australia to Wagga Wagga via Buronga in New South Wales has been proposed by ElectraNet (Project Energy Connect). The South Australian portion of the proposal was declared a Major Development pursuant to section 46 of the now-repealed South Australian *Development Act 1993* and was subject to an Environmental Impact Statement (EIS) level of assessment.

The proposal was also declared a ‘controlled action’ under the Commonwealth’s *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to the potential impact on ‘listed threatened species and communities’. In accordance with the Bilateral Agreement (Assessment) between the South Australian and Commonwealth governments, it was decided that a single assessment process—the South Australian Major Development process—was to be followed in order to minimise duplication.

The proposal comprises approximately 10 kilometres of 275kV transmission line supported by steel towers, from the existing Robertstown substation to a new substation at Bunday; and approximately 195 kilometres of 330kV transmission line from the Bunday substation to the South Australia-New South Wales border. Ancillary works include telecommunications infrastructure and access tracks. Temporary facilities include construction compounds, laydown areas, sites offices, helicopter landing sites, and a temporary workers accommodation camp near Morgan.

The New South Wales component of the project is being undertaken by TransGrid and does not form part of this assessment process. The New South Wales component followed a comprehensive EIS assessment process and associated Commonwealth bilateral agreement. Planning approval was granted by the New South Wales Minister for Planning and Public Spaces, the Hon Rob Stokes MP, on 30 September 2021. National regulatory approval for the construction of the entire line, as an economically viable and supported transmission asset, has been granted.

With regard to the proposal, a number of general observations can be made:

- The proposal will have a positive overall economic impact for the State and provide for the increased stability, security and connectivity of the National Electricity network through a high-voltage interconnection with New South Wales.
- The development will support the continuing transition to renewable generation, increasing capacity for the export of energy (when market conditions allow) and enable the construction of previously approved and prospective renewable energy projects in the State’s Mid North and Riverland regions.
- The route selection process is critical to avoid significant impact to the River Murray.
- Direct and indirect native vegetation impacts have been estimated at 413 hectares, with two identified impacts to Matters of National Environmental Significance under the *EPBC Act 1999*:
  1. Clearance and fragmentation of the Critical Habitat of the endangered Black-eared Miner
  2. Impact on seven species and communities through clearing and fragmentation of habitat, fire risk, and bird-strike.
- The proposal comprises approximately 380 towers ranging in height from 45 metres to 65 metres, representing a significant visual element in the landscape.
- Minimal road and intersection upgrades are required during construction, whilst operational traffic and parking requirements will be confined to the Bunday substation and periodic line inspection and maintenance.

The investigation and ultimate selection of the transmission route has been the primary mechanism to avoid and minimise potential impact of the construction and operation of the development. A series of route options were considered through a multivariate analysis, considering constraints and opportunities, which was then narrowed down to the proposed alignment.

High-voltage transmission lines have an inherent significant visual impact however the relatively remote location of the transmission line and ancillary infrastructure will ensure development is not directly visible from major townships, key tourist sites or areas of high landscape amenity—in particular, the River Murray and Riverine region. Visual impacts are further mitigated by existing development (including transmission lines), local topography, existing vegetation, and the permeable nature of the lattice tower design.

No significant long-term land use impacts are considered to result from the construction or operation of the transmission line or ancillary infrastructure. Construction activities will result in short-term impacts to a limited number of sensitive receptors and interference with existing primary production activities. These and other impacts from construction, such as traffic volumes and haulage requirements, will be temporary and can be reasonably managed through various management plans.

Transmission infrastructure can generally co-exist with primary production activities. Some fragmentation and loss of land is expected from construction of permanent infrastructure; however, the majority of land under easement will continue to be available for farming, with some constraints to the use of certain equipment, practices or aerial spraying activities when in close proximity to the line.

The extent of native vegetation clearance has been minimised by the route selection, whereupon existing access tracks and infrastructure easement will be used where possible, coupled with a construction methodology, including the use of helicopters for line stringing in areas of high conservation value. The overall impact of vegetation clearance can be adequately compensated through a Significant Environmental Benefit under the *Native Vegetation Act 1991*.

Measures to minimise potential impacts to threatened species and communities have been thoroughly considered and can be adequately addressed by the proponent's environmental management plan framework. Bushfire extent and frequency are amongst the most significant threats to mallee habitats and associated biodiversity. The line will be constructed, designed and operated to minimise potential impacts from lightning strikes to towers and other equipment.

The assessment process has been informed with advice from State Government agencies, the Australian Department of Agriculture, Water and the Environment<sup>1</sup> (DAWE), five local councils and public and key stakeholder submissions.

The proposed development has undergone a rigorous assessment process with the detailed design, construction methodology and location of temporary construction facilities refined throughout the process. The route selection and impact on ecologically sensitive sites has been challenged by the public submissions and through advice from councils and State and Commonwealth Government agencies. On balance, the development has the support of local councils, with no significant public opposition or State agency concerns.

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<sup>1</sup> Formerly the Commonwealth Department of Environment and Energy



A major development assessment considers the merits of a proposal and the appropriate management or mitigation of complex impacts, either individually or together. The alternative is that identified impacts cannot be managed and that the development should be refused.

The assessment process has found that the proposed development will have significant economic benefits, supporting the further investment in and capacity of the National Electricity Market, and improving the affordability, reliability and sustainability of the electricity supply that will benefit all consumers. The substantial body of work undertaken by ElectraNet through early stakeholder engagement and a thorough route selection methodology has provided the least impactful solution, taking into account all relevant constraints.

Some risks and residual issues remain; however, these can be appropriately addressed as conditional requirements through various management plans. No long-term deleterious effects were found in respect to existing land uses and/or threatened species or communities.

Having carefully considered these matters and the advice provided, it is considered the impact and potential risks associated with the South Australia-New South Wales Interconnector proposal can be managed through a strict suite of management plans, and licensing where required. On this basis, it is concluded that the proposal should be granted provisional development authorisation, subject to conditions.

Should the Minister resolve to grant provisional development authorisation, a number of critical matters are recommended to be reserved for further assessment and formal sign-off, along with a detailed suite of conditions. These are outlined in section 18.

An effective and responsive monitoring and compliance framework is also critical to ensuring that impacts are appropriately managed and that the interface with the conditions and licence requirements is well understood. This framework should include regular reporting by ElectraNet and an ongoing cross-agency governance arrangement (including responsible State agencies, the Commonwealth Government and the Council) to oversee compliance.

In addition to the available actions under the *Native Vegetation Act 1991* and the *Environment Protection Act 1993* pertaining to the enforcement of clearance and licence requirements, section 115(11) of the *Planning, Development and Infrastructure Act 2016* makes it an offence to undertake development contrary to a relevant development authorisation.

### 3. Introduction

This Assessment Report considers the environmental, social and economic impacts of a proposal by ElectraNet to construct and operate a high-voltage interconnector with associated infrastructure between Robertstown in South Australia and the South Australian border, en route to Buronga and on to Wagga Wagga, New South Wales. The project component within New South Wales is being undertaken by TransGrid and does not form part of this Assessment Report.

The proposed transmission line would follow a route from the Robertstown substation (operated by ElectraNet) via Morgan, then north of the River Murray to the South Australia-New South Wales border. The line will have the capacity to transmit 330kV of electricity between Buronga and a new substation at Bunday, east of Robertstown, whereupon the line will be at 275kV capacity to feed into the South Australian transmission network.

The South Australian portion of the project was declared a Major development and subject to an Environmental Impact Statement (EIS) level of assessment. The development was also determined to be a 'controlled action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).

The key objective of the project is to improve the affordability, reliability and sustainability of electricity supply within the National Electricity Market through increased transmission capacity of up to 800MW between the Eastern States and South Australia. Increased market competition—and provision of the capacity for new and existing renewable energy projects to connect into an expanded network—is forecast to provide a net benefit to businesses and consumers, and to support the continuing transition to a lower carbon economy.

The proposed transmission line underwent a rigorous route selection and evaluation process, which culminated in the preparation and exhibition of the EIS from May 2021, from which a number of public, council and agency submissions were received. The main issue identified submissions being to avoid, mitigate and/or manage potential environmental impacts to native flora and fauna especially within the Riverland Biosphere Reserve and the Riverland Ramsar wetland site (including those Matters of National Environmental Significance listed under the EPBC Act to be considered under a bilateral assessment process with the Commonwealth).

Based on the proponent's EIS and Response Document, this Assessment Report has sought to consider all relevant assessment issues relating to its environmental, social and economic significance to South Australia.

The first part of the report outlines the assessment process, project scope, public/council/agency submissions and consideration of the main planning issues, then makes a recommendation on the merits of the project for the further consideration and decision by the Minister for Planning and Local Government.

## 4. Assessment Process

### 4.1 Declaration and Guidelines

Following the declaration on 21 June 2019, ElectraNet PL lodged a formal Development Application on 18 July 2019 with the former Minister for Planning, the Hon Stephan Knoll MP. The State Planning Commission determined that the assessment would be subject to an Environmental Impact Statement (EIS) process and in November 2019 issued Guidelines (issues to be considered) for the preparation of the EIS.

### 4.2 Consultation on the EIS

Public consultation on the EIS occurred between 12 May and 25 June 2021.

Copies of the Executive Summary and the complete EIS were made available at each of the five local council offices—Goyder, Renmark Paringa, Mid Murray, Loxton Waikerie and Berri Barmora—and on the SA Planning Portal. Two public notices were published in the *Adelaide Advertiser*, *Murray Pioneer* and *Stock Journal* advising of the release of the EIS, where to obtain or view a copy of the EIS, and the dates of the two public meetings. These meetings were convened by staff from the Planning and Land Use Services division within the Attorney-General's Department (AGD-PLUS) and held in Morgan and Renmark on 2 June 2021 and 3 June 2021 respectively. A total of 10 members of the public attended both meetings, held over a three-hour period at each venue.

### 4.3 The Relevant Authority

The development was declared prior to the introduction of the Planning and Design Code within the five council areas, such that Regulation 11(3) of the *Planning, Development and Infrastructure (Transitional Provisions) Variation Regulations 2017* had the effect of making the Minister for Planning and Local Government the decision-maker for the application, rather than the Governor.

When making a decision, the Minister must have regard to the EIS, public, agency and Council submissions, the Response Document, relevant planning policies of the Code, the Planning Strategy, the *Environment Protection Act 1993* and any other matters that the Minister considers relevant.

### 4.4 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Prior to its initial declaration, ElectraNet PL referred the proposal to the then Commonwealth Minister for the Environment and Energy, under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) [EPBC Reference Number 2019/8468]. The delegate of the Minister decided on 17 July 2019 the 'proposed action' (the proposal) was a 'controlled action' that required assessment and a decision under the EPBC Act.

This was due to the potential impact on 'listed threatened species and communities' (EPBC Act Sections 18 and 18A) as follows:

- The proposed action will clear and fragment habitat that is listed on the Register of Critical Habitat under section 207A of the EPBC Act and critical to the survival of the endangered Black-eared Miner (*Manorina melanotis*).
- The proposed action is likely to have a significant impact on seven species and communities through clearing and fragmentation of habitat, fire risk, and bird-strike.

In accordance with the Bilateral Agreement (Assessment) between the South Australian and Commonwealth governments, a single assessment process was followed—the South Australian Major Development process—in order to minimise duplication. As such, the potential impact and mitigation measures (including offsets) for the above-listed species have been considered in this Assessment Report (AR), in consultation with the Commonwealth Department of Agriculture, Water and the Environment<sup>2</sup>.

Once completed, the South Australian Government provides the final Assessment Report (AR) and any decision to the Commonwealth Minister for the Environment (the Hon Sussan Ley MP), who will use it to decide whether or not to approve the proposed action under the EPBC Act. Any decision would be specific to the listed species.

## 5. The Assessment Report

This Assessment Report (AR) assesses the environmental, social and economic impacts of the proposal by ElectraNet PL. The AR takes into consideration the requirements established under the *Development Act 1993*, including an assessment of the proposal as presented in the EIS, community, Council and agency comments, and the Response Document.

The EIS public submissions and the Response Document is available at: [https://plan.sa.gov.au/state\\_snapshot/development\\_activity/major\\_projects/majors/south\\_australia/south\\_australia\\_electricity\\_interconnector](https://plan.sa.gov.au/state_snapshot/development_activity/major_projects/majors/south_australia/south_australia_electricity_interconnector).

The AR does not include an assessment of any elements of the proposal against the provisions of the Building Rules under the *Development Act 1993*. Further assessment of the elements of the proposed development against these rules will be required should an approval be issued.

The Response Document, along with the EIS, forms part of the finalised proposal. This is the case also for the purposes of the EPBC Act. The Commonwealth Government has been fully involved during the assessment process as required by the Bilateral Agreement. As such, Commonwealth requirements have been included in this AR.

## 6. Proposal

The proposal involves the construction and operation of an interconnector (i.e. high-voltage transmission line) between Robertstown and the New South Wales border (being the South Australian section of 'Project EnergyConnect') (**Figure 2**).

The development is located within five Local Government areas: the Regional Council of Goyder, the Mid Murray Council, the District Council of Loxton Waikerie, the Berri Barmera Council and the Renmark Paringa Council. A significant portion of the transmission line route is situated on land not within a council area (**Figure 2**).

The project comprises the following key elements:

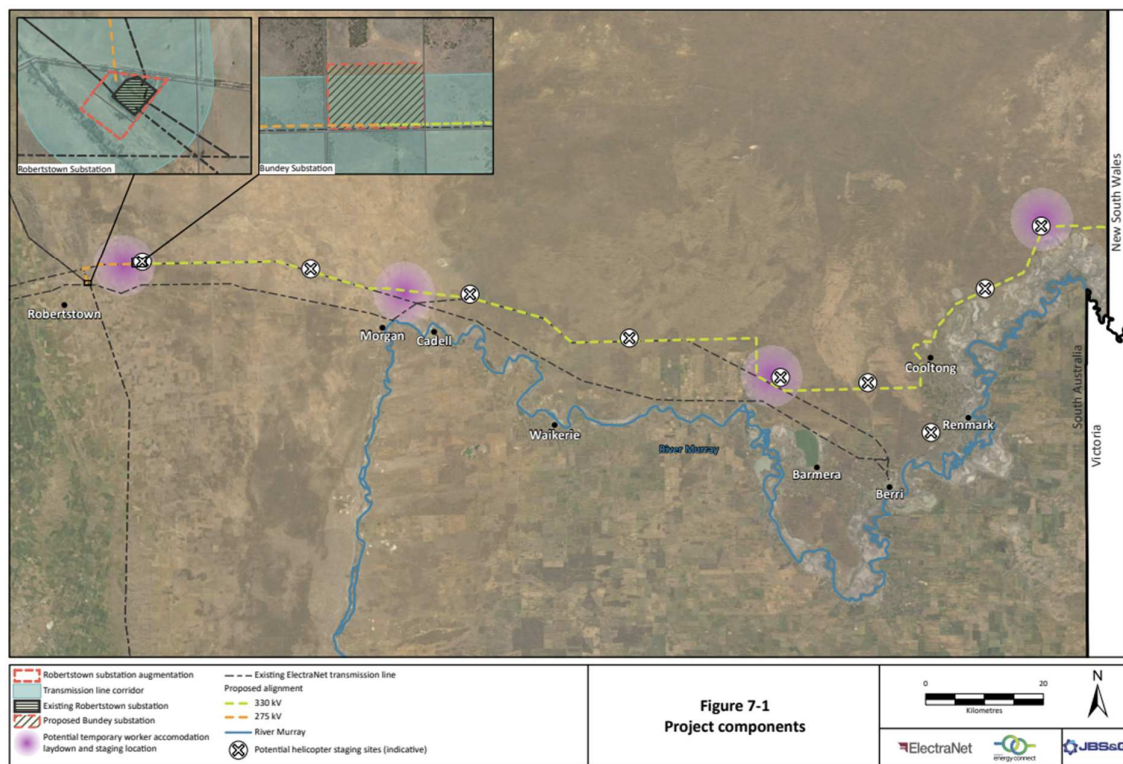
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<sup>2</sup> Formerly the Commonwealth Department of Environment and Energy

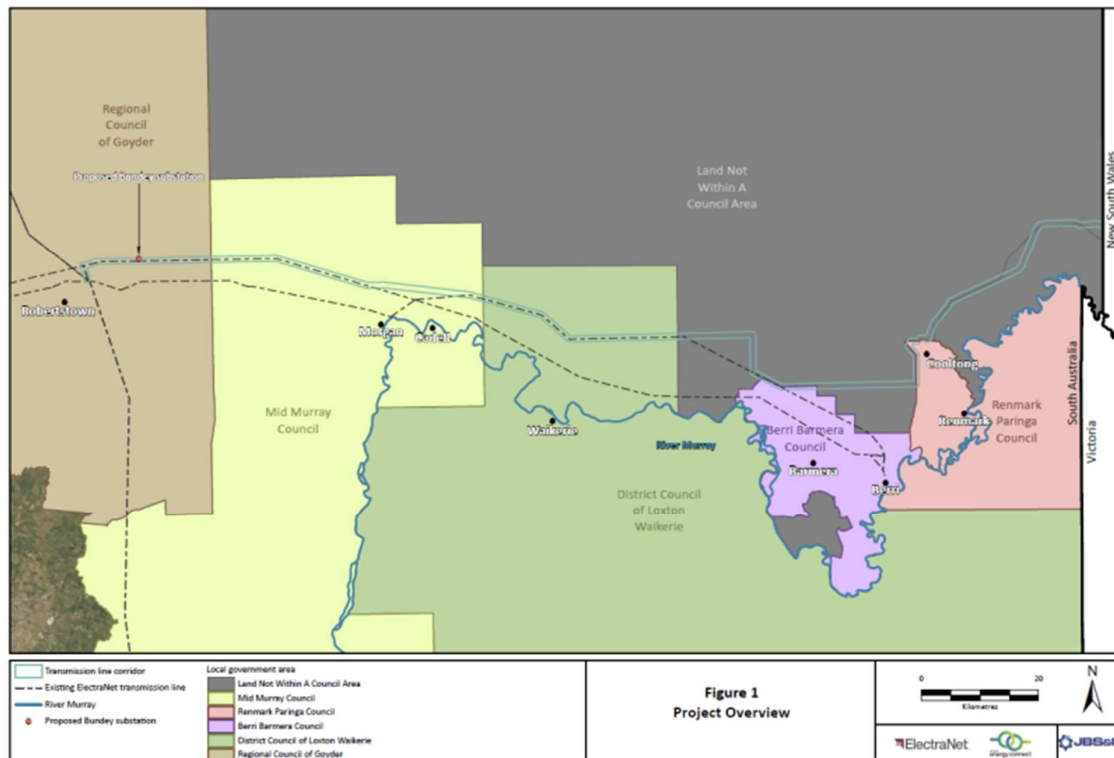
## 6.1 Overview

- Approximately 10 kilometres of 275kV transmission line supported by steel towers, from the existing Robertstown substation to the new Bunday substation.
- Approximately 195 kilometres of 330kV transmission line supported by steel towers, from the Bunday substation to the South Australia-New South Wales border.
- Ancillary works comprising telecommunications infrastructure and access tracks.
- Temporary facilities comprising construction compounds, laydown areas, site offices, mobile construction camps.

The transmission line route has not been amended since lodgement of the EIS (as confirmed by the Response Document on p 10). Should the proposal be supported, minor amendments may be made during the design development process to straighten the line and reduce the number of towers, thereby further minimising vegetation clearance. A condition of approval is recommended to consider matters of micro-siting and minor changes in such an event.



**Figure 1: Project Components & Indicative Route (Reference: EIS, Chapter 7 p 7-4)**



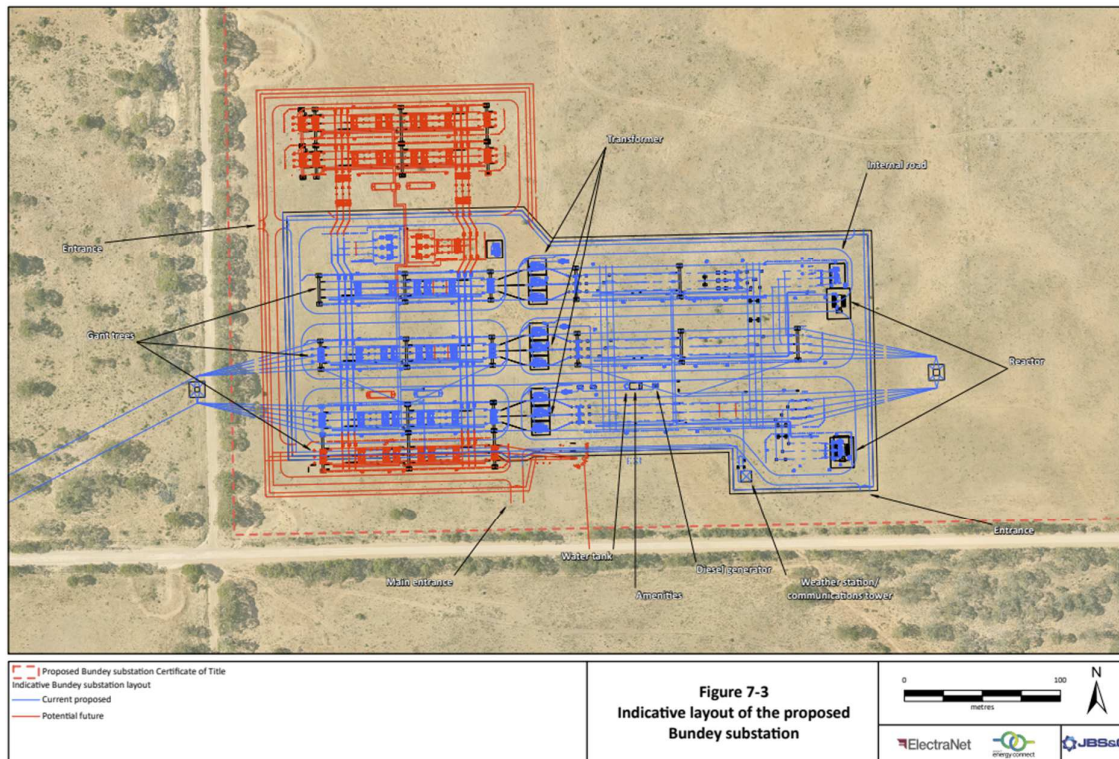
**Figure 2:** Project Overview with SA Local Government areas (Reference: Response Document p2)

## 6.2 Detailed Proposal

The proposed transmission line will traverse approximately 205 kilometres between Robertstown and the South Australia-New South Wales border. A full description of the proposed works are outlined in chapter 7 of the EIS, but the relevant project elements are outlined below:

- **Robertstown Substation** (existing) operated by ElectraNet is the westernmost connection point situated to the north-east of Robertstown. Minor works are proposed, with two recently vacated 275kV bays (due to the installation of two synchronous condensers) being made available to provide a direct connection point from the overhead transmission line into the substation. These augmentation works, comprising a site expansion and the synchronous condensers, have previously been approved under the section 49A—Electricity infrastructure pathway under the *Development Act 1993*.
- **Bunday Substation** (a new substation) located 14 kilometres north-east of Robertstown, comprising a 400 metre by 250 metre footprint (on an 80 hectare allotment) will enable the stepped connection of the 330kV line coming from New South Wales in the east, to a 275kV connection from the west. The substation will comprise a range of equipment and structures to control and regulate electricity. This includes gantries, surge arrestors, power transformers, line disconnectors, circuit breakers, weather station, lightning masts, a communication tower, and control and amenities buildings (**Figure 3**).
  - The structures within the substation will be up to 50 metres in height (lightning mast, telecommunications tower), with the gantries at 30 metres.

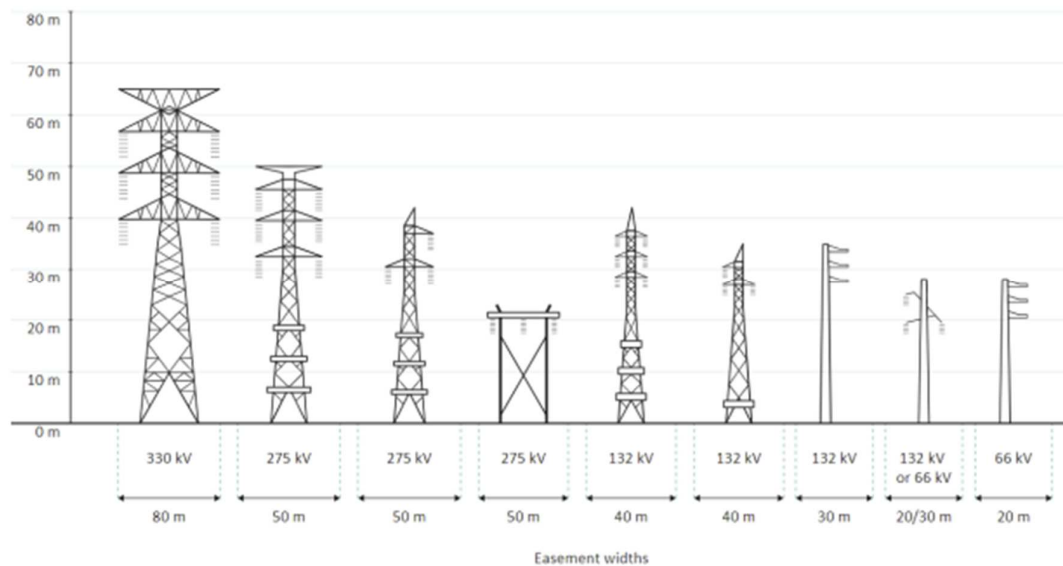




**Figure 3:** Bunday Substation Layout (Reference: EIS, Chapter 7 p 7-7).

- The substation will have two main entry points: one from Powerline Road, and the other from Sutherlands Road. Each access point will be designed to road authority standards. A designated parking area will be provided onsite, along with sufficient manoeuvring areas for all vehicles to exit and enter in a forward direction.
- The substation will be located on primarily cleared grazing and cropping land, with associated works comprising site preparation (benching), stormwater drainage, transfer bunding, perimeter security fence (3 metre high steel palisade), overhead lighting (but only used at night when crews are present), 9KL rainwater tank and on-site waste control system (to council standards).
- No additional landscaping is proposed, with existing screening vegetation in place along each road reserve, and the need to provide suitable level of passive surveillance.
- The substation will not be permanently manned.
- **Transmission line easement:** the proposed transmission line easement will be in the order of 80 metres in width to allow for the construction, operation and maintenance of the line over its economic life. Easements provide the legal right to use and access another landholding not owned by ElectraNet, but allow the majority of existing land uses, such as grazing or site access, to continue. The easement also provides for adequate separation to structure and activities to ensure that the overhead infrastructure is not impeded or come into contact with other buildings or equipment.

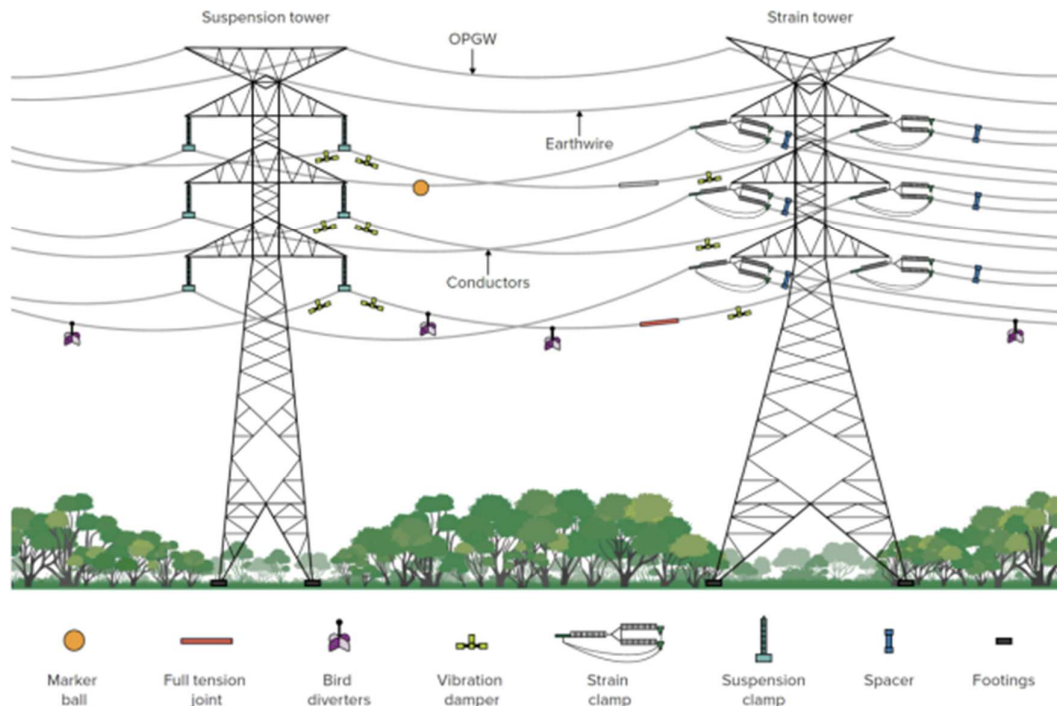
- **Transmission line structures:** the project proposes to use a combination of steel lattice strain and suspension towers for the 275kV and 330kV sections of the transmission line, although monopole towers could be used in situations to mitigate potential impacts.



**Figure 4:** Typical transmission structure and easement width (Reference: EIS, Chapter 7 p 7-10)

- Suspension structures are required to support the overhead conductors and in-line sections of the transmission line, whilst strain towers (being wider and heavier) are used when the line diverts or changes direction, such that greater support and tensioning is required to ensure the structure is not compromised.
- Approximately 380 towers will be required. Each structure will range between 40 metres to 65 metres in height and will be typically spaced between 400 metres and 600 metres apart.
- Each tower will require a concrete foundation, with each tower footprint dependent on the type of tower, terrain and geotechnical conditions. Bored pier (in-situ) foundations will be required up to 13-16 metres deep, on a 1.2 to 1.8 metre diameter. Strain towers will have larger foundations due to the footing spacing and weight.
- Each tower will use a double-circuit aluminium steel reinforced conductor arrangement, with associated earth and optical ground wires. Dampers will be used on each conductor to control wind-induced vibration and movement.
- The 330kV wire arrangement will have 12 wires and the 275kV wire arrangement will have six wires. The stringing of each conductor is usually undertaken in sections of 10 to 15 kilometres at a time within the temporary stringing-in corridor, using winches and purpose-built stringing machines. Helicopters may also be used for this purpose.
- Transmission towers close to air strips will have fibreglass line markers installed (such as at Sugarwood Station), whilst bird diverters will be attached to the overhead wires in selective locations (such as close to sensitive wetlands, watercourse, migratory bird flight paths and high conservation areas).





**Figure 5:** Typical transmission line components (Reference: EIS, Chapter 7 p 7-13)

- **Telecommunications:** the project will rely upon optical ground wires (OPGW) on each tower and dedicated radio links, such as from the substations and one new radio site, consisting of a 50 metre wide radio tower and telecommunications hut. A repeater station will be required near the New South Wales border comprising a small, containerised communications room (3m x 4m) and solar array. The Response document confirmed the locations at Chowilla and Lindsay Point repeater station at Murtho (respectively).
- **Access tracks:** the project will generally use existing public roads and private access tracks along the transmission route wherever possible. Some existing tracks will require re-grading and/or widening (5 metre minimum) to accommodate construction equipment and vehicles, with another 5 metre wide area utilised for stringing (but would not usually require clearance), whilst new tracks will only be required where none currently exist to facilitate tower site access. Imported fill material may be required to construct and stabilise tracks, sourced from local quarries. Additional clearance may be required for stringing, brake and winch sites.

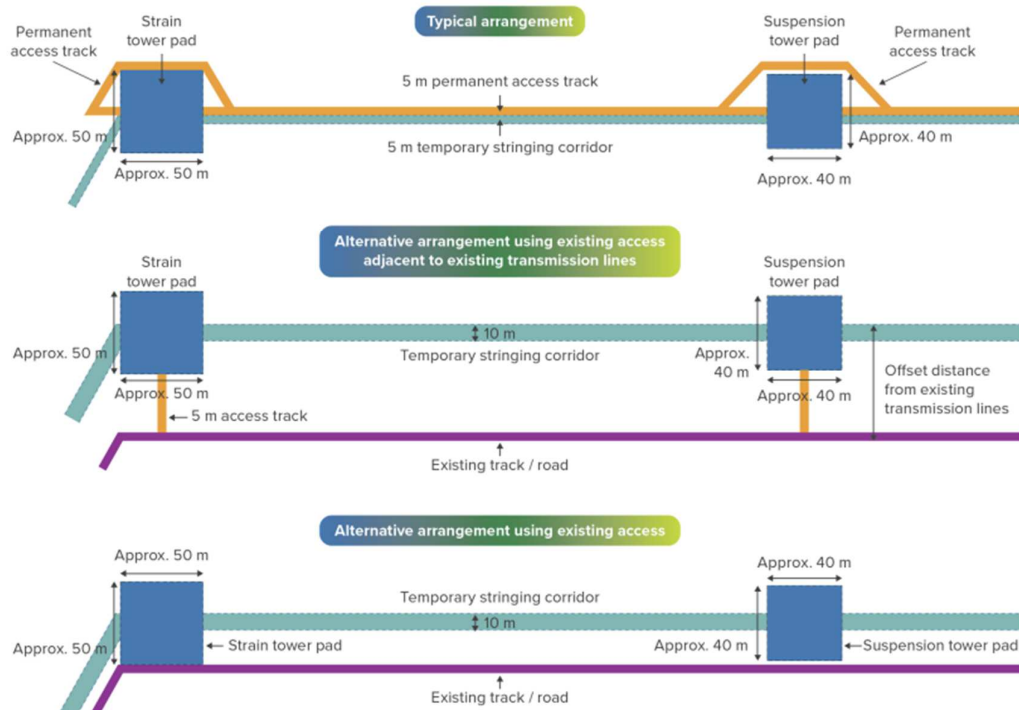


Figure 7-11: Construction and operation access track options

**Figure 6:** Construction and operation of access track options (Reference: EIS, Chapter 7 p 7-25)

- Temporary construction camps:** one temporary construction camp is proposed in the western project area, requiring between 2 to 5 hectares of land, with other worker accommodation to be provided within Riverland townships. Whilst a specific location was not identified in the EIS (referring only to the possible number, general attributes and temporary nature), the Response document confirmed that one camp for approximately 120 workers is required to be located at 23 Centenary Road, Morgan.
- Temporary laydown areas:** the project will require up to 10 laydown areas of 1 to 2 hectares in size, along the transmission route to support construction activities. Fourteen potential sites are being investigated: two in the western project area; four in the central project area; and eight in the eastern project area. Each laydown area will be used to store heavy vehicles, equipment and bulk materials, and provide a base of operations for a mobile concrete batching plant. Temporary site offices and amenities areas will also be provided. Materials will then be transported to the tower construction and ancillary infrastructure locations.
- Helicopter landing facilities:** helicopters may be used along the entire allotment to string transmission cables between each tower, in order to limit direct ground level impacts. The use of helicopters for aerial installation of towers has been ruled out due to safety risks. If required, helicopter landing facilities will initially be established at one of the 14 laydown areas identified in the Response Document. As works progress along the alignment, temporary helicopter landing facilities will be established at any of the stringing brake and winch locations, for a period of 1-3 days at each location. The final location of helicopter landing facilities would need to be located away from sensitive receptors; on land previously cleared of vegetation; and with appropriate separation from public roads (and in particular arterial roads).

### 6.3 Preconstruction works and staging

The project also seeks to stage various elements, such as pre-construction enabling works (i.e. technical investigations and micro-surveys), geotechnical and other land surveys, ground clearance, temporary environmental management measures (e.g. rumble grids, etc.), and then to establish temporary works depots and workers camps. Construction would then commence in a linear fashion along the proposed alignment, such that as each section is completed, the equipment and workforce would move to the following section until completed. The estimated construction timeframe would be in the order of 16 to 18 months, subject to weather interruptions or procurement delays. Subject to relevant approvals, energisation of the project is intended to occur in Q2 2023.

### 6.4 Vegetation clearance and topsoil stockpiles

The project will require the clearance of native vegetation of up to 413 hectares, comprising 135 hectares of permanent clearance and 278 hectares of temporary clearance (refer Table 7.3 in the EIS pp7-26-27). Permanent clearance will be required for access tracks, substation and tower sites.

Temporary clearance will be required for construction facilities, workers camps, laydown areas, stringing corridors and brake/winch/OPGW sites (and in association with tower construction but not permanent). The EIS has advised that where feasible, 'vegetation will be rolled or trimmed rather than being completely removed' (p7-26), whilst the removal of larger trees will be avoided where possible, with trees up to 8 metres in height possibly retained underneath the transmission line.

The use of helicopter stringing would reduce current clearance estimates. Temporary topsoil stockpiles will be located on cleared areas (where possible), and during the post-construction period spread around the tower sites to allow natural regeneration (or beneficially reused).

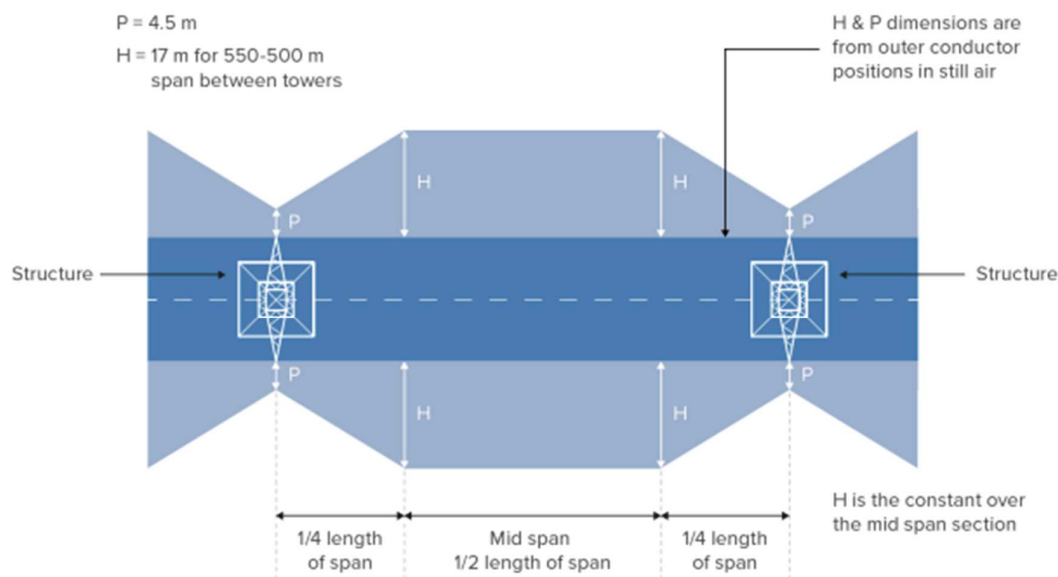


Figure 7-17: Vegetation clearance requirements for operation of the Project

**Figure 7:** Vegetation Clearance requirements (Reference: EIS, Chapter 7 p 7-34)

## 6.5 Workforce and Construction hours

Workforce numbers will vary during the course of construction, from 20 to up to 250 personnel during the pre-construction and construction periods and include various trades and ancillary staff. Construction works will be undertaken in 12hr shifts, seven days per week, from 7am to 7pm. Temporary construction camps will operate over a 24hr period, 7 days per week.

## 6.6 Post construction works

This would involve the demobilisation of the construction workforce and their equipment, the removal and rehabilitation of all temporary and/or disturbed areas (through surface contouring, scarifying, respreading of topsoil and cleared vegetation to enable natural regeneration of native species). This process would take three to six months. The transmission line and ancillary infrastructure would then need to be maintained for the operational life of the asset—including regular inspection and maintenance—and the undertaking of more significant repairs and component replacement as required. Extensive vegetation management is not expected to be required, with some trimming undertaken on a three to four-year basis, but is dependent on the type and nature of the existing vegetation.

## 6.7 Transmission technology and structural alternatives

The EIS also considered a range of options for how the line could be constructed, including the selection of a high voltage current type (HVAC or HVDC), overhead or underground cabling, and the use of guyed or lattice tower structures. For reasons of cost (i.e. value for money), technology (i.e. reliability), serviceability, constructability and to minimise the extent of vegetation clearance (from the various options available) a high-voltage, alternating current overhead transmission line utilising steel, lattice towers was selected. The asset life is estimated to be 100 years.

## 6.8 TransGrid

The \$1.834 billion New South Wales component of Project Energy Connect is being undertaken by TransGrid, the operator of 13,000 kilometres of high-voltage transmission lines and substations in New South Wales and the Australian Capital Territory (with interconnections already established into Queensland and Victoria).

Details of this component of the project and assessment process are available here: [www.transgrid.com.au/projects-innovation/energyconnect](http://www.transgrid.com.au/projects-innovation/energyconnect).

In terms of regulatory approvals, TransGrid was required to satisfy the Australian Energy Regulator (AER) under a three-part market benefits test (known as a Regulatory Investment Test). The AER approved the RIT-T in January 2020, with a Contingent Project Application (CPA) approved in May 2021. The project's environmental approvals were considered under the State Significant Infrastructure provisions of the *Environmental Planning & Assessment Act 1979*, with both a western and eastern section under assessment (having been declared under this section in August 2019).

The New South Wales Government project page is available here: [www.planningportal.nsw.gov.au/major-projects/project/25821](http://www.planningportal.nsw.gov.au/major-projects/project/25821).

The NSW-Western Section (which will provide the immediate link-up to the ElectraNet section of the proposed transmission line from Buronga in NSW), was the subject of a comprehensive EIS assessment process and was also declared a controlled action under the EPBC Act and assessed under the NSW-

Commonwealth bilateral agreement. Planning approval for the western section was granted by the NSW Minister for Planning and Public Spaces, Rob Stokes, on 30 September 2021.

A copy of the decision of the New South Wales Minister is available here:

<https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10040%2120210929T070404.257%20GMT>.

## 7. Previous Proposals

Project Energy Connect utilises many of the detailed route and environmental investigations from previous projects to construct an interconnector from South Australia to New South Wales. From the early 1990s, several attempts were made to establish a new interconnector that would provide additional capacity and assist in the development of the national electricity market between South Australia and New South Wales.

In September 1994, Pacific Power (New South Wales) and ETSA Corporation (South Australia) signed a Memorandum of Understanding (MOU) to examine the feasibility of a direct interconnection between their respective electricity networks. Three applications were then lodged with the former Development Assessment Commission (DAC)/Minister with responsibility for the *Development Act 1993* for assessment between 1997 and 2000 and can be referred to as the Riverlink/SANI, SNI and TransGrid proposals.

The first application by Riverlink/SANI was lodged as a Crown Development application for the construction of an overhead transmission line route north of the River Murray (from Robertstown to Buronga), whereupon the then Minister for Housing and Urban Development directed that the proposal be subject to the Major Development provisions of the *Development Act 1993* in June 1997.

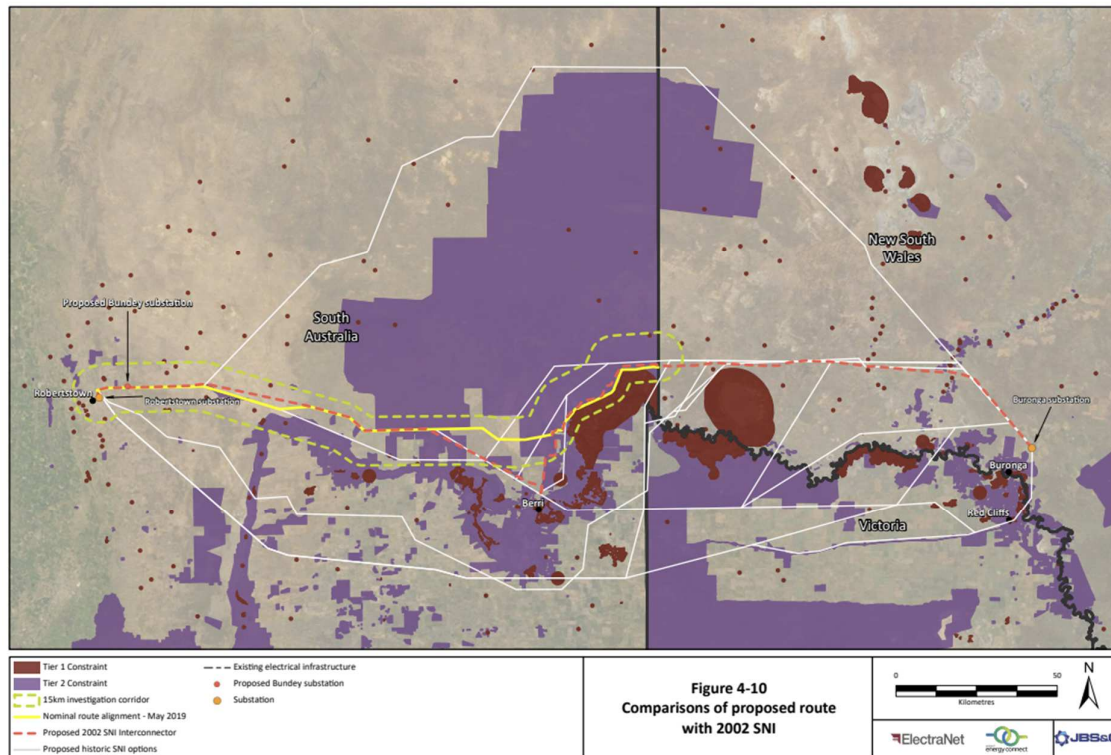
The Major Developments Panel (MDP) of the DAC considered the application and determined that the proposal be subject to an Environmental Impact Statement (EIS) level of assessment and set the necessary guidelines. In June 1998 the National Electricity Market Management Company (NEMMCO), the organisation responsible for managing the implementation and operation of the National Electricity Market (NEM), determined that the 'Riverlink/SANI' proposal did not satisfy the test of regulated status and ETSA Corporation subsequently withdrew the application.

A second application was then submitted by TransGrid, which proposed a route to the south of the River Murray, crossing north of Blanchetown and proceeding south of Loxton, then north-east to the New South Wales border. This proposal was declared a Major Development by the then Minister for Transport and Urban Planning in January 2000 and whilst assessment guidelines were released, no EIS was ever prepared due to the potential impacts on primary producers and two crossings of the River Murray (the second being just across the New South Wales border).

A third application was then lodged (a joint venture between ETSA Transmission and TransGrid), which returned to a northerly route via Overland Corner, a total distance of 340 kilometres (205 kilometres in South Australia). The proposal triggered EIA processes under New South Wales, South Australia and the Commonwealth, and was the first of the projects to be referred and declared a controlled action under the EPBC Act.

An EIS level of assessment was confirmed in February 2002, with an EIS released for public consultation in June 2002. A total of thirty-one submissions (including from representative bodies/boards) was received. A Response document was lodged in December 2002 and a draft

Assessment Report prepared, however no final decision was ever made, with the project eventually abandoned by TransGrid in 2004 (due to Commonwealth concerns on threatened species).



**Figure 8:** Comparison of SNI options with proposed route (Reference: EIS, Chapter 4 p 21)

## 7.1 Other SA Interconnectors

The South Australian electricity system already has two high-voltage interconnections with the eastern states, being the 275kV Heywood interconnector connection between Mount Gambier in South Australia and Heywood in Victoria (commissioned in 1988), and the 150kV Murray Link connection between Berri in South Australia and Red Cliffs in Victoria (commissioned in 2002). Both interconnectors operate within the National Electricity Market (NEM), allowing for the general export and import of electricity between Victoria and South Australia to manage peak demand or respond to supply changes. The proposed development would be the third interconnector established between South Australia and the Eastern States, and the first between South Australia and New South Wales, further supporting the NEM.

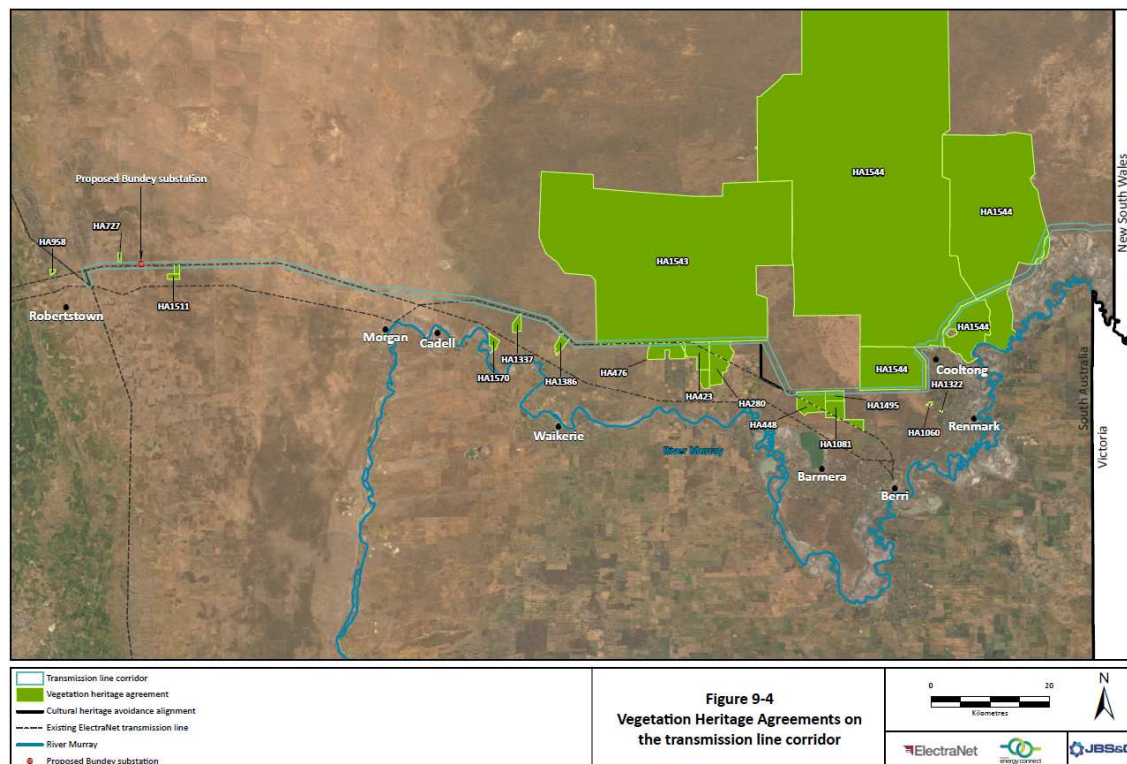
## 8. Land Use and Tenure

### 8.1 Existing Land Uses

Large-scale infrastructure developments have the capacity to impact existing and future land uses during the period of construction and operation.

The proposed transmission line route is located in sparsely settled areas, away from the largest townships and settlements. For example, the townships of Barmera, Berri and Renmark are more than 7 kilometres from the transmission line.





**Figure 9: Vegetation Heritage Agreements on the Transmission Line Corridor (Reference: EIS, Chapter 9 p. 27)**

The EIS divided the transmission route into four separate sections: Section 1 (Robertstown substation to Powerline Road/ Goyder Highway); Section 2, Goyder Highway to Taylorville Station; Section 3, Taylorville Station to Wentworth-Renmark Road; and Section 4: Wentworth—Wentworth-Renmark Road to the South Australia-New South Wales Border.

Sections 1 and 2 largely comprise low-intensity primary production (predominately dryland farming and grazing), with nearby areas of horticultural production closer to the River Murray. The proposed transmission route will largely follow existing road reserves and transmission line easements. A section of the White Dam Conservation Park is utilised.

Sections 3 and 4 are largely set aside for conservation purposes, represented by the Riverland Biosphere Reserve and, to a lesser extent, a Ramsar-listed Wetland in the eastern Riverland district.

The assessment focus will largely be on Section Nos 3 and 4, as this is the primary area of conservation and habitat significance and where the potential for the greatest environmental impacts have the potential to experienced, either directly or indirectly. Taylorville and Calperum Stations, forming part of the Riverland Biosphere Reserve, are privately managed for scientific and conservation purposes, and from which any impacts on sensitive habitat will need to be carefully managed.

The transmission route traverses the southern boundary of Taylorville Station, utilizing an existing transmission easement and/or boundary track. The route continues along the boundary of Calperum and Hawk's Nest Stations, and the Cooltong Conservation Park. The development utilises areas that have already been disturbed, such as existing access tracks, transmission or fence lines.

Section 4 mostly follows the existing Wentworth-Renmark Road to the South Australia-New South Wales border, through Calperum Station and the Chowilla Game Reserve, but north and west of the

Riverland Ramsar Wetland. The alignment diverts from Wentworth-Renmark Road to avoid the potential for cultural heritage impacts and a DEW revegetation trial area.

Taylorville Station and Calperum Stations have Vegetation Heritage Agreements in place which will need to be varied should the proposal be approved in order to utilise land for the proposed transmission line (i.e. exclude those areas impacted by the development and where clearance of vegetation will be required).

The EIS notes the importance of tourism-based land uses centred on the River Murray and environs, including existing conservation areas and game reserves. These remain popular with visitors and tourists and are central to the identity of the Riverland. The area supports a range of tourist destination and recreational activities, and underpins local economies, both for local tourism and accommodation offerings, and local businesses that rely on these more generally.

The development will support the construction of new renewable energy projects, a number of which have been approved at the state level, such as large scale wind and solar projects between Morgan, Robertstown and Burra. The land use zoning for these projects (i.e Rural Zone) is already supportive, located on modified or cleared land utilised for primary production purposes. Whilst not all projects will be developed, all can readily connect into the proposed transmission line.

Two operating airfields are located close to the transmission route, but at 7 kilometres (Renmark Aerodrome) and 13 kilometres (Waikerie Aerodrome) respectively, their operations will be unaffected by the development. Two unregistered, private airstrips are located within 5 kilometres of the transmission line corridor: one north of the White Dam Conservation Park, and one on Sugarwood Station, south of Taylorville Station and west of Hawks Nest Station. Another unregistered airstrip is located approximately 4 kilometres north-east of Morgan, south of the transmission line corridor, in the vicinity of proposed construction laydown areas.

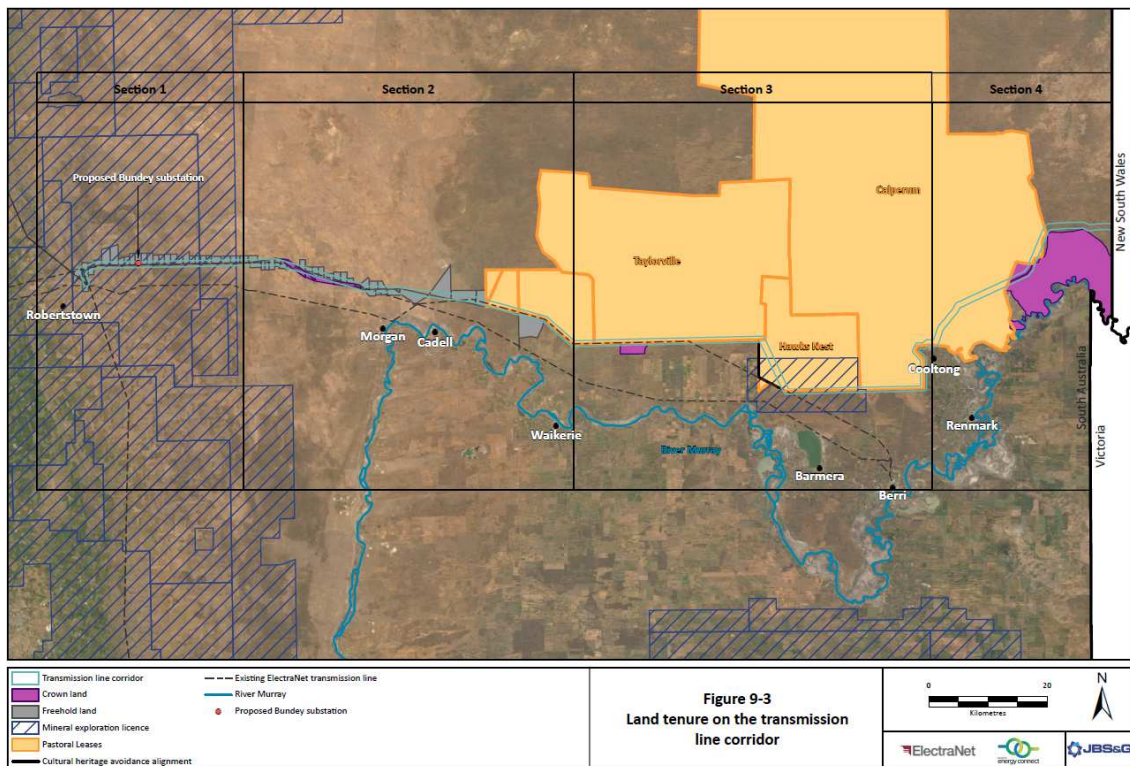
No existing mining operations are directly affected by the proposal; however, exploration leases and licences have been granted on land to be utilised by the transmission route. ElectraNet will contact each Exploration Licence holder prior to construction of the development. DEM has reviewed the location of each lease holder and raised no objection to the proposal.

## 8.2 Land Tenure

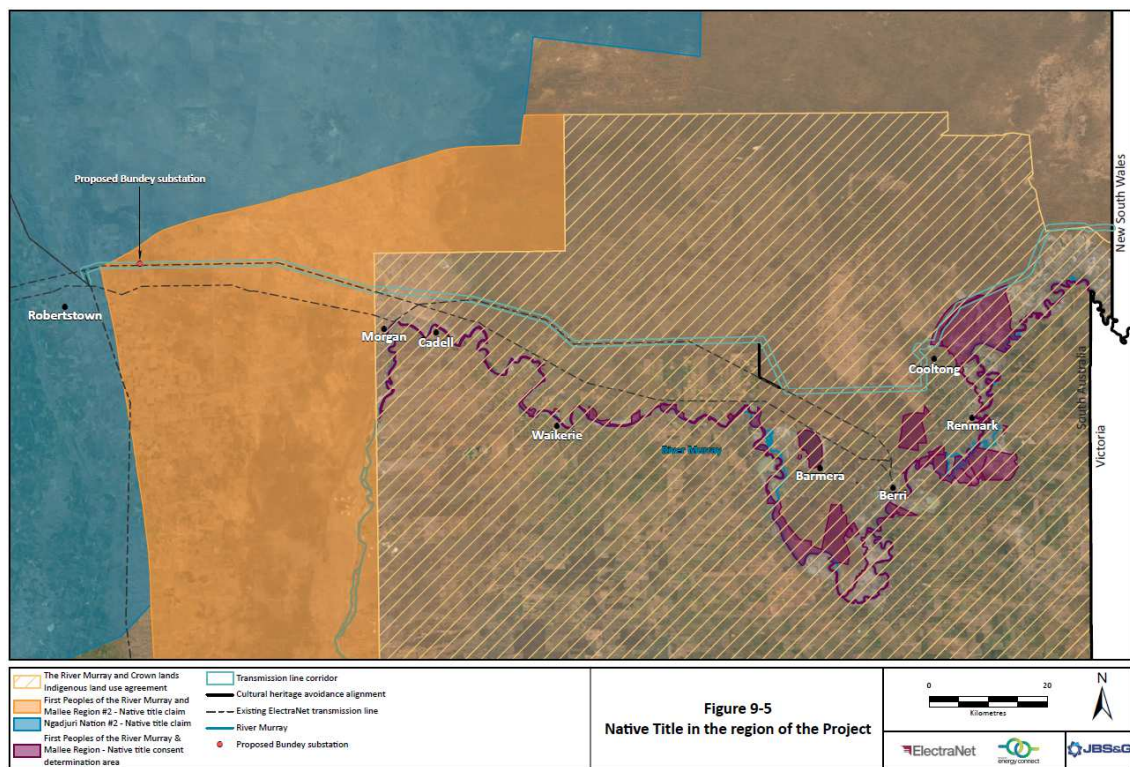
The majority of the land parcels within the transmission corridor are held in freehold title, with fifty nine individual land parcels owned by twenty one individual land owners. The remaining land is retained in pastoral leases and crown records (managed for conservation purposes), the former characterized by Taylorville, Calperum and Hawks Nest Stations, and the latter, land owned and managed by the Crown (state agencies), being the White Dam Conservation, Chowilla Game and Recreation Reserves and Chaffey Irrigation area.

Four separate Native Title areas are also within the project area, however where the transmission line is located within existing road reserves or on portions of freehold land, native title rights and interests have already been extinguished under Commonwealth law. Where current native title determinations may apply, is within those areas of pastoral leases and Crown land, but as the development is one that will provide future facilities for the public, the construction of the line is a valid 'future act' under the *Native Title Act 1993*, and a separate native title agreement or Indigenous Land Use Agreement (ILUA) is not required to allow the development to proceed.





**Figure 10:** Land Tenure on the Transmission Line Corridor (Reference: EIS, Chapter 9 p. 26)



**Figure 11:** Native Title in the Region of the Project (Reference: EIS, Chapter 9 p. 30)

It should be noted, however, that appropriate Aboriginal Cultural Heritage surveys have been undertaken (Refer Section 15.3), and that the project has been developed not to damage, disturb or

interfere with known or listed sites. Further negotiations will occur with each of the identified Traditional Owners to ensure appropriate agreements are in place.

### 8.3 Acquisition of transmission line easement

The transmission line is proposed to be constructed within a defined area that provides for the construction and safety clearance margin, to allow for future repairs and maintenance for the development. This easement width is typically 80m wide, and provides for permanent legal rights to and access across land that is not within the ownership of ElectraNet (and remains part of the title).

Additional areas may be required to accommodate any 'overhang' onto other adjacent properties in case of conductor blowout (and hence ability to enter this land and repair failed equipment).

In most cases, the existing use and activities being undertaken within and adjacent the corridor will be unaffected. Such activities include stock and perimeter fencing, grazing, access tracks and most forms of primary production (subject to clearance distances), but some restrictions will apply to vegetation clearance (and periodic maintenance), buildings and other structures, storage of materials and the excavation and filling of land. Given the areas involved, current land uses and relatively low-level of existing development or settlement, the impact of such restrictions will be low to negligible.

The exact location of the statutory easements, where required, will be subject to detailed design and micro-siting requirements (and would form a condition of any approval). Compensation is payable to landowners for the acquisition and use of their land for easement purposes, based on the existing value and use of the land. ElectraNet has advised that these negotiations commenced in 2019, with different legal instruments (i.e. Option vs Easement deeds, licences, etc.) and compensatory mechanisms used for freehold and leasehold landowners.

The acquisition of land for the new Bunday substation on Powerline Road is being progressed in parallel to the EIS assessment, and will comprise the purchase of an 80-hectare site from a local landowner (with the new land parcel to be created under a separate development application).

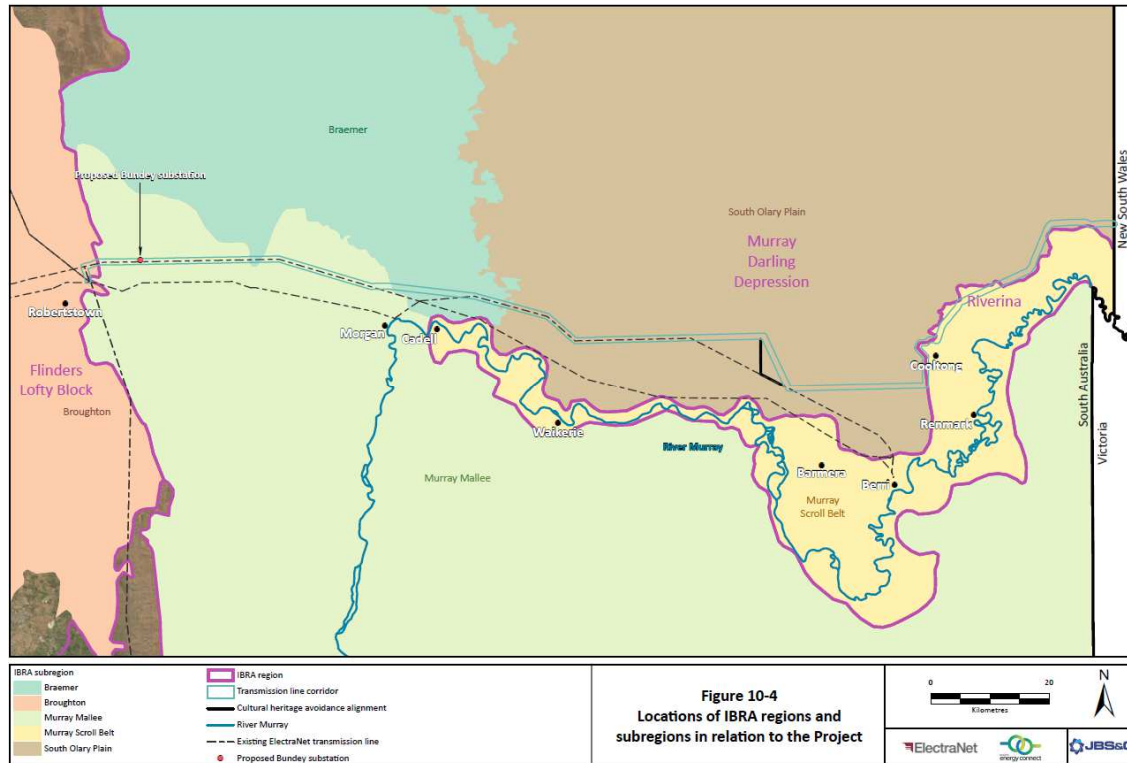
## 9. Physical Environment

The EIS provides a comprehensive review and analysis of the physical and receiving environment for the interconnector project across a 1 kilometre wide transmission line corridor via a range of investigations, based on existing scientific literature, environmental datasets and field observations over a number of years (and noting previous assessment work already undertaken for earlier projects).

### 9.1 Description of the existing environment

The transmission line route is within a temperate climate area, characterized by warm to hot summers, mild, dry winters, cool to cold nights, and lower rainfall (with periodic drought like conditions). Most rainfall occurs in winter and early spring, with higher rainfall in the west, and lower in the east.

The project area is within three recognised bioregions, the Flinders Lofty Block, the Murray-Darling Depression and the Riverina (refer EIS Section 10.3.2). The western extent of the transmission corridor comprises flat to gently undulating terrain, with a maximum elevation of 360 metres above sea level at Robertstown, progressively decreasing toward Morgan. Further eastwards, outside of the River Murray valley, the landform comprises more expansive, flatter plains with variable dune cover, with a maximum elevation of 80 metres above sea level within the corridor.



**Figure 12:** Locations of IBRA Regions and Subregions (Reference: EIS, Chapter 10 p. 15)

Vegetation coverage to the west is sparse due to previous clearance for primary production, through to Mallee heath and scrublands, and then eucalyptus woodlands with shrubby understorey to the South Australia-New South Wales border. Likely impacts to these environments are outlined in Section 15.2.

Soil types range from hard setting loams in the west to cracking clays and brown sands in the east. Water erosion potential is considered to be low due to the nature of the existing soils, protective coverage, rainfall and inherent land slope. Wind erosion will need to be carefully managed due to nature of the prevailing winds and soil profile in some locations.

## 9.2 Watercourses

Due to the semi-arid nature of the environment, relatively flat terrain and sandy soils only a small number of ephemeral creeks and other watercourses are crossed by the transmission line route. These are the Burra Creek (7 kilometres north of Morgan) and Emu Gully (3 kilometres north of Cadell).

The transmission line route is located to the north of the River Murray. The transmission route is within its wider catchment, albeit between 5 kilometres and 15 kilometres from its source, whilst its eastern extent is within the River Murray flood plain area as defined by the *River Murray Act 2003* (and its wetlands listed under the Ramsar Convention as a wetland of international importance).

The route largely avoids the floodplain areas, or least those areas that are more susceptible to periodic inundation (as flood events are typically rare), being located to the north of the floodplain and Ramsar wetland boundary. Three areas (of approximately 170m, 480m and 1.3 kilometres respectively) are traversed that were previously flooded in 1956, and could be flooded again in extreme events, whilst



a further 12.2 kilometres of the proposed alignment is within 1 kilometre of various lakes and swamps that are regularly inundated in 1 in 10 year intervals.

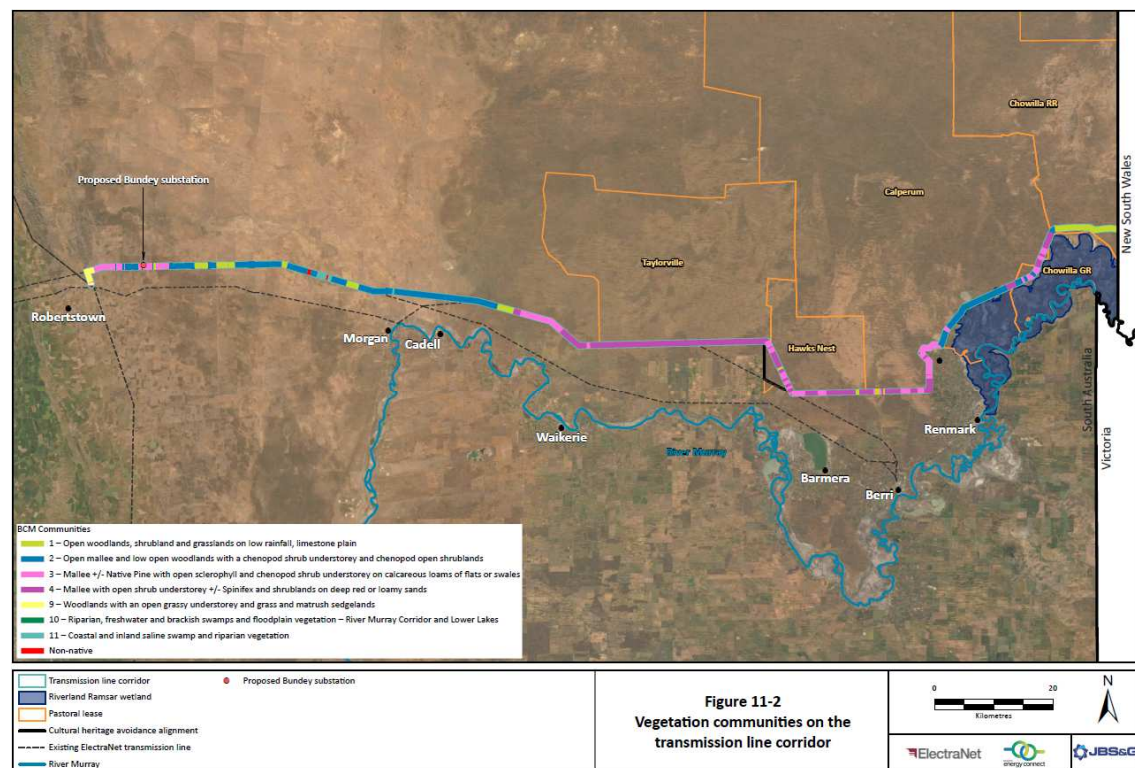
### 9.3 Bioregion

The proposal is predominantly within the Murray-Darling Bioregion (as defined by the Interim Biogeographic Regionalisation for Australia - IBRA), which is characterised by extensive gently undulating sand and clay plains, frequently overlain by aeolian dunes, with vegetation consisting of semiarid woodlands (Black Oak/Belah, Bullock Bush/Rosewood and *Acacia* spp.), mallee shrublands and heathlands and savanna woodlands. There is a high level of native vegetation remnancy, with habitat fragmentation and degradation (including edge effects, fire, weed and pests and genetic isolation) recognised as the key threatening processes for native flora and fauna. The large blocks of remnant vegetation within the region provide important strongholds for not only nationally and State-listed species, but also for regionally threatened and common fauna.

### 9.4 Native Vegetation

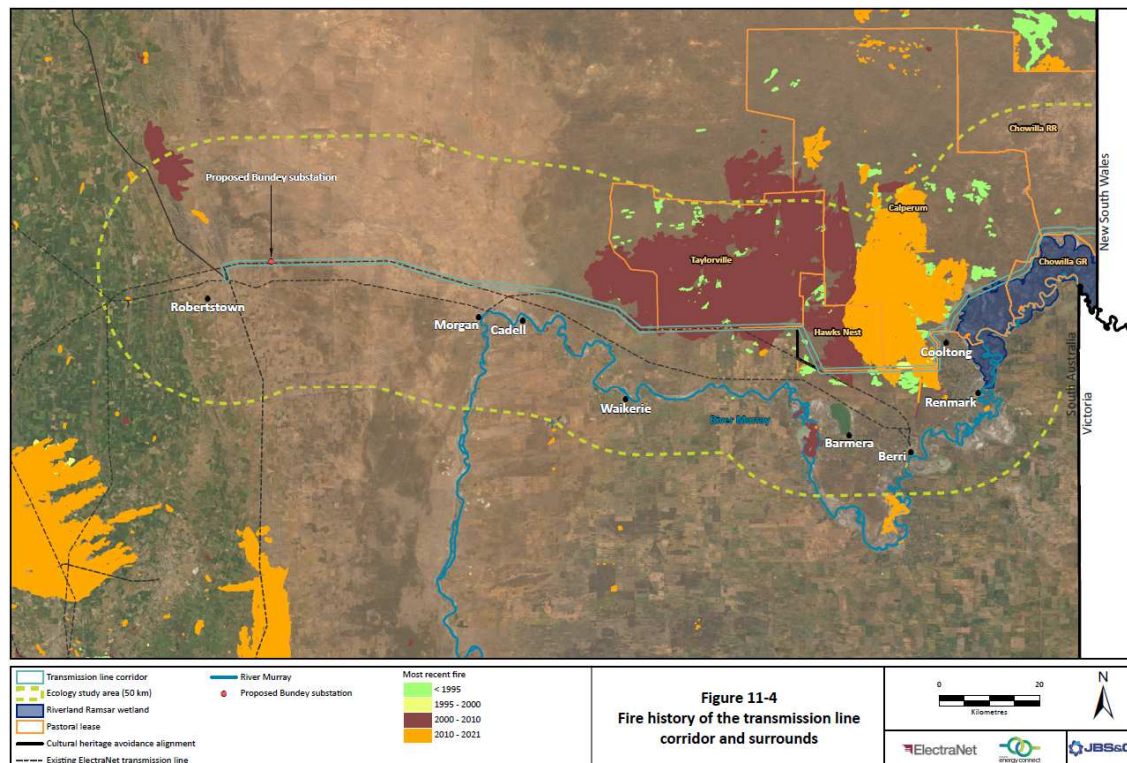
The EIS (Section 11.3.2 and Appendix I-2) provides a detailed description of the type and condition of vegetation associations and sub-groups along the route, based on the NVC regional benchmarking of Bushland Condition Monitoring (BCM) Vegetation Communities and Associations.

Broadly, the native vegetation along the transmission line corridor is predominantly comprised of various densities and compositions of Mallee, Chenopod shrublands (Saltbush and/or Bluebush) and Black Oak Woodland (*Casuarina pauper*).



**Figure 13:** Vegetation Communities on the Transmission Line Corridor (Reference: EIS, Chapter 11 p 22)

The western half of the corridor largely traverses cleared or semi-cleared paddocks or grazed low open chenopod shrubland or Black Oak and/or False Sandalwood Open Woodland that transitions into old growth and regrowth Mallee communities. Prolonged drought combined with ongoing grazing have resulted in reduced plant species diversity and abundance. The eastern half of the corridor largely traverses low dune country where historic fires and clearance have influenced the age and current ecological value of the extensive remnant Mallee communities. The highest vegetation condition scores were recorded for the extensive tracts of Mallee in the central part of the corridor, which occur in protected areas such as conservation reserves or heritage agreement areas, and where domestic stock grazing is excluded. Overall, around 30% of the transmission line corridor has a high condition rating, with 34% rated medium and 30% low. Fire history mapping from 1972-2014 shows that most of the Mallee communities have been affected by fire at some time, with high levels of recovery.

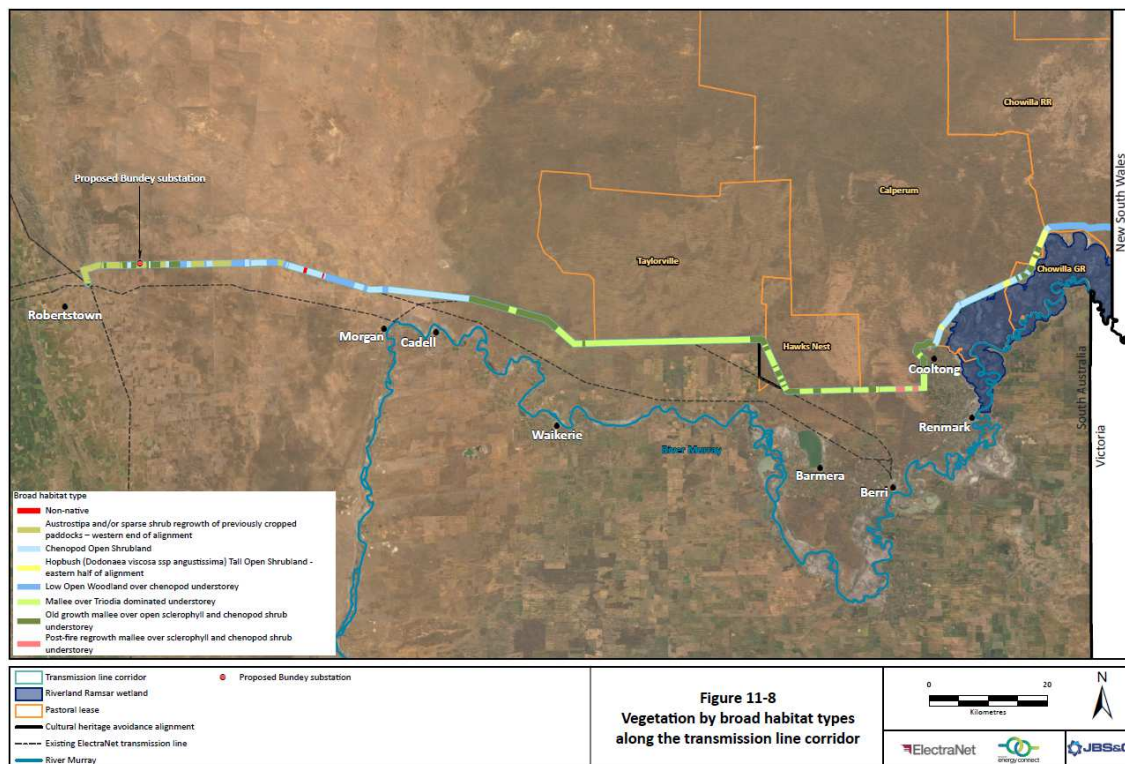


**Figure 14:** Fire History of the Transmission Line Corridor and Surrounds (Reference: EIS, Chapter 11 p 28)

Surveys identified over 130 flora species within the transmission line corridor, including 22 exotic species of which three are declared weeds. One EPBC listed species was recorded at the Robertstown end of the corridor, the Peep-Hill Hopbush (*Dodonaea subglandulifera*), which also has State and regional ratings. Two other species, the Silver Daisy Bush (*Olearia pannosa* subsp. *Pannosa*) and the Yellow-Swainson Pea (*Swainsona pyrophila*) were not recorded but are likely to occur at the western end of the corridor. One State listed species was recorded at the western end – the Creeping Boobialla (*Myoporum parvifolium*). There were 86 species with regional ratings recorded (refer the EIS: Appendices I-1 & I-2). There were no EPBC listed threatened ecological communities or State listed threatened ecosystems recorded.

## 9.5 Native Fauna

The EIS (Section 11.3.6) identified that remnant vegetation and wetland areas in the region (particularly land managed for conservation purposes) provide habitat for common and threatened fauna, with key habitats including old growth Mallee and intact Mallee habitats, located predominantly along the central and eastern parts of the transmission line corridor. These habitats take many years to develop to a point where Mallee trees support hollows and deep litter cover, and are characterised by a mosaic of fire history. Importantly, EPBC listed Critical Habitat for the Black-eared Miner (*Manorina melanotis*) is located within the Riverland Biosphere Reserve, within Taylorville and Calperum Stations. The transmission line corridor traverses the southern margin of this area. The wetlands of the Riverland Ramsar site are located to the south of the eastern end of the corridor (i.e. south of the Wentworth-Renmark Road), which are known to support large numbers of waterbirds, including migratory species protected under the EPBC Act.



**Figure 15:** Vegetation by Broad Habitat Types along the Transmission Line Corridor (Reference: EIS, Chapter 11 p 240)

For threatened fauna listed under the South Australian *National parks and Wildlife Act 1972*, surveys identified eight (8) species that are likely to occur within the transmission line corridor and 20 species that may possibly occur.

The Riverland Ramsar site contains riverine, wetland and floodplain habitat that supports a range of common waterbirds (ducks, swans, grebes, cormorants, pelicans, egrets and herons, ibis and spoonbills, crakes, rails and waterhens) as well as migratory and resident shorebirds, and raptors. Wetlands can support significant numbers of waterbird species (primarily common species), depending on seasonal conditions or management conditions that alter the hydrological regime (e.g. wet and dry cycles) of the wetland resulting in preferable conditions.



## 10. Public Consultation

A total of four (4) public submissions were received during the six-week consultation period. The key matters raised have been considered against the assessment guidelines in Appendix B and are summarised as follows:

- Land Use Constraints: Proximity of the transmission line to a proposed eco-tourism venture and existing Air Landing Area (ALA) on Sugarwood Station, and impact on aircraft safety of powerlines being located along its northern and eastern boundaries.
- Environmental: direct impacts on flora and fauna, particularly bird strike and risk of fire during operation, weed management post-construction and loss of sensitive Mallee habitat.
- Riverland RAMSAR site: the importance of Woolpolool and Merreti Lakes have not been adequately considered, based on their regular receipt of water and attractiveness to waterbirds and migratory species which will be impacted by the close proximity of the line.
- Project Impacts: Failure to address project life impacts on MNES matters, particularly bushfire risk to the critical habitat of the Black-eared Miner and habitat of other threatened Mallee birds. This is considered an unacceptable risk by the Australian Landscape Trust.
- Construction: requiring the use of aerial installation and stringing for the areas of Black-eared Miner critical habitat being affected.
- Project decommissioning: No information has been provided on potential future impacts if the infrastructure requires removal or upgrading.
- Adequacy of EIS Documentation: discrepancies and inconsistencies of the EIS in its assessment of the level of vegetation clearance, especially of the critical habitat of the Black-eared Miner, and the proportion of this that the EIS considers as temporary (which includes the removal of larger trees within the corridor, and ongoing asset protection zones).
- Management Plans: comprehensive plans required to manage disturbance and rehabilitation phases, particularly those areas temporarily affected, and the provision of dedicated equipment and appropriate training of staff and contractors to respond to fire events. Vegetation disturbance should be minimised wherever possible.
- Route Selection: Consideration of more direct routes via Tailem Bend/Red Hill, and relocating the proposed transmission line to the south to avoid vegetation communities (primarily the Mallee) that are highly flammable and have significant environmental value.
- Market competition: Larger batteries established interstate could undercut/reduce reliance on South Australian generated power without additional (local) storage facilities being developed.
- Consumer benefits: Clarification on nature and timing of savings to South Australian households, and role of the Australian Energy Market Operator (AEMO).
- Additional mitigation measures: restriction of public access to new tracks during construction and operation through the use of locked gates and heavy gauge fencing to limit potential disturbance, ignition and erosion issues from recreational vehicles.

In regards to key stakeholder submissions the following is noted:

- The submission from BirdLife Australia noted that changes to the Project's design (in particular, the final route alignment) are likely to reduce the risk of the Proposal having a significant impact on critical habitat for threatened mallee birds, but areas of environmental concern remain.
- The submission of the Australian Landscape Trust concluded that further shifting the proposed route to the south of Calperum and Taylorville Stations would dramatically reduce the risks to MNES while still delivering the electricity infrastructure desired by ElectraNet, and this option should be seriously considered and therefore better manage both short and long-term impacts to critical habitat.

## 11. Agency Advice

Nine state agencies were consulted on the draft EIS. The key matters raised have been considered against the assessment guidelines in Appendix B, however can be summarised as follows:

- **Aboriginal Affairs and Reconciliation (DPC-AAR)** notes that the central archives of Aboriginal heritage contain a number of records for Aboriginal sites within the Project area, being for a 500 metre wide transmission corridor as of November 2020. In addition, the project includes other elements, both temporary and permanent, such as substations and laydown areas. A number of Aboriginal sites recorded on the central archives intersect these other Project areas.

DPC-AAR acknowledges the consultation and heritage survey work undertaken to date by ElectraNet across the entire project alignment. DPC-AAR strongly recommends that ElectraNet request further searches of the central archives for the final proposed alignment and all possible project areas (including access tracks) before settling its construction plans.

DPC-AAR acknowledges the measures outlined by ElectraNet to avoid any impacts to known Aboriginal heritage during the project. The measures appear reasonable and comprehensive and should result in the project having minimal impacts to Aboriginal Heritage.

DPC-AAR notes ElectraNet's intention to enter into Aboriginal heritage agreements with the River Murray and Mallee Aboriginal Corporation RNTBC and Ngadjuri Nation Aboriginal Corporation, which should further assist to protect Aboriginal sites and heritage values. The EIS acknowledges that undiscovered and unrecorded Aboriginal sites, objects and ancestral remains (heritage) may exist within the Project area, even where previously surveyed or disturbed by past activities, and given the high likelihood of further discoveries of unrecorded Aboriginal heritage, will need to comply with current legislative requirements under the *Aboriginal Heritage Act 1988* (South Australia).

If the project is approved, legislative awareness sessions for ElectraNet employees and contractors should be undertaken to appropriately manage heritage risks and minimise potential impacts during construction.

- **Department for Environment and Water (DEW)** has advised that the EIS has mitigated concerns relating to impacts to high quality native vegetation and habitat for Black-eared Miner and other Threatened Mallee Birds via shifting the route further south at Hawk Nest



Station. However, further consideration needs to be given to potential bird strike related deaths, particularly for Regent Parrots which forage within the zone and cross the transmission line route. If approved, specific target monitoring should be undertaken along the route in the first few years of operation to ensure bird strike is minimised and responded to (i.e. specific canopy trimming or installation of bird diverters where necessary).

DEW has also recommended that more detail be added regarding the restoration of temporary clearance sites and strategies to foster natural restoration. Returning topsoil and vegetation was noted, but further detail should be provided – including opportunities to experiment with different treatments and techniques to enhance restoration knowledge.

The proposal impacts on Crown land, and also land proclaimed under the *National Parks and Wildlife Act 1972*, such that the proponent will need to secure tenure and access rights to this land if an authorisation were to be granted by the Minister. Further discussions should be held with the Crown Lands Program to ensure the proposal can be assessed, and the necessary legislative and statutory timeframes can be met.

- **Department for Infrastructure and Transport (DIT)** raised no specific concerns with the project, however noted that some arterial road upgrades (to intersection treatments on Goyder and World's End Highways), monitoring strategies and management measures will be required to complement the Pavement Monitoring & Management Plan (supplied by the proponent). This includes various junction apron sealings and warning signage installation during the construction phase, and site specific traffic management plans and infrastructure agreements to the satisfaction of DIT if the project was to be granted a development authorisation.
- **Environment Protection Authority (EPA)** advised that due to the proposed transmission line route avoiding more densely settled areas and not requiring a crossing of the River Murray, should not conflict with the objectives of the *Environment Protection Act 1993*.

Several matters were raised in relation to the construction phase of the project, but are considered manageable, and subject to any approval, appropriate conditions (e.g. Construction Environmental Management and Monitoring Plans) and the licensing of some activities by the EPA. In addition, the EPA identified a number of corrections that need to be made to the EIS and identified a range of activities associated with construction of the project that are likely to require a licence to operate under the EP Act.

Several areas of clarification were noted, including the extent of any earthworks during construction that may intercept groundwater (i.e. dewatering), the volume of fuel and chemicals stored within compounds and laydown areas, visual dust monitoring measures and weather forecasts, separation distances to social receivers, helicopter operations and landing pads, management of waste water and corona discharge levels (i.e. audible noise above background levels).

- **Native Vegetation Council (NVC)** notes that the proposed interconnector traverses a large and important expanse of remnant Mallee vegetation, including significant areas that are protected for conservation in either Heritage Agreements under the *Native Vegetation Act 1991* or Reserves under *National Parks and Wildlife Act 1972*. However, noting the measures to minimise clearance impacts (i.e. route selection and use of existing routes and tracks), the NVC does not object to the proposal.

However there are a range of actions that should be undertaken to ensure that clearance is minimised to the greatest possible extent through detailed design, construction and subsequent monitoring and maintenance phases. If approved, the NVC has suggested a number of conditions in relation to clearance extents, avoidance measures, construction practices, weed controls, rehabilitation strategies and contractor obligations.

No clearance can occur until the NVC has approved a Significant Environmental Benefit (SEB) offset for the proposed clearance, and that within the area of an existing Heritage Agreement, no clearance can occur until this agreement has been varied to exclude the area of proposed impact.

- **Murraylands and Riverland Landscape Board (MRLB)** noted that the project traverses sensitive habitats that are of concern to the Board. Although the EIS has identified that a relatively small area will be cleared as a percentage of the total area of disturbance, the fragility of this habitat means that any change in use or decline of habitat condition can have serious consequences for nationally threatened species, habitats and ecological communities. Furthermore, the lack of certainty around the actual extent of clearance, the actual tower locations and which construction method will be used, increases uncertainty and makes the assessment of impacts complex. Further discussions with the MRLB is recommended to mitigate impacts.

The Interconnector project footprint overlaps with a number of the landscape board's major projects, including Living Landscapes (returning functionality to the South Olary Plains), Regent Parrot Recovery project and the Threatened Mallee Birds project. A number of these projects operate in partnership with key stakeholders, of which one is the Australian Landscape Trust (ALT) who own and manage Calperum Station and neighbouring Taylorville Station north of Renmark. The Interconnector project has the potential to threaten the success of these projects, which are both federally and state funded.

Further work on fauna assessments is recommended, with particular reference to the southern bell frog, carpet python, lace monitor, pygmy bluetongue, south-eastern long-eared bat, little pied bat, Black-eared Miner, Red-lored Whistler, regent parrot, hooded plover and Malleefowl. In respect to plant species, and if the development is approved, careful inspections should be undertaken before any construction work or clearance to identify plants so that these plants can be avoided.

The loss of 413 hectares of habitat should not be considered insignificant or inconsequential, as such clearances will be significant for threatened and vulnerable species. Furthermore, if additional fire prevention (clearance) work needs to be undertaken to protect critical infrastructure, this may create additional impacts over the long term. Maintaining low fuel loads close to the power line may require frequent burning or clearance, and the nature of prescribed burning will likely require a much larger area to be regularly burnt to maintain this low fuel load. Conversely, the risk of fire reaching the power lines may make land managers reluctant to undertake prescribed burns required to ensure good quality threatened Mallee bird habitat is maintained in the wider area.

Measures to mitigate or manage environmental impacts – such as through a use of helicopters in more sensitive and difficult to access areas – is strongly encouraged, as are other measures to minimise vegetation clearance and ensure disturbed areas are rehabilitated, including reducing the spread of pest plants and weeds. No significant surface or groundwater impacts were identified, as the development footprint is outside of the River Murray Prescribed

Watercourse Area (PWA) and River Murray floodplain. The project must still comply with relevant state guidelines and permitting requirements.

- **Primary Industries and Regions SA (PIRSA)** has raised no objections to the proposal, but subject to the final route alignment, further discussions will be required with the Minister for Primary Industries and Regional Development and the Pastoral Board of South Australia (if the route proceeds over pastoral leases). Construction licences and easements would need to be formalised, subject to agreements under the *Crown Land Management Act 2009* and *Pastoral Land Management and Conservation Act 1989*, along with a change of purpose approval under the *Pastoral Land Management and Conservation Act 1989*.

Biosecurity SA has advised that the management of weeds and pest animals will need to be carefully considered, to prevent the introduction of new weeds from outside South Australia, restrict the spread of existing weeds along the interconnector alignment, and not disrupt the existing pest control actions on the land of the alignment. These risks may arise during enabling works, site establishment, construction of the transmission line and Bunday substation, and to a lesser extent during subsequent operation of the interconnector.

If approval is granted, effective management plans should be developed and incorporated into any development authorisation that provides up-to-date information to contractors and ensure that appropriate mitigation measures are implemented in accordance with best environmental practices and that necessary hygiene precautions are followed during enabling works, site establishment, construction and operation phases.

- **Department for Energy and Mining (DEM)** has raised no objection to the proposal, as the development is expected to result in only very minor changes to mining and petroleum tenement holder access. Six additional tenement holders were identified during a review of the EIS, with these details provided to the proponent for their further consideration.
- **South Australian Country Fire Service (SACFA)** has raised no objection to the proposal, however the project will need to ensure that access points are clearly marked and can accommodate CFS vehicles, there is SACFS input into the preparation of a Construction & Operational Management Plans, onsite firefighting water supply and equipment is available during construction, details of vegetation management around the proposed transmission line and associated infrastructure are confirmed and that the proposed transmission lines and associated infrastructure will not impact SACFS aerial firefighting aircraft.

## 12. Council Comments

Five (5) local Councils were consulted on the draft EIS, and the key matters raised are summarised as follows:

- **Mid Murray Council** is generally supportive of the project, with the majority of the line (in the council area) within a Rural Zone, and utilises existing transmission line corridors to minimise the impacts of the development. These areas have a very low population density and have historically been used for dryland grazing and farming on large land holdings, resulting in very little remnant vegetation that will be impacted by this development. The proposed development will have little to no impact on the visual amenity of the Goyder Highway and other public roads in the area. However, the Council noted that there are two points at which the development crosses over a Conservation Zone, all of which is in the White Dam Conservation Park.

Overall, the proposed development is a key infrastructure project that will benefit the State and will assist in improving power supply and security. The communities of Morgan and Cadell can expect benefits in additional business for local suppliers, contractors and services.

- **Renmark Paringa Council** is generally supportive of the project aims but raises concerns in respect to the visual impact of transmission lines along Wentworth Road and the erosion of scenic and landscape character, particularly from the Headings Cliff Lookout at Murtho. The placement of the substation at Bunday (in the western project areas) is also of concern, particularly if Riverland based renewable energy projects cannot easily connect to the main line. Project maintenance and upgrade requirements relating to Wentworth Road were also recommended for additional funding, whilst specific investment opportunities within the Renmark Paringa Council (related to the project) are still to be confirmed, such that direct project benefits to the community remain to be realised.
- **Berri Barmera Council** has no formal comment to make on the proposal.

No comments were received from the Loxton Waikerie Council or Goyder Regional Council within the public notification period.

### 13. Response Document and Additional Information

On 1 November 2021, ElectraNet provided a formal Response Document that addressed the matters raised in the public submissions, agency advice and council comments. The Response Document noted the number of submissions received and issues raised, including a summary of community engagement to date. No change was made to the route previously outlined in the EIS and notified by AGD-PLUS, although some minor changes were identified to minimise clearance requirements (as matters of detailed design). The main points to be noted from the Response document are outlined below:

#### 13.1 Construction

- Stringing of cables by helicopter remains an option along the entire alignment. All helicopter landing facilities will be temporary and rehabilitated post-construction.
- Aerial installation of towers by helicopter is not proposed due to the high risk nature of this activity.
- Accommodation sites for workers include a temporary camp at 23 Centenary Road, Morgan to service the western end of the alignment, whilst at the eastern end, accommodation will be sourced in Renmark.
- Ten laydown areas have been identified to be used on a temporary basis during construction works, and will also be rehabilitated post-construction.
- A single mobile batching plant will be utilised for the overall project, and likely to be associated with the laydown areas (and will move with the project).
- One radio repeater station will be required near Chowilla (and include the construction of a 50m tower and ancillary equipment).
- The design life of the asset is 100 years.

#### 13.2 Flora and Fauna

- The estimate of vegetation clearance required (413 hectares) remains unchanged from the EIS, although some sites may need to be re-disturbed for periodic maintenance (re-tensioning

and replacement of equipment). Total (permanent) cleared areas within the 413 hectares original total has therefore increased by 6 per cent.

- Further work is being undertaken with the contractor to minimise the extent of clearance underneath the transmission line and within the easement corridor, including for ongoing asset protection requirements.
- The estimated clearance of exiting listed critical habitat of the back eared miner is estimated at 143 hectares out of 380,000 hectares, or just 0.04 per cent of the total area. For other species, similarly low rates of habitat impact have been estimated (i.e. 0.03 per cent for Malleefowl).
- Collision risk of the Regent Parrot is considered to be low, which given their flight characteristics and design parameters of the transmission line poses a low risk.
- Weed management and pest control remains a key construction management requirement.
- The risk to migratory bird species from collision in relation to proximate wetland areas is considered to be low, noting the distance to primary water sources (i.e., does not traverse or bisect such areas) and the mitigation measures proposed (spacing of towers, bird diverters, etc.).
- ElectraNet does not propose to maintain low fuel loads along the corridor through burning or additional clearance, nor adjacent areas. Prescribed burns may be undertaken by other land managers such as DEW/CFS.
- Cleared areas of Mallee may take 20 to 50 years to return to a mature state, such that permanent and temporary clearance requirements have been minimised.

### 13.3 Socio-Economic

- Rental and tourist accommodation will be used at the eastern end of the project area, such that existing rental and holiday accommodation will be used, which may cause a short-term reduction in the availability and affordability of these units during peak construction.
- Overall benefits to the region during construction are estimated to be \$163 million in real income, with \$82 million occurring during the construction phase and an average annual benefit of \$4 million during the operational phase.

### 13.4 Hazard Risk

- The project is located in an area of intrinsically high bushfire risk, but that the project itself (under normal operational parameters) does not increase this risk for MNES matters, whilst design and mitigation measures will assist in reducing such future residual risks.
- A detailed Bushfire Management and Emergency Response Plan will be prepared by the main contractor, this will detail the measures and actions to be taken.
- Equipment will be stationed on site to address minor fire incidents (i.e. knapsack, fire extinguishers), but the responsibility for fighting bushfires is for trained emergency service personnel.
- A lightning detection system will be used to detect and isolate faults within the transmission network. On an annual basis, 30 typical faults are detected each year, which may be attributable to lightning/storm events. All lines are constructed with earth wires to shield the line from lightning strike and minimise risk of flashovers.
- ElectraNet will comply with all CASA requirements in relation to air landing strip operations, and has resolved to find a compliant solution for Sugarwood Station, noting that two registered and two private landing strips were identified during the EIS investigations, with the latter being within 5 kilometres of the proposed route.

### 13.5 EPA Compliance

- ElectraNet will meet and satisfy all relevant EPA requirements and guidelines in relation to fuel and chemical storage; waste management; site contamination; and waste still, air and water quality requirements during construction and/or operation. These matters will be addressed in the CEMP and OEMP as required.

### 13.6 Feedback from State Agencies

- AARD, DEM, EPA and PIRSA raised no concerns with the Response Document.
- DEW noted the outstanding issue for native vegetation relating to the restoration of temporary clearance. Whilst not addressed in any great detail in the Response Document, this can be addressed in the Significant Environmental Benefit (SEB) application to the Native Vegetation Council (NVC).

### 13.7 Summary

The response document is considered to have adequately addressed the issues raised by public, agency and council submissions received during the notification period.

## 14. Assessment of Key Issues

### 14.1 Need for the Proposal

#### 14.1.1 Background

Project Energy Connect has identified three key reasons for the development:

1. Respond to and support the changing nature of electricity generation in Australia.
2. Integrate with and further augment the National Electricity Market (NEM).
3. Provide enhanced security, reliability and affordability of electricity services and supply to South Australian consumers and businesses.

The NEM currently operates in New South Wales, the Australian Capital Territory, Queensland, South Australia, Victoria and Tasmania, as a market where generators are paid for the electricity they produce and retailers pay for the electricity their customers consume.

The electricity market works as a 'spot' market, where power supply and demand is matched instantaneously. This process is managed by the Australian Energy Market Operator (AEMO), which is charged with managing existing supplies and planning for future needs. The Australian Energy Market Commission (AEMC) establishes the market rules, and provides independent advice.

Each state's electricity market (under the NEM) allows previously standalone electricity networks to be integrated, allowing for the sale or purchase of electricity generated at different times and places at a price determined by the supply and demand dynamics of a regulated marketplace.

Interconnection allows a more effective and efficient marketplace, with multiple generation sources, increasing price competition and driving down the wholesale price of electricity, but also supporting lower generation or availability in those states experiencing high demand/low supply situations (i.e. due to weather, equipment servicing or shutdown).

A number of interconnectors are in operation between and to the eastern states, from Queensland to New South Wales (1), South Australia to Victoria (2), New South Wales to Victoria (5), and Victoria to Tasmania (1).

The Australian energy market has changed significantly in the last two decades, particularly with relation to generation sources in South Australia, with the closure of the Northern (coal-fired) power stations at Port Augusta, the construction of large windfarms, commercial scale solar farms and household solar systems, supported by gas fired base-load and peaking power stations.

Coupled with dispersed generation sources and larger-scale battery systems at Hornesdale and Torrens Island, the nature and mix of energy generation has changed irrevocably. In South Australia, the transition to a less carbon intensive energy system is well underway, whilst in the eastern states, with a greater reliance on coal-fired power, this process is less-well advanced but is forecast to proceed at a faster pace and scale with 38,000MW of generation to be retired over the next 20 years).

To support the shift to renewable sources, new investments will be required in transmission and energy storage infrastructure to manage the diversity and intermittency of these generation systems, which are more geographically dispersed (due to various locational requirements and site constraints). In South Australia, 53 per cent of current electricity generation is derived from wind and solar sources

which is the highest of any state, with new wind and/or solar projects coming on line at Lincoln Gap and Port Augusta, and many others approved but not constructed across the state (amounting to a further 2500MW). For existing gas-fired generation, new investments in equipment and technology are being made to balance the natural variability of renewable energy production with quick-response turbines and/or battery storage.

The Finkel Review (2017) identified the need to enhance the national electricity market through new investments guided by long-term, integrated systems planning undertaken by national regulatory agencies. This would allow increasingly diverse sources of supply (that are mostly renewable generation) to meet future demand through a more interconnected grid, which places a strong emphasis on transmission networks within and between states that form the NEM. In this light, AEMO's first Integrated System Plan (ISP) in 2018 recommended the development of a South Australia–New South Wales Interconnector, as this would allow up to 750MW to be transferred between South Australia and New South Wales, and unlock new renewables development within both states.

Whilst Renewable Energy Zones (REZ) are not recognised by the South Australian Planning system, they are used as a network planning tool to identify potential areas for the development and concentration of grid scale renewable energy projects. A Riverland REZ was identified in the 2018 ISP, which could allow for the development of up to 800MW of predominately solar projects between Morgan and Renmark. The Riverland region already has six large-scale projects approved (but not constructed) with a combined capacity of 795MW, whilst other wind energy developments recently approved in the mid-north region of the state (Goyder South Renewable Energy Project, Carmody's Hill Wind Farm, etc.), would also seek to connect to the wider network via ElectraNet's Robertstown substation. Project Energy Connect was reconfirmed as a "no regret" project in the updated 2020 AEMO ISP.

#### 14.1.2 Emissions Reduction

Electricity generation is Australia's largest source of greenhouse gas emissions, accounting for 34 per cent of annual emissions, whilst the NEM delivers around 80 per cent of electricity consumption (EIS, 2021). Further emission reductions will need to be achieved in the electricity sector to meet Australia's past and present international commitments. Project Energy Connect does not itself lower greenhouse emissions but does provide the transmission infrastructure to facilitate State and Commonwealth emission reduction policies. Firstly, in enabling additional sources of renewable energy to be developed, such as through the Renewable Energy Target (RET) and secondly to improve competition within the NEM. The SA Government's target of sourcing 100 per cent of its electricity supply from renewables by 2030 can only be achieved with transmission infrastructure that is 'fit for purpose'—in particular, the security and reliability of the State's electricity network.

#### 14.1.3 Commercial Viability

Energy supply in South Australia is currently imported and exported within the NEM through either the Heywood or Murraylink Interconnectors, and are relied upon during times of high power demand. In South Australia, this has generally meant being a net importer of electricity from the eastern states, but with the retirement of ageing coal-fired power stations, SA achieved its first energy trade surplus in 2019.

South Australia and New South Wales have natural differences in electricity demand—more so than between South Australia and Victoria—based on differing weather patterns, diversity of generation and the nature of peak demand periods during the winter months. With an over-reliance on interconnection with Victoria, the security and reliability of the network would be more efficiently



served with a New South Wales interconnection and would reduce the future risk of ‘islanding’ events (i.e. where the South Australian network is separated from the NEM, based on disruption to supplies or lack of supply via the Heywood Interconnector).

Alongside EIS process regulatory framework by AEMO, a Regulatory Investment Test for Transmission (RIT-T) was undertaken by ElectraNet to explore the technical and economic feasibility of a new interconnector, as well as alternative non-network options. Option C.3 was endorsed, being a 330kV transmission line between the Mid North in South Australia and Wagga Wagga in New South Wales, via Buronga.

Option C.3 was shown to deliver the highest net market benefits, whilst also meeting the security and reliability objectives sought by the South Australian Government. This option was further developed by ElectraNet and TransGrid, and forms the basis of the route selected.

#### 14.1.4 Regulatory Approval

Network operators can apply to the Australian Energy Regulator (AER) to recover additional revenue from consumers to construct significant infrastructure such as an interconnector. The AER is required by the National Electricity Rules to assess a contingent project application from the network business and make a decision on the efficient costs for the project.

The AER approved the SA Energy Transformation (SAET) RIT-T in January 2020, being the most robust and credible interconnection option. An updated cost benefit analysis was undertaken by ElectraNet in 2020 (consistent with the inputs and assumptions of the ISP 2020), and confirmed previous analysis and market benefits, with a Contingent Project Application (CAP) lodged with the AER.

On the 31 May 2021, the AER determined the final project costs for Project Energy Connect, which was the final regulatory (national) approval for the overall project. This decision determined that the project cost for ElectraNet was \$457.4m, and for TransGrid \$1.818 billion. The annual household electricity impact for South Australian consumers will be \$6 in 2022-23 financial year and \$17pa for the 2023-28 period.

This means that subject to any required planning and secondary approvals by State and Commonwealth governments, the Project can be funded within this determination and undertaken in accordance with national electricity market rules.

#### 14.1.5 Benefits of Project Energy Connect

Key project benefits are documented in Section 2.7 of the EIS. Broadly, interconnection will allow greater access to and market penetration of more geographically dispersed generation sources (which at present are based on renewable energy). The addition of new generation (and market participants) will increase competitiveness and place downward pressure on electricity prices, and smooth demand and supply fluctuations: supporting the overall stability and reliability of the electricity network (in conjunction with other measures already adopted at the State level).

The immediate benefits are through construction jobs (estimated to be 250 to 300 in South Australia and New South Wales), and a further 250 to 400 on going positions across both states. For consumers, average household savings will be in the order of \$50 to \$100. For the wider economy, increased competition (and their multiplier effects) should deliver significant increases in real income—\$2.4 billion in South Australia and \$4 billion in New South Wales, which will support new investments,

at local, regional and national levels. Economic and job opportunities will be created through construction and maintenance work, whilst ‘unlocking’ already approved and planned renewable energy projects in South Australia.

Economic modelling undertaken for the EIS (Chapter 2.7.3), estimates that for the 2021-40 period, the project is anticipated to increase the real economic output of South Australia by a cumulative total of \$4 billion, and increase the real value of the State by a cumulative total to \$4.4 billion, relative to the reference case in both instances. Benefits will also accrue to New South Wales, in terms of lower prices, employment, increased reliability and supporting the establishment of and connection to Renewable Energy Zones (in those western areas of New South Wales that have poor transmission capacity).

The benefits to Australia, are a further breakdown in State barriers, through electricity network interconnection, supporting the transition to renewables (and meeting lower carbon emission targets, both now and into the future), increasing market competition, providing enhanced resilience to manage unplanned events and reducing costs to consumers and businesses. South Australia is well placed to capture these benefits, due to the level of renewable energy penetration, and allow the transmission of electricity from these generation sources to New South Wales.

Similarly, there are costs to not undertaking the project, with the transition to a more competitive and sustainable electricity network compromised, resulting in negative externalities with a greater likelihood of economic costs (due to interruptions or demand fluctuations), undermining the viability of other projects to connect to the wider network and not delivering on emission reduction targets (that form part of agreed State and Commonwealth policies, including those of the energy regulator).

From an economic perspective, Project Energy Connect has been developed (from its initial feasibility studies in the mid-1990s) as the most optimal solution to ensure the continued reliability, affordability and sustainability of the electricity supply in South Australia and the NEM. Project Energy Connect will allow the efficient sharing of generation resources between regions and states, and encourage new low-cost generation alternatives at a time of transition from fossil fuels to a more variable, dispersed generation mix (which in South Australia is based around wind and solar, with quick response gas-fired plants and battery support). On this basis, the project meets the economic tests required from the EIS in response to the assessment guidelines on the demonstrable need for the project.

**The AR concludes that the economic justification for the project has been demonstrated by the proponent both through the benefits of the project to support new development, place downward pressure on wholesale electricity prices (through increased competition) and regulatory approval from the Australian Energy Regulator.**

## 14.2 Route Selection

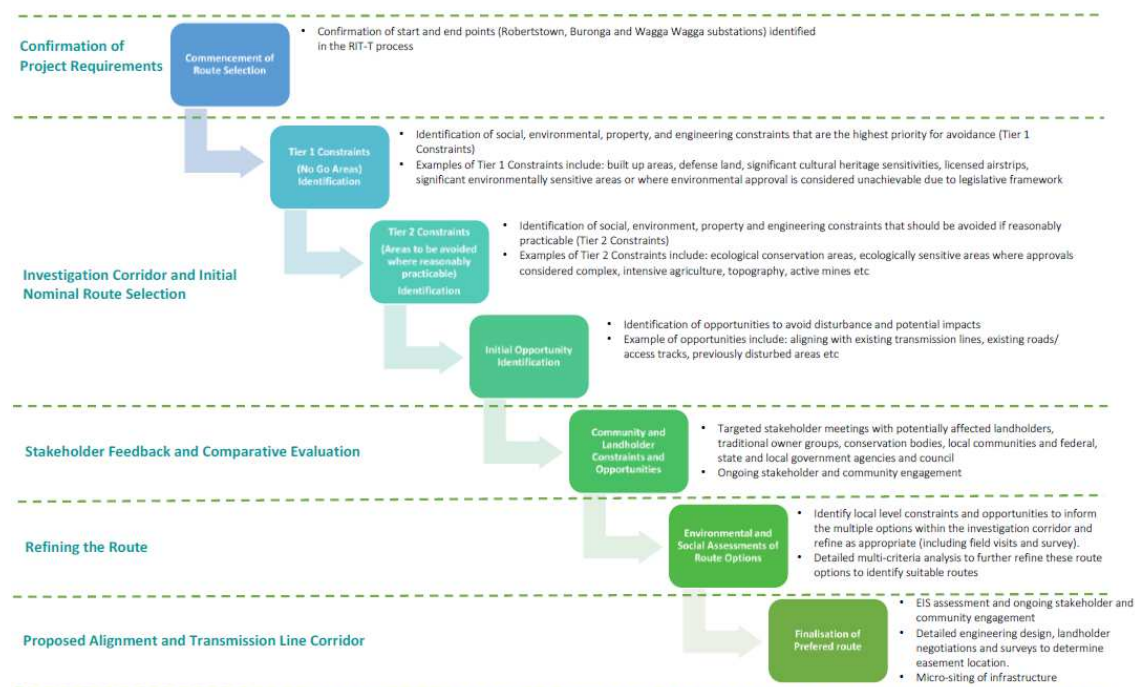
| Guideline   | Assessment Outcome   |
|---|--|
| 7. Route Selection Investigations<br>11. Alternatives | Avoidance – route selection is the result of a multi-criteria analysis to provide the least impactful solution on existing land uses and taking into account known constraints (including airports, built up areas, wetlands, sensitive land uses and receptors, native title, cultural heritage sites and reserves, native vegetation, fauna and critical habitat). |

The investigation and ultimate selection of the transmission line route has been the primary mechanism to avoid and minimise potential impacts from the construction and operation of the development (Refer to Chapter 4 of the EIS). A series of route options were considered through a

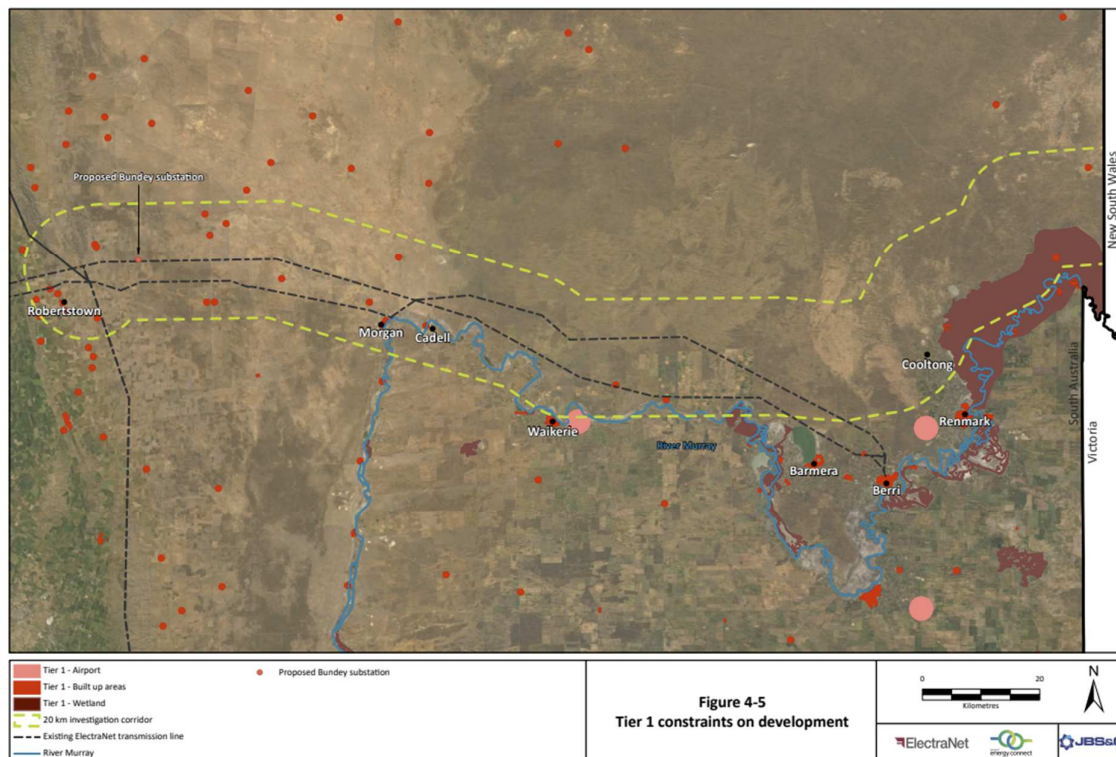
multivariate analysis (considering constraints and opportunities), which was then narrowed down to an investigation corridor (20 kilometres wide), a nominal route (or potential alignment), a transmission line corridor (1 kilometre wide) and finally the proposed alignment (presented in the EIS).

A summary of the route selection process is offered below. The methodology adopted for this project is shown in Figure 16 (refer 4-5 in the EIS).

A route selection methodology was initially developed to select a preferred investigation corridor, which involved a detailed review of existing datasets and specialist studies and on the ground surveys and further investigations. Route options were evaluated against key connection and electrical system criteria (as the project needs to be both feasible and developable), from which an investigation corridor was then developed to consider matters of environmental sensitivity, accessibility, cultural heritage, stakeholder support, existing easements, constructability and future maintenance needs.



**Figure 16: Project EnergyConnect Route Selection Methodology (Reference: EIS, Chapter 4 p 5)**



**Figure 17:** Investigation corridor and Tier 1 constraints (Reference: EIS, Chapter 4 p 10)

The development would also need to be ‘fit for purpose’, that is to facilitate future connections into the national electricity grid for existing, proposed, and future renewable energy projects, particularly those that have already been approved but not constructed between Morgan-Robertstown-Burra. Based on a range of parameters, Option 3C, a connection between Robertstown (South Australia) and Buronga (New South Wales) was the clear selection to achieve key project objectives and maximise benefits. Having established the start and end points for the project, an investigations corridor was then developed to determine a nominal route selection (based on a comprehensive and multi-disciplinary planning framework to identify and evaluate no-go areas, areas to avoid where practicable, and t areas where impacts could be minimised and managed.

Constraints were separated into Tier 1 and Tier 2 groups – the former being those assigned the highest level of avoidance (towns, airstrips, water sources, defence land, cultural sites, etc.), and the latter being those which should be avoided if practicable (being conservation parks, horticulture areas, steep topography, active mines, etc.). Further work was then undertaken to minimise potential impacts, with the focus on available easements and transmission lines, roads and access tracks, fence lines and fire breaks to leverage existing disturbance against future impacts.

This process further refined and narrowed the investigation corridor to 15 kilometres (refer to figure 17).

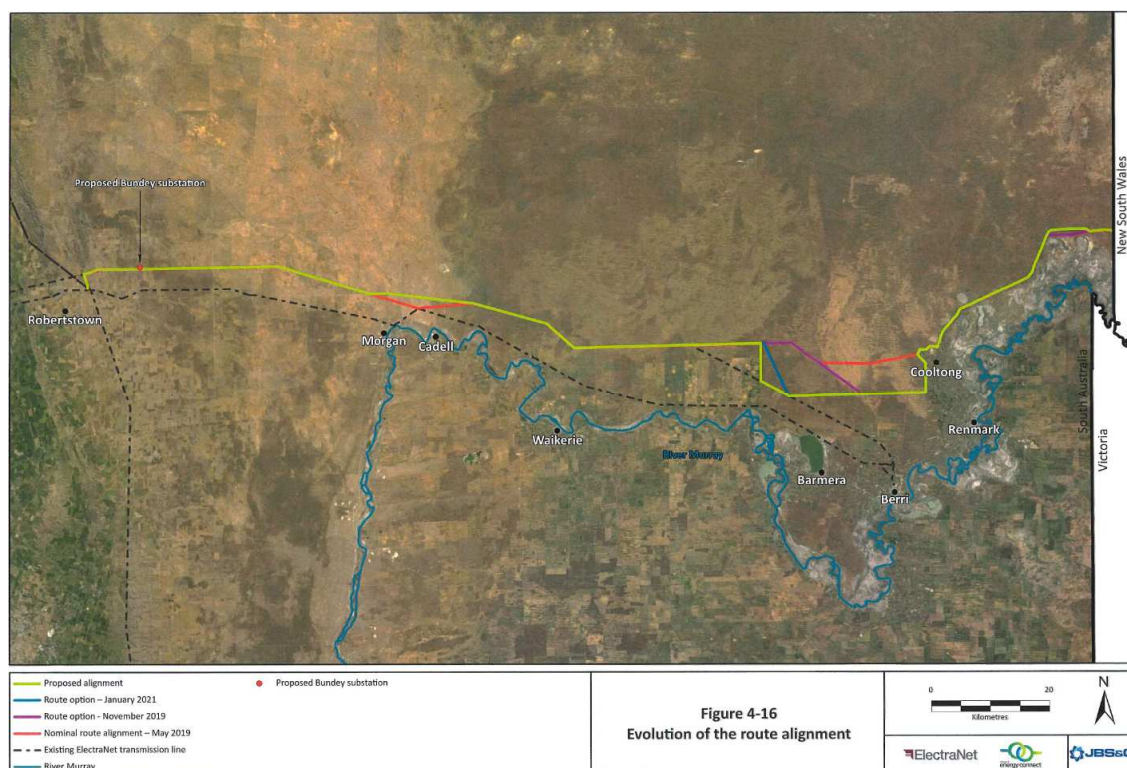
A targeted stakeholder engagement process then commenced with potentially affected landowners, Traditional Owners, state government agencies, conservation bodies and local government. These discussions helped to validate the route selection methodology, and identify other constraints and/or opportunities for further investigation – including how to minimise impacts to conservation areas located on and adjacent to the Riverland Biosphere Reserve.



Whilst consideration was given to both a northern and southern route option, being north of the Riverland Biosphere Reserve and south of the River Murray, these were discounted on the basis of additional habitat disturbance, additional cost (and length of line), and for the southern option, the need to traverse high value horticultural and more closely settled areas. Traditional Owners were also not in favour of a southern option, nor local councils or community groups (as was the case with the previous proposals in the late 1990s and 2000s).

With the investigations corridor settled, a multi-criteria analysis (MCA) was adopted to refine the final route alignment, with a number of options considered, with particular reference in how to traverse Taylorville and Calperum Stations. This included more targeted surveys to validate desktop analysis and stakeholder feedback on identified constraints and opportunities. The previous SNI investigations provided both an extensive and valuable information resource, such that there was a high level of alignment between the new and old route proposals.

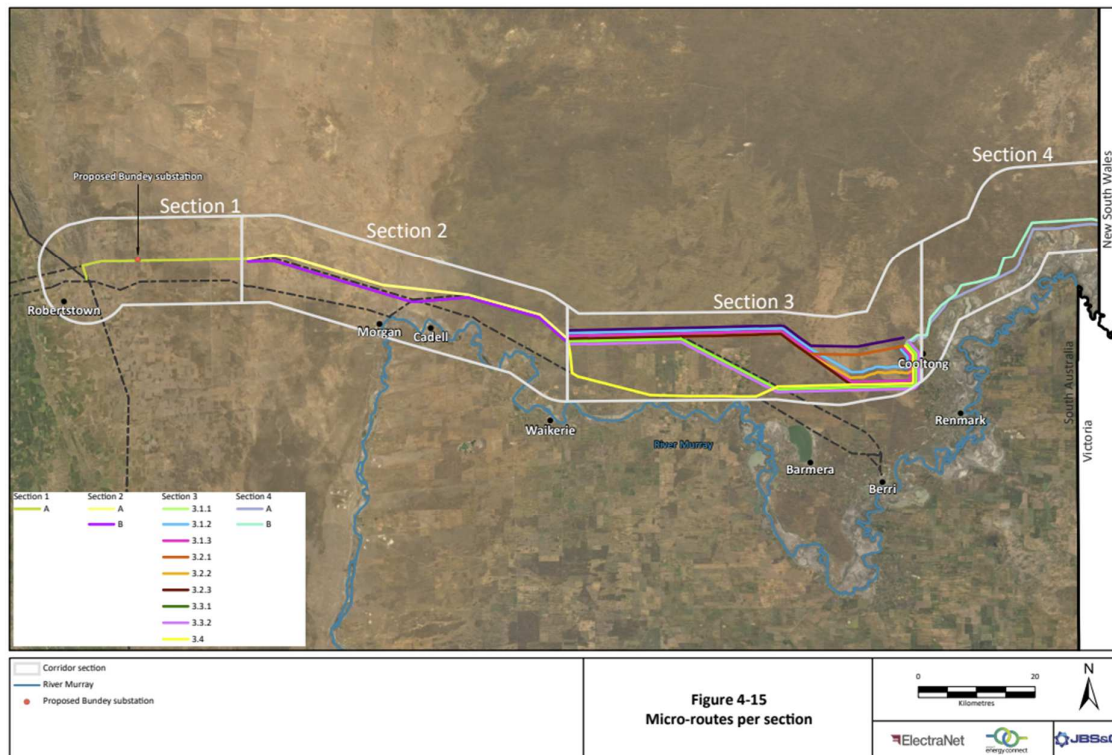
Four corridor sections were then established within the investigations corridor (to provide enhanced focus and manageability), whereupon micro-route options could be further explored in each section (refer to figure 18). These were then individually assessed and evaluated against a range of criteria (i.e. ecological, heritage, visual, engineering and cost, land access, and stakeholder feedback) which a ranking score against each criterion, with the lowest scored (i.e. least impactful) micro-route options subjected to further review and discussion.



**Figure 18: Evolution of the Route Alignment** (Reference: EIS, Chapter 4 p 33)

The greatest number of micro-route options considered was in Section 3, being the location of Taylorville and Calperum Stations, such was the sensitivity and nature of the environmental constraints in the section of the route alignment (refer to figure 19). Further discussions were held with Bird Life Australia and the Australian Landscape Trust to develop the least impactful solution. Whilst the final route alignment in this location was not the most economically nor technically

preferred solution, skirting the southern and eastern boundaries of Calperum Station was found to be the least impactful (based on the route 3 option previously adopted).

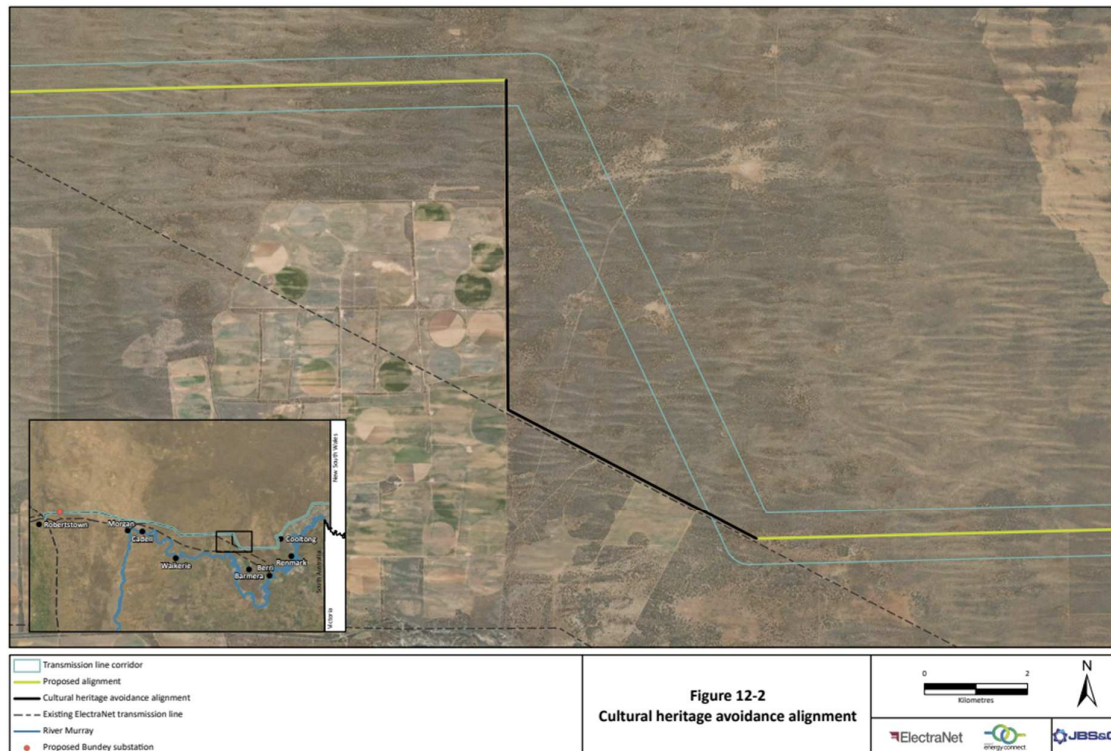


**Figure 19: Evolution of the Route Alignment** (Reference: EIS, Chapter 4 p 32)

Further refinement was then undertaken, which resulted in a realignment of the route within Hawks Nest Station further to the west to minimise impacts on the habitat of the black-eared miner, and a smaller deviation to the northward alignment along the Wentworth to Renmark Road to avoid the potential for cultural heritage impacts and a Department for Environment and Water (DEW) revegetation trial area.

Prior to the formal lodgement of the EIS, several sites of cultural heritage significance were identified within the 1 kilometre transmission corridor on Hawks Nest Station, which necessitated a further amendment, with the proposed route now following the station's western fence line, then joining up with the existing 132kV transmission line easement for approximately 5 kilometres, then turning east along the station's southern boundary (refer figure 20). The EIS has appropriately considered this amendment to the route, taking into account a range of factors (refer to EIS pages 4-30 & 31).





**Figure 20:** Cultural Heritage Avoidance alignment (Reference: EIS, Chapter 12 p 14)

The route selection process comprised a multi-variate analysis over a number of years that considered a wide range of technical, engineering, environmental, social, land access and economic factors to arrive at a balanced option that could meet key project objectives, achieve regulator approval and satisfy the assessment guidelines of the EIS through an avoid, mitigate and manage hierarchy.

It is understood that further refinement of the route vis-à-vis the placement of transmission infrastructure will be undertaken at the detailed design stage, whilst those temporary construction and ancillary infrastructure components will need to be further defined during the detailed design phase (noting the Response document identifies both workers camp and laydown area options).

The Assessment Report concludes that, based on the work undertaken in the EIS, the route selected meets the requirements of the assessment guidelines in respect to the consideration and exclusion of alternative options and the rationale and extensive justification on how and why the final route was chosen.

#### 14.2.1 Impacts on existing land uses and activities

The EIS has appropriately considered likely impacts on existing land uses and activities within and adjacent to the proposed transmission corridor. The majority of these impacts are related to short-term construction impacts, and can be appropriately managed under various construction management plans. These impacts, subject to appropriate remediation measures, will be short term.

There will be some loss of land through the placement of permanent infrastructure (138ha), and some loss of existing landowner or lessee discretion to undertake certain activities within or adjacent to the transmission line. Based on existing and likely land uses, these impacts are considered to be relatively minor, such as restrictions on access during construction, although any improvements to existing

tracks are more beneficial, subject to appropriate maintenance protocols to ensure such tracks do not deteriorate or suffer damage.

Vegetation clearance and disturbance is unavoidable, but has been minimised where possible, and where impacts do occur, temporary clearance areas can be appropriately rehabilitated (refer Section 15.2). In addition, construction activities may uncover new or unknown sites of Aboriginal Cultural significance, but subject to appropriate construction management practices and adherence to state and commonwealth legislation, such occurrences can be sensitively addressed and resolved.

Construction activities also have the potential to introduce or spread weeds, pests and pathogens within and between development sites (or introduce them elsewhere), however these matters can be appropriately identified and actively managed under a CEMP and OEMP, subject to regular inspections and PIRSA requirements.

No significant long-term land use impacts are considered to result from the operation of the transmission line or ancillary infrastructure. Most primary production activities can continue unaffected, although it is acknowledged some constraints may occur, such as through the use of certain equipment, practices or aerial spraying activities, when in close proximity to the line.

These are matters of negotiation and consultation between various landowner and ElectraNet, but given the likely use of the land, impacts are considered to be relatively minor in nature. Impacts on property values are also considered to be negligible, given the large landholdings involved, and the relatively narrow construction and operational footprints.

Unauthorized vehicle access may also occur, based on the presence of new or upgraded tracks, and the requirement to maintain easement access along the corridor, but can be managed through appropriate signage and access restrictions (via locked gates).

The EIS also considered likely impacts on private aviation and telecommunication services on existing land holdings within and adjacent to the project area and the wider, cumulative impacts of this and other large scale development operating, or planned to operate, within the region.

#### 14.2.2 Impacts on the Physical Environment

Potential impacts from the construction of the development to the physical environment include modification to the existing landform, from excavation, filling and compaction, and soil erosion or sedimentation from the clearance of existing vegetation. These impacts can be managed through appropriate soil and drainage management plans during construction.

Acid sulphate soil is not expected to occur, nor are any undue impact on surface water flows, due to the appropriate siting of infrastructure away from existing drainage lines, channels and creeks.

The transmission line route traverses ephemeral creeks and two watercourses (Burra Creek and Emu Gully). Situated within extensive catchment areas, with significant outflows in only the wettest years, the design and placement of physical infrastructure can take into account likely conditions arising from typical rainfall events, such that changes to existing surface flows as a result of the development are considered to be negligible.

Water quality can be impacted from the mobilization of sediments, however appropriate mitigation and remedial actions during construction can limit these impacts, whilst groundwater impacts are

expected to the minimal, as the depth to shallow groundwater is between 5 and 20m. No impacts to existing groundwater wells and bores for livestock purposes are anticipated.

If dewatering of excavated areas was required, this would be undertaken in accordance with EPA requirements. No existing contamination sources have been identified during the initial desktop and ground investigations. Wastewater, fuels and other chemicals can be appropriately managed during construction, in accordance with existing health regulations and environmental regulations.

If saline water (from wells or aquifers) is used to minimise dust impacts arising from access tracks and stockpiles, this would only be a temporary measure during construction within very limited disturbance areas and should have no long-term impact on the environment.

**The AR concludes that the proposal has considered and selected a transmission route that avoids, or where no reasonable alternative option can be implemented, minimises direct physical, environmental and community impacts from the proposal. Any remaining residual impacts can be appropriately mitigated and/or managed (as outlined below), without unduly compromising the ongoing use of adjacent land or its future development or the natural environment.**

### 14.3 Flora and Fauna

| Guideline  | Assessment Outcome  |
|--|---|
| 1. Matters of National Environmental Significance<br>3. Effect on Conservation Values<br>4. Effect on Native Vegetation<br>5. Effect on Native Fauna | <p>Avoidance – The proposed route has been designed to minimise vegetation clearance and habitat loss/disturbance as far as reasonably practicable and avoids fragmenting large tracts of native vegetation with high conservation values.</p> <p>Mitigation – Impacts on critical habitat and population of threatened species have been satisfactorily avoided or minimised through project design and management. Suitable mitigation measures would be adopted to minimise impacts on flora and fauna.</p> <p>Management – The impacts of vegetation clearance would be adequately compensated for through a Significant Environmental Benefit under the Native Vegetation Act.</p> |

The EIS (Chapter 11 and Appendix I) provides detailed descriptions of the distribution/abundance, condition and conservation values of vegetation and fauna communities and habitat found along the proposed corridor and likely impacts that could occur during construction and operation.

The proposed transmission line, due to its 200 kilometre length, has the potential to result in significant vegetation clearance, habitat fragmentation and disturbance to fauna communities. More specifically, the following environmental impacts are expected, the consequences of which require careful management to mitigate their size and scale:

- Vegetation/habitat clearance and disturbance - for the construction of towers, for access tracks (construction of new tracks or widening existing), the stringing access corridor and lay down areas.
- Habitat fragmentation and reduction in quality of habitat (including edge effects).
- Spread of pest plants and weeds.
- Increase in predation along the disturbance corridor.
- Increased hybridisation risk for Black-eared Miner bird communities.
- Increased fire risk (during construction and operational phases).
- Injury or mortality of fauna during habitat removal or from construction vehicles.

- Bird strike with infrastructure.
- Disturbance during construction, especially from noise and human activity
- Disturbance during operation from maintenance activities (i.e. vehicle/helicopter movements, noise and trimming vegetation).

#### 14.3.1 Adequacy of Information in the EIS and Response Documents

The assessment method of the EIS adopted a staged approach where a broad ecological study area, a 50-kilometre wide corridor, was the focus of initial investigations into environmental constraints that affected the preliminary indicative route alignment. A 10-kilometre wide corridor along the alignment was used in respect of the EPBC Protected Matters search area. The resulting revised route was then the subject of investigations along a defined 1-kilometre wide corridor.

The ecological study of the transmission line corridor comprised a desktop review of flora/fauna records and field surveys during spring 2018, autumn 2019, summer 2019 and summer 2021. The South Australian Native Vegetation Council Bushland Assessment Method (BAM) was used to determine vegetation type and habitat condition, so that the results could be used for determining the Significant Environmental Benefit (SEB) offset requirement for native vegetation clearance. In particular, the surveys identified potential ecological ‘hot spots’: habitat for EPBC Act and NPW Act listed species or Threatened Ecological Communities (e.g. Pygmy Blue-tongue Lizard, Malleefowl, Black-eared Miner, Peppermint Box Grassy Woodland of South Australia, Irongrass Natural Temperate Grassland of South Australia).

A targeted survey for threatened mallee birds (e.g. Black-eared Miner, Malleefowl, Red-lored Whistler, Regent Parrot and Mallee Striated Grasswren) was also undertaken in spring 2019. A Species Likelihood Assessment was also undertaken for threatened flora and fauna species (listed under the EPBC Act and NPW Act) that have been recorded in the wider ecological study area to determine whether they could potentially occur in the corridor. The assessment was based on records from the EPBC Protected Matters Search Tool, the Biological Database of South Australia and the Birdlife database.

The Australian Landscape Trust (ALT) raised concerns that the BAM sites surveyed within Taylorville (Critical Habitat) only included the area associated with the existing powerline easement, which was all burnt in 2006. The eastern end has not been previously disturbed and was not all burnt in the 2006 bushfire, but was not surveyed at all. The same survey process was made on the southern boundary of Calperum, where only the eastern end that was burnt in the 2014 bushfire was surveyed, while unburnt areas on the western end were not surveyed. The ALT position was that, therefore, the assessments may under-estimate the quality and significance of these mallee communities.

The Response Document (Table A-7.1) clarified the survey selection process in that survey locations were selected to collect data representative of all vegetation communities traversed, as well as across a range of condition classes (including fire histories). Sites surveyed were considered to represent the full range of habitat conditions and types across the alignment. Conservative mapping segments (i.e. lengths assigned to a representative vegetation type and condition) were used for the final calculations and were reviewed and approved by DEW/NVC as part of the approval process for vegetation disturbance. The burn history of the vegetation was considered in the NVC approved survey process, including use by fauna. Consequently, ElectraNet considers that the assessments will not underestimate the quality and significance of these mallee communities.

Based on the survey results, an impact assessment was undertaken for the construction and operational phases of the proposed transmission line and substation. This involved determining the

baseline condition and values of the existing environment; identifying potential impact events and environmental risks; considering mitigation measures and management controls; and predicting the level of impacts (i.e. scale, intensity, duration and frequency of impacts and the sensitivity of the receptor). Predicted impacts were reviewed to identify whether they were acceptable for the relevant environmental matters and to ensure impacts were as low as reasonably practicable. Realistic worst-case assumptions were made in order to provide a conservative assessment. A risk assessment was then used to evaluate the uncertainty in the assessment of expected impacts. The EIS (Chapter 8) provides a detailed description of the assessment process undertaken. A Significant Impact Assessment was also undertaken to determine the significance of residual impacts of the proposal on Matters of National Environmental Significance under the EPBC Act (EIS: Appendix I-3).

The design of the proposal used an approach to avoid, minimise, rehabilitate and offset impacts associated with the transmission line alignment, the location of permanent and temporary infrastructure and construction methods. The main method adopted to minimise impacts was via avoidance through the route selection process, including refining the route alignment in sensitive areas based on landowner consultation and targeted surveys (such as the modified alignment on Hawks Nest Station to avoid higher quality mallee bird habitat).

The Assessment Report considers that the proponent has undertaken extensive studies into the character and condition of the receiving environment, using credible consultants and suitable methodologies. The assessment approach adopted provides a high level of confidence in the information presented in the EIS.

#### 14.3.2 Overall Route Alignment

The western section of the line from the Robertstown substation to Taylorville Station largely traverses low-intensity primary production land and mainly follows existing road reserves, access tracks and transmission line easements. The land has largely been cleared for dryland farming and grazing or is semi cleared/sparsely vegetated. A section of the line crosses small sections of the White Dam Conservation Park, utilising an existing transmission line access track. The Park is, on average, less than 1 kilometre wide and provides a narrow wildlife corridor of limited ecological value.

The eastern section of the line from Taylorville Station to the South Australia-New South Wales Border traverses land that is predominantly dedicated to conservation purposes, being within Parks, Reserves and Heritage Agreement Areas. Most of these are largely incorporated within the Riverland Biosphere Reserve, which contains large intact stands of old-growth Mallee vegetation that provides valuable habitat for threatened fauna species. The Biosphere Reserve includes the Riverland Ramsar wetland complex site (including the Chowilla Game Reserve), the Cooltong Conservation Park and the Chowilla Regional Reserve. It also includes sensitive habitat within Taylorville and Calperum Stations, which are pastoral leases under Vegetation Heritage Agreements that are privately managed for scientific and conservation purposes.

The line crosses through the south-eastern corner of the Biosphere Reserve, generally following the existing Wentworth-Renmark Road along the western and northern boundaries of the Riverland Ramsar site. The line traverses the southern boundary of Taylorville Station, utilizing an existing transmission easement and/or boundary track. The line continues along the southern boundaries of Hawk's Nest Station and Calperum Station (plus the northern boundary of the Cooltong Conservation Park). The route largely utilizes areas that have already been disturbed, due to access tracks, transmission lines or fence lines. The line then follows the Wentworth-Renmark Road, cutting across corners of Calperum Station and the Chowilla Game Reserve and through the southern part of the Chowilla Regional Reserve.



The Assessment Report finds that the transmission line route predominantly follows existing disturbance corridors (i.e. used for existing transmission line easements, fence lines and access tracks) and largely avoids creating new disturbance corridors and bisecting properties used for conservation purposes by following boundary lines.

#### 14.3.3 Native vegetation clearance and disturbance

The EIS (Section 11.4.1) estimates that approximately 413 hectares of native vegetation will need to be cleared during construction, based on upper estimates of 135 hectares permanent clearance and temporary disturbance of 278 hectares (i.e. that will be rehabilitated following completion of construction). This was based on an upper estimate of 2 hectares of land disturbance per kilometre. Vegetation clearance will be required for the construction of towers, the Bunday substation, new access tracks and temporary facilities (e.g. laydown areas/staging sites and worker construction camps). Vegetation disturbance (such as pruning and rolling) and limited clearance would be required for line stringing activities and for fire protection. This is a conservative estimate, as micro-siting of towers and construction infrastructure during the final design phase would focus on the preferential use of disturbed areas with no or poor quality native vegetation (especially the use of existing tracks, within the constraints of maintaining suitable safety offset distances from adjacent transmission lines where present).

The majority of native vegetation to be cleared comprises Mallee with an understorey dominated by *Triodia* on moderate/low sand dunes (114.6 hectares) and Mallee with Very Open Sclerophyll/*Chenopod* Shrub understorey (71.3ha). The EIS considers these vegetation communities are common and widespread, constituting a very small proportion of remnant vegetation in the region, and are extensively represented in areas managed for conservation. In regard to the condition of the vegetation, approximately 142.2 hectares is categorized as medium condition, 125 hectares as high, 124.8 hectares as low and 17.4 hectares as very low.

Vegetation management would be required during operation to maintain access to tower locations and areas where vegetation encroaches on the safety clearance zone underneath the transmission line conductors. Clearance or lopping of trees under the conductor cables may be required in some areas (i.e. where tree canopy height is greater than 8m), but this would be minimised by the micro-siting of tower locations. It should be noted that most Mallee vegetation is under this height.

It is considered that the route selection process has reasonably minimised the amount of vegetation clearance required, primarily through the use of existing disturbed corridors (especially access tracks along the southern fence lines of Taylorville and Calperum Stations). Pre-clearance surveys would be undertaken during detailed design to micro-site tower locations and other infrastructure to avoid occurrences of threatened plants or other significant features (such as any active Malleefowl mounds).

During construction, existing access tracks along the easement would be used as far as possible, with the potential to use short spur tracks off existing roads or access tracks. Tracks would be restricted to the minimum width necessary to allow safe access (typically 5 metres).

A range of measures would be adopted to minimise clearance, including:

- Where feasible, vegetation will be rolled or trimmed rather than being completely removed.
- Preparation of the stringing access corridors between tower locations will typically be undertaken using a dozer with blades raised to remove larger trees while keeping shrubs, grasses and topsoil largely intact, or rolled where possible.



- Larger trees in the stringing access corridors may be cut off above ground level with rootstock left intact to allow regeneration rather than being removed where practicable.
- Removal of larger trees (e.g. trunk diameter over 30 cm) will be avoided where possible (noting that sites such as access tracks, tower locations, helicopter staging sites and some brake and winch sites will require complete removal of vegetation).
- Pads for tower assembly will be restricted to the minimum size necessary.

Vegetation management requirements would be incorporated in the Construction Environmental Management Plan (CEMP), which will detail the requirements for pre-clearance micro-siting and post clearance audits, exclusion zones and NVC approved clearance areas. Monitoring would be undertaken during and following construction to ensure that vegetation management measures are effective and remediation will be undertaken if required.

Following the completion of construction activities, areas of temporary disturbance will be rehabilitated. Pads used for tower construction would be reduced in size, as a much smaller cleared area (typically 25 per cent or less) is required around towers for operation. Topsoil and subsoil would be respread over cleared areas with cleared vegetation, and sites allowed to naturally revegetate. The EIS considers that areas of mallee in the central section of the transmission line corridor are expected to regenerate well, particularly if rootstock is left in place, based on the low levels of weeds present and level of regeneration observed in field surveys. Vegetation restoration is an adaptive process and will depend on a combination of factors including degree of disturbance, existing seedbank, threats (e.g. native and exotic grazing), species competition, climate change and drought influences.

DEW advised that, whilst returning topsoil and vegetation was noted, more detail is required regarding the restoration of temporary clearance sites and strategies to foster natural restoration, including opportunities to experiment with different treatments and techniques to enhance restoration knowledge. The Australian Landscape Trust advised that restoration of temporary cleared sites is a long-term process in an arid, low productivity environment, and to return an equivalent vegetation community characteristic of the declared critical habitat is difficult and costly. The Trust seeks that a detailed restoration plan would be required to ascertain if the approach proposed is adequate. Birdlife Australia suggested that, given that areas of cleared vegetation will be rehabilitated by simply replacing topsoil and allowing natural regeneration, the proponent should undertake routine (twice a year as a minimum) monitoring of all areas of disturbed vegetation and soil to assess vulnerability to erosion and to detect and manage weed incursions.

The NVC advised that the proposed interconnector traverses a large and important expanse of remnant mallee vegetation, including significant areas that are protected for conservation. Noting the measures to minimise clearance impacts (i.e. route selection and use of existing routes and tracks), the NVC does not object to the proposal. The clearance of up to 413 hectares is considered a significant area of vegetation and a range of actions would need to be undertaken to ensure that clearance is minimised to the greatest possible extent through detailed design, construction and subsequent monitoring and maintenance phases. If approved, the NVC has suggested a number of conditions in relation to clearance extents, avoidance measures, construction practices, weed controls, rehabilitation strategies and contractor obligations.

The Murraylands and Riverland Landscape Board also advised that the loss of 413 hectares of habitat should not be considered insignificant or inconsequential, as such clearances will be significant for threatened and vulnerable species. Furthermore, if additional fire prevention (clearance) work needs to be undertaken to protect critical infrastructure, this may create additional impacts over the long term. Maintaining low fuel loads close to the power line may require frequent burning or clearance, and the nature of prescribed burning will likely require a much larger area to be regularly burnt to

maintain this low fuel load. The Board encouraged the use of helicopters during construction through sensitive areas, such as Calperum Station and Taylorville Station, as a method to reduce construction footprints and required vegetation clearance (regardless of additional costs).

The Australian Landscape Trust raised concerns about the level of permanent versus temporary clearing, especially temporary clearance of Mallee habitat for cable stringing activities. This will require the removal of the mallee trees, which, even if rolled, will require 20 to 50 years (depending on subsequent climatic conditions) to return to a mature state. In particular, areas of mallee where its height is greater than 8 metres will require clearing. Removal of the mallee trees from mallee vegetation communities changes the vegetation into an alternative degraded type and represents permanent native vegetation clearance. In addition, the required Asset Protection Zone around each tower for mallee sites is 20m and will result in further clearance of the mallee. Consequently, all opportunities to prevent/minimise this clearance should be undertaken as a priority. This should include mandating the use of aerial installation and stringing for the areas of Black-eared Miner critical habitat being affected.

BirdLife Australia raised a concern that the EIS states that preparation of the stringing access corridor between tower locations will typically be undertaken using a dozer with blades raised to remove larger trees, presumably knocking them over and uprooting them. The Trust suggested that wherever possible mallee trees should be cut off at the maximum height possible (i.e. without unduly restricting construction and operation activities). This will facilitate rapid regrowth of mallee trees, retain hollows (which typically take more than a century to form), minimise soil disturbance and reduce the risk of weeds establishing in soil disturbed by uprooting of trees. This will be particularly important in areas that contain higher quality, continuous mallee habitat.

The Response Document (Table A-7.1) reiterated that the use of ‘temporary’ to describe disturbance that will be rehabilitated is correct within the mallee habitat. It does not imply an immediate return to a mature state. While cleared patches may take 20 to 50 years to return to mature state, mallee habitats naturally contain a mosaic of different aged patches depending on fire history and immature mallee habitats still have significant habitat value for a large range of native fauna and flora. The Response Document also confirms that, as indicated in the EIS (Section 7.8.2), where practicable and safe to do so, larger trees in the stringing access corridor may be cut off above ground level with rootstock left intact. As indicated in the EIS (Chapter 7), the use of aerial stringing has been further considered and is anticipated to be utilised along the eastern end of the transmission line where mallee vegetation exists. Aerial installation of towers is not proposed due to health and safety, commercial, technical and other environmental considerations.

The Response Document (Table A-7.1) also clarified it is incorrect to state that all vegetation over 8 metres in height will be cleared along the central 45m of the easement. The height of 8 metres provided in the EIS was based on preliminary calculations of a height that may be able to be spanned without trimming. Further work has been undertaken by ElectraNet and potential contractors which has indicated that in areas of high habitat value, it may be feasible to span a greater height. Based on Lidar data, it is expected that vegetation on Taylorville and Calperum Stations would be able to be spanned with very little or no requirement for trimming. The height that could be feasibly spanned would be confirmed during detailed design. Also, as the profile of the required clearance zone below the conductors follows the profile of the conductors (which sag between towers), the allowable height of vegetation away from the middle of the span between towers would be significantly greater than the allowable height at mid-span. Consequently, all trees higher than the allowable mid-span height would not be removed along the entire length of the transmission line. Trees higher than the allowable height would typically be trimmed to maintain the required clearance rather than completely cleared. It is not correct that tall mallee would be permanently cleared.

In addition, the Asset Protection Zone (APZ) around each tower will need to consider the environmental value of surrounding vegetation when deciding on the appropriate width of APZs. Given the nature of the towers (steel), and location of conductors well above the canopy, a reduced APZ width may be warranted. The width of APZs will be determined in detailed design, with ElectraNet's expectation being that for towers it will be significantly less than 20m. Also, an APZ does not require vegetation to be completely cleared, but rather modified to a 'low threat' state. It is expected that some trees and shrubs would be able to be retained which will reduce the clearing footprint.

The Response Document (Section 6.3.1) has also recognised that there may be a requirement to re-disturb areas such as brake and winch sites during the life of the asset if conductor re-tensioning or replacement is required. Although these areas would be rehabilitated after construction and again after re-disturbance, ElectraNet propose to include brake and winch sites as being subject to permanent clearance in the calculations for the significant environmental benefit (SEB) under the Native Vegetation Regulations. These areas were estimated at 17.3 hectares of the total estimated 278 hectares of temporary clearance.

In conclusion, through the route selection process the proponent has chosen an alignment that predominantly uses existing disturbance corridors where native vegetation is already cleared or fragmented, thereby avoiding large tracts of high quality native vegetation. During the detailed design phase, micro-siting would provide an opportunity to further reduce vegetation clearance impacts, through the use of cleared/disturbed areas or clearance of sparsely vegetated or lower quality vegetation. Final tower design would also consider the need for manage vegetation to maintain safe line clearances, especially mid-span clearance zone implications. Cleared areas would be remediated and revegetated through site preparation and natural regeneration. The EIS predicted the impacts to be in the 'Minor' category, particularly when the offset provided by the SEB is taken into account, with uncertainty in the predicted impact being evaluated as a 'Low' level of risk.

#### *Native Vegetation Act 1991 Requirements*

Clearance of native vegetation requires approval under the *Native Vegetation Act 1991* and *Native Vegetation Regulations 2017*. The EIS stated that a vegetation clearance application is being prepared, with a draft Native Vegetation Clearance Data Report is contained in the EIS (Appendix I-6). A 'Level 4' application would need to be approved by the Native Vegetation Council, including a Significant Environmental Benefit (SEB) offset as per the Significant Environmental Benefit Policy and Guide (NVC 2020c,d). The proponent will either implement an on-ground SEB, or fulfil the SEB requirement by a payment into the Native Vegetation Fund. A preliminary estimate of the SEB requirement is contained in the EIS (Appendix I-6).

The EIS states that a formal application under the Native Vegetation Regulations and an accompanying Data Report would be submitted following submission of the EIS. The Data Report may be updated to incorporate refinements in clearance estimates at the time (e.g. resulting from the EIS process or the progression of detailed design). As is standard for large linear infrastructure projects, it is expected that the clearance areas will remain as estimates in the application and final clearance will be confirmed following construction with in-field audits against approved clearance areas, with the SEB adjusted as necessary to reflect the final clearance

The Australian Landscape Trust questioned whether the Vegetation Clearance Data Report claim that the clearance level is 'at variance' may not be appropriate for some of the Mallee communities in the temporary clearance category (129 hectares). The entire mallee areas within Taylorville and Calperum is EPBC declared 'Critical Habitat' for Black-eared Miners and should be considered clearance of

vegetation that is critical habitat for the survival of threatened fauna. Therefore, all the mallee communities within the boundaries of these two properties must be considered 'at serious variance' in the native vegetation clearance assessment.

The Response Document (Table A-7.1) does not agree with the assertion. The EIS (Appendix I-6) acknowledges that some of the native vegetation could be considered 'seriously at variance' under the principles of clearance of the Native Vegetation Act, but it discusses moderating factors that the Native Vegetation Council (NVC) may consider that would reduce these to 'at variance'. This relates purely to the administration of the Native Vegetation Act and has no bearing on the acceptability of risk to MNES.

The Response Document (Section 6.3.1) states that the draft Native Vegetation Clearance Data Report will be updated to include brake and winch sites as permanent clearance, with adjustments made to the calculation of the SEB based on ongoing discussions with the Native Vegetation Branch regarding aspects such as economies of scale and rainfall factors. Final clearance levels would be confirmed following construction by in-field audits against approved clearance areas, with the SEB adjusted as necessary to reflect the final clearance.

Ultimately DEW Native Management Branch and NVC will decide whether the information provided demonstrates impacts are 'seriously at variance' or 'at variance' as per the definitions outlined in the NVC guidelines and policies.

Taylorville Station and Calperum Stations have Vegetation Heritage Agreements in place, which will need to be varied in order to utilise land for the proposed transmission line (i.e. exclude those areas impacted by the development and where clearance of vegetation will be required).

The Assessment Report considers that, if approval is granted, a Native Vegetation Management, Restoration and Monitoring Plan would be required. The plan would need to include details on the management of both retained native vegetation within the transmission line corridor and any areas that are to be restored after the completion of construction. The plan should address:

- a. Vegetation clearance requirements of the Native Vegetation Council.
- b. Vegetation clearance practices.
- c. Restoration measures, such as site preparation, natural regeneration or direct seeding.
- d. Protection and maintenance of remnant vegetation, including and the control of current/future degrading factors (especially erosion).
- e. Vegetation maintenance during operation, especially to maintain access, safety clearance zones under conductors and asset protection zones.
- f. Pest plant and animal control.
- g. Fire management.
- h. Monitoring requirements.

The Plan would need to be prepared in consultation with the Department for Environment and Water (including the Native Vegetation Council) and the Murraylands and Riverland Landscape Board.

#### 14.3.4 Effects on Habitat

Remnant vegetation along the western end of the transmission line corridor is already highly fragmented within an agricultural landscape, being restricted to small patches along roadsides or scattered trees within farmland. These vegetation patches are already subject to ongoing edge effects and degradation processes (especially impacts from weeds and pest animals) and are generally too small to provide critical habitat for species of conservation significance. They are generally of value to

local biodiversity, especially as wildlife corridors or stepping-stones between larger tracts of vegetation. The route has been designed to avoid significant stands of remnant vegetation to avoid further habitat loss and fragmentation. During the detailed design phase, the micro-siting of tower locations and line centre spans would further reduce clearance impacts.

The eastern end of the corridor near the South Australia-New South Wales border follows the alignment of the Wentworth-Renmark Road and traverses the Chowilla Regional Reserve. The corridor passes between significant wetland and floodplain habitat of the Riverland Ramsar site (including the Chowilla Game Reserve) and the Mallee habitat of the Calperum Station.

Large tracts of remnant vegetation that provide key habitats for threatened species (especially old growth mallee) are located along the central and eastern sections of the transmission line corridor, primarily to the north of the alignment within the Riverland Biosphere Reserve where there are few edge effects and less fragmentation. The route selection process largely ensured that habitat clearance or disturbance would be minimised to reasonably low levels.

Importantly, the line traverses the southern boundaries of Taylorville and Calperum stations and the northern boundary of Cooltong Station, and avoids the core habitat supported in these important conservation areas. In addition, the line avoids direct impacts on the Riverland Ramsar wetland site by following the alignment of the Wentworth-Renmark Road. Thus, to minimise habitat loss and to avoid bisecting large tracts of native vegetation, the alignment primarily utilises existing disturbance corridors (including tracks, fence lines, firebreaks, existing transmission lines and the Wentworth-Renmark Road), so the main impact would be the widening of the disturbance corridor, although in some areas a new disturbance corridor is being created.

Thus, no substantial additional habitat fragmentation or edge effects would result from vegetation clearance and disturbance. The relatively narrow width of the clearance required for the transmission line corridor is not expected to hinder movement of the majority of fauna species within the landscape. Whilst there may be a marginal increased risk of weed incursion and increased access to predators, new or upgraded tracks required for the transmission line would provide improved access for fire management and weed and pest management.

The EIS considers that the area of threatened species habitat that would be cleared represents a very low proportion of available habitat in the region. In particular, the proportion of the area of listed Critical Habitat for Black-eared Miner that would be impacted by traversing the southern boundary of this area is extremely low. Estimated clearance is 143 hectares along 71 kilometres of its southernmost fringe, which is approximately 0.04 per cent of the total 380,000 hectares critical habitat area. The EIS considered such clearance would not constitute a significant impact to the critical habitat, especially as the transmission line route follows an existing disturbance corridor and avoids the most important areas of mallee habitat where the vast majority of Black-eared Miners have been recorded.

Furthermore, given the very limited increase in habitat fragmentation that is expected and the presence of existing disturbance corridors, it is not considered that vegetation clearance or disturbance would lead to further hybridisation of the Black-eared Miner beyond the extent of hybridisation that is already known for the species. The Black-eared Miner, Yellow-throated Miner and hybrids of the two species already occur within and immediately south and north of the transmission line corridor and interbreeding is ongoing

Design and construction measures can be used to minimise impacts to sensitive areas and smaller areas of mallee, for example by spanning small patches where feasible and careful placement of towers. Helicopter construction techniques are being considered during detailed design, subject to

health and safety, commercial and technical feasibility. If feasible, these aerial techniques are expected to reduce the amount of on-ground temporary clearance that would be required.

In addition, whilst clearance of some vegetation may have short-term impacts in the region, the commensurate offset activities (either on-ground offsets or via payment into the Native Vegetation Fund) present an opportunity to increase the quality of remaining vegetation or the quantity of vegetation under conservation agreement to support flora and fauna and provide positive long-lasting benefits to the region. The Significant Environment Benefit for the proposal, as required by the Native Vegetation Clearance Approval, will contribute targeted resources to the ecological values and conservation objectives of the region

The EIS predicted that impacts are in the ‘Negligible’ category for listed flora and ‘Minor’ for listed fauna. Uncertainty in the predicted impact was determined to be a ‘Low’ level of risk for listed flora and ‘Medium’ for listed fauna, based on uncertainty in species’ occurrence or the potential for excursions outside designated clearing areas. Habitat values are present within and adjacent the transmission line corridor, and there are some areas of the corridor where the Project will result in some fragmentation.

The Murraylands and Riverland Landscape Board advised that, although the EIS has identified that a relatively small area will be cleared as a percentage of the total area of disturbance, the fragility of this habitat means that any change in use or decline of habitat condition can have serious consequences for nationally threatened species, habitats and ecological communities. In particular, for several threatened Mallee birds impacted by this development, changes to fire regime brought about as a result of this development (increased burning close to the line to reduce fuel loads and decreased control burning further afield) could significantly adversely impact species. In particular, any reduction of habitat or increased fire risk for the Black-eared Miner, Malleefowl and Red-lored Whistler is considered a negative impact on the species and their long-term conservation. The Board also noted it is unclear how the proposal would impact on the nationally vulnerable south-eastern long-eared bat, the state endangered little pied bat and the state rare yellow-bellied sheath-tailed bat and common brushtail possum.

**The AR concludes that identified impacts to flora and fauna from the development of the project, both in the construction and operational phases, will be limited to the project footprint and easement corridor, and that due to the route selection process (and the use of existing tracks and disturbed areas) any additional clearance requirements should not lead to any significant or long-term impacts to threatened species or areas of important habitat.**

#### 14.3.5 Introduced Plants and Animals

Construction activities have the potential to result in the introduction and/or spread of exotic plant species, including declared and environmental weeds, primarily through ground disturbance and vehicle/machinery movements. Introduction of new weeds or spread of existing weeds could degrade better quality vegetation within and adjacent the transmission line corridor and can also potentially harbor predator pest species (e.g. foxes and cats).

The EIS proposes a range of management practices to manage weeds, including:

- Pre-construction inspections to identify any areas of weed infestation requiring specific management measures.
- Minimized vegetation clearance and soil disturbance.



- Vegetative material containing declared weeds would not be moved from the site (unless appropriate permits are in place).
- Stockpiles monitored for weed outbreaks.
- Awareness about key weed threats (e.g. buffel grass) included in induction programs.

BirdLife Australia advised that weeds represent a significant risk to mallee ecosystems, and the risk of weed incursions (e.g. buffel grass) during construction and operation of the powerline must be minimised. It is imperative that: tree root stocks are retained, strict weed hygiene controls are implemented between properties and when first accessing the site and soil disturbance is minimised.

During operation adaptive weed management, monitoring and control would be undertaken if weeds are detected, particularly following rainfall events and disturbance events. Targeted management of key threat species (e.g. weeds of national significance or declared weeds, including the declared/alert weed, buffel grass) would be undertaken in consultation with the Murraylands and Riverland Landscape Board and with consideration of regional conservation objectives.

The EIS predicted that impacts are in the 'Negligible' category, with uncertainty in the predicted impact a 'Medium' level of risk.

In regard to pathogens, the transmission line corridor traverses areas with no apparent risk for the tree dieback diseases Phytophthora or Mundulla Yellows.

Construction activities and establishment of access tracks can result in an increase in predatory pest species, especially foxes and cats. Construction camps and laydown areas can attract pest animals seeking food or shelter. Transmission towers provide nesting and roosting sites for introduced bird species, especially starlings. The EIS considers the construction of the proposal is not expected to significantly increase the access of predatory pests to habitats on the transmission line corridor, as existing tracks are present along the majority of the proposed alignment. Adaptive pest management, monitoring and control would be undertaken (particularly during construction), in consultation with Landscape Board and with consideration of regional conservation objectives.

The EIS predicted that impacts are in the 'Negligible' category, with uncertainty in the predicted impact a 'Low' level of risk.

**The AR concludes that construction activities and management protocols can minimise the risk of spread of pest plants and species within the easement corridor.**

#### 14.3.6 Construction Impacts

The EIS identified that local fauna may be directly influenced by noise and vibration associated with construction, increases in traffic, operation and maintenance activities and the presence of construction vehicles/plant equipment. This would also include the use of helicopters that are under consideration as a construction method. The behavioural response of most fauna would be avoidance and likely result in temporary displacement of individuals from the immediate vicinity of the construction area. Such an effect would be localized and temporary, so is not expected to result in significant impacts to local populations.

Dust emissions resulting from land clearing, vehicle movement and helicopter operation, that can potentially reduce vegetation health, will be managed by implementing dust control measures during construction and rehabilitating of areas of temporary disturbance. Rainfall is expected to remove any dust which settles on vegetation during construction and therefore dust is unlikely to result in long

term reduction of vegetation health. Erosion and sedimentation from disturbed areas or alteration of surface water flows are expected to have a very low level of impact and will be managed by a range of design measures and management controls. Any impact to vegetation and habitats would be very localised and short term.

Fauna injury or mortality can occur through collision with vehicles or vegetation clearance machinery or entrapment in excavations, predominantly during the construction phase. Once construction begins, larger or more mobile local fauna would move away from the local areas during disturbance, however smaller species (e.g. small reptiles) may remain. If there are impacts to individuals or local fauna populations, the impacts on populations are likely to be minimal, being localized and short-term in nature. Measures to be implemented to minimise such impacts include:

- Pre-clearance surveys in areas of key fauna habitat (e.g. for threatened mallee bird nests during the breeding season).
- Regular monitoring of excavations for trapped fauna and use of temporary fences where appropriate.
- Use of wildlife handler where appropriate (e.g. when retrieving fauna from excavations or removing nests of threatened mallee birds in critical habitat during breeding season).
- Speed limits to reduce fauna strike.

The EIS considered these impacts to be ‘Negligible—Minor’, with a ‘Low’ risk of uncertainty.

**The AR concludes that the operation of equipment (and the generation of noise and dust) during the construction phase should only result in short term impacts within and immediately adjacent to the easement corridor, and should not pose an unreasonable risk to local fauna, subject to appropriate monitoring and management protocols.**

#### 14.3.7 Bird Strike

During operation of the transmission line, there is a risk that birds (and to a lesser degree bats) may collide with the towers or the electrified lines, resulting in injury or mortality. The greatest risk is where transmission lines are located near waterbodies, especially if they pass directly through wetlands. The risk is lower where transmission lines pass within proximity to wetlands. Factors that influence the risk of bird strike include body size (wingspan and weight), dispersal timing, flight type, bird numbers that use a wetland and historical evidence of collision with powerlines within Australia and South Australia.

The EIS acknowledged that flight patterns and behaviours of birds that occur in the region, including waterbirds, are variable and can influence mortality rates. Waterbirds are known to move between local wetlands (e.g. between Lake Merreti and Lake Woolpolool) and some species will also fly to inland wetlands (e.g. Blackbox swamps or lakes north of Danggali Conservation Park) during stopovers as part of migration routes. Similarly, Regent Parrots are known to migrate inland from riverine habitats to forage on mallee habitats. Other key factors known to impact bird strike risk include bird size and species specific behaviours such as flying in tight flocks (e.g. Australian Shoveler, Pink-eared Duck, Hardhead), recruitment events (e.g. Pink-eared Duck, Grey Teal, Red-necked Avocet, Hardhead, Coot, Black-tailed Native Hen, Freckled Duck) flying at high speeds (e.g. Hardhead) and flocks with a high proportion of juveniles present (e.g. Regent Parrot). The EIS noted that there are no records for deaths of these particular species that have been attributed to powerlines in Australia.

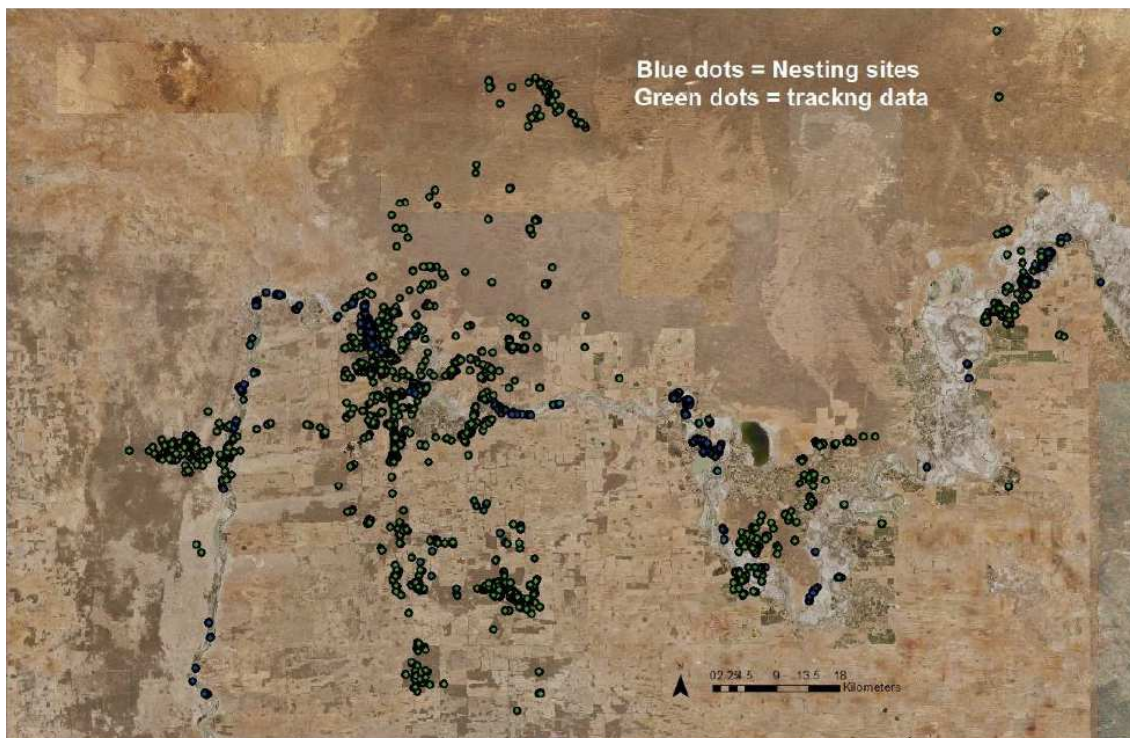
The transmission line route has been designed to largely avoid the wetland and floodplains of the Riverland Ramsar site, by following the alignment of the Wentworth-Renmark Road. The majority of the wetland waterbird habitat south of the transmission line corridor is more than 1 kilometre from

the alignment, with less than 1.5 kilometres of the line within 500 metres of a wetland boundary. Those wetland areas closest to the line do not hold water in most years and therefore, waterbirds will not be present year-round, lowering the overall risk

The EIS determined that no threatened species were considered at high risk, two State-listed species were considered to have moderate risk (Freckled Duck and White-bellied Sea-eagle) and five threatened species were considered to have low risk (Curlew Sandpiper, Australian Bittern, Painted Snipe, Banded Stilt, Peregrine Falcon). It concluded that with the implementation of effective mitigation measures (including the installation of bird diverters in sections of the line in close proximity to wetlands), the likelihood of bird strike is considered to be relatively low. Whilst bird collisions still remain a possibility, the impact on individual species is unlikely to be significant when overall population numbers are considered.

The EIS considered these impacts to be 'Negligible—Minor', with a 'Low' risk of uncertainty.

DEW advised that further consideration needs to be given to potential bird strike related deaths, particularly for Regent Parrots that can regularly cross the transmission line corridor to forage (as small and large groups of mixed ages). Tracking data provides evidence of regular and frequent crossings along a significant proportion of the proposed route, which collectively could affect the population to a greater degree than considered in the EIS. The Murraylands and Riverland Landscape Board also advised that the regent parrot has suffered a decline in range and abundance over the last 100 years, with major threats such as clearance and degradation of nesting and foraging habitat, disturbance around nesting sites and competition for nest hollows. The Board supports the Regent Parrot Recovery Team's efforts to monitor these birds to better understand what is important to them in the landscape, and to use this information to reverse the decline. It considered there are likely to be impacts on regent parrots as a result of the construction and operation of the transmission line.



**Figure 21:** Regent Parrot Tracker Summary: December 2019 – June 2021 (Reference: DEW Referral Comments, p 21)

If the proposal is approved, specific target monitoring would need to be undertaken along the route in the first few years of operation to ensure bird strike is minimised and addressed. This may include specific canopy trimming or installation of bird diverters where necessary. The Landscape Board suggested that during the first three years of operation, the route should be traversed for signs of bird strike (late October to mid-January) to ascertain whether there is an impact on breeding adult or juvenile birds. Actions, such as line raising, bird diverters or canopy trimming, can then be used at key locations.

The Response Document (Section 6.3.2) considered that the conclusions reached in the EIS (i.e. that the likelihood of collision is low and significant impacts to the species are not expected) are based on consideration of regular crossing of the transmission line by Regent Parrots and remain valid.

The Australian Landscape Trust raised concerns about the potential effect of the transmission line on waterbirds using the Riverland Ramsar site. The Trust advised that Lakes Woolpolool and Merreti are now regulated and receive some level of inundation four years out of every five years (not every three to five years as stated in the EIS). Therefore, these lakes support waterbirds for the vast majority of time. The other wetlands described in the EIS are also inundated more frequently, through the Chowilla Regulator and environmental watering programs. The Trust considered there would be significant interaction between waterbirds using the wetlands for a 36-kilometre section of the alignment adjacent the Ramsar site in most years and for the majority of each year.

In addition, the Trust raised a concern that, whilst the White-bellied Sea-Eagle was identified as a species at risk, it was considered in the EIS as not a significant issue as this species only occurs in small numbers in the area. The species is now considered to have established a breeding territory over Lakes Merreti and Woolpolool and, given this is the only breeding site in the region and the Sea-Eagle population in South Australia is very small, this location should now be considered a significant site for this nationally threatened species.

**The AR concludes that through the route selection and interconnector design process, the operational phase of the development should not pose an unreasonable or long-term risk to threatened species such as the Regent Parrot or Black Eared Miner, subject to appropriate mitigation measures and post-construction monitoring period.**

#### 14.3.8 Fire Risk

The EIS (Section 11.4.6) identified that construction and operation of the transmission line involves a number of potential ignition sources. During construction, these include sparks from 'hot works' such as welding, ignition of dry grass by vehicle exhaust or vehicle collisions. During operation, potential sources of ignition include contact between vegetation and conductors, contact between conductors or damage to transmission lines during extreme weather events, bird strike or ageing or poorly maintained equipment. The region is a high-risk fire area, as bushfires are a natural occurrence in the region, often resulting from lightning from September to December, which is when dry lightning storms frequently occur. Prescribed burns are also undertaken in the region for environmental and fuel reduction purposes.

Bushfire extent and frequency are amongst the most significant threats to mallee habitats and associated biodiversity. Periodic fires which are restricted in area create a mosaic of habitat age which is beneficial to many mallee fauna species that utilise resources in both long unburnt mallee and adjacent patches with more recent fire history. Fire can also have long-term impacts to threatened species that have a preference for long-unburnt habitats, such as Black-eared Miner, Red-lored Whistler and, to a lesser extent, Malleefowl.

The EIS states that transmission lines are specifically designed to reduce the risk of fire, partially to protect the asset itself, but also to protect the surrounding environment, including potential impacts upon flora and fauna. . Transmission towers can act to dissipate lightning across the landscape, thereby reducing the risk of fire starting from lightning strike. Standard lightning protection (e.g. earthwires above conductors) offer shield protection from lightning strike and every transmission structure is earthed. Regardless, unplanned and unmanaged activities can lead to bushfires. Historical fires associated with transmission lines generally originate from the lower voltage distribution network where there is much greater potential for contact with vegetation.

Powerline easements can assist in regional fire management by serving as physical, maintained fire breaks and assist in providing alternate access for the emergency vehicles (however it is noted that the proposed extent of clearance will not be wide enough to be considered a fire break). The transmission line corridor follows the southern edges of Taylorville and Calperum Stations on existing access tracks, but also traverses areas of Hawks Nest Station where access is poor and requires upgrade.

The EIS acknowledges that along the central part of the transmission line route the mallee of the Riverland Biosphere Reserve is known to be an extremely difficult environment to combat fire. The size of the area, lack of access to water, steep sandy terrain and often rapid rate of fire spread all contribute to a volatile fire environment. Access through established mallee in the absence of tracks is also very difficult. It should be noted that whilst the route follows an existing transmission line easement from Robertstown to Taylorville Station, a new easement would be created along the eastern half of the southern boundary of Taylorville that would extend to the SA-NSW Border. Whilst the easement would provide improved access for firefighting, the mallee habitat along the route would be at an increased risk from fire.

The EIS (Chapter 18 and Appendix S) included a bushfire risk assessment that was undertaken for the Fire Hazard Management Plan, which concluded that with line design measures and fire management measures in place, the residual risk is expected to be 'Low' to 'Medium'. Residual risk was identified as being higher during the construction stage than at the operational stage. Experience elsewhere on the ElectraNet network indicates that transmission lines similar to the design proposed have not resulted in the ignition of bushfires.

The Australian Landscape Trust considered that the most significant effect of the proposal on MNES is the risk of bushfires resulting from the operation of the transmission line. The Trust considered that most of the mitigation measures in the EIS are designed to protect the assets of the project and the life of those working on the project, but have no impact on protection of the environmental assets once construction is completed and operations commence. In particular, the on-site fire-fighting resources seem related to the construction phase and not the operational phase, so it will have no impact on bushfire suppression during operation. On-sight fire-fighting resources patrolling the line during operation in high fire risk periods could potentially reduce the consequences of ignitions by suppressing them before they become a threat.

BirdLife Australia advised that fire is one of the greatest threats to threatened mallee birds, with the potential for landscape-scale fires to cause localised extinctions. In particular, a large-scale fire in the Project area could lead to global extinction of the Black-eared Miner. It is critical that fire risk associated with construction activities is minimised, including prevention of fires and rapid response to any ignition events. The proponent needs to ensure that firefighting resources, including mobile firefighting units and/or project owned and operated dedicated water tanker/firefighting trucks must be on permanent standby throughout the construction phase.

The Response Document (Table A-7.1) again acknowledged the proposal is located in an area where there is already an intrinsically high level of bushfire risk in the surrounding environment. With the appropriate implementation of design and management measures (as proposed in the EIS), the proposal is not considered to materially increase the level of bushfire risk to MNES in comparison to the current situation.

The Response Document (Table A-7.1) noted that the construction contractors would not be trained to fight fires (unless safe to do so) and the contractor's fire management plan is to call emergency services. The Contractor will, as a minimum, have trailer mounted (or similar) water supplies, shovels, knapsacks and fire-extinguishers at all times during construction works. ElectraNet has three Emergency Liaison Co-ordinators working on a rostered 24/7 basis all year round who monitor bushfire conditions, asset safety, working with or from the CFS emergency response headquarters.

**The Assessment Report concludes that the risk of fire during the construction and operational phases of the development can be appropriately managed, firstly in the construction process through appropriate training and management measures, and during operation, the design and safety features of the transmission systems being engineered to mitigate such risks.**

#### 14.3.9 Impact on Conservation Areas

Whilst the transmission line corridor traverses a number of properties managed primarily for conservation, especially those that are within the Riverland Biosphere Reserve, the route has been selected to minimise potential impacts to native vegetation, habitats and conservation values of these properties.

In particular, the route follows the southern boundaries of Taylorville and Calperum stations (subject to Heritage Agreements) and the northern boundary of the Pooginook Conservation Park, where it uses existing disturbance corridors (including tracks, fence lines, firebreaks, existing transmission lines and the Wentworth-Renmark Road).

The route also predominantly passes north of the Riverland Ramsar site boundary and River Murray floodplain, being located on higher ground on the northern side of the road from Wentworth to Renmark. The line crosses three areas of upper floodplain (totalling approximately 2 kilometres in length) that are only flooded in extreme flood events (such as the 1956 flood). Whilst several towers would be constructed on upper floodplain, they would have minimal impact. Thus, the proposal would not affect wetland or floodplain areas or the ecological character of the Ramsar site.

Within the White Dam Conservation Park existing tracks associated with the existing 132kV transmission line would be used as far as possible for the installation of several towers to minimise disturbance. Thus, there would be a limited impact. Thus, vegetation (and habitat) clearance would primarily occur adjacent existing disturbance corridors, with the main impact being a widening of the disturbance corridor.

The EIS determined that the predicted impacts are in the 'Negligible' or 'Negligible—Minor' categories. Uncertainty in the predicted impact (based on uncertainty in community occurrence or potential ineffective implementation of controls) was evaluated to be a 'Low' level of risk.

The Murraylands and Riverland Landscape Board advised proposed transmission route overlaps with a number of the Board's major projects, including Living Landscapes (returning functionality to the South Olary Plains), Regent Parrot Recovery project and the Threatened Mallee Birds project. A



number of these projects operate in partnership with key stakeholders, of which one is the Australian Landscape Trust (ALT), which owns and manages Calperum Station and neighbouring Taylorville Station, north of Renmark. The Interconnector project has the potential to threaten the success of these projects, which are funded by State and Commonwealth governments.

In particular, on-ground works for the Threatened Mallee Birds project include:

- Undertaking a strategic herbivore control program, including the removal of feral goats from major infested areas and immigration routes across 75,000 hectares;
- Improving the habitat for threatened Mallee birds through direct seeding at previously flattened dam sites;
- Decommissioning former pastoral dams and revegetating sites; and
- Strategic rolling of fire-breaks to inform prescribed fire programs to reduce fire risks to Mallee bird population and promote habitat diversity.

The Environmental Management Plan framework to be implemented for the proposal should consider existing projects or initiatives to protect and enhance regional ecological communities.

**The AR concludes that the proposed transmission line is expected to have limited impact on the conservation values of affected parks, reserves and heritage agreement areas in the region. Additional loadings have been included in SEB offset calculations to compensate for vegetation loss in conservation areas, as per the SEB guidelines under the *Native Vegetation Act 1991* (NVC 2020 a,b,c,d).**

#### 14.4 Matters of National Environmental Significance

Following a referral made by the proponent under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the proposal was deemed a ‘controlled action’ that requires assessment and a decision under the Act. This was due to the potential impacts upon nationally ‘listed threatened species and communities’.

More specifically, the proposal will clear and fragment habitat that is listed on the Register of Critical Habitat (under section 207 A of the EPBC Act) and critical to the survival of the endangered Black-eared Miner (*Manorina melanotis*) and is likely to have a significant impact on seven species and communities through clearing and fragmentation of habitat, fire risk, and bird-strike. The species/communities include:

1. Black-eared Miner (*Manorina melanotis*)
2. Red-lored Whistler (*Pacycephala rufogularis*)
3. Regent Parrot (*Polytelis anthopeplus monarchoides*)
4. Malleefowl (*Leipoa ocellata*)
5. Peep Hill Hop-bush (*Oodoniaea subglandulifera*)
6. Silver Daisy-bush (*Olearia pannosa* subsp. *pannosa*)
7. Iron-grass Natural Temperate Grassland of South Australia ecological community (critically endangered)

The then Commonwealth Department of the Environment and Energy assessment of the referral deemed that, accordance with the significant impact guidelines, and taking into account the implementation of appropriate avoidance and mitigation measures, the proposal is not likely to have a significant impact on the ecological character (ecosystem components, processes and benefits/services) of Riverland Ramsar site nor any associated migratory species (i.e. shorebirds).

When determining the potential impacts on threatened species, the following hierarchy needs to be considered:

- Level of **Avoidance** of impacts: Direct impacts from clearance (quantifiable level of habitat loss). Indirect impacts from edge-effects and fragmentation that can potentially reduce the condition of existing habitat and threaten species populations, especially from weed invasion and predation.
- Level of **Mitigation** of impacts: proposed management measures to minimise impacts and to manage current threatening processes, primarily the control of weeds/pests and minimising fire risk.
- **Off-sets**: If the level of mitigation and residual impact is acceptable, then an off-set is required to compensate for the level of residual impact (i.e. an environmental benefit arises from protecting environmental assets or addressing current threatening processes).

#### 14.4.1 EPBC Listed Fauna Species and Critical Habitat

The EIS (Section 11.3.6) considered there to be three (3) EPBC listed threatened fauna species present within the transmission line corridor: the Black-eared Miner (*Manorina melanotis*), the Malleefowl (*Leipoa ocellata*) and the Red-lored Whistler (*Pacycephala rufogularis*). In addition, the Regent Parrot (*Polytelis anthopeplus monarchoides*) is likely to occur within the corridor. A number of listed migratory fauna, mainly bird species associated with the Riverland Ramsar wetland site, were identified as being within or adjacent the corridor.

The transmission line corridor also traverses the southern margin of an area listed as Critical Habitat for the Black-eared Miner, contained within Gluepot Reserve, Taylorville Station and Calperum Station. This large area of habitat is over 380,000 hectares and includes habitat that meets essential life cycle requirements, is used by important populations and is necessary for maintaining genetic diversity of the species.

The EIS also considered the Eastern Mallee Bird Community, which has been nominated for Endangered conservation status under the EPBC Act. The bird assemblage associated with this community includes 52 terrestrial native birds that are identified as being dependent upon, or strongly associated with, mallee habitats in south-eastern Australia. Iconic species include the Black-eared Miner, Malleefowl, Red-lored Whistler, Mallee Emu-wren and Western Whipbird. The distribution of the community is from south-west New South Wales, north-west Victoria, and from south-east South Australia to the Eyre Peninsula and includes the Murray-Darling Depression IBRA bioregion. It is expected that the bird community present in mallee habitats in the central and eastern part of the transmission line corridor would qualify as the 'Eastern Mallee Bird Community'.

In addition, the EIS considered the Mallee Striated Grasswren (*Amytornis striatus striatus*), which is currently listed as rare in SA, but may be listed under the EPBC Act in the future.

The EIS (Table 11-22) provides an evaluation of potential impacts to listed fauna species that are present, likely to or possibly could occur or unlikely to occur along the transmission line corridor. The EIS (Table 11-22) also includes a summary of key mitigation measures that would be adopted to avoid or minimise impacts on flora and fauna.

*14.4.2 Black-eared Miner (Manorina melanotis) – Listed as Endangered*

The Black-eared Miner occurs in dense, long-unburnt mallee vegetation. It has hybridised extensively with the common Yellow-throated Miner in areas where the mallee has become fragmented by vegetation clearing. This is recognised as a key threat to the species as a whole. Historically they were known to occur in extensive unburnt mallee areas north of the River Murray, particularly in the Gluepot to Calperum Station area. Records indicate Black-eared Miners, Yellow-throated Miners and hybrids continue to occur in the vicinity of the transmission line corridor. Both pure Black-eared Miners and hybrids were recently recorded at Taylorville, Hawks Nest and Calperum Stations

The EIS considered the potential impacts to the species to be habitat removal, fragmentation and degradation of habitat, predation, disturbance during construction and operation (e.g. noise, dust and human activity) and hybridisation. Clearance of vegetation can facilitate hybridisation via fragmentation of habitat, which allows Yellow-throated Miners to enter and hybridise with pure Black-eared Miners. Approximately 201 hectares of non-core habitat (along approximately 100 kilometres of the alignment) is predicted to be cleared, which represents 0.03 per cent of the more than 600,000 hectares of mallee habitat in the Riverland Biosphere Reserve and other properties traversed by the proposed alignment. Vegetation clearance was evaluated to result in a minor to moderate level of impact of habitat fragmentation or increasing existing levels of hybridization, given habitat within the corridor is considered to be less suitable. Importantly, Critical Habitat to the north of the alignment, where the majority of the pure Black-eared Miners occur, is to be avoided.

Standard fauna protection protocols (e.g. speed limits, dust suppression, fauna awareness during inductions and prevention of unauthorised access to tracks) are expected to minimise other construction and operation impacts.

The EIS concluded that significant impacts, as per the EPBC Significant Impact Guidelines Endangered species criteria (DoE 2013), are not expected.

*14.4.3 Red-lored Whistler (Pacycephala rufogularis) – Listed as Vulnerable*

The EIS states that the Red-lored Whistler is considered present in the long unburnt/old growth mallee habitats of the transmission line corridor (including habitat in Taylorville Station). However, it is likely to occur in low abundance, given that amount of mallee within the transmission line corridor that has been burnt in the last 6 – 14 years. The species is known to occur in the Pooginook Conservation Park, which is traversed by the transmission line corridor along the northern boundary. The species occurrence is considered limited, as the boundary is already fragmented by an existing track and transmission line infrastructure.

Threats to the species include habitat removal, habitat degradation or fragmentation as a result of vegetation clearance or increased fire potential and weed incursion. Other potential impacts include increased predator access, collision with vehicles and disturbance during construction or operation. . The known occurrence of this species within the transmission line corridor is primarily in areas that are already fragmented. The EIS considers that vegetation clearance during construction will result in a very low reduction in the area or value of Red-lored Whistler habitat, as the alignment traverses disturbed areas and avoids essential mallee habitat that is well north of the corridor. It predicted the clearance of approximately 201 hectares of potentially suitable habitat (i.e. mallee) along approximately 100 kilometres of the alignment, which represents 0.03 per cent of the more than 600,000 hectares of mallee habitat in the Riverland Biosphere Reserve and other properties traversed by the proposed alignment.

Standard fauna protection protocols (including speed limits, dust suppression and noise controls, fauna awareness during inductions and prevention of unauthorised access to tracks) are expected to minimise construction and operation impacts.

The EIS concluded that significant impacts, as per the EPBC Significant Impact Guidelines Vulnerable species criteria (DoE 2013), are not expected.

#### *14.4.4 Regent Parrot (*Polytelis anthopeplus monarchoides*) – Listed as Vulnerable*

The Regent Parrot is restricted to a single population occurring in inland south-eastern Australia, which ranges across the lower Murray-Darling basin region of South Australia, New South Wales and Victoria. In South Australia, all known breeding colonies are located along the River Murray, with feeding sites within large blocks of mallee within 5 to 20 kilometres (usually 5 to 10 kilometres) of these areas. Mallee further than 20 kilometres from the River Murray can be utilised in the non-breeding season. The EIS identified suitable foraging habitat occurring within the central and eastern sections of the transmission line corridor, with records showing occurrence along the alignment being limited.

Potential impact to the species include an effect on foraging or flight path habitat (e.g. removal, degradation, fragmentation and weed invasion), impacts associated with bird-strike or impacts associated with disturbance during construction or operation. A number of areas along the transmission line corridor are within 6 to 17 kilometres of the River Murray and have potential to interrupt movement patterns, include area between Stuart and Makaranka, areas near Pooginook CP, North of Lake Bonney and East from Cooltong CP to the NSW border. During breeding season males are potentially at risk from bird strike when foraging back and forth from nesting sites to feed females and juveniles are at risk during dispersal once they have fledged.

The EIS considers that the proposal would impact a very small proportion of available foraging habitat in the region, with the clearance of approximately 250 hectares of potentially suitable mallee/woodland habitat along approximately 125 kilometres of the alignment. This represents 0.04 per cent of the more than 600,000 hectares of potentially suitable habitat in the Riverland Biosphere Reserve and other properties traversed by the proposed alignment.

The EIS considered the bird strike risk to be low, given their size, small wingspan, wide spacing of conductors and flight height, noting there have been no deaths attributed to powerline collision for Regent Parrots or other parrots. Provided there is adequate gap between the canopy and the powerlines, Regent Parrots moving between the Murray River breeding and roosting sites and mallee shrubland foraging areas, which usually fly less than five metres above the tree canopy, are considered unlikely to collide with the powerlines (see Appendix I-4). Under typical operating conditions, the clearance between the conductors and the canopy would be more than 5 metres, which would mean collision with the transmission line is unlikely.

#### *14.4.5 Malleefowl (*Leipoa ocellata*) – Listed as Vulnerable*

Malleefowl occur in semi-arid to arid zone shrublands and low woodlands dominated by mallee habitats, with the largest populations occurring in South Australia and South Australia. Preferred habitats include long-unburnt mallee on sand with deep litter and with a mosaic of fire history, for breeding and foraging. It is also known to traverse along tracks and forage in cropped/stubble areas. More than 600,000 hectares of suitable habitat occurs north of the transmission line corridor in the Riverland Biosphere Reserve. Whilst Malleefowl have not been observed in the transmission line

corridor, the EIS considered the species likely to be present in mallee habitats within the central to eastern parts of the corridor.

Threats to the species include habitat removal, habitat degradation or fragmentation as a result of vegetation clearance or increased fire potential and weed incursion. Other potential impacts include increased predator access, collision with vehicles (particularly given their ground-dwelling nature and size) and disturbance during construction or operation.

The EIS considered that vegetation clearance during construction would result in very low reduction in the area or value of Malleefowl habitat, as the alignment traverses areas already disturbed and avoids the extensive mallee habitat that is north of the corridor. It predicted the clearance of approximately 201 hectares of potentially suitable habitat (i.e. mallee) along approximately 100 kilometres of the alignment, which represents 0.03 per cent of the more than 600,000 hectares of mallee habitat in the Riverland Biosphere Reserve and other properties traversed by the proposed alignment.

Standard fauna protection protocols (such as speed limits, dust controls, waste management, fauna awareness during inductions and prevention of unauthorised access) are expected to minimise other construction and operation impacts. In addition, whilst no Malleefowl mounds have been detected to date, micro-siting prior to vegetation clearance can be used to avoid impacts to active nesting mounds and breeding pairs if present.

The EIS concluded that significant impacts, as per the EPBC Significant Impact Guidelines Vulnerable species criteria (DoE 2013), are not expected.

#### *14.4.6 EPBC Listed Flora Species and Threatened Ecological Communities*

The EIS (Section 11.3.3) states there were no EPBC-listed threatened ecological communities located within the transmission line corridor. Only one (1) EPBC-listed flora species was considered to be present within the corridor: the PeepHill Hop-bush (*Dodonaea subglandulifera*)

#### *14.4.7 Peep-Hill Hop-bush (Dodonaea subglandulifera) – Listed as Endangered*

The species is present within the western end of the corridor, being found on the east side of the Mount Lofty Ranges and on Yorke Peninsula, growing on low hills on loamy soils associated with rocky outcrops in open woodland (often *Callitris gracilis* and/or *Allocasuarina verticillata*), open shrubland (often acacia) and mallee.

Two groups of plants are known to occur in within the corridor, within an existing infrastructure corridor and are currently avoided by track maintenance upgrades. Three plants were found about 20m WSW of an existing alignment, approximately 50 m south of the proposed alignment, (i.e. within the transmission line corridor). Another 50 – 100 plants of mixed age were also located to the west of the first group. Both locations occur within the transmission line corridor (EIS Figure 11-6). These plants occur on the edge of the extent of an important known 'Robertstown' subpopulation for the species which includes over 5,000 plants at five locations north to northeast of Robertstown.

The EIS identified the following two (2) EPBC-listed species that could possibly be present within the western end of the corridor:

Silver Daisy – bush (*Olearia pannosa* subsp. *pannosa*) – Listed as Vulnerable

The species is scattered widely in the Mt Lofty Block (and localised on eastern Eyre Peninsula, upper South East, Mid North and southern Flinders), with most populations located on roadsides with few individuals. The Murray-Darling Depression region is at the edge of its range. It occurs in heath, mallee, woodland and forest communities on a range of soils (sandy, duplex) and terrains (slopes and plains). Although the species was not been located during surveys, and there are no records within the corridor, habitats where the species would occur are present.

Yellow-Swainson Pea (*Swainsona pyrophila*) - Listed as Vulnerable

The species is short-lived, adapted to fire and widely distributed in SA. Germination is triggered by soil disturbance or fire. Although not observed during surveys, given suitable habitat and species characteristics it is possible the species occurs within the corridor.

*14.4.8 Offsets*

The current Bilateral Agreement between the Commonwealth of Australia and the State of South Australia relating to Environmental Assessment provides that where a project has likely residual significant environmental impact (after all activities to avoid and mitigate are taken into account), an offset package can be proposed in accordance with the Commonwealth's EPBC Act Environmental Offsets Policy.

The offset package can combine a combination of direct offsets and other compensatory measures. Offsets should align with conservation priorities for the impacted protected matter and directly contribute to the ongoing viability of the Matter of National Environmental Significance.

The Environmental Offsets Policy provides flexibility in delivering environmental outcomes. Further, the bilateral agreement allows that offsets required by the State can be applied if the offsets meet the Commonwealth's Policy.

In South Australia offset requirements for the removal of vegetation are provided through a Significant Environmental Benefit (SEB) under the Native Vegetation Act 1991 and guided by the Policy for Significant Environmental Benefit July 2020. The Native Vegetation Council (NVC) administers the policy, which provides two main options:

1. On-ground SEB: the protection and management of areas of the same vegetation type (structure and dominant species) as that to be cleared.
2. Payment SEB: monetary payment into the Native Vegetation Fund in lieu of direct offsets. The NVC devolves these funds to third parties to deliver the required offsets.

The bilateral agreement requires that assessment documentation (the EIS) include details of an offset package for MNES, this case residual impacts to listed threatened species and communities.

The EIS proposes that an SEB will be provided to offset the approximately 413 hectares of native vegetation to be cleared. A draft Native Vegetation Clearance Data Report is included at Appendix I-6, which provides a preliminary estimate of the SEB requirement. The method of SEB, on-ground or payment, will be determined in consultation with NVC following construction when the final extent of clearance is confirmed.

The EIS does not differentiate between the offset required for overall vegetation clearance, and the offset required for the MNES (listed threatened species and communities). The EIS does not include



details of an offset package in accordance with the Commonwealth's Environmental Offsets Policy. The preliminary offset for native vegetation clearance in Appendix I-6 was calculated using the NVC Policy for Significant Environmental Benefit.

Further investigation is needed to determine the offset requirements under the Commonwealth Environmental Offsets Policy, and whether any additional offset over and above the State SEB is required.

The extra loading on the SEB payment due to residual impacts on threatened species habitat could meet the EPBC offset requirement, where the payment is used on protection of threatened species habitat.

In this regard preliminary discussions have commenced between the NVC and Commonwealth Department of Agriculture, Water and the Environment (DAWE). It is noted that the final offset package will be need to be confirmed if the project is approved.

The AR concludes that the avoidance and mitigation measures proposed to minimise potential impacts to threatened species and communities have been thoroughly considered and will be adequately addressed by the proponent environmental management plan framework.

Adequate Off-sets for native vegetation and habitat loss/disturbance could be achieved via a Significant Environmental Benefit (SEB) under the *Native Vegetation Act 1991*, which would be approved by the Native Vegetation Council.

In regard to the environmental record of the proponent, which is a separate requirement of the EPBC assessment framework, it should be noted the proponent (ElectraNet) is a large electricity transmission company that has extensive experience in previously undertaking the type/scale of development proposed in a relatively sensitive environment.

In recent years, it has constructed two major transmission lines - the 275kV Port Augusta to Prominent Hill line (300 kilometres) and the 275kV Whyalla to Port Lincoln line (270 kilometres), which is currently being constructed along an existing transmission line easement and traverses similar sensitive Mallee habitat that supports threatened species.

ElectraNet has demonstrated that potential impacts can be and minimised through design and construction measures, especially through the effective management of construction contractors. ElectraNet's operations are governed by an Environmental Management Policy and an AS/NZS ISO 14001 accredited Environmental Management System.

For the preparation of the EIS and Response document, the proponent employed suitably qualified environmental experts to undertake investigations. It is expected that a range of experienced experts/professionals would be employed to undertake the preparation and implementation of the Environmental Management Plan framework during construction and operation to ensure adequate impact mitigation and environmental protection measures are implemented. Ongoing monitoring and remediation would also be required.

The AR considers that, if the proposal is approved, a Threatened Species Management Plan would be required, which would primarily address the measures to be adopted to avoid, minimise and off-set impacts on each nationally threatened species that could be affected by the proposal. The Plan would need to consider any Recovery Plans that relate to each species.

Species of State and Regional conservation significance (especially those listed under the National Parks and Wildlife Act 1972) should also be addressed in the Plan. The Plan would need to be prepared in consultation with the Department of Environment and Water (including the Native Vegetation Council), the Murraylands and Riverland Landscape Board and the Australian Government Department of Agriculture, Water and the Environment.

## 14.5 Cultural Heritage

| Guideline                             | Assessment Outcome  |
|---------------------------------------|---|
| 6. Effect on Cultural Heritage Values | Avoidance – transmission route aligned or re-routed to avoid identified sites of European and Aboriginal Cultural significance. |

Due to its 200 kilometre extent and locations close the River Murray, the development proposal has the potential to impact on sites of European and Aboriginal cultural significance.

The *Heritage Places Act 1993* provides for the identification, recording and conservation of places and objects of non-Aboriginal heritage significance, via a SA Heritage register.

The *Aboriginal Heritage Act 1988* provides for the protection and preservation of Aboriginal sites, objects and remains of significance (and outlines those requirements to protect and disclose new discovered sites, objects or remains). The central archive of Aboriginal heritage (managed by DPC-AAR) contains a number of records for Aboriginal sites within the Project area (nominally a 500 metre wide transmission corridor), which provides the main guidance on their location. Following the refinement of the route, a 1 kilometre wide corridor width was then subject to more detailed investigation (including on-site cultural heritage surveys and consultation with Traditional Owners).

A range of documents, records and surveys were then used to identify possible sites, utilising consultants recognised and supported by the First Peoples within their native title claimant areas. The most culturally sensitive areas were those on the eastern edge of the project area, being a 40 kilometre long section from the South Australia-New South Wales border, westward, close to the northern margin of the River Murray floodplain in the areas of the Chowilla Game Reserve and Calperum Station.

In considering these matters, the proponent undertook a more detailed Aboriginal cultural heritage survey of the entire route, and where sites of heritage significance were identified, the transmission route alignment has been altered to avoid and limit any direct impacts to these sites. No Commonwealth Heritage places are impacted by the development or located within the transmission corridor. In addition, no State or Local Heritage Places are directly impacted by the development, and no further assessment needs to be undertaken on these matters.

The main heritage avoidance measure is that the transmission line route will not traverse the River Murray or its immediately sensitive environs, being located to the north, which assists in greatly reducing the likelihood of impacting both known and unknown heritage sites of significance. Where other identified sites within the corridor remain, a buffer area will be implemented to protect them (in consultation with traditional owner groups).

As detailed in the EIS, ElectraNet has extensively liaised with the Traditional Owners of the land in the region for the project, which comprise the First Peoples of the River Murray and Mallee (First Peoples), First Peoples of the River Murray and Mallee Native Title claim No. 2 and Ngadjuri Nation No.2 (Nadjuri), together with their respective legal representatives from South Australian Native Title

Services. DPC-AAR has reviewed the extensive consultation and heritage survey work undertaken by the proponent and the proposed mitigation measures outlined in the EIS, and advises that the measures appear ‘reasonable and comprehensive’ and should result in the project having minimal impacts to Aboriginal heritage.

The Response Document clarified the locations of temporary laydown areas and a workers’ camp around Morgan that may be used during the construction period. The majority of sites are located on previously cleared and disturbed areas where the risk of cultural heritage disturbance is low. The final details of temporary construction components (within the declared area) will be a matter of final design detail. A Cultural Heritage Management Plan Framework can then outline specific requirements, procedures and responsibilities for staff and contractors around known and discovered non-Aboriginal heritage sites.

The EIS acknowledges that undiscovered and unrecorded Aboriginal sites, objects and ancestral remains (heritage) may exist within the Project area, even where previously surveyed or disturbed by past activities, and given the high likelihood of further discoveries of unrecorded Aboriginal heritage, the proponent will need to comply with current legislative requirements under the *Aboriginal Heritage Act 1988* (SA).

DPC-AAR also acknowledges ElectraNet’s intention to enter into Aboriginal Heritage Agreements with the River Murray and Mallee Aboriginal Corporation RNTBC and Ngadjuri Nation Aboriginal Corporation, which should further assist to protect Aboriginal sites and heritage values.

If approved, it is recommended that legislative awareness sessions for ElectraNet’s employees and contractors should be undertaken to appropriately manage heritage risks and minimise potential impacts during construction, which can be incorporated into a Cultural Heritage Management Plan framework, which will also incorporate additional mitigation measures, (such as all vehicles travelling on existing tracks, no interference to identified or existing sites). Any discoveries must be immediately reported to ElectraNet and the First Peoples, with agreed lines of communication.

These avoidance and management measures are considered to be both appropriate and adaptable to ensure impacts to Aboriginal cultural sites of significance are appropriately protected and conserved during the construction and operational phases of the development.

**The AR concludes that identified areas of Aboriginal cultural significance will be avoided, whilst the proponent has taken all reasonable steps, from early engagement to entering into Aboriginal Heritage agreements, to ensure that potential risks and impacts are minimised.**

## 14.6 Visual Amenity

| Guideline                                    | Assessment Outcome  |
|--|---|
| 8. Visual Impact<br>9. Effect on Communities | Mitigation – siting of transmission line away from public view and along existing infrastructure easements where possible; and use of open, lattice towers. |

The development comprises approximately 380 towers ranging in height from 45-65 metres and spaced 400 – 600 metres apart along a 200 kilometre alignment. This represents a significant visual element in the landscape with the potential to adversely impact the amenity of local communities, tourism values and landscape quality.

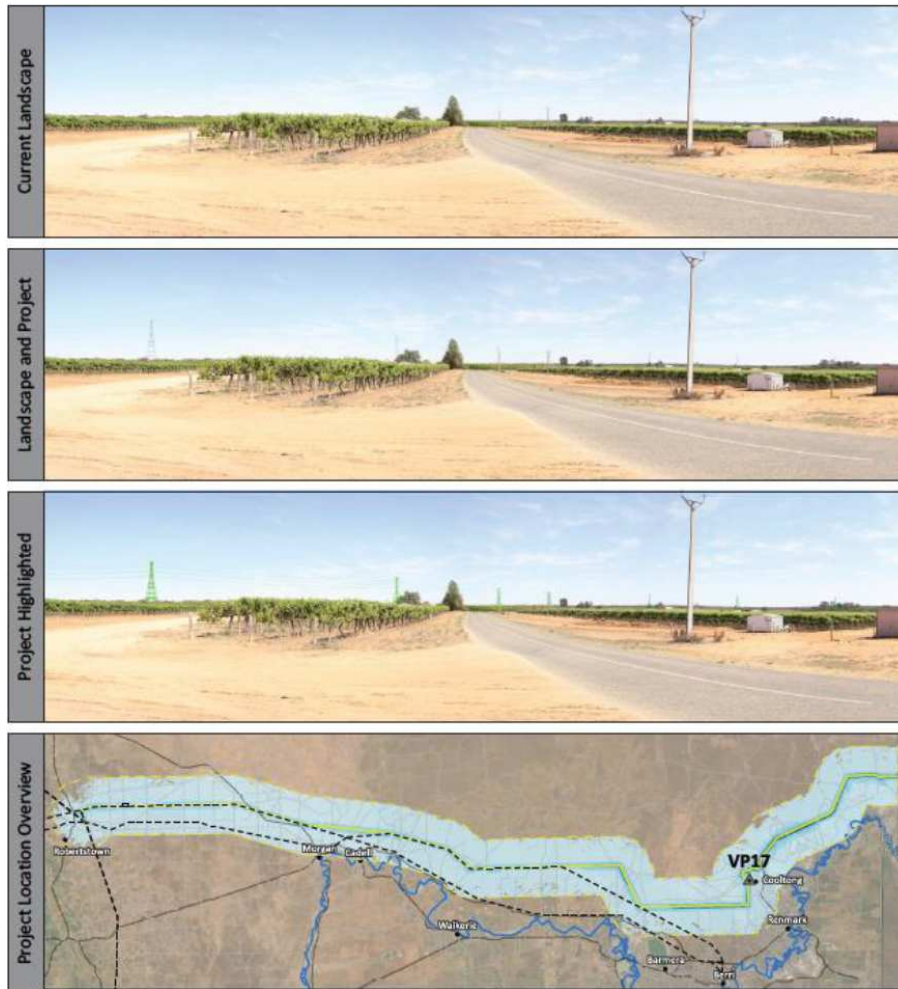
The transmission line alignment is located within a rural area of very low population density. The predominant land uses are livestock and agriculture, with few sensitive receptors. Land uses are more diverse south of the transmission line around the Riverland townships of Morgan, Cadell, Cooltong and Renmark. The nearest residential zoned land is located over 10 kilometres to the south of the Project area in the Renmark township.

The predominant landscape type is the Murray Darling Depression characterised by semi-arid, degraded agricultural plains, mallee woodland, heath and shrublands. The western edge of the alignment is within the Flinders Lofty Block bioregion with its low hills, sparse vegetation and farming land. The eastern portion of the Project area (north-east of Cooltong) is the eastern riverina landscape which comprises the Riverland Ramsar wetlands and River Murray floodplains.

The EIS (Chapter 13) includes a Visual Impact Assessment (VIA) that considers the level of visual impact from potential receptors (roads, residences and tourist sites) located within the Theoretical Zone of Visual Influence (TZVI) up to 6.2 kilometres either side of the transmission line. Beyond 6.2 kilometres, the transmission line towers will be barely noticeable or not visible at all.

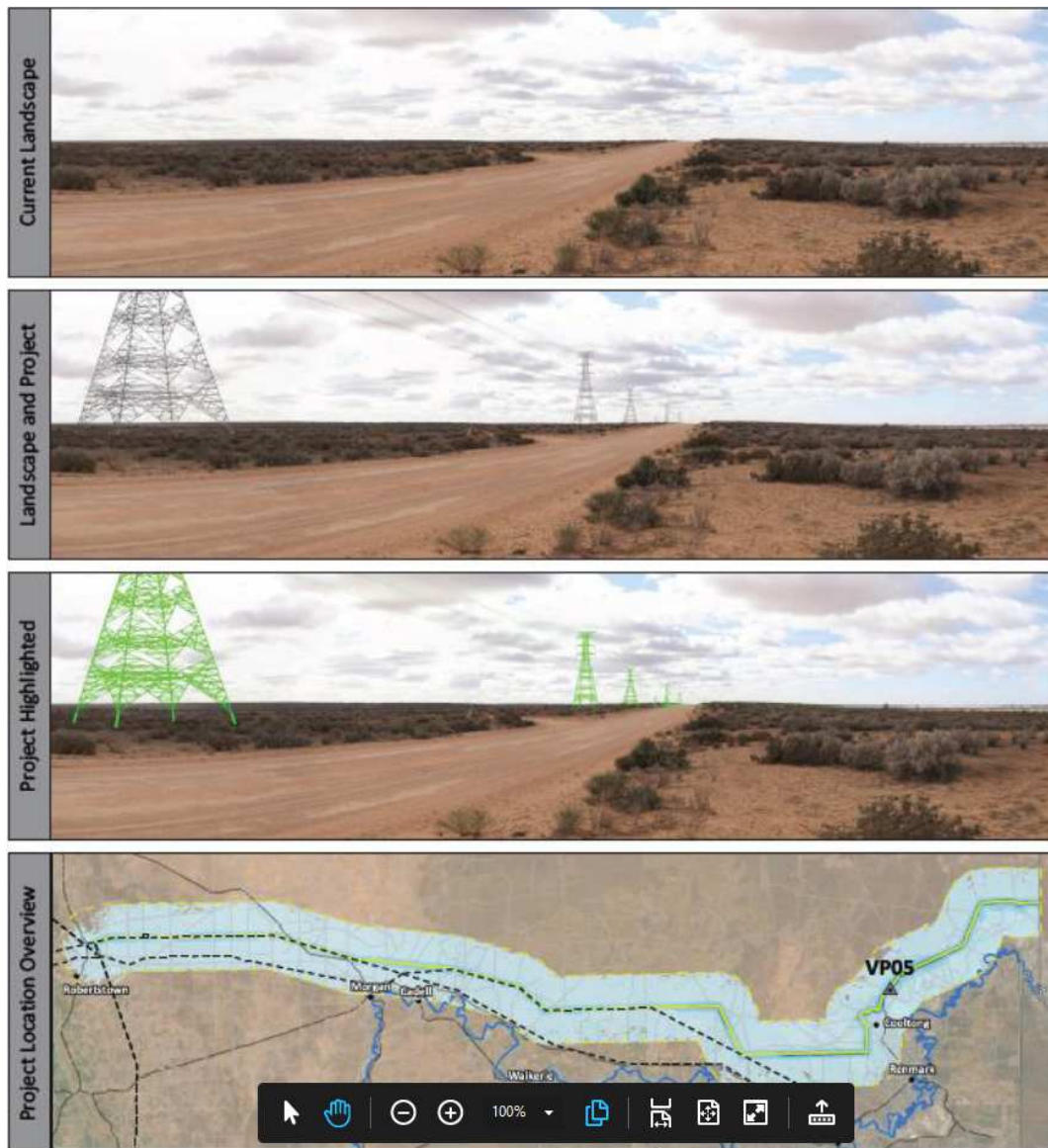
The route selection process for the project has sought to avoid sensitive receptors and visually sensitive landscapes and co-locate with existing transmission lines where possible.

At the eastern end of the alignment passes to the west of Cooltong township before joining the Wentworth-Renmark Road on route to the SA/NSW border. The Cooltong township is within the TZVI. Photomontage VP17 from the VIA depicts the transmission line from a distance of 556m which is within the 'very low visibility' zone (refer figure 22). To the north-east, the transmission line passes within close proximity to a small number of dwellings, the closest being 330 metres from the line. Submissions were not received from these receptors during the public notification period; however, consideration could be given to in-situ screening using vegetation plantings at the most impacted receptors.



**Figure 22:** Photomontage VP17 (EIS Appendix L – Visual Impact Assessment, p 82)

When viewed from the Wentworth-Renmark Road, there are few mitigating factors and the transmission line will be a dominant feature, as depicted in Photomontage VP05 from the VIA (refer figure 23). The transient nature of this receptor (when viewed from vehicles), with short periods of exposure to the transmission line, mitigates the visual impact to an acceptable level.



**Figure 23:** Photomontage VP05 (EIS Appendix L – Visual Impact Assessment, p 75)

Renmark Paringa Council expressed concern that the transmission line will adversely impact scenic views of the adjacent Ramsar wetlands and River Murray regions, with particular reference to the key vantage point at Heading Cliffs Lookout Tower, Murtho (refer figure 24). At this location the transmission line is approximately 10 kilometres to the north-west. The lookout and broader River Murray area is well beyond the TZVI and the visual impact is expected to be negligible to nil.





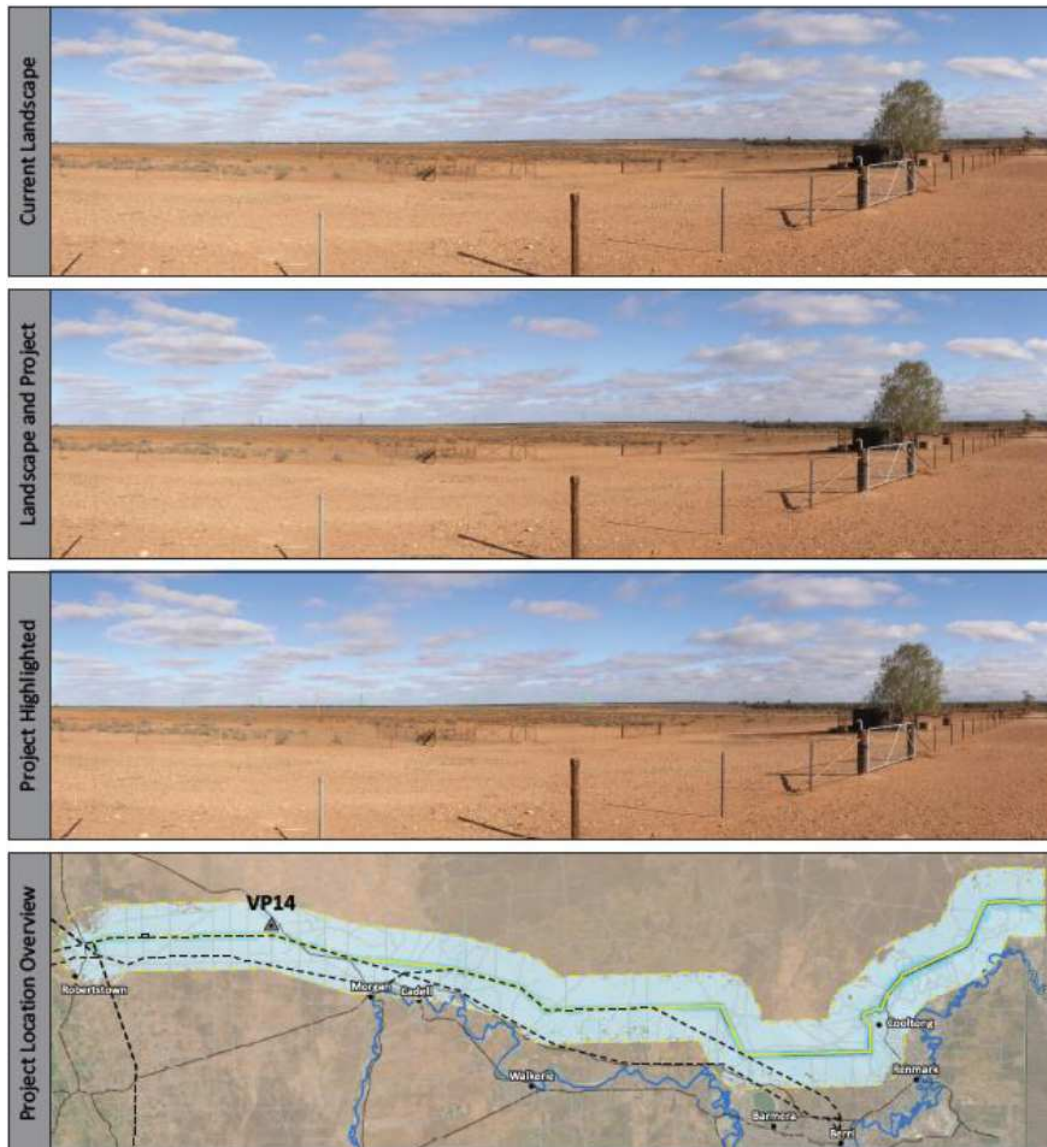
**Figure 24:** Existing View from Heading Cliffs Lookout Tower, Murtho (Reference: Google Maps)

Moving west along the alignment the transmission abuts the southern boundary of Calperum and Hawks Nest Stations on the Cooltong Boundary Track. At this location the transmission line will be moderately visible for up to 400m, with low visibility up to 900m. The line then heads due north before making a 90 degree turn at the north-eastern corner of Sugarwood Station and continuing west between Taylorville Station to the north and Sugarwood Station to the south.

A submission received from Sugarwood Station expresses concern regarding loss of potential ecotourism value due to the visual dominance of the transmission line when viewed from the station. At this corner location the VIA indicates medium to high visibility up to 400 metres from the transmission line, reducing to low—very low to a distance of 900 metres. Moving west along the Taylorville/Sugarwood Station boundaries the impact lessens with low visibility up to 400 metres, dropping to very low where the alignment converges with the existing 132kV ElectraNet transmission line.

Further west along the alignment the transmission lines will be visible from sections of the Goyder Highway, however the townships of Morgan and Cadell are outside of the TZVI. A small number of residences north of these townships are within the outer edge of the TZVI with views expected to be negligible to nil due to topography and existing vegetation.

Large sections of the western half of the alignment are co-located with an existing ElectraNet 132kV transmission line. This route selection reduces the visual prominence of the development within the landscape. Further assisted by topography and vegetation, the few receptors located within 1 kilometre of the transmission line around Robertstown and the Bunday substation are expected to experience minimal visual impact. Photomontage VP14 from the VIA depicts the typical visual experience within this portion of the alignment (refer figure 25).



**Figure 25:** Photomontage VP14 (EIS Appendix L – Visual Impact Assessment, p 80)

Overall, the route selection process mitigates the level of visual impact of the transmission line towers to an appropriate level for a development of this size. Ongoing visual impacts will be medium to high at 1-2 receptors at Cooltong. Elsewhere along the alignment, sensitive receptors are sufficiently separated from the transmission resulting in low to negligible views. Visual impacts are further mitigated by existing development (in particular transmission lines), local topography, existing vegetation and the permeable nature of the lattice tower design. The transmission line will have negligible visual impact on the River Murray, surrounding riverine environment and other key tourist locations. The adverse impact on ecotourism potential at the north-eastern corner of Sugarwood Station cannot be mitigated and may present a constraint to future development.

During construction some visual impact is expected from the establishment and use of laydown and storage areas, workers camps, and helicopter activity. These activities are temporary and the laydown and helicopter landing sites identified in the Response Document have been selected to maximise distance from populated areas and visual receptors. The proposed worker camp site located on the outskirts of Morgan township may be visible from a small number of local residences. The temporary

facilities will operate under the CEMP, which includes management measures for waste management, lighting and general tidiness. These mitigation and management measures are considered appropriate to ensure short term visual impacts from construction activities are minimised.

The AR concludes that the visual impacts from interconnector infrastructure have been reduced through the selection of the route (through sparsely populated areas), the permeability of lattice-like towers and distance of the towers from population centres and local residents. Where the towers are visible from public roads, electricity infrastructure is an expected form of land use, and would not be out of place within more settled areas (such as along the Wentworth Road).

14.7 Traffic and Transport

| Guideline  | Assessment Outcome   |
|--|--|
| 14. Traffic Effects<br>15. Construction, Operation and Maintenance Effects | Management – impacts managed through the implementation of a Traffic Management Plan and Pavement Monitoring & Management Plan |

The development will involve both a construction and operational phase, with vehicle movements to and from the proposed transmission route and corridor reliant on both the state arterial and local road network. The most significant impacts, in terms of the volume, type and frequency of movements, and access routes will occur during the18 to 24 month construction phase. The EIS (chapter 16) includes a Traffic Impact Assessment (TIA) that has been reviewed by State and local road authorities (refer figure 26).

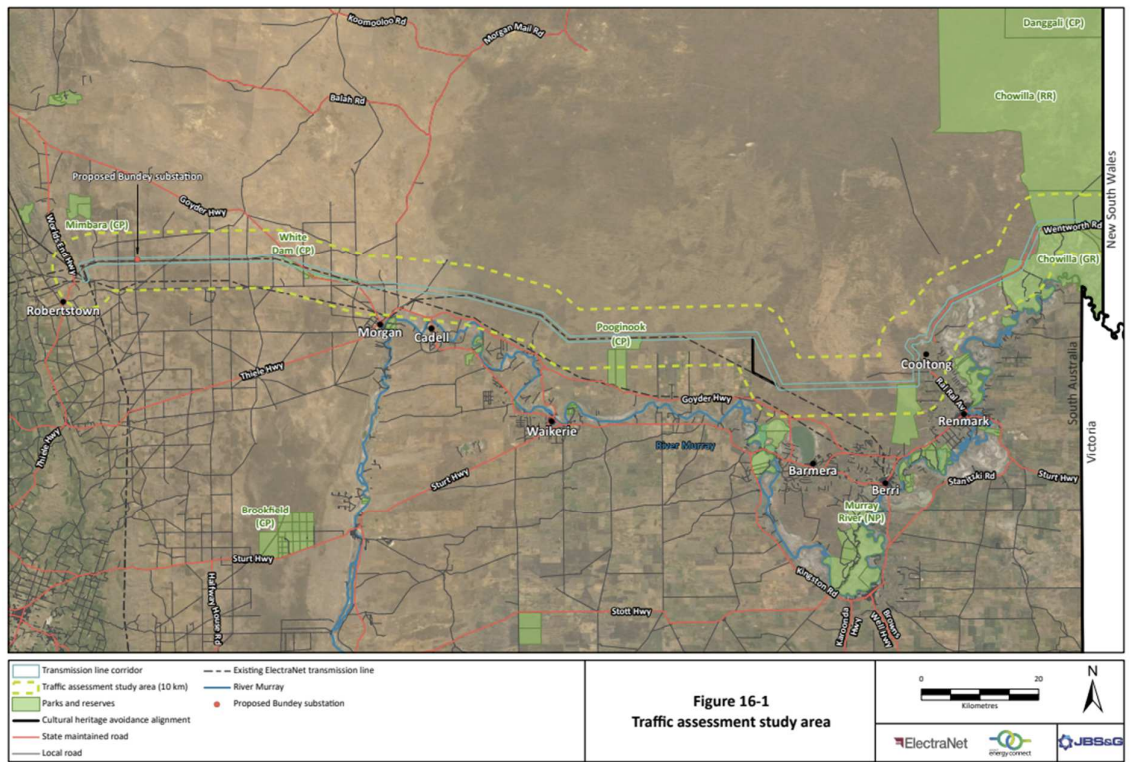


Figure 26: Traffic Assessment Study Area (Reference: EIS, Chapter 12 p 5)

This report considered: existing road conditions; the safety, capacity and efficiency of the local and arterial road network; and where appropriate, identified required upgrades to support the

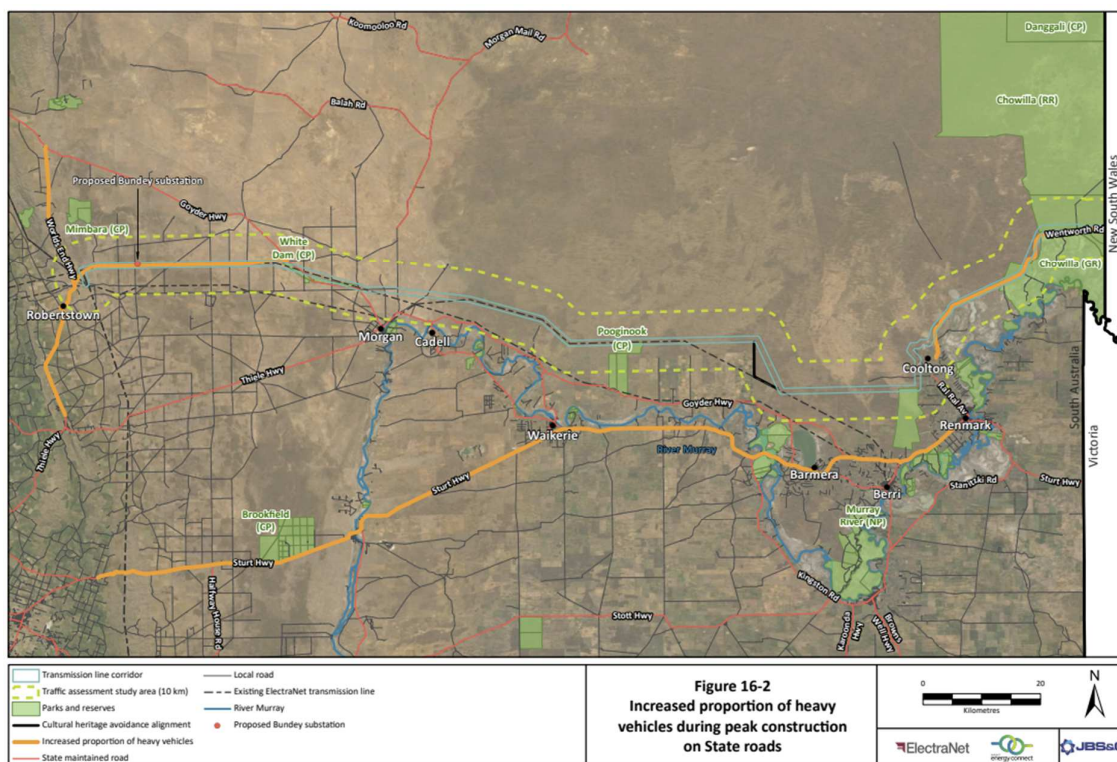


development during the construction phase. Local roads within the project area are largely unsealed, connecting into the arterial road network, being the Thiele Highway, Sturt Highway, Goyder Highway and Worlds End Highway. Other state-controlled roads around Renmark and Wentworth-Renmark Road are mostly unsealed, and have been identified by councils for further review and possible upgrade.

Some construction materials, substation equipment and transmission line componentry will require the use of over-dimensioned or over mass (or both) vehicles along designated project routes – essentially from the Port of Adelaide, then via state arterial roads to their construction and laydown areas (via designated local roads). The construction phase of the project is expected to generate approximately 62,000 *one-way* traffic movements comprised of 17,270 heavy vehicle trips (including over-dimensioned vehicles) and 13,650 light vehicle trips. On a daily basis, this equates to 63 *additional* trips on the road network, and approximately five additional trips in the peak hour.

The operational phase of the project, outside of any substantial repair or upgrade work, is expected to generate very few vehicle movements (one to two visits per year) and requires no further assessment. Helicopters will also be used for line inspections.

The TIA found that these vehicle movements, noting some variability during the construction phase due to the timing, nature and location of works would result in less than a 10 per cent increase in heavy vehicle traffic volumes on arterial roads that already have elevated freight volumes (as a result of either intrastate or interstate haulage). The report also acknowledged that where freight volumes were currently low, such as the World's End Highway and the Wentworth-Renmark Road, there is a more significant (albeit temporary) increase in heavy vehicle movements (refer to figure 27).



**Figure 27:** Traffic Assessment Study Area (Reference: EIS, Chapter 12 p 24)

Based on these investigations, the TIA concluded that *“all planned construction and operational phase traffic impacts are comfortably within the capacity of the existing road network”* and *“that there was ample spare capacity at all affected intersections during construction.”*

However, some road upgrade works were identified, including a new access point via the Goyder Highway near Overland Corner to reduce reliance on a single access track, whilst construction traffic will be directed onto some roads with existing crash rates above average (such as the Taylorville Road on the Goyder Highway and Renmark Paringa Council boundary to SA/NSW border on the Wentworth-Renmark Road).

Other local roads have geometry and/or site distance deficiencies.

No additional information was provided on school bus routes within the project area, such that a more detailed consideration of potential conflict points (noting all road traffic must obey current restrictions and laws) will need to be undertaken prior to construction (i.e. TMP).

DIT noted that some arterial road upgrades (i.e. intersection treatments on Goyder and World’s End Highways), monitoring strategies and management measures will be required to complement a Pavement Monitoring & Management Plan (to supplied by the proponent), with additional junction apron sealing works and warning signage as part of a Traffic Management Plan (TMP).

The Renmark Paringa Council identified maintenance and upgrade requirements relating to the Wentworth Road as a priority matter, with construction traffic impacts to be addressed by the proponent (in consultation with Council). The TIA noted that local road conditions varied significantly, due to their nature and surface, and will require careful management.

In combination, additional vehicle movements and existing road conditions, whilst having some additional impact on the operation and condition of the local and arterial road networks, can be appropriately managed (over a temporary construction period), through a combination of minor upgrades and safety improvements, temporary speed restrictions, traffic management controls, pavement monitoring, avoidance of peak periods, permitting conditions and maintenance requirements (to ensure existing roads, particularly unsealed local roads, do not deteriorate or pose an unacceptable risk to existing land owners and residents).

Delays to other traffic as a result of the construction period are considered to be negligible, but at certain times and places local congestion or delays for oversized vehicle deliveries may be experienced. These matters can be addressed through a TMP as a condition of approval, which will also determine road upgrade requirements. Permits may also need to be obtained.

Parking requirements are limited, such that the only dedicated spaces (3-5 in number) are to be provided at the Bunday substation, whilst tower inspections will be made via existing tracks.

The temporary nature of the construction phase, proposed management measures and – where required – road and intersection improvements (alongside a local council maintenance agreement), are considered to provide a satisfactory response to provide for the safe and efficient movement of vehicles to and from the laydown and works areas along the transmission route during construction.

**The AR concludes that increases in traffic volumes and material impacts on local road conditions, will only be experienced during the construction period (or when significant repairs are required to tower or other substation infrastructure). Vehicle types and volumes can be accommodated within the capacity of both local and state road networks, subject to the road and safety improvements,**

the implementation of a Traffic Management plan, and appropriate repair and maintenance requirements to ensure local Councils do not bear additional costs.

## 14.8 Noise and Vibration

| Guideline  | Assessment Outcome  |
|--|---|
| <p>2. Land Use and Economic Effects</p> <p>9. Effects on Communities</p> <p>14. Traffic Effects</p> <p>15. Construction, Operation and Maintenance Effects</p> | <p>Avoidance – transmission line route avoids highly populated areas; micro-siting of helicopter landing facilities with separation from native/remnant vegetation; scheduling of activities and no night works.</p> <p>Mitigation – communication with sensitive receptors to forewarn and reduce distress from helicopter operations.</p> <p>Management – camps, laydown areas and construction traffic managed through a Construction Environmental Management Plan and Traffic Management Plan.</p> |

The development will generate noise emissions during construction and to a lesser extent during the operation of the transmission line. Noise emissions have the potential to cause adverse impacts for humans and fauna. Impacts for humans include health related complaints (such as minor hearing loss), distress and unhappiness. Impacts for fauna include a range of physiological and behavioural changes including hearing loss, interference with communication and threat responses (with dispersal and avoidance).

The EIS (chapter 15) includes a Noise Impact Assessment that considered noise impact within a 500m buffer around the alignment; a 2.7 kilometre buffer around the alignment; and 1 kilometre x 1 kilometre buffer around the new Bunday substation.

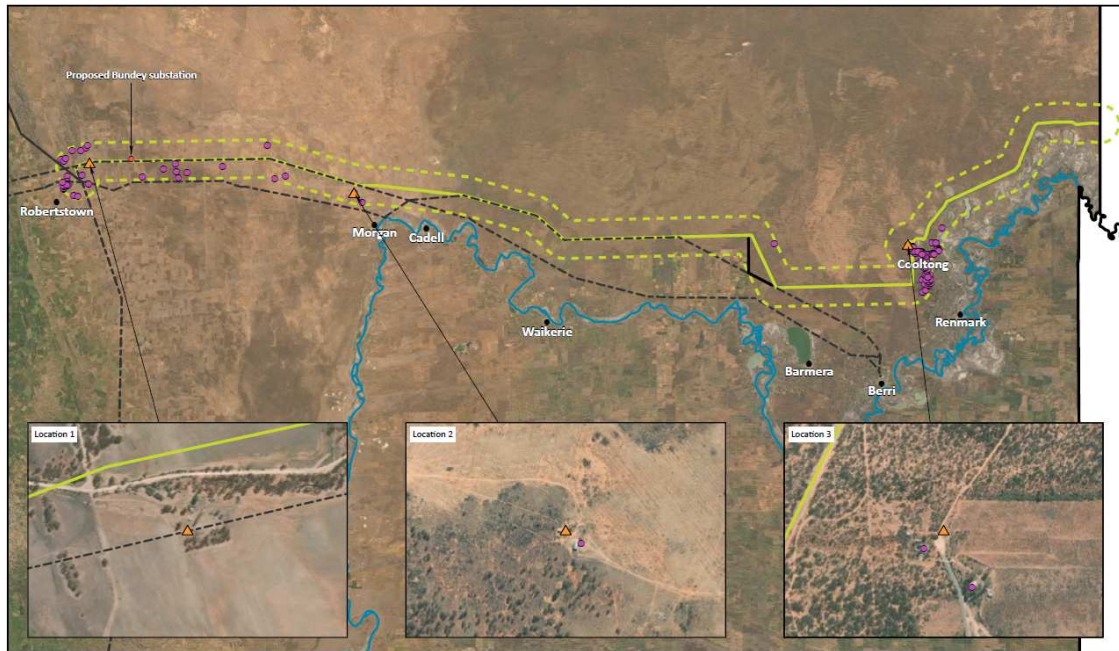
### 14.8.1 Construction Noise

Construction activities are inherently noisy. Noise generating activities include land clearance tower installation (including the substation) and stringing of transmission lines by helicopters. Helicopter landing facilities will be located at the nominated laydown facilities; as well as the various stringing brake and winch locations along the transmission alignment. Other noise generating activities include the workers camp at Morgan, laydown and staging areas (including mobile concrete batching plant). Heavy vehicle movements along designated transport routes will also generate short-term, transient noise impacts.

Land along the central portion of the transmission line alignment is generally held in large holdings with a low number of associated dwellings. The noise assessment identifies 141 sensitive receptors within the study area, the majority of which are dwellings located more than 1 kilometre from the transmission line. Clusters of sensitive receptors are located at the western end of the alignment (between Robertstown and Morgan) and at the eastern end of the alignment at Cooltong. The closest receptor is within the Cooltong cluster some 330 metres from the transmission line.

The receiving environment has typically low background noise as confirmed by ambient noise testing at loggers located along the transmission line route.





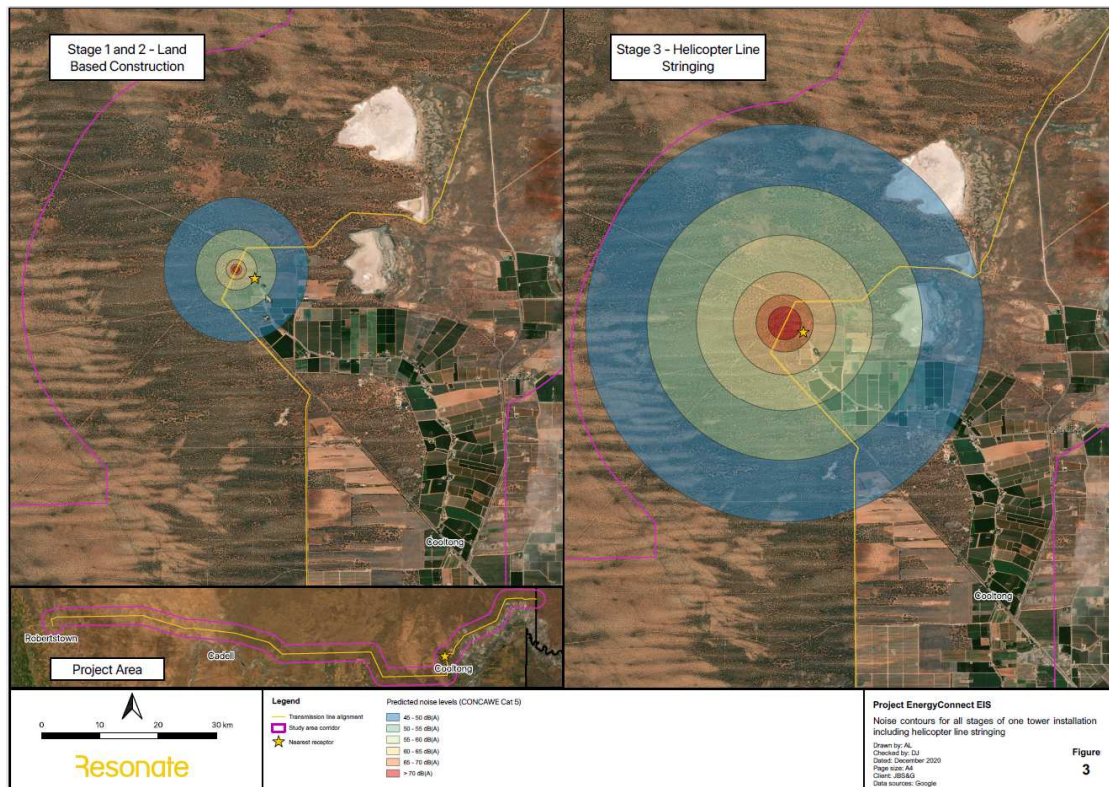
**Figure 28:** Location of Background Noise Loggers (Reference: EIS, Chapter 15 p 10)

While the *Environment Protection (Noise) Policy 2007* (Noise EPP) does not apply to construction activity related to public infrastructure, the EIS has adopted the EPP criteria as the appropriate benchmark in assessing noise impacts. The relevant indicative criteria for construction noise is 45dB(A) for continuous noise and 60dB(A) for maximum noise. Noise levels above 60dB(A) can disrupt daily life and interfere with conversation and activities, such as watching the television.

The noise assessment simulated noise generated from a complete tower installation and helicopter line stringing to determine the resultant noise impact at sensitive receptors. The modelled results adjacent Cooltong township, where sensitive receptors are closest to the transmission line, are depicted in Figure 28.

During tower construction a total of 17 sensitive receptors located within a 1.16 kilometre radius of construction activities will experience short term, relatively minor noise impacts above the continuous noise EPP criteria, but not exceeding the maximum 60dB(A). This includes nine sensitive receptors between 45-50dB(A); seven sensitive receptors at 50-55dB(A); and one above 55dB(A). Vibration is not expected to be felt from construction activities due to adequate separation from sensitive receptors. Each of the 440 towers is expected to take five days to construct.

During line stringing, the construction process involving helicopters is predicted to have a wider spread, more acute short-term impact than tower construction activity which are land based. Aerial stringing is proposed to occur along the central to eastern sections of the alignment. Modelling predicts a total of 129 sensitive receptors will experience noise between 45-60dB(A); and 12 sensitive receptors where noise levels will exceed the maximum 60dB(A) thereby potentially disrupting day to day life.



**Figure 29: Predicted Noise Levels** (Reference: EIS, Appendix J Noise Assessment, p 10)

Overall, construction of the transmission line will occur in a linear fashion from east to west at a rate of approximately 8 to 12 kilometres per month. Within this timeframe, each of the 440 tower installations is expected to take five days to construct. Aerial stringing is expected to take one to three days at each location, with 500 metres being strung per day.

The route selection and duration of noise generating activities are the main mitigating factors for noise impacts. The selected alignment provides generous separation from townships and populated areas, thereby limiting the number of sensitive receptors impacted by the development. Noise will not be constant throughout the construction period. The duration of noise generating activity at any one location is an acceptable outcome for a development of this magnitude. Further, it is noted that the modelling represents a worst case scenario that does not take into account wind conditions, local topography and other factors that result in variations in actual noise levels.

For all construction stages the planning and timing of construction works should have consideration for sensitive receptors. Construction camps, laydown areas, storage areas and helicopter landing facilities have been sited with adequate separation from sensitive receptors. Night works should be avoided. The ability to mitigate helicopter noise is limited. However, communication with local residents and advance warning of helicopter operations will go some way to managing resident inconvenience and distress. These measures are detailed in the draft CEMP.

#### 14.8.2 Operational Noise

Noise generating activities during the operational phase of the transmission line include helicopter noise from line inspections (annual); heavy vehicle noise from line inspections (biannual); and Corona discharge.

The relevant EPP indicative noise criteria for operational noise at sensitive receptors in the study area is 57dB(A) during the day (7am to 10pm) and 50dB(A) at night (10pm to 7am). Modelling was undertaken at several locations, including at the closest sensitive receptor, where the predicted noise level is 41dB(A), well below the EPP night-time criteria.

Corona discharge is the hissing, crackling noise emitted from transmission lines during rainy weather which is caused by the implosion of ionized water droplets in the air. The noise from Corona discharge is typically low level at 53dB(A) at a distance of 15 metres (for a 400kV line).

The noise level generated from a helicopter inspection will be the same as during construction. An inspection involves a helicopter moving along the transmission line alignment, with short periods of idling over areas of interest, thereby reducing the noise exposure period for sensitive receptors. The infrequent nature of helicopter inspections further reduces the noise impact.

Operational noise emissions from Bunday substation were modelled in the noise assessment. At a distance of 500m from the transformer (the highest generator of noise), noise levels are predicted to meet the night time criteria. The substation is located on an 80-hectare parcel of land with no sensitive receptors within 500m of the infrastructure.

#### 14.8.3 Impact on Fauna from Noise and Vibration

The knowledge around hearing sensitivity of specific fauna species is limited. The noise assessment adopts the current industry recommended interim guideline of 93dB(A) for continuous (non-strike) construction noise as the threshold above which fauna may experience adverse physiological and behavioural impacts.

Tower construction noise is projected to exceed the fauna criteria within a 5 metre radius of the noise source. This will result in highly localised impacts on ground-based fauna within 5m of the construction zone, with fauna expected to leave the area temporarily.

Helicopter operations are predicted to exceed the fauna noise criteria within a 20 metres radius from the noise source. With a 50 metre fly height, ground-based fauna are not expected to be adversely impacted by aerial activities. Helicopter landing facilities should be micro-sited at least 20 metres from remnant vegetation or known habitat to avoid impact to fauna.

The substation will generate noise at a level that exceeds the fauna criteria within a 1 metre radius from the noise source. Actual impact on fauna is expected to be negligible due to the substation footprint of 400 metre x 250 metres, which creates a buffer between the noise source (ie transformers and reactors) and any surrounding fauna.

The noise assessment predicts nil exceedance of the fauna criteria from Corona discharge.

**The AR concludes that noise impacts from the construction and operation of the development should not give rise to an unreasonable loss of amenity for local land owners or residents or impact on native fauna.**

## 14.9 Air Quality

| Guideline   | Assessment Outcome  |
|---|---|
| 2. Land Use and Economic Effects<br>12. Effects on the Physical Environment<br>14. Traffic Effects<br>15. Construction, Operation and Maintenance Effects | Avoidance – retain vegetation/groundcover where possible and revegetate temporary cleared areas.<br>Management – impacts managed through the implementation of an Air Quality Management Plan and Construction Environmental Management Plan.<br>Mitigation – reduction of GHG gases through implementation of the CEMP and TMP; use of lower embodied energy construction materials. |

Construction activities for the development will cause localised, fugitive dust emissions and generate greenhouse gas emissions from heavy machinery, helicopter landing and take-off, and vehicle movements. The EIS includes an Air Quality Impact and Greenhouse Gas Assessment that focus on the construction phase of the development. Operation of the transmission line will generate negligible dust, exhaust and greenhouse gas emissions from periodic maintenance activities.

### 14.9.1 Dust Emissions & Air Pollutants

Farming activities including harvesting, stock movement and use of chemicals (pesticides and fertilisers) are typical sources of dust and air pollutants in the project area, along with sporadic events such as dust storms and bush fires. In general terms, the receiving environment has low background levels of dust and air pollutants.

Fugitive dust emissions from construction activities generally comprise larger particles that may cause visible dust plumes and dust deposition, but do not cause health impacts. The generation, dispersion and movement of dust and air pollutants are influenced by topography, wind and other meteorological conditions. This is particularly relevant for the cluster of sensitive receptors around Cooltong (east of the transmission line) due to the predominant wind direction from the south-west.

Dust emissions cannot be reliably modelled, therefore a risk assessment methodology was adopted to determine the impact consequence for dust emissions at selected sensitive receptors around Cooltong. Without mitigation, two (2) sensitive receptors located less than 350 metres, from the transmission line allotment are predicted to experience minor adverse impacts. Beyond 350 metres emissions from construction activities generally do not have an adverse impact on amenity.

The level and impact of dust emissions can be mitigated through avoidance; site selection; good construction practices; and site rehabilitation. With only two sensitive receptors within the 350 metres area of impact, concerted effort can be made to mitigate emissions to an acceptable level at these locations.

Vegetation clearance and earthworks are required for construction of the towers, Bunday substation, access tracks and temporary facilities. Wherever possible existing vegetation and groundcovers should be retained to minimise exposed surfaces which are susceptible to wind. Construction laydown and storage areas, concrete batching plants, and helicopter landing facilities should be sited a minimum of 350 metres from sensitive receptors.

Specific mitigation and management measures for all aspects, including communications; monitoring; site layout; site maintenance; vehicle and machinery operation; and construction traffic would be detailed in an Air Quality Management Plan as part of the final CEMP. In this regard, the EPA notes the importance of ensuring staff are located onsite to visually monitor actual dust emissions, with



authority to make adjustments in activity type and intensity and/or issue stop work orders, especially when near sensitive receptors.

The concrete batching plants would require an EPA licence, which will impose conditions of its own. Helicopter landing facilities require a licence if used for more than 10 days per year, or where located less than 1 kilometre from a dwelling.

Post construction, disturbed areas will be rehabilitated and monitored to ensure revegetation success and long-term dust control.

#### 14.9.2 Greenhouse Gas Emissions

Construction activities that generate greenhouse gas emissions (GHG) include fuel consumption in the various equipment and modes of transportation; use of purchased materials (namely concrete and steel); and loss of stored carbon due through land clearance.

The EIS estimates that the construction phase will generate a total of 758.5 tonnes of CO<sub>2</sub> which equates to <0.0031 per cent of the State's total greenhouse gas emissions (based on 2018 data). The EIS identifies a number of opportunities to reduce GHG emissions that relate to vehicle operation, transport planning and fuel selection and which can be incorporated into a TMP as a condition of approval. The Proponent has indicated a willingness to investigate the use of construction materials that comprise recycling products and therefore have lower embodied energy.

More broadly the development may assist in facilitating the introduction of renewable energy sources in the national energy grid, supporting a reduction in fossil fuel sources.

**The AR concludes that fugitive dust emissions during the clearance and construction phases will be temporarily, and can be appropriately controlled through the implementation of a Construction and Environmental Management Plan (CEMP).**

#### 14.10 Hazards

|   |   |
|---|---|
| 9. Effects on Communities<br>10. Hazard Risk<br>12. Effects on the Physical Environment<br>15. Construction , Operation and Maintenance Effects | Avoidance – route selection to avoid hazard prone areas and sensitive receptors<br>Mitigation – infrastructure design, regular inspection, asset maintenance, vegetation management, system monitoring, remote network monitoring and fault investigation, restricted public access, security fencing around key assets, passive surveillance<br>Management – Fire Hazard Management Plan; strategies to address supply issues in event of power outages; HSE (Health, Safety and Environmental) Management System to manage residual risk. |
|---|---|

The EIS evaluated a range of hazards and how such risks are to be managed. These can broadly be defined as: fire, electromagnetic, weather, seismic, sabotage and accidental damage. Potential noise impacts have already been considered and are not considered to constitute a hazard risk in their own right.

One of the main risks identified was in relation to bushfires, which formed a key issue for the Australian Landscape Trust from an operational perspective—such as, if the interconnector's long-term operation increased the risk of a fire due to increased lightning strikes and flashover events on

infrastructure that would otherwise not be there—and may pose an elevated risk to critical habitat within the wider Riverland Biosphere area.

The EIS and Response Document considered these issues in detail.

The EIS notes that bushfires already occur within the region, particularly from lightning strikes and also from accidental ignition through the operation of machinery and equipment, campfires or arson. Construction works can also be a risk factor, although appropriate management strategies and the availability and effective deployment of on-site fire-fighting equipment can minimise these risks. A Fire Hazard Management Plan is proposed to consider and manage construction risks, noting the primary action is the use and deployment of dedicated firefighting assets by the SACFS.

ElectraNet's position is that the introduction of new transmission infrastructure should not result in a higher risk or likelihood of bushfires along the proposed route. Dry thunderstorms are more frequent in the Riverland area, whereupon taller structures, including transmission lines, can attract and dissipate lightning strikes, reducing the potential for fires to start (such as when striking the ground directly). Transmission lines are designed to withstand lightning strikes and continue to function through the use of earth wires above the conductors, whilst areas below the towers would generally have reduced fuel loads, having been previously cleared and periodically maintained.

The Response Document states that on an annual basis, 30 typical faults are detected on the high-voltage network across South Australia, which may be attributable to lightning/storm events. Furthermore, high-voltage transmission lines, which are located well above ground level and surface vegetation, have not been a previously known source of bushfire ignition, based on current designs and South Australian conditions.

A program of regular inspection, asset maintenance, vegetation clearance, system monitoring and fault investigation assists in the minimizing of fire risk and ready deployment of firefighting assets if required (as the location of potential incidents is known).

The transmission line will be designed and operated in accordance with relevant Australian and international design standards. However, severe weather events may affect the serviceability and availability of the electricity network, but only due to exceptional events. These would also impact on other public and private infrastructure, businesses and households within affected regions. Plans are in place to ensure that supply interruptions are addressed promptly and efficiently to restore the physical network.

All infrastructure assets are subject to some level of sabotage risk. However, restricted public access, anti-climb barriers on each tower, remote network monitoring, regular inspections, security fencing around key assets such as the Bunday substation, and passive surveillance from landowners and the general public all contribute to lowering the risk profile from such events.

The project area is not located within an area of known seismic risk, noting the structural designs used will comply with AS 1170.4 to appropriately address and mitigate such risks. The risk of flooding and inundation is also considered to be low, as the towers will not be located within areas susceptible to flooding, due to the absence of significant rivers, water bodies or overland flow paths within or adjacent to the alignment of the transmission line.

Electromagnetic fields exist wherever electricity is generated, transmitted or distributed in cables or power lines. If strong enough, such fields can impact on human health or the operation of equipment. Exposure guidelines and various standards ensure the health and safety of people (particularly



electricity workers) through the adoption of exposure thresholds. The overall risk from the proposed transmission line is low, as EMF strength directly underneath such lines will be below the public exposure reference limit of 2,000 milligauss (mG) under the ICNIRP guideline, and general public basic restriction of 0.02kV.

No sensitive receptors are situated in close proximity to the line, with the nearest being 360 metres away, to be exposed to any adverse EMF levels. The transmission line will also be designed to meet Australian and International standards in relation to risk of electric shock.

In some locations, transmission infrastructure will be located adjacent to public roads. However, towers will be setback from the roadway in accordance with local and state road authority requirements (as already occurs with other roadside infrastructure, such as signage, power poles, etc.) to minimise the risk of accidental damage from vehicle collision. No additional risks to landowners or primary producers have been identified, such as the movement of larger machinery or stock carriers, due to the height and clearance of the infrastructure involved (noting that continuing negotiations will be required with landowners on micro-siting and access needs).

Aside from design considerations and meeting relevant standards, ElectraNet will manage residual risks through the implementation of a HSE (Health, Safety and Environmental) Management System framework. This framework seeks to avoid risks to public safety to the greatest extent possible, and to achieve outcomes consistent with the findings and undertakings outlined in the EIS.

This framework will assist in identifying hazards, assessing risks, controlling risks and reviewing control measures, and includes the adoption of minimum safety and sustainability requirements, various management plans (such as the CEMP and OEMP), and an emergency response and preparedness system (documented in ElectraNet's Emergency Response Procedure or ERP). The ERP is subject to biannual review to ensure the timely incorporation of incident learnings, the ongoing professional development and training of personnel and the review and update of contacts and communication details for ElectraNet's staff and contractors.

**The AR concludes that the development should not result in or cause additional hazard risks in respect to bushfire, flood or electromagnetic interference, subject to appropriate design and management protocols being adopted during the construction and operational phases.**

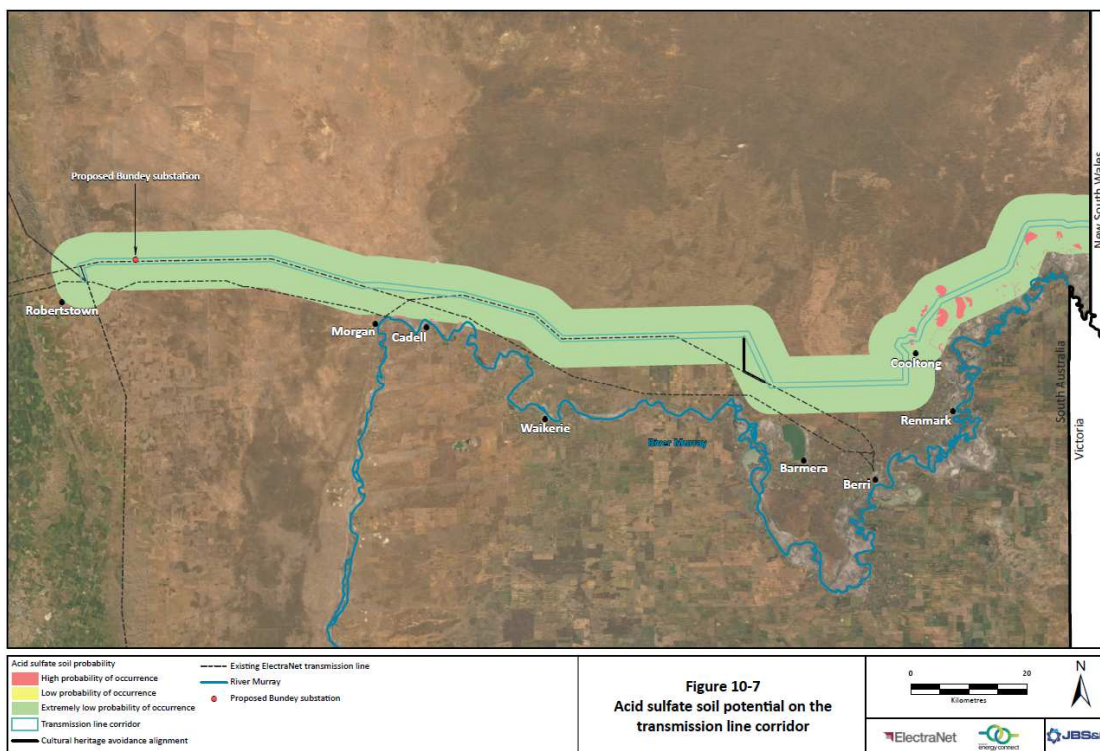
#### 14.11 Soil and Water Contamination

| Guideline  | Assessment Outcome  |
|--|---|
| 10. Hazard risk<br>12. Effect on the physical environment<br>15. Construction, Operation and Maintenance Effects | Avoidance – siting of temporary construction activities (concrete batching plants, storage and laydown) to minimise interaction with the surrounding natural environment; geotechnical investigations to inform siting of towers to avoid acid sulfate soils<br>Management & Mitigation – CEMP suite of documents for storage of hazardous materials and fuels; dewatering protocols; management of contaminated soil; stockpile management; EPA licence for concrete batching plants |

Construction activities have the potential to contaminate the receiving environment (soil and water) through excavation of contaminated soil; dewatering; incorrect management of wastewater and hazardous materials; poorly managed construction operations; and use of saline water for dust suppression.

The transmission line route does not traverse any areas of known contamination and avoids the Riverland Ramsar site, where there is high probability for acid sulfate soils (refer to figure 29). Geotechnical investigations undertaken as part of micro-siting for the towers will identify any unknown acid sulfate soils and any other source of contamination. In the unlikely event that contaminated soil is encountered, the CEMP will include a response protocol. This should include the classification of contamination soil, segregation from the surrounding environment, and either remediation or disposal in accordance with relevant standards.

Dewatering during excavation for the tower footings may be required if shallow groundwater is encountered. Dewatering should occur in accordance with relevant EPA guidelines, which require water quality assessment, followed by disposal to land or treatment and removal off-site. The temporary construction camps at Morgan, plus storage and laydown areas will generate a number of waste products (including effluent and wastewater) which require appropriate management and disposal to prevent contamination. Hazardous materials (including fuel storage) must be stored and disposal of in accordance with EPA guidelines. This includes the provision of spill kits and bunding, as required. Protocols for the storage of hazardous materials and waste management will be detailed in the final CEMP and associated suite of documents, including a Waste Management and Minimisation Plan (WMMP).



**Figure 30:** Acid Sulfate Soil Potential on Transmission Line Corridor (Reference: EIS, Chapter 10 p 22)

Disturbed soils and stockpiled materials can enter waterways and result in sedimentation if not correctly managed. The route selection reduces this risk by siting the transmission line in areas with low erosion risk, such as existing access tracks. Notwithstanding, the alignment will traverse land more susceptible to erosion. Thus, the final CEMP should include siting and design measures to reduce the amount of stormwater moving through the various construction sites; minimise dust emissions; and provide separation with environmentally sensitive areas, such as watercourses. The placement of stockpiles and use of erosion and sediment controls should seek to reduce contact between stormwater flows and contaminants. Stockpile management should be in accordance with relevant

EPA guidelines. Rehabilitation of disturbed areas should occur as soon as practicable to stabilise the soil and prevent wind or water erosion.

The suppression of dust can involve the use of saline water, which results in a minor and temporary increase of salt in the receiving environment. This is a common technique used in construction and typically does not cause any long-term environment impact.

Operation of the temporary concrete batching plant will require an EPA licence, which incorporates wastewater management requirements. Wastewater and stormwater from the batching plant is likely to be turbid and/or be highly alkaline and cannot be released to the environment without appropriate treatment. Measures should be included in the final CEMP to minimise the amount of exceed concrete being produced at the batching plants. Where waste is unavoidable, waste products must be disposed to licensed facilities in accordance with relevant EPA guidelines.

**The AR concludes that no existing or potential contamination source has been identified that would impact on the development or environment, nor would the construction of the project, subject to appropriate measures being implemented to minimise potential contamination sources (such as chemical storage, wastewater management, etc.) to land conditions and water catchments.**

#### 14.12 Waste Management

| Guideline   | Assessment Outcome   |
|---|--|
| 15. Construction, Operation and Maintenance Effects | Avoidance & Mitigation – application of waste management hierarchy.<br>Management – impacts managed through the implementation of a Waste Management and Minimisation plan and a CEMP. |

Construction of the development will generate a range of general construction waste materials, as well as spoil from excavated materials; cleared vegetation/organic matter; wastewater and domestic waste from the construction camps; and electrical and hazardous materials and chemicals.

The proponent has adopted the waste management hierarchy under the *Environment Protection Act 1993* for the Waste Management and Minimisation Plan (WMMP). The procurement of construction materials will seek to avoid oversupply and waste, with consideration for recycled products.

Detailed design of the project will seek to minimise the extent of vegetation removal. Removed vegetation and excavation spoil will be retained in stockpiles and used for rehabilitation of disturbed areas where required. Regular monitoring of rehabilitated areas should be undertaken to identify areas at risk of erosion (by wind or other means) and rectify appropriately.

Waste facilities will be provided within construction areas to facilitate separation of waste streams for reuse and recycling. Where possible materials will be returned to suppliers for reuse/recycling. Where disposal is required, this will occur to licensed facilities in accordance with relevant EPA guidelines. Specific requirements may apply under licence conditions for waste generated by the concrete batching plants.

During operation, wastes generated from maintenance activities will be minimal and may include pruned vegetation/organic matter, and electrical components, hazardous materials and chemicals from the substation. These wastes will be recycled or disposed of in accordance with the WMMP.

The AR concludes that temporary waste sources and storage areas can be appropriately minimised and managed during the construction phase. No operational waste impacts are envisaged.

### 14.13 Social and Community Impacts

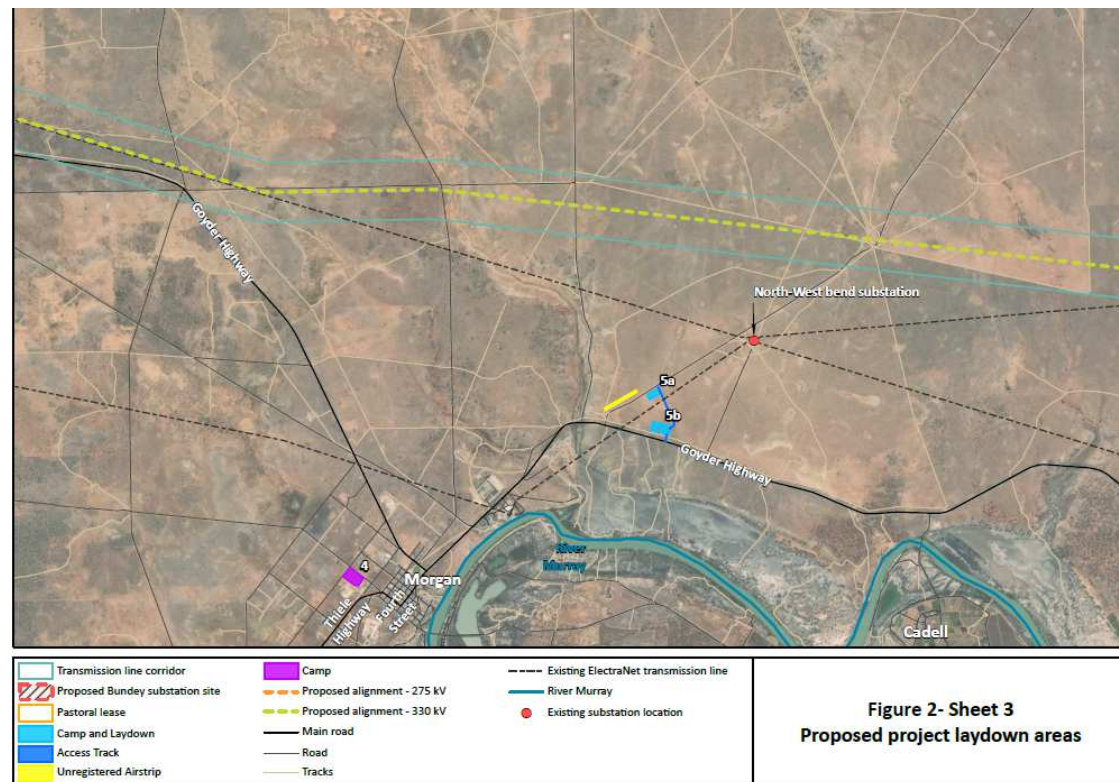
| Guideline  | Assessment Outcome  |
|--|---|
| <p>9. Effect on Communities</p> <p>15. Construction, Operation and Maintenance Effects</p> | <p>Avoidance – route selection to avoid residential areas, key tourism and recreation sites and regions.</p> <p>Mitigation – use of construction camps; construction workers subject to ElectraNet code of conduct.</p> <p>Management – CEMP and TMP to manage visual, noise, dust, traffic and other impacts during construction; easement agreements allow continuation of existing operations.</p> |

The EIS (Chapter 17) includes a Socioeconomic Assessment of the proposal that considers the impact of the development on individuals, communities and the economy during construction and operation.

#### 14.13.1 Construction Impacts

During the construction period temporary workers accommodation will be required along the transmission alignment. The EIS identified four (4) potential areas for accommodation, which have been further refined in the Response Document to:

- Western portion of transmission line: temporary workers camp for approximately 120 located at Woods and Forest Road, Sturt; S21 H760400 CT6154/657 (refer to figure 30); and
- Eastern portion of transmission line: rental accommodation in Renmark.



**Figure 31:** Potential Construction Camp and Laydown Areas, Morgan (Reference: Response Document, p 24)



The EIS detailed the benefits of establishing workers' accommodation camps outside of existing townships. The arrangement avoids social disruption within townships, local labour shortages and/or competition for local housing, with nil impact on housing affordability. Health facilities, education, childcare and other local services within the surrounding regional townships would remain available for local residents, with services only utilised by construction workers during emergencies. The amount of time workers spend in local townships would be minimal; therefore, no change is expected to social cohesion or identity.

The proposal to use local rental stock in Renmark was not considered in the EIS. This community is expected to experience positive and negative short-term impacts. The EIS identified that housing vacancy rates are very low in the study area, indicating a potential undersupply of housing. The use of existing housing stock may create competition with residents resulting in a short-term reduction in availability and affordability for local residents. The placement of workers within (or in close proximity to) townships is likely to increase interaction with locals, which may negatively impact social cohesion. However, Renmark is a large regional centre and should be able to adequately accommodate an influx of construction workers.

Landowners directly affected by construction activities may experience inconvenience and disruption to existing activities. The Proponent intends to determine appropriate access arrangements on a site-by-site basis to identify any track upgrade works prior to construction, and to undertake repair works post construction. Disruption to landowner activities can also be mitigated through communication.

For local residents and landowners, negative impacts to quality of lifestyle during construction may result from visual and noise disturbance, access restrictions and delays through construction zones, increased traffic movement and general nuisance from construction camps. Exposure to noise and visual impacts during construction is discussed elsewhere in this report. The EIS demonstrates that noise and visual impacts will affect a small number of sensitive receptors, with broader impacts mitigated through route selection. General nuisance impacts will be temporary and shall be minimised through the final CEMP and TMP suite of documents.

The conduct of construction workers within the Morgan camp, on construction sites and in public areas (including roads) will be governed by the ElectraNet Health, Safety, Environment and Sustainability Policy. This policy sets an employee code conduct and instils respect for the natural environment and local communities. The final CEMP should incorporate a complaints procedure that allows members of the public to report anti-social and unsafe behaviours.

#### 14.13.2 Operational Impacts

The transmission line is separated from key tourism and recreation areas within the Riverland and Murraylands. However, some impact is expected at Calperum Station, which hosts school and outdoor education trips, as well as community recreation and research activities.

The transmission line is not visible from the onsite accommodation, but is visible from key locations within the property, including the Calperum Mallee SuperSite and the Australian National University bird study area. The development will not prevent access to these areas and conservation values are expected to be preserved as the transmission line is sited along existing roads. The transmission line also passes through the Chowilla Game Reserve along existing road corridors. However, it will not be visible from the camping and fishing locations along the River. Recreational /tourism use of the reserve is not impeded by the development.

Post construction the transmission towers and lines will be a new feature in the landscape, except where located near existing transmission lines. The visual and noise impact is discussed elsewhere in this report, and is generally considered acceptable for a development of this magnitude.

Magnetic and electric fields under the transmission lines would be below relevant International standards. The line will be constructed in accordance with relevant standards to protect against electric shock. Access to the transmission line easement will be limited to a small number of private landowners, which further mitigates potential health risks.

Interference with UHF and AM/FM radio may occur within 20 to 30 metres of the transmission line (i.e. within the 80 metre corridor easement). Most radio usage on farms is expected to occur outside of the easement, with minor disruptions when passing underneath (or in close proximity to) the line. Corona discharge may similarly affect television, radio, CB, broadband and mobile phone reception when in very close proximity to the line.

In locations where the transmission line bisects properties there may be resulting impediments to access, existing operations and/or constraints (actual and perceived) on future development opportunities. This is particularly relevant where the transmission line does not follow existing access tracks and/or infrastructure corridors, notably along a 17.5 kilometre section east of White Dam Conservation Park and a 16 kilometre section within Hawks Nest Station.

The location of an existing Air Landing Area (ALA) on the eastern edge of Sugarwood Station and the proximity of the proposed transmission line was raised as an operational and safety issue by the landowner. ElectraNet have undertaken to ensure the location and height of any electrical infrastructure will meet Civil Aviation Safety Authority (CASA) requirements vis-à-vis the existing runway location and approach vectors, ElectraNet has resolved to find a compliant, either by lowering the towers or moving the towers further away to ensure the ALA remains operational.

The transmission line will sit within an 80m wide easement, which will be created by ElectraNet with appropriate compensation paid to landowners. Within the easement some vegetation clearance and ongoing exclusions will be required for tower construction and access tracks. However, the majority of the easement will remain available for current agricultural activities. Landowners may be required to alter some operations to maintain safe clearance from the transmission line, for example the use of oversized cropping machinery and aerial mustering.

Delivery of the interconnector is expected to facilitate renewable energy generation development in the region. A number of wind and solar farms are already constructed and/or approved with the Mid North and Riverland Renewable Energy Zones. Over time the cumulative impact from this industry may include a loss of agricultural land and a visual change to the rural landscape. Conversely this will generate economic benefit for the region which is discussed in the section below.

**The AR concludes that direct social and community impacts may be varied, due to the relative remoteness of the transmission line from more settled areas, although the construction phase will result in increased demand for goods and services, and temporary accommodation for the construction workforce within and/or close to Riverland townships. There will be some temporary inconvenience for local landowners with temporary traffic controls and speed restrictions to enable the movement of heavy vehicles and equipment. A design solution will be implemented to ensure that existing private airstrips remain compliant with recognised standards.**



## 14.14 Economic Impacts

| Guideline                        | Assessment Outcome  |
|----------------------------------|---|
| 2. Land Use and Economic Effects | <p>Avoidance – route selection avoids sensitive areas, tourist areas and high value land.</p> <p>Mitigation – construction camps mitigate reliance on local services.</p> <p>Management – landowners compensated for land within easements.</p> |

The need for the interconnector project is driven by the transition of the Australian National Energy Market (NEM) from a fossil fuel dominated, centralised system to a diverse energy mix comprising renewable energy generation, large-scale batteries and behind-the-meter (domestic) solar installations. The variability in demand and supply created by renewable energy generation necessitates an upgrade to the NEM transmission infrastructure to improve stability, reliability and affordability. Existing interconnectors are at or near capacity. With only one existing interconnector with Victoria, reinforcement is required to ensure that South Australia does not become isolated from the NEM, leaving the State vulnerable to system interruptions.

Therefore, the proposed interconnector is necessary to provide South Australia with a reliable and stable source of electricity and to deliver ongoing local, regional and State-wide economic benefit.

From a National Electricity Market perspective, the interconnector will allow exports of energy when demand is low in South Australia. It also provides market access for South Australia's solar and wind farms, which in turn aids the transition from high-cost gas plants to renewable energy sources. The interconnector will reduce South Australia's vulnerability during extreme weather events and decrease the State's susceptibility to major, long-term power outages.

The EIS includes a Socioeconomic Assessment of the development, including modelling of economic benefits.

The EIS considers that, at a micro level, the sharing of energy resources across the NEM will reduce price volatility and result in a decrease in wholesale electricity prices, which then flows on to domestic customers. Modelling predicts a cost saving of \$100/year for residential customers; \$201/year for small business; and \$18/MWh for large business.

At the macro level, the reduction in wholesale electricity prices will have broader economic benefits for both the region and the State, with a contribution to Gross Regional Product of \$36 million and \$1.9 billion to \$2.6 billion respectively (present value). As electricity prices reduce, the more economic activity will be stimulated for businesses that consume energy.

Job creation from the interconnector project is estimated at 235 regional jobs during construction and 250 ongoing jobs in South Australia, with hundreds more in New South Wales. The EIS estimates that the proposal will contribute \$45 million to Gross Regional Product—a measure of the net contribution of an activity to the regional economy. The proposal is expected to contribute to \$82 million in real regional income.

The EIS determined that the construction phase is expected to have minimal direct economic benefit to local communities around the transmission line alignment. Construction jobs are expected to be specialised, with a small percentage of jobs expected to be filled by local workers (10 to 30 out of 200 maximum jobs). As a result, local labour competition that could negatively impact existing industries is not expected.

The EIS was based on all workers being housed in camps away from townships, with no reliance on local services except in emergency situations. The Response Document confirms that a temporary workers camp will be established near Morgan to service construction of the western portion of the transmission line. Workers on the eastern portion of the line will be accommodated in the Berri Holiday Park or local rental stock in Renmark.

While the use of local housing stock in Renmark would have a short-term negative impact on housing affordability and availability for local residents, the use of tourist accommodation may have a positive economic impact for this industry due to existing high vacancy rates, even during peak tourist periods. The placement of workers within or near townships may also increase use of local services and the purchase of food and other consumables. Further, the EIS notes that opportunities may be created for local business to provide services to the construction activities, such as fuel supplies, transport and logistics and light earthworks. Some economic benefit is also expected to flow on to local business from the small number jobs filled by locals.

In locations where the transmission line bisects private property and does not follow existing tracks or infrastructure corridors, some fragmentation and disruption to existing operations is expected. The EIS estimates that the transmission line may result in development constraints to less than 0.6 per cent of land within the alignment. It is not expected that stocking rates will be reduced as a result of the development, noting that the majority of agricultural activities can continue to occur within the easement under agreement with ElectraNet. The fragmentation of agricultural land and visual impact from the transmission line may negatively impact property value due to actual or perceived constraints over the land. The potential loss of ecotourism value was raised by the owner of Sugarwood Station during the public consultation period.

Tourism activity, which includes accommodation and food services, retail and transport, is not expected to be prevented or disrupted by construction or operation of the transmission line. Key tourist locations and regions, namely the Riverland and Murraylands, are physically and visually separated from the transmission alignment. The development is not expected to disrupt the agricultural industry which underpins the economic base of the region and constitutes 21 per cent of local employment.

Positive economic benefit to the region is expected to flow on post construction, with the interconnector facilitating renewable energy and other large-scale development that require a reliable source of electricity. Such developments would generate jobs, income and capital expenditure, thereby positively affecting living standards and stimulating population growth in these regions. Solar and wind developments typically occur on grazing land where the cost of lost production is minimal. Higher value agricultural land (for irrigated crops, etc.) are not favoured for renewable energy projects due to the increased land and production value.

The Assessment Report concludes that overall the economic benefits of proceeding with the proposal are highly positive, and the economic implications of the project not proceeding are highly negative. If the project is not delivered, the State would remain susceptible to widespread power outages, which have a range of direct and indirect economic impacts. Reductions to electricity prices and job creation would not be realised, and regional investment lost due to a lack of transmission capacity and reliability. State and National emission reduction targets could be compromised and other potentially more costly solutions would need to be explored to secure SA's electricity system.

**The AR concludes that the economic impacts of the development are positive, from direct compensation to landowners (through the establishment of statutory easements), the demand for goods and services to local businesses and accommodation providers during construction, and the**

**long-term state and national benefits of lower electricity prices through increased competition, new renewable energy developments and more stable and secure transmission networks.**

#### 14.15 Infrastructure Requirements

The proposed development is not expected to have a significant and/or ongoing impact on existing infrastructure and services within the project area.

During construction, local and state roads, local township services and facilities (particularly short-term accommodation) will be utilised by the construction workforce, and in the case of public roads, require only minor upgrades and periodic maintenance to ensure pre-development conditions are maintained across the project area, and safety upgrades undertaken where required.

Mobile concrete batching plants, temporary accommodation areas and work compounds will require access to a local water supply and would need to meet any waste control and public health requirements. Power is generally available throughout the project area (based on low-voltage distribution lines), or portable generators can be used, during the construction period.

Approximately 27,500 KL of water will be required for construction purposes and will be sourced from local supplies (i.e. purchasing from existing suppliers, local bores), comprising 220KL for the construction camps, 7000KL for concrete batching, 20000KL for dust suppression and 300KL for other purposes.

During operation of the development, would not require significant amounts of water, electricity, or other services to function that could compromise local supplies. Access tracks along the transmission route will require periodic maintenance to ensure inspection and repair work can be undertaken.

**The AR concludes minor impacts to local infrastructure and utility services will be temporary, and within their existing capacity (or with the addition of supplemental supplies, such as portable generators and water cartage) to support the construction phase of the development.**

#### 14.16 Construction and Operational Effects

The project would be constructed and operated under a comprehensive environmental management framework outlined in the EIS (refer Volume 3 – Appendices Q to T). The related management plans will be critical in addressing any residual and short-term impacts that cannot be adequately avoided during the construction and/or operational phases of the development. These plans are:

- Draft Construction Environmental Management Plan;
- Draft Operations Environmental Management Plan;
- Draft Fire Hazard Management Plan;
- Draft Waste Management and Minimisation Plan;
- Cultural Heritage Management Plan Framework;
- Traffic Management Plan; and
- Air Quality Management Plan.

All of these plans set-out various legislative requirements and industry-accepted principles, procedures and practices to manage and mitigate construction and operational impacts to land and resources, and to further identify and protect areas of cultural significance.

Given the close proximity of cultural sites, and potential for others to be discovered and/or disturbed during construction, a Cultural Heritage Management Plan Framework has been developed. The implementation of the plan includes references to legislative requirements, pre-construction cultural heritage surveys, project induction and awareness training for all workers, and continuous consultation with Traditional Owners, provides a robust and adaptive management strategy.

Similarly, the Draft Fire Hazard Management Plan has been prepared to manage and mitigate potential bushfire impacts to life, property and environmental assets during construction and operation of the project (both within the broader landscape and due to project activities).

The plan has been developed in consultation with key stakeholders, provides a comprehensive review of existing plans and regulations within South Australia, considers the local bushfire environment (including past fire events) and all potential sources of fire ignition. Whilst bushfire risk (in various scenarios) was considered in the EIS to pose ‘a significant level of inherent risk to life, property and environmental assets’, a range of risk mitigation and management measures can minimise these risks.

These include prevention (i.e. vegetation management, construction standards, asset maintenance and security), preparedness (i.e. good access, evacuation procedures, monitoring and communication, training, responsiveness to total fire ban days, etc.), response (i.e. CFS support, firefighting equipment, access to water, etc.) and recovery (i.e. reconstruction of infrastructure, etc.).

The draft management plans have been reviewed by relevant State agencies – and subject to their further review and finalization – are considered to be comprehensive and fit for purpose. It is understood that ElectraNet and the construction Contractor will be responsible for the implementation of each plan, and through appropriate monitoring, update such plans as required based on changed circumstances and feedback from workers, landowners and other authorities.

Furthermore, ElectraNet has advised that a scoping document will be provided alongside the final EMP.

**The AR concludes that the development can be undertaken without undue impacts to either the natural or developed environments of the Mid-North and Riverland regions, subject to the preparation and implementation of appropriate management plans as detailed in the EIS.**

#### 14.17 Management Mitigation and Modelling

Regular inspections and monitoring of work practices and potential impacts to native flora and fauna will be required over the course of the construction and operational phases of the development, particularly the longer-term rehabilitation and regeneration of disturbed areas subject to temporary vegetation clearance.

Periodic inspections, record keeping, formal auditing and compliance actions will need to be actioned to verify that various conditions and requirements of any development authorisation are complied with, both at the State and Commonwealth level. Monitoring and reporting protocols are included in each of the draft EMPs, including the need to periodically review and update these plans, ensuring a process of adaptive management and response is undertaken that can measure both the effectiveness and performance of the control and mitigation measures.

These plans will also work in concert with ElectraNet’s Health, Safety and Environment Management System, ensuring that the health and safety of workers, the public and the environment are protected during the course of the project.

The development must be undertaken in accordance with a range of other legislative requirements and environmental standards that seek to protect, conserve and maintain the natural environment under the *Landscape South Australia Act 2019*, *Environment Protection Act 1993*, (including companion water quality, site contamination and noise policies), *River Murray Act 2003*, and national standards relating to fuel and chemical storage. Reference to these requirements will be carried across to various management plans.

**The AR concludes that a process of regular monitoring and inspection, alongside well-established project reporting systems prepared and implemented by the proponent, will ensure that development can be undertaken in a manner consistent with best environmental practices.**

## 15. Consistency with Current Planning Policies

The assessment of a Major Development proposal only has to have regard to current planning policies, comprising State Planning Policies, Regional Plans, the Planning and Design Code, and for reference purposes, previous Development Plans (now superseded). Unlike a standard development application, which has to be in general accordance with Code policies relating to the development of land in a certain parcel of land, a Major Development process is guided by more expansive guidelines, which cover a wider range of issues and requirements to be satisfied.

### 15.1 State Planning Policies

State planning policies (SPPs) address the economic, environmental and social planning priorities for South Australia. They are the highest level of policy in the State's planning system. SPPs set the general direction for new development within the state's urban and regional areas.

A number of SPPs are relevant to the assessment of the proposal:

**SP4: Biodiversity**—the maintenance of a healthy, biologically diverse environment ensures greater resilience to climate change, increases productivity and supports a healthy society. The Planning System has a role to play in ensuring biodiversity and associated life-supporting functions are maintained and enhanced through the identification and protection of areas of high biodiversity value, ensuring development occurs in appropriate locations, and assessing the cumulative impact of development on biodiversity, including spatial, temporal and incremental impacts.

**Comment:** *Objective 4.1 seeks the minimization of impacts on areas with recognized natural character and values, such as native vegetation and critical habitat so that critical life-supporting functions to our state can be maintained, and where impacts to biodiversity cannot be avoided (Objective 4.5), these impacts should be minimised, and where possible, offset. The development seeks to avoid, manage and/or mitigate such environmental impacts through a process of route selection, minimising clearance and construction management. An offset payment will also apply under the Native Vegetation Act.*

**SP5: Climate Change**—seeks to build resilience within our built and natural environment through the adaption and mitigation of the impacts of climate change. The Planning system has a role to play in supporting new infrastructure that can lower our carbon footprint (either directly or indirectly) and encourages the adoption of new technology.

**Comment:** *Objective 5.6 facilitates green technologies and industries that reduce reliance on carbon-based energy supplies and directly or indirectly reduces greenhouse gas emissions. Objective 5.10 supports the transition of traditional industries that rely on fossil fuels to climate smart initiatives to reduce greenhouse gas emissions. Whilst the biodiversity and*

*ecological values of land also need to be considered (Objective 5.7), the development of the SA-NSW Interconnector will provide additional network capacity to facilitate the development of several renewable energy projects (already approved and planned) between Morgan, Robertstown and Burra.*

**SP7: Cultural Heritage**—the enduring living, spiritual and cultural connection to the land is recognized and acknowledged as an essential part of our cultural heritage. For infrastructure projects, the planning system has a role to play by protecting places of recognised heritage value through early identification and avoidance, particularly those places, items and objectives of significance for South Australia’s First Peoples.

**Comment:** *Objective 7.2 seeks to recognise and protect Indigenous cultural heritage sites and areas of significance, whilst Objectives 7.3 and 7.4 seek to recognize, protect and maintain such places for the community and future generations more generally. Objective 7.5 seeks the implementation of appropriate design guidance to maintain heritage values, which is consistent with the route selection process of the SA-NSW Interconnector project, to avoid areas of cultural heritage significance based on extensive negotiations and feedback with local Aboriginal groups.*

**SP12: Energy**—seeks the provision of sustainable, reliable and affordable energy is essential in meeting the basic needs of communities and ensuring the long-term supply of key services across South Australia. Planning has a key role to play in enabling all forms of energy infrastructure. This includes maintaining and expanding the existing energy network as well as enabling the development of renewable energy and alternative energy options.

**Comment:** *Objective 12.3 directly supports the provision of strategic energy infrastructure corridors to support the interconnection between South Australia and the National Electricity Market, whilst Objectives 12.1, 12.2 and 12.4 are also supported and enlivened by the SA-NSW Interconnector project through the increase in network capacity that will directly support the construction of new (renewable) energy projects in regional SA.*

**Summary:** the South Australia-New South Wales Interconnector Project is consistent with current SPPs. The project can enable the delivery of necessary services and infrastructure. Further, it can support the transition to a carbon neutral economy by increasing access to the National Energy Market for new energy generating projects, which will be predominately based around renewables and storage, without unduly impacting upon sites of cultural significance or areas of high biodiversity value.

## 15.2 Regional Planning Policies

Each region in South Australia has a plan to guide development and reflect the vision of the State Planning Policies. Regional plans set the direction for future planning and development of South Australia. The current (operative) plans are the Mid North Region Plan and the Murray and Mallee Region Plan (being volumes of the South Australian Planning Strategy).

Regional South Australia also encompass many matters of National Environmental Significance (NES) that are protected under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is noted that these matters will be principally considered under the existing EPBC Bilateral Agreement with the Commonwealth for projects previously declared under section 46 of the *Development Act 1993*.

Key points in the respective plans include:



#### **Mid North Region Plan**

- Maintaining distinctive built heritage and places of historical importance to the State, including Aboriginal heritage and culture.
- Expanding local electricity generation such as wind farms and gas-fired peak demand plants to provide greater capacity for economic activity.
- Enhancing the development of renewable energy and the expansion of the transmission infrastructure to service this growth.

#### **Murray and Mallee Region Plan**

- Long-term adaption to climate change, and support for renewable and clean energy technologies to provide a competitive advantage in a carbon-constrained economy.
- Ensuring protection and preservation of the region's environmental assets, including areas of international and national importance, conservation parks, riverine, lake and coastal habitats, wetlands, threatened species, ecological communities, terrestrial habitats and water resources.
- Encouraging the development of alternative energy industries (for example, solar, wind, geothermal and biofuels), where they can be appropriately located and do not adversely affect environmentally significant areas, scenic landscapes and heritage places.
- Expanding local electricity generation such as wind farms and gas-fired peak demand plants to provide greater capacity for economic activity, including the provision of strategic electricity infrastructure and transmission corridors for augmentation and extension.
- Enhancing the development of renewable energy and the expansion of the transmission infrastructure to service this growth.

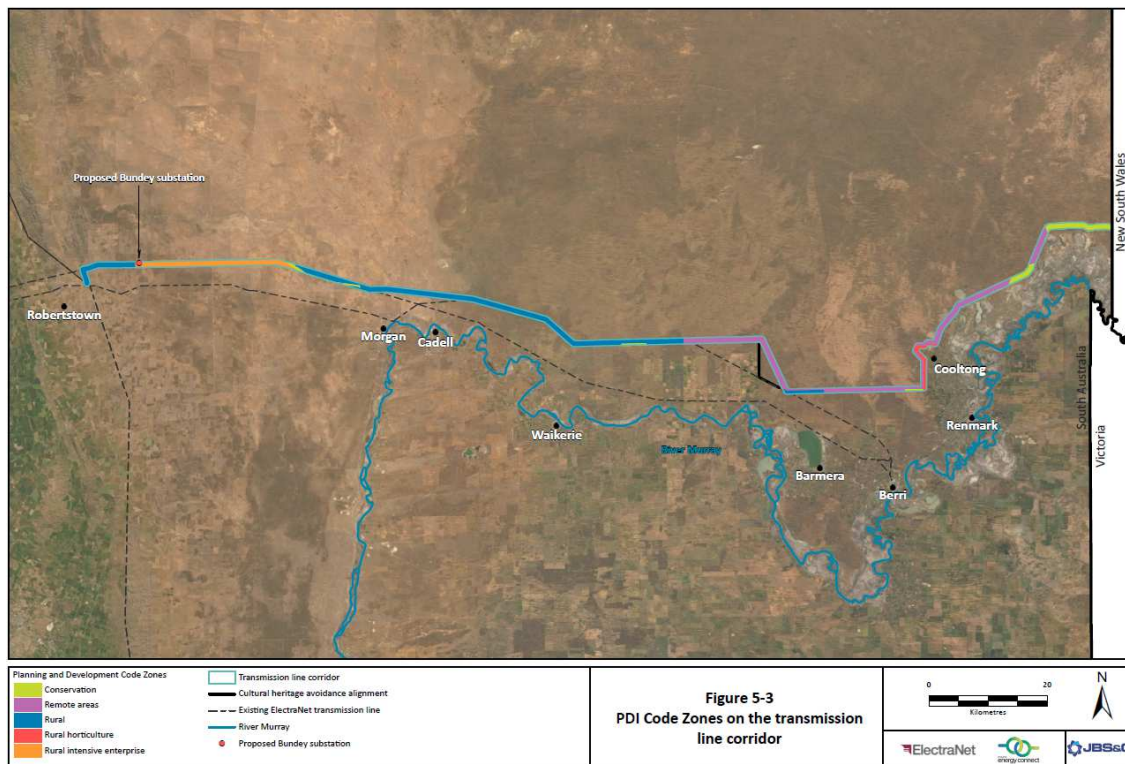
**Summary:** Whilst the Murray and Mallee Regional Plan was released in January 2011, and covers the majority of the proposed transmission line route, it is noted that the plan specifically envisages and prioritizes future electricity transmission upgrades, through the provision and protection of corridors parallel to existing infrastructure or where identified by ElectraNet (Policy 5.3). The current proposal is consistent with the key objectives of both regional plans, whilst actively seeking to limit native vegetation clearance and species impacts within a sensitive Mallee and Riverland environment (Policy 1.1, 1.6, 1.10-1.12, 1.14), manage the impacts of climate change (Policy 2.7), and protect and conserve places of heritage and cultural value (Policy 4.1).

### **15.3 Planning and Design Code**

The transmission line corridor traverses five Council areas as well as land not within a council area. The phased introduction of the Planning and Design Code (the Code) and repeal of existing Development Plans applied to the relevant Council areas as follows:

- Phase 1 - 1 July 2019: Land Not Within a Council Area
- Phase 2 – 31 July 2020: Goyder, Loxton Waikerie, Berri Barmera and Renmark Paringa councils
- Phase 3 – 19 March 2021: Mid Murray Council

The proposal was declared a major development on 4 June 2019 and the final EIS prepared in April 2021. As this assessment is post the implementation of the Code, the application has been considered in the context of the planning policies contained within the Planning and Design Code. A detailed assessment of the development against the relevant desired outcomes and performance outcomes of the Code are contained in Appendix C.



**Figure 32:** PDI Code Zones on the Transmission Line Corridor (Reference, EIS Chapter 5, p 43)

Where relevant, and to provide appropriate context, comparisons are drawn to superseded planning policy under Council Development Plans. A summary of repealed Development Plan Policy is provided in Appendix D.

Moving from west to east, the transmission corridor passes through five zones:

- Rural (Goyder, Mid Murray, Loxton Waikerie and Berri Barmera)
- Rural Intensive Enterprise (Goyder and Mid Murray)
- Conservation (Mid Murray, Loxton Waikerie, Riverland)
- Remote Areas (Pastoral Unincorporated Areas)
- Rural Horticulture (Renmark Paringa Council)

### 15.3.1 Zones

The western portion of transmission line corridor is predominantly within the Rural Zone and Rural Intensive Enterprise Zone. The Rural Zone replaces the Primary Production Zone under several Development Plans. The Zone envisages land uses that support the economic prosperity of the State. Sustainable primary production is the priority land use with value adding activities encouraged to diversify and strengthen the economic base of the region. The zone does not provide any guidance for major infrastructure, however built form should seek to reduce visual impact and minimise the extent of cut and fill in order to retain the natural and rural character.

A subset of the Rural Zone, and wholly located within the Goyder and Mid Murray councils, the Rural Intensive Enterprise Zone envisages a staged evolution from general farming activities into a multi-purpose precinct for the co-location of higher intensity and value-adding activities related to primary production.

The eastern portion of the transmission line corridor is predominantly Remote Areas Zone, which remains consistent with the zone provisions under the repealed Development Plan. The Zone covers the vast outback regions of the State and envisages a range of primary production, rural activities, aerospace, defence, mining and remote settlements. Development should be sited and designed to protect natural features and reduce impact on scenic and rural vistas.

The transmission line corridor traverses several protected areas within the Conservation Zone. From west to east the corridor impacts the White Dam Conservation Park (Mid Murray Council); Pooginook Conservation Park (Loxton Waikerie Council); Cooltong Conservation Park (Renmark Paringa Council); and Chowilla Game Reserve and Regional Reserve (not within a council area). The Chowilla reserve was previously zoned River Murray Fringe and River Murray Flood zones; however, the conservation objectives remain the same. The Conservation Zone envisages development primarily for interpretive, scientific, conservation and ancillary purposes. Built form should be sited and designed to minimise visual impact on the natural environment, contain development to a defined site, and minimise earthworks. Structures should not obscure views to natural features from key vantage points, including public roads.

The corridor passes through an area of Rural Horticulture Zone at the edge of the Renmark Paringa Council boundary. This zone supports intensive agriculture and associated activities to process, package and service the sector. Large structures should be sited with minimum setbacks to roads, allotment boundaries and sensitive receivers to mitigate interface impacts.

Whilst the relevant zones provide general guidance regarding the siting and design of structures, and minimisation of visual impacts, they do not contemplate the development of major infrastructure facilities, such as a transmission line. Planning policy for major infrastructure facilities is found in the General Development Policies.

### 15.3.2 General Development Policies

The general development policies for Infrastructure and Renewable Energy Facilities recognise that high-voltage transmission lines have an inherent significant visual impact that cannot be ameliorated. Smaller infrastructure facilities and ancillary development should, however, be sited and designed to minimise visual impact. For the proposed new Bunday Substation, this may include landscaped buffers, setbacks and siting of development below ridgelines.

Infrastructure should be located with adequate separation from sensitive receivers, and to avoid conflict with air transport safety and the operation of airfields and landing strips. During construction, temporary facilities should be operated to minimise environmental impact and include appropriate waste storage receptacles. Following the construction period and/or decommissioning of transmission corridors, rehabilitation and revegetation of disturbed land should be progressively undertaken.

The Interface between Land Uses module seeks that development is located and designed to minimise adverse impacts to adjacent land uses. For a high-voltage transmission line, ongoing interface impacts may include reflectivity and electrical interference. Short-term impacts during construction such as noise and dust emissions, as well as heavy vehicle movements, should be minimised and managed through a Construction Environmental Management Plan (CEMP).

General development policies relating to Transport, Access and Parking require that development be integrated with, and minimise impact upon, the existing transport network. Vehicle access points should be sited and designed to accommodate the expected type and volume and traffic, whilst minimising impact and/or interruption to the operation of public roads. Heavy vehicle movements,

loading and unloading areas should be separated from passenger vehicle areas to allow for efficient operation and avoid conflict.

### 15.3.3 Overlays

A number of overlays apply to the transmission line corridor. The overlays provide guidance for biodiversity and native vegetation conservation, protection of water resources, transport systems and hazard risk minimisation.

The Native Vegetation, State Significant Native Vegetation Areas and Ramsar Wetlands Overlays are of particular relevance to the development, with an estimated 413 hectares of native vegetation to be cleared along the alignment during the construction period. The route alignment has been refined to avoid known Threatened Ecological Communities. Where possible, the corridor follows existing disturbed or cleared areas, roads and access tracks to minimise the extent of native vegetation clearance and impacts to sensitive ecological sites. The route traverses the northern reaches of the Ramsar wetlands in an area that does not hold water for most of the year.

The River Murray Flood Plain Protection Area, Murray Darling Basin, Water Resources and Prescribed Watercourses Overlays have common outcomes to protect water quality; provide for environmental flows; and conserve the value of the riverine environment as an important ecological, tourist and recreational resource. The transmission line infrastructure is not expected to impede the flow of any water courses, being sufficiently separated from the River Murray along the corridor. During construction mitigation measures will be required to prevent erosion and sedimentation into watercourse. Activities that require a water source will seek to utilise existing licences.

The transmission line traverses several Hazards (Bushfire) overlays with the majority of the corridor being within the Outback, Regional and General Risk areas. Development within these overlays should respond to the relevant bushfire risk and ensure that access is provided for emergency service vehicles. The transmission lines shall be constructed to Australian and International standards to minimise the risk of starting a fire. Vegetation around infrastructure should be maintained at an appropriate level to minimise fire loads, and access tracks maintained to facilitate access for emergency vehicles.

The Hazards (Acid Sulfate Soils) overlay applies to a section of the Chowilla Game Reserve at the eastern end of the transmission line. The transmission line avoids known areas of Acid Sulfate Soils with chance finds managed through the CEMP.

The Key Outback and Rural Routes overlay applies to land either side of the Goyder Highway. This overlay seeks that safe and efficient movement of vehicles and freight traffic be maintained on major routes. During construction the development will generate an increase in heavy vehicle traffic along key transport routes. A Traffic Management Plan (TMP) will be required to manage the temporary impacts associated with construction.

**The AR concludes that the development is consistent with State Planning policies and the Planning and Design Code that seeks the provision of essential infrastructure in appropriate locations to support the economic development of the South Australia, but at the same time ensure that potential environmental and societal impacts are minimised during both the construction and operational phases.**

## 16. Conclusion

The proposed development seeks to construct a new overhead, high-voltage transmission line between Robertstown and the South Australia-New South Wales border: the South Australia-New South Wales Interconnector ('Project Energy Connect'). The assessment of the proposal has been considered against a comprehensive EIS and Response document prepared by ElectraNet, which has been carefully reviewed by State and Commonwealth government agencies and local councils, and was the subject of a six-week public exhibition period.

All substantive issues raised during the consultation process were adequately addressed by the proponent. Where residual issues remain, these could be adequately addressed through appropriate conditions of approval if approved. The Australian Energy Regulator (AER) has provided endorsement for the project, and that there is no national regulatory or market barrier that would prevent the development from proceeding, being fully costed and funded.

The key benefits of the project, which has been in development for 25 years, would support the further investment in and capacity of the National Electricity Market and improve the affordability, reliability and sustainability of the electricity supply that will benefit all consumers. In addition, the project will 'unlock' approved and future renewable energy projects to be developed in the Mid North and Riverland regions of South Australia, which are constrained by access to markets and the limited capacity of the existing transmission network and absence of a dedicated New South Wales connection.

Typical residential power bills are estimated to be reduced by up to \$100 million annually, with approximately 200 jobs created during construction and a further 250 post-construction. The construction period will also provide direct benefits to local townships, through temporary worker accommodation, subcontractor opportunities and provision of general goods and services.

Such a large project, involving the construction of up to 380 towers across 205 kilometres, along with access tracks and ancillary infrastructure, will result in impact. Up to 413 hectares of native vegetation will require permanent or temporary clearance, including areas of high conservation value within the Riverland Biosphere Reserve and adjacent Riverland Ramsar wetland site that support species and habitat of national environmental significance.

The selection of the route and the construction method will greatly minimise the extent and nature of these impacts, demonstrating the benefits of early stakeholder engagement, taking account of previous project learnings, and a thorough investigation and assessment of potential environmental, social and economic impact arising from the development.

Some risks will remain, such as from bushfire hazard; however, the construction and operation of the transmission line is unlikely to be the cause of a fire event, based on the design of the infrastructure and operational measures to reduce the effect of lightning strike within environmentally sensitive wilderness areas. No long-term deleterious effects were found in respect to threatened species or communities.

The proponent has developed and will implement an Environmental Management System (comprising a range of management and operational plans) to further minimise potential impacts and ensure no unacceptable outcomes result from the development, based around post-construction rehabilitation work, and an ongoing monitoring and auditing program. If approved, a range of conditions have been recommended to ensure the development is constructed and operated in a manner that provides both certainty and accountability to the community and regulatory bodies.



## 17. Recommendation

### PART A: GENERAL CONDITIONS

1. Except where minor amendments may be required by other legislation or by conditions imposed herein, the construction, operation, use and maintenance of the major development shall be undertaken in accordance with:
  - (a) Project Energy Connect—Environmental Impact Statement—Main Report and Appendices—May 2021
  - (b) Project Energy Connect—Environmental Impact Statement—Response Document—November 2021

To the extent of any inconsistency, a later document will prevail over an earlier one.

2. The proponent shall have substantially commenced the development within two (2) years from the date of this authorisation, and substantially completed the development within five (5) years of the date of this authorisation, failing which an extension of time may be sought from the Minister for Planning and Local Government (the Minister) or the authorisation may be cancelled.
3. Except where minor amendments may be required by other legislation or by other conditions imposed below, all buildings, structures and infrastructure comprised in or required for the purposes of the major development shall be constructed, used, operated and maintained in accordance with the approved final plans, drawings, designs and specifications as approved by the Minister under the reserved matters.
4. Should the development cease during the period between the commencement of earthworks and final completion, the proponent shall undertake all necessary steps to reinstate the land and make good any damage or disturbance.
5. No building or site works on any part of the major development may commence until a favourable decision has been notified to the proponent by the Minister or the Minister's delegate in respect of the reserved matters (PART C) and until a development authorisation under section 48(2) of the *Development Act 1993*/section 115(2) of the *Planning, Development and Infrastructure Act 2017* is granted.
6. The construction of the major development shall be undertaken in accordance with:
  - a. the final approved plans and specification of all elements;
  - b. the approved Construction Environment Management Plan (CEMP);
  - c. the approved Cultural Heritage Management Plan;
  - d. the approved Fire Hazard Management Plan;
  - e. the approved Waste Minimisation and Management Plan;
  - f. the approved Native Vegetation Management, Restoration and Monitoring Plan; and
  - g. the approved Threatened Species Management Plan.
7. The CEMP shall be monitored by the proponent to ensure implementation of the mitigation measures for the predicted impacts and shall be reviewed every six (6) months by the proponent to ensure mitigation measures are effective. Each review shall be made publicly available and a copy provided to the Minister until the construction phase is complete.
8. The operation of the major development shall be undertaken in accordance with:

- a. the final approved plans and specification of all elements;
  - b. the approved Operations Environment Management Plan (OEMP);
  - c. the approved Cultural Heritage Management Plan;
  - d. the approved Fire Hazard Management Plan;
  - e. the approved Waste Minimisation and Management Plan;
  - f. the approved Native Vegetation Management, Restoration and Monitoring Plan; and
  - g. the approved Threatened Species Management Plan.
9. The proponent must, prior to the commencement of construction for each project element/stage, submit to the Minister for approval an Operational Environmental Management Plan (CEMP) prepared in consultation with: the Department for Environment and Water; the Department of Primary Industries and Regions South Australia; the Country Fire Service; the Murraylands and Riverland Landscape Board; and local councils. The OEMP must identify measures to manage and monitor (at a minimum) the following matters:
  - a. soil erosion and drainage;
  - b. flora and fauna;
  - c. weeds and pests;
  - d. air quality;
  - e. noise and vibration; and
  - f. local community impacts.
10. The proponent must, prior to the commencement of construction of the transmission towers along the eastern edge of Sugarwood Station, provide a design safety solution to the reasonable satisfaction of the Minister for Planning and Local Government, that the existing airstrip on Sugarwood Station can continue to operate in accordance with Civil Aviation Safety Authority (CASA) standards and recognised clearance requirements.
11. The OEMP shall be monitored by the proponent to ensure compliance with mitigation measures for the predicted impacts and shall be reviewed at regular intervals (being at least every six months for the first two years of operation) and updated as necessary.
12. Council, utility or state agency maintained infrastructure that is demolished, altered, removed or damaged during the construction of the major development shall be reinstated to Council, utility or state agency specifications as applicable. All costs associated with these works shall be met by the proponent.
13. All road infrastructure upgrades shall be completed to the standard required to enable use of the identified vehicle type (as specified in the Traffic Management Plan), to the satisfaction of the Minister.
14. All road infrastructure upgrades, unless otherwise identified, are to be funded by the proponent.
15. The proponent must ensure that the design, construction and operation of the development is managed to comply with the applicable electric and magnetic fields (EMF) limits in the *International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to time-varying electric and magnetic fields (1Hz – 100kHz)* (ICNIRP, 2010).

16. The development shall be maintained in a serviceable condition and operated in an orderly and tidy manner at all times.
17. A Decommissioning and Rehabilitation Plan, prepared in consultation with the relevant Government agencies and local councils, shall be submitted to the reasonable satisfaction of the Minister.

The Plan should be prepared nine (9) months prior to the time that operation is scheduled to cease, and include information related to:

- a. identifying assets to be rehabilitated, remediated, decommissioned and/or removed, along with those that are proposed to be retained and the proposed tenure and management arrangements;
  - b. confirming responsibility for costs associated with rehabilitation, remediating, decommissioning and/or removing and retaining assets;
  - c. handover arrangements for useable assets;
  - d. responsibility for future management and maintenance of useable assets; and
  - e. measures, if required, to remove fuel and chemical storage and wastewater treatment facilities in accordance with relevant legislation and standards.
18. Decommissioning of the development and rehabilitation of the site after the cessation of operation of the development shall be undertaken in accordance with the approved Decommissioning and Rehabilitation Plan.
  19. Unless otherwise specifically provided for in these conditions or otherwise agreed to in writing with the Minister, all costs necessary for compliance with these conditions shall be met solely by the proponent.
  20. The proponent shall submit further information and application(s) in relation to the matters that have been reserved (PART C).

## **PART B: BUNDEY SUBSTATION**

21. All external lighting, including for car parking areas and buildings at the site shall be designed and constructed to conform with *Australian/New Zealand Standard AS/NZS 4282:2019—Control of Obtrusive Effects of Outdoor Lighting* and shall be located, directed and shielded, and of such limited intensity, as far as reasonably practicable, that no unreasonable nuisance is caused to any person beyond the boundary of the site.
22. All vehicle car parks, driveways and vehicle entry and maneuvering areas at or providing access to and from the site shall be designed and constructed in accordance with the relevant Australian Standards and appropriately line marked, and shall be constructed, drained and paved with bitumen, concrete or paving bricks (or other such material as agreed to by the Minister for Planning and Local Government), in accordance with sound engineering practice.
23. All loading and unloading, parking and maneuvering areas at or providing access to and from the site shall be designed and constructed to ensure that all vehicles can safely traffic the site and enter and exit the subject land in a forward direction.

24. All stormwater design and construction at the site shall be in accordance with Australian Standards and recognised engineering best practice to ensure that stormwater does not adversely affect any adjoining property, or public road.
25. All liquids or chemical substances that have the ability to cause environmental harm must be stored within a bunded compound that has a capacity of at least 120 per cent of the volume of the largest container, in accordance with the EPA 'Bunding and Spill Management Guidelines' (2016).

#### **PART C: MATTERS RESERVED FOR FURTHER ASSESSMENT**

I reserve my decision on the following matters:

26. The proponent must, prior to the commencement of construction for each project element/stage, submit to the Minister for approval:
  - a. final detailed designs for all transmission infrastructure, including detailed route plans, towers (and their location), details of any cut and fill, finishes and colours and access roads;
  - b. final detailed plans and designs for all substation infrastructure, including site plans, building floor plans, elevations, cross-sections, details of cut and fill; and
  - c. final detailed plans for all temporary construction component (i.e. laydown areas, works compounds, storage areas, helicopter landing areas, etc.).
27. The proponent must, prior to the commencement of construction for each project element/stage, submit to the Minister for approval a copy of all relevant certification documentation following the assessment and certification as complying with the provisions of the Building Rules, by an accredited professional (or by a person determined by the Minister), of all building work in accordance with the provisions of the *Development Act 1993/Planning, Development and Infrastructure Act 2017*. For the purposes of this condition 'building work' does not include plant and equipment or temporary buildings that are not permanently attached to the land (refer to Advisory Notes below).
28. The proponent must, prior to the commencement of construction for each project element/stage, submit to the Minister for approval a Construction Environmental Management Plan (CEMP) prepared in consultation with the Environment Protection Authority; the Department for Environment and Water; the Department of Primary Industries and Regions South Australia; the Country Fire Service; the Murraylands and Riverland Landscape Board; and local councils. The CEMP must identify measures to manage and monitor (at a minimum) the following matters:
  - a. soil erosion and drainage;
  - b. groundwater;
  - c. flora and fauna;
  - d. weeds and pests;
  - e. air quality and greenhouse gas emissions;
  - f. noise and vibration;
  - g. traffic; and
  - h. local community impacts.

The CEMP shall include the following subplans:

- a. Traffic Management Plan including a Pavement Monitoring and Management Plan.
- b. Emergency Response Plan.
- c. Soil Erosion and Drainage Management Plan.
- d. Air Quality Management Plan.

The CEMP shall be prepared taking into consideration, and with explicit reference to, relevant *Environment Protection Act 1993* policies and guidance documents, including but not limited to:

- the Environment Protection (Air Quality) Policy 2016;
- the Environment Protection (Noise) Policy 2007;
- the Environment Protection (Water Quality) Policy 2015;
- the Environment Protection (Waste to Resources) Policy 2010;
- the Environment Protection Authority Bunding and Spill Management Guideline 2016;
- Environment Protection Authority Handbooks for Pollution Avoidance;
- the Environment Protection Authority Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry 1999;
- the Environment Protection Authority guideline 'Construction environmental management plan (CEMP) 2019'; and
- any other legislative requirements, Guidelines and Australian Standards requiring compliance.

29. The proponent must, prior to the commencement of construction, submit to the Minister for approval the following plans which apply to both the construction and operational phases of the major development:

- a. A Final Cultural Heritage Management Plan, prepared in consultation with the Traditional Owner groups and the relevant Aboriginal heritage representatives, to establish protocols for the discovery of any Aboriginal sites, objects and/or remains during construction.
- b. Final Fire Hazard Management Plan, prepared in consultation with the South Australian Country Fire Service.
- c. Final Waste Minimisation and Management Plan, prepared in consultation with the Environment Protection Authority and local Council to the extent relevant to their jurisdictions.

30. The proponent must, prior to the commencement of construction, submit to the Minister for approval a Native Vegetation Management, Restoration and Monitoring Plan, prepared in consultation with the Department for Environment and Water and the Murraylands and Riverland Landscape Board. The plan shall include details on the management of both retained native vegetation within the transmission line corridor and any areas that are to be restored after the completion of construction. The plan shall address:

- a. Vegetation clearance requirements of the Native Vegetation Council.
- b. Vegetation clearance practices.
- c. Restoration measures, such as site preparation, natural regeneration or direct seeding.
- d. Protection and maintenance of remnant vegetation, including and the control of current/future degrading factors (especially erosion).



- e. Vegetation maintenance during operation, especially to maintain access, safety clearance zones under conductors and asset protection zones.
  - f. Pest plant and animal control.
  - g. Fire management.
  - h. Monitoring requirements.
31. The proponent must, prior to the commencement of construction, submit to the Minister for approval a Threatened Species Management Plan, prepared in consultation with the Department for Environment and Water and the Murraylands and Riverland Landscape Board and the Australian Government Department of Agriculture, Water and the Environment. The Plan must address the measures to be implemented to avoid, minimise and off-set impacts on each nationally threatened species that could be affected by the proposal (including consideration of any Recovery Plans that relate to each species). Species of State and Regional conservation significance (especially those listed under the *National Parks and Wildlife Act 1972*) must also be addressed in the Plan.

#### ADVISORY NOTES

- a. The proponent is advised that all conditions must be met including monitoring, mitigation and reporting requirements as detailed in relevant management plans. Failing to comply with a condition is considered a breach of the *Development Act 1993/Planning, Development and Infrastructure Act 2016*, under which this authorisation is given, and the Minister may direct the proponent to make good any breach. The Minister may also take such action as is required because of any situation resulting from the breach, including the cessation of the operation of the development.
- b. An accredited professional undertaking Building Rules assessments must ensure that the assessment and certification are consistent with this provisional development authorisation (including any conditions or advisory notes that apply in relation to this provisional development authorisation).
- c. Construction of each component of the development may commence only after a Building Rules assessment and certification has been undertaken in relation to that component and has been issued by an accredited professional undertaking Building Rules assessments, and the Minister for has received a copy of the relevant certification documentation.
- d. In accordance with the *National Heavy Vehicle Law (South Australia) Act 2013*, the proponent must apply to the National Heavy Vehicle regulator to obtain permits for use of Restricted Access Vehicles and/or High Productivity Vehicles on public roads, where access for such vehicle is currently not available. This might include such things as construction equipment and vehicles carrying large indivisible construction materials. This might also include access for vehicles such as Road Trains or Performance Based Standards (PBS) vehicles to transport commodities to and from the Port as part of regular operations.
- e. Prior to the use of any High Productivity Vehicles, the Department for Infrastructure and Transport requires that any additional road infrastructure upgrades required to facilitate this use must be completed to the satisfaction of the relevant road authority.
- f. An important initial step, as outlined in the Heavy Vehicle Access Framework, is to have an assessment of the route undertaken by an Authorised Route Assessor, at the proponent's cost. This process will identify any upgrades required to make the route safe and suitable for

the type of vehicle access requested. As part of the approval/s, the proponent will be required to prepare a list of final transport infrastructure improvement needs upon completion of a full route assessment. If this is necessary, the list should identify the scope, timing and estimated cost of the required improvements.

- g. The proponent is reminded of its obligations under the *Aboriginal Heritage Act 1988* that excavation, damage, disturbance of, or interference with, any Aboriginal site, object or ancestral remains is unlawful without ministerial authorisation under sections 21 and 23 of the Act.
- h. The proponent, and all agents, employees and contractors, such as construction crew, is reminded of the need to be conversant with the provisions of the *Aboriginal Heritage Act 1988*, particularly the requirement to immediately contact the Department of Aboriginal Affairs and Reconciliation in the event that archaeological items (especially skeletal material) are uncovered during earthmoving.
- i. The proponent is reminded of its obligation under the *Native Title Act 1993* whereby the proponent would need to consult with appropriate representatives of any relevant Aboriginal Groups in regard to any known sites of significance in the area and any Native Title Claims over the sea bed and subjacent lands.
- j. The proponent is reminded of its obligations under the *Native Vegetation Act 1991* and the *Native Vegetation Regulations 2017* whereby any native vegetation clearance must be undertaken in accordance with a management plan that has been approved by the Native Vegetation Council that results in a significant environmental benefit on the property where the development is being undertaken, or a payment is made into the Native Vegetation Fund of an amount considered by the Native Vegetation Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) of the *Native Vegetation Act 1991*, prior to any clearance occurring.
- k. The proponent is reminded that, under the *National Parks and Wildlife Act 1972*, permits are required for the 'taking of protected animals', such for the capture and relocation of animals during construction and the destruction or relocation of animals during operation.
- l. The proponent is reminded of its obligations under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, not to undertake any activity that could have a significant effect on any matter of National Environmental Significance without the approval of the Commonwealth Minister for Environment.
- m. Should the proponent wish to vary the Major Development or any of the components of the Major Development, an application to the Minister must be submitted, provided that the development application variation remains within the ambit of the Environmental Impact Statement (EIS) and Assessment Report referred to in this development authorisation.  
If an application variation involves substantial changes to the proposal, pursuant to section 47 of the *Development Act 1993*/section 114 of the *Planning, Development and Infrastructure Act 2016*, the proponent may be required to prepare an amended EIS for public inspection and purchase. An amended Assessment Report may also be required to assess any new issues not covered by the original Assessment Report and the decision made pursuant to section 48 of the *Development Act 1993*/ section 115 of the *Planning, Development and Infrastructure Act 2016*

- n. The Minister has a specific power to require testing, monitoring and auditing under section 48C of the *Development Act 1993*/section 117 of the *Planning, Development and Infrastructure Act 2016*

## Appendix A: Definitions and Acronyms

| ACRONYM          | DEFINITION   |
|------------------|--|
| AEMO             | Australian Energy Market Operator  |
| AGD              | Attorney-General's Department  |
| ALA              | Air Landing Area   |
| AR               | Assessment Report  |
| AS               | Australian Standard  |
| CAP              | Contingent Project Application   |
| CEMP             | Construction Environmental Management Plan   |
| CO <sub>2</sub>  | Carbon dioxide   |
| dB(A)            | A-weight decibels  |
| DAWE             | Department of Agriculture, Water and the Environment (formerly the Department of Environment and Energy) |
| DEM              | Department for Energy and Mining   |
| DEW              | Department for Environment and Water   |
| DPC-AAR          | Aboriginal Affairs and Reconciliation, Department for the Premier and Cabinet                            |
| DIT              | Department for Infrastructure and Transport  |
| EIS              | Environmental Impact Statement   |
| EMF              | Electromagnetic Field  |
| EMP              | Environmental Management Plan  |
| EPA              | Environment Protection Authority   |
| EP Act           | <i>Environment Protection Act 1993</i>   |
| EPBC Act         | <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>                        |
| ERP              | Emergency Response Procedure   |
| FTE              | Full Time equivalent   |
| HVAC             | High Voltage Alternating Current   |
| HVDC             | High Voltage Direct Current  |
| ILUA             | Indigenous Land Use Agreement  |
| ICNIRP guideline | International Commission on Non-Ionizing Radiation Protection  |
| ISP              | Integrated System Plan   |
| kV               | Kilovolt   |
| mG               | milligauss   |
| MNES             | Matters of National Environmental Significance   |
| MDP              | Major Developments Panel of the former DAC   |
| MRLB             | Murraylands and Riverland Landscape Board  |
| MW               | Megawatt   |
| MCA              | Multi-Criteria Analysis  |
| NEM              | National Electricity Market  |
| Noise EPP        | <i>Environment Protection (Noise) Policy 2007</i>  |
| NSW              | New South Wales  |
| NVC              | Native Vegetation Council  |
| OEMP             | Operational Environmental Management Plan  |
| OPGW             | Optical Ground Wires   |
| PIRSA            | The Department of Primary Industry and Regions SA  |
| PLUS-AGD         | Planning and Land Use Services (within the Attorney-General's Department)                                |
| QLD              | Queensland   |
| Ramsar           | Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat                |
| REZ              | Renewable Energy Zones   |
| RET              | Renewable Energy Target  |
| RIT-T            | Regulatory Investment Test for Transmission  |

|              |  |
|--------------|--|
| SA           | South Australia                            |
| SA-CFS       | SA Country Fire Service                    |
| SAET         | SA Energy Transformation (                 |
| SEB          | Significant Environmental Benefit          |
| SPC          | State Planning Commission                  |
| SPP          | State Planning Policy                      |
| TZVI         | Theoretical Zone of Visual Influence       |
| The Minister | Minister for Planning and Local Government |
| TIA          | Traffic Impact Assessment                  |
| TMP          | Traffic Management Plan                    |
| VIA          | Visual Impact Assessment                   |
| VP           | View Point                                 |
| WMMP         | Waste Management and Minimisation Plan     |



## Appendix B: Assessment Guidelines

|    |  |  | Risk  |  | Scale                            | Level of assessment          |  |
|----|--|--|---|--|----------------------------------|------------------------------|--|
| No | Issue/Impact   | Description  | Issue/Impact  | Response   | Duration                         | Extent                       |  |
| 1  | Matters of National Environmental Significance (MNES) under the EPBC Act | <p>The proposal has been deemed a controlled action due to potential impacts on MNES.</p> <ul style="list-style-type: none"> <li>Black-eared Miner (<i>Manorina melantotis</i>) – endangered</li> <li>Red-lored Whistler (<i>Pachycephala rufogularis</i>) – vulnerable</li> <li>Regent Parrot (eastern) (<i>Polytelis anthopeplus monarchoides</i>) – vulnerable</li> <li>Malleefowl (<i>Leipoa ocellata</i>) – vulnerable</li> <li>Iron-grass Natural Temperate Grassland of South Australia ecological community – critically endangered</li> <li>Peer Hill Hop-bush (<i>Dodonaea subglandulifera</i>) – endangered</li> <li>Silver Daisy – bush (<i>Olearia pannosa</i> subsp. <i>pannosa</i>) – vulnerable</li> </ul> | Based on the information provided by the proponent, there is potential for significant impacts on MNES, specifically threatened species (or their habitat) and ecological communities.  | The current plan does not provide a detailed description of the alignment in relation to the effect on MNES and measures to avoid or mitigate impacts during construction and ongoing operation.   | During construction and ongoing. | National implications.       | <p>The receiving environment &amp; MNES are highly sensitive to change. The MNES require further survey and assessment, including investigating alternative alignments of the entire corridor, in particular through or outside of Taylorville and Calperum, and in relation to potential impacts of bird strike and fire.</p> <p><b>= CRITICAL</b></p> <p><i>NB – this is a mandatory component of the SA/ Commonwealth Bilateral Agreement</i></p> |
| 2  | Land Use and Economic Effects  | <p>The proposal will have an impact on the State's economy during construction and operations and may result in immediate and long terms effects on land owners and surrounding uses.</p> <p>The commissioning of the infrastructure will have an impact on the electricity market within South Australia and a possible flow on effect with regard to renewable energy generation.</p> <p>Both the construction and use of the proposed infrastructure will result in employment and will have other economic flow on effects.</p>  | <p>Potential impacts include:</p> <ul style="list-style-type: none"> <li>Improved grid stability/reliability</li> <li>Greater price competition.</li> <li>Greater efficiency (especially due to access to additional markets).</li> </ul> <p>The proposal may however have the effect of encouraging additional generation capacity using valuable primary production land.</p> <p>The proposal is expected to have a positive impact in terms of employment and contribution to the local economies during construction.</p> | <p>The current plan does not provide an in depth analysis of:</p> <ul style="list-style-type: none"> <li>Impacts of the interconnector on the electricity market.</li> <li>Impacts of employment generation.</li> <li>The economic benefits and</li> <li>The flow on effects of additional land used for energy generation.</li> </ul> | Ongoing.                         | Regional, State and National | <p>More information required on:</p> <ul style="list-style-type: none"> <li>Strategic energy related benefits.</li> <li>Employment opportunities</li> <li>Multiplier/flow on effects.</li> <li>Impact of the flow on effect on land uses in the vicinity of the substation.</li> </ul> <p><b>= CRITICAL</b></p>  |
| 3  | Effect on Conservation Values  | The proposed development traverses an area which contains significant and extensive tracts of remnant habitat (including one of the largest stands of old-growth Mallee vegetation in Australia) and has high conservation values. It is also within close proximity of the floodplain habitat of the River Murray and areas of cultural significance to Aboriginal people.  | Based on the information provided by the proponent, there is potential for significant impacts on conservation values (from a regional and national perspective).   | The current plan does not provide a detailed description of the various alignment options and the effects on conservation values.  | During construction and ongoing. | Regional, State and National | <p>The receiving environment is potentially negatively impacted by the infrastructure. Need for further assessment including investigating alternative alignments and offset opportunities.</p> <p><b>= CRITICAL</b></p>   |

## Assessment Report – [SA-NSW Interconnector Project]

|    |                                    |  | Risk   |  | Scale                            |                              | Level of assessment  |
|----|------------------------------------|--|--|--|----------------------------------|------------------------------|--|
| 4  | Effect on Native Vegetation        | The proposed development traverses a significant stands of native vegetation including possibly threatened species and ecological communities.   | Based on the information provided by the proponent, there is potential for significant impacts on native vegetation including threatened species and ecological communities (by way of vegetation clearance/disturbance and edge effects). | The current plan does not provide a detailed description of the alignment in relation to the effect on native vegetation.  | Primarily during construction.   | Regional, State and National | The receiving environment is potentially negatively impacted by the infrastructure. Need for further assessment on the location, extent, condition and impact on native vegetation, threatened species and ecological communities and any opportunity for offsetting.<br>= <b>CRITICAL</b> |
| 5  | Effect on Native Fauna             | The proposed development traverses habitat that supports significant populations of native fauna.  | Based on the information provided by the proponent, there is potential for impacts on fauna habitat (including Mallee and Riverine communities).   | The current plan does not provide a detailed description of the alignment in relation to the effect on native fauna.   | During construction and ongoing. | Regional, State and National | The receiving environment is highly sensitive to change. Need for further assessment on the location, extent, condition and impact on native fauna and any opportunity for offsetting.<br>= <b>CRITICAL</b>  |
| 6  | Effect on Cultural Heritage Values | The proposed development has the potential to impact on sites/locations of Indigenous or Non-Indigenous heritage through disturbance during construction.<br><br>Native Title implications associated with Crown land.   | The proposed development may have impacts on recorded and unrecorded Aboriginal heritage sites, objects and remains, as well as the state heritage-listed sites, which may be located within the alignment.                                | The current plan does not provide a detailed description on existing Aboriginal and other heritage matters, or management of such heritage matters that may arise during the construction phase. | Construction                     | State                        | Issue is well understood, but more specific information is required<br>= <b>CRITICAL</b>   |
| 7  | Route Selection investigations     | The proposed route is anticipated to be a 60 - 75m wide corridor within a wider 15km corridor. There are multiple route options within the corridor. A multi criteria analysis proposed for route selection.   | Based on the information provided there is a number of environmental, social, land use and engineering constraints that impact route selection.  | The current plan does not provide detailed rationale and justification of the route selection.   | Design                           | Local and Regional           | Need for further information, including multi criteria analysis of each alternative route and details of the preferred route.<br>= <b>CRITICAL</b>   |
| 8  | Visual Impact                      | Impact landscape and visual amenity values. The effect of large number of lattice towers (i.e. approximately 475 towers - typically 50 metres in height and spaced 450 – 600 metres apart) along a 190 kilometre alignment, which would represent a significant visual element in the landscape. | Effect on the amenity of local communities, tourism values/experiences and landscape quality (especially iconic natural landscapes and wilderness).  | The current plan does not provide an analysis of the visual impact on the adjacent land users and scenic vantage points (for near and distant views).  | Ongoing                          | Local and Regional           | Further information required. The receiving environment is potentially negatively impacted by the infrastructure.<br>= <b>MEDIUM</b>   |
| 9  | Effect on Communities              | The proposed development has the potential to affect the local community during construction and through the establishment of a large linear structure.  | The introduction of a large powerlines may affect local communities.   | The currently plan provides little detail on the effects of communities.   | During construction and ongoing. | Local                        | More information is required, but impacts would be manageable.<br>= <b>MEDIUM</b>  |
| 10 | Hazard Risk                        | The construction and operation of a high-voltage powerline involves a range general and specific risks.  | Associated risks include:<br>• Erosion and land contamination.<br>• Fire.<br>• Aircraft safety.  | The current plan provides little detail of a risk assessment.  | During construction and ongoing. | Local                        | Issue is well understood, but more specific information is required on level of risk.<br>= <b>MEDIUM</b>   |

## Assessment Report – [SA-NSW Interconnector Project]

|    |  |  | Risk  |   | Scale                            |                            | Level of assessment  |
|----|--|--|---|---|----------------------------------|----------------------------|--|
|    |  |  | <ul style="list-style-type: none"> <li>Road safety.</li> <li>Bird/bat strike.</li> </ul>  |   |                                  |                            |  |
| 11 | Alternatives   | There are a number of alternatives that require exploring.   | Based on information provided a wide range of future scenarios have been investigated.  | The current plan provides limited detail about alternative explored.  | Design                           | Local<br>Regional<br>State | More information on alternative options explored and rationale as to the assessment of these.<br>= <b>MEDIUM</b> |
| 12 | Effect on the physical environment                     | The proposed development has the potential to disturb landforms and soils and to affect storm water run-off.   | Construction activities and the establishment of a permanent access track has the potential to cause erosion (wind and water), sedimentation and the alteration of natural drainage patterns.   | The current plan does not provide a detailed description of the alignment in relation to disturbance to the physical environment.           | Primarily during construction.   | Local                      | Issue is well understood, but more specific information is required.<br>= <b>MEDIUM</b>                          |
| 13 | Introduction/spread of exotic plant and animal species | The proposed development has the potential to establish a corridor for the spread of introduced or nuisance plants and animals.  | The establishment of an easement and access track could introduce or increase the abundance of pest plants or animals (especially rabbits, birds, foxes, cats and dogs). Increased abundance of some native species could also affect local populations (especially the Yellow-throated Minor). | The current plan does not provide a detailed description of the alignment in relation to the effect on introduced plant and animal species. | Ongoing                          | Local and<br>Regional      | Need for further recent information (or updated existing information).<br>= <b>MEDIUM</b>                        |
| 14 | Traffic Effects  | The proposal requires access for the transportation of infrastructure and construction material to site and ongoing access for maintenance purposes.                         | During construction local traffic may be affected, especially for the delivery of materials and infrastructure  | The current plan does not provide a detailed description of traffic impacts and how they would be managed.                                  | During construction and ongoing. | Local and<br>Regional      | More information is required, but impacts would be manageable.<br>= <b>STANDARD</b>                              |
| 15 | Construction, Operation and Maintenance Effects        | The construction and operation of the proposal would require a range of impacts to be minimised, mitigated and monitored through an environmental management plan framework. | A range of standard and specific impacts would need to be adequately addressed (including consultation with stakeholders and the adoption of a risk analysis approach and relevant industry standards).   | The current plan provides limited information on the proposed construction and operational management techniques and measures.              | During construction and ongoing. | Local and<br>Regional      | More information is required, but impacts would be manageable.<br>= <b>STANDARD</b>                              |
| 16 | Legislation, Policies and Strategies                   | A range of planning, environmental and energy related statutory requirements would need to be met for the construction and operation of the proposed development.            | The proposal will need to comply with relevant State and Australian government legal requirements, policy directions and strategic objectives.  | The current plan does not provide a detailed description of all relevant requirements.  | During construction and ongoing. | N/A                        | Issue is well understood, but more specific information is required.<br>= <b>STANDARD</b>                        |

## CRITICAL ASSESSMENT

### Commonwealth Assessment Requirements

#### ***Environment Protection and Biodiversity Conservation Act 1999 - Matters of National Environmental Significance***

The Commonwealth Minister for the Environment has determined (EPBC no.2019/8468) that the proposed action is likely to, or may have, a significant impact on the following protected matters (matters of national environmental significance (MNES)):

- Black-eared Miner (*Manorina melantotis*) – endangered
- Red-lored Whistler (*Pachyephala rufogularis*) – vulnerable
- Regent Parrot (eastern) (*Polytelis anthopeplus monarchoides*) – vulnerable
- Malleefowl (*Leipoa ocellata*) – vulnerable
- Iron-grass Natural Temperate Grassland of South Australia ecological community – critically endangered
- Peer Hill Hop-bush (*Dodonaea subglandulifera*) – endangered
- Silver Daisy – bush (*Olearia pannosa* subsp. *pannosa*) – vulnerable.

The proposal is to be assessed through the South Australian assessment process in accordance with the State/Commonwealth Bilateral Agreement pursuant to s45(2) of the *Environment Protection and Biodiversity Conservation Regulations 2000*. These Guidelines have been prepared with Commonwealth input and their requirements are reflected through the Assessment requirements specified in the section below.

This will provide the Commonwealth Minister for the Environment, or their delegate, with sufficient information to make an informed decision whether or not to approve the proposed action under Part 9 of the EPBC Act.

## State and Commonwealth Assessment Requirements

### CRITICAL ASSESSMENT

#### Land Use and Economic Effects

**Assessment Requirement 2:** The proposal will have an impact on the State's economy during construction and operation and may result in immediate and long term effects on land owners and surrounding uses.

##### Land use

**2.1** Identify the types and extent of land tenure in broad terms, including reference to Crown Land. Outline any implications for Native Title and Native Heritage Agreements along the proposed route.

**2.2** Identify the main land uses in the area (eg. conservation, Bookmark Biosphere Reserve, Heritage Agreements, mining, agriculture, pastoralism, tourism, recreation, existing infrastructure).

**2.3** Identify the level of interference to landowners, land uses and activities in the immediate and surrounding environs.

**2.4** Describe the implications, if any, of securing any easements.

**2.5** Describe the potential effect on property values.

**2.6** Outline any mitigation measures to alleviate or avoid impacts on land owners and land uses, and refer to any compensation programmes.

**2.7** Assess any cumulative impacts of the proposal in relation to other infrastructure projects proposed for the region (such as the increase in renewable energy generation anticipated) and discuss the effect of loss of land for primary production purposes.

##### Economic

**2.8** Provide a full economic analysis of the proposal including details on the economic effects of the proposal in terms of provision of an additional 'interconnection' and the local and broader employment generation from construction activities of the proposed development, including the 'multiplier effect'.

**2.9** Describe the potential positive and negative economic effects on household, business and industrial energy consumers in the State.

**2.10** Describe potential employment opportunities and the expected impacts on communities.

**2.11** Identify any potential economic effects on tourism and recreation.

**2.12** Identify any secondary economic effects, including the potential to attract new industries (such as renewable energy generation) and commercial ventures in areas benefiting from increased power supply. Describe and positive and negative effects of this, including current generation assets.

**2.13** Identify any economic implications for the State and the region if the proposal does not proceed.

#### Effect on Conservation Values

**Assessment Requirement 3:** The proposed development traverses a corridor which contains significant and extensive tracts of remnant habitat (including one of the largest stands of old-growth Mallee vegetation in Australia) and has high conservation values. It is also within close proximity of the floodplain habitat of the River Murray.

**3.1** Identify the potential effects and measures to avoid and or mitigate the proposal on the local, regional, state or national conservation status of individual species and vegetation communities during



*both construction and maintenance (including species listed in the SA National Parks and Wildlife Act 1972 and the Commonwealth Environment Protection Biodiversity Conservation Act 1999).*

**3.2** *Identify the potential effects and measures to avoid and or mitigate the proposal on the local, regional, state or national conservation status of sites, objects and areas of significance to Aboriginal people during both construction and maintenance.*

#### Effect on Native Vegetation

**Assessment Requirement 4:** The proposed development traverses significant stands of native vegetation.

**4.1** *Describe the location, extent, condition and significance of native vegetation, including individual species and communities in the proposal's environs. Include reference to areas that have Heritage Agreements under the Native Vegetation Act 1991.*

**4.2** *Describe the location, extent, condition and significance of native vegetation species and communities that may need to be cleared or disturbed during both construction and maintenance.*

**4.3** *Describe the ability of communities or individual species to recover, regenerate or be rehabilitated during both construction, operation including maintenance.*

**4.4** *Identify the habitat value of native vegetation and the potential for habitat fragmentation during both construction and maintenance (and decommissioning), including a description of the effects of any fragmentation that may occur over the life of the transmission line.*

**4.5** *Detail any changes in biological diversity that may result at the interface between the powerline easement and existing vegetation (i.e. the "edge effect") during construction and over the life of the transmission line, including maintenance.*

**4.6** *Outline measures to mitigate effects on native vegetation by addressing the mitigation hierarchy, including any compensatory activities in already degraded areas and use of existing easements. Make reference to guidelines produced by the Native Vegetation Council and outline the effectiveness of any mitigation measures adopted during both construction and maintenance.*

**4.7** *Identify the potential impact of fire on native vegetation, and the effects of fire risk management processes during both construction and maintenance.*

#### Effect on Native Fauna

**Assessment Requirement 5:** The proposed development traverses habitat that supports significant populations of native fauna.

**5.1** *Describe the location, extent, condition and significance of native fauna populations, including individual species and communities in the proposal's environs.*

**5.2** *Describe the location, extent, condition and significance of native fauna species and populations that may be affected during both construction and operation.*

**5.3** *Describe the ability of populations or individuals to recover during both construction and operation.*

**5.4** *Identify the effect of habitat fragmentation including, if any, the potential for any hybridisation of fauna.*

**5.5** *Detail any changes in biological diversity (i.e. hybridisation) resulting at the interface between the powerline easement and existing habitat (i.e. the "edge effect") during both construction and over the life of the transmission line, including maintenance.*

*5.6 Outline measures to mitigate the effects on native fauna, including any compensatory activities in already degraded areas and use of existing easements.*

*5.7 Identify the potential impact of fire on native fauna, and the effects of fire risk management processes during both construction and maintenance.*

#### Effect on Cultural Heritage Values

**Assessment Requirement 6:** The proposed development has the potential to impact on sites/locations of Indigenous or Non-indigenous heritage through disturbance during construction.

*6.1 Identify any effects on Aboriginal sites of archaeological or anthropological significance (including but not limited to those listed in the Register of the National Estate and the SA Register of Aboriginal Sites and Objects). Indicate any consultation with local Aboriginal organisations that have an interest in the area.*

*6.2 Identify any effects on post European settlement sites of archaeological or anthropological significance (especially but not limited to those listed in the Register of the National Estate, State Heritage Register or Interim List for the State Register and lists of places of local heritage value)..*

*6.3 Outline measures adopted to avoid or minimise impacts on Aboriginal and European sites of archaeological or anthropological significance.*

#### Route Selection

**Assessment Requirement 7:** The proposed route is anticipated to be a 60 to 75m wide corridor within a wider 15km assessment corridor.

*7.1 With regard to the Assessment Requirements required by this document (such as native fauna, vegetation, conservation values, cultural heritage and hazard risk) provide details, including a multi-criteria analysis, on the alternate routes investigated and rationale as to why the final route was chosen.*

## MEDIUM ASSESSMENT

### Visual Impacts/Interface with adjacent land uses

**Assessment Requirement 8:** The effect of large number of lattice towers (i.e. approximately 475 towers - typically 50 metres in height and spaced 450 – 600 metres apart) along a 190 kilometre alignment, which would represent a significant visual element in the landscape.

*8.1 Describe the effects of the proposal on the visual amenity and landscape quality for residents, visitors and tourists (especially near the River Murray Valley, major road crossings and other sensitive landscapes). Refer to construction, operation, maintenance and decommissioning aspects of the proposal, and outline the methodology adopted for classifying landscapes and assessing visual and landscape impacts.*

*8.2 Describe alternative measures for minimising potential loss of visual amenity (e.g. structural design and placement, screening) and detail any compensatory and site rehabilitation measures that will be undertaken to minimise visual impacts as a result of vegetation clearance.*

### Effect on Communities

**Assessment Requirement 9:** The proposed development has the potential to affect the local community during construction and through the establishment of a large linear structure.

*9.1 Describe the proximity of the proposed transmission line to townships and dwellings, and describe any potential impacts of the proposal on quality of lifestyle.*

*9.2 With reference to assessment requirement 6 above, outline potential impacts on any other use of the land by Aboriginal people, or on cultural values held by Aboriginal people that relate to the areas affected by the project.*

*9.3 Describe any community consultation processes conducted by the proponent for the proposal and indicate community attitudes towards the proposal, where identified.*

*9.4 Describe the impact of the increase in workforce during and post construction on the nearby towns and the region as a whole. In particular the impact on local business and also effects on accommodation supply and demand.*

*9.5 Address any potential effects of electromagnetic fields, corona discharge and electric shocks on public health.*

*9.6 Identify any potential effects on TV and radio reception, telecommunication, broadband and mobile phone networks.*

*9.7 Identify any potential effects on airfields and aircraft movements, and consult with the Civil Aviation Safety Authority Australia, the Renmark Paringa Council (Renmark Aerodrome) and Loxton Waikerie Council (Waikerie & Loxton Aerodromes) about the requirements for structures within the vicinity of airfields.*

### Hazard Risk

**Assessment Requirement 10:** The construction and operation of a high-voltage powerline involves a range of general and specific risks.

*10.1 Evaluate the fire risk of power line and construction/maintenance equipment/vehicles and timing of maintenance to avoid fire danger season.*

*10.2 Evaluate the risk to electricity supply and infrastructure from fires, lightning, flooding, winds, sabotage, etc.*

**10.3** Describe any hazardous materials, with reference to storage, use, handling and disposal of these materials during construction and operation.

**10.4** Outline any risks to farming and horticultural practices, including those arising from irrigation, aerial spraying and night operations.

**10.5** Examine presence of towers and associated infrastructure adjacent public roads to investigate potential impacts on public and road safety.

**10.6** Identify any safety risk associated with the use or transport of farming machinery and other equipment in the vicinity of towers, guy wires and power lines.

**10.7** Describe risk minimisation, management and response requirements.

**10.8** Describe the likelihood of bird strike and the management of such a hazard.

## Alternatives

**Assessment Requirement 11:** There are a number of alternatives that require exploring.

**11.1** Provide a brief comparative social, environmental and economic analysis of broader alternatives that could meet the proposed objectives at the State level and in the Riverland region. For example, power supply options and technologies, demand management and upgrades of existing lines.

**11.2** Provide a comparative analysis of alternative routes and the short, medium and long term social, environmental and economic advantages and disadvantages of each.

**11.3** Identify alternative design and construction techniques to meet the proposed objectives (eg. undergrounding, tower design and placement), with reference to any hazards/risks and the social, environmental and economic advantages and disadvantages of each.

**11.4** Assess the 'do nothing' option.

## Effect on the physical environment

**Assessment Requirement 12:** The proposed development has the potential to disturb landforms and soils and to affect storm water run-off.

**12.1** Describe the nature and condition of the existing physical environment in the proposal's environs, including reference to geology, geomorphology, soils, hydrology and atmosphere.

**12.2** Identify any risks and implications of causing or exacerbating land degradation, especially soil erosion and the impacts of dust emissions during construction and ongoing maintenance.

**12.3** Identify the potential for pollution (including, but not limited to, sedimentation) of wetlands, watercourses, drainage channels and groundwater (especially at crossing points during construction), including the implications of this pollution.

**12.4** Describe potential changes to hydrology (e.g. drainage patterns or groundwater characteristics), including the implications of these changes.

**12.5** Address greenhouse gas emissions from construction, operation and maintenance of the transmission line.

**12.6** Outline mitigation measures and their likely effectiveness in minimising or avoiding disturbance to the physical environment (including surface and underground waters) during construction and maintenance.

**Introduction/spread of exotic plant and animal species**

**Assessment Requirement 13:** The proposed development has the potential to establish a corridor for the spread of introduced or nuisance plants and animals

**13.1** *Describe the extent and significance of existing exotic plant and animal species, and diseases in the proposal's environs.*

**13.2** *Identify the potential for the introduction or dispersal of new exotic plant and animal species, and the associated implications for native species, habitat and agricultural land.*

**13.3** *Identify the potential for increased distribution and abundance of existing exotic plant and animal species, and the associated implications for native species, habitat and agricultural land.*

**13.4** *Identify any risk of spread of disease (such as Phytophthora and Mundulla Yellows), and the implications of this spread.*

**13.5** *Outline mitigation measures and their effectiveness in reducing or avoiding the introduction or spread of exotic plant/animal species and diseases (eg. decontamination of plant, equipment and materials), having regard to the effectiveness of such mitigation measures in the past.*

## STANDARD ASSESSMENT

### Traffic Effects

**Assessment Requirement 14:** The proposal requires access for the transportation of infrastructure and construction material to site and ongoing access for maintenance purposes.

**14.1** Describe all components of transport and storage of infrastructure (including towers and substation kit) and construction materials to site. Include reference to anticipated timing, sources of materials, routes, number and methods of transport (e.g. by shipping, vehicle and/or helicopter).

**14.2** Describe all traffic increases during construction and operational phases and traffic management measures.

**14.3** Describe any construction, operational and maintenance traffic requirements that are outside of the current gazetted heavy vehicle movements.

**14.4** Identify any potential effects of construction traffic on communities including noise and dust.

**14.5** Describe any requirements where traffic infrastructure requires temporary or permanent modifications and access requirements that may be required on arterial and /or local roads to enable/facilitate construction and ongoing associated traffic and vehicles.

### Construction, Operation and Maintenance Effects

**Assessment Requirement 15:** The construction and operation of the proposal would require a range of impacts to be minimised, mitigated and monitored through an environmental management plan framework.

**15.1** Describe construction techniques and the timing of construction, with reference to any climatic and temporal implications for the biophysical environment. This should include reference to potential land degradation, pollution and implications for the breeding seasons of native species.

**15.2** Outline the sources of waste and methods of disposing waste material, including reference to management of vegetation removed, indication of temporary and final locations for spoil and other waste and the possibilities for reuse or re-cycling of all waste streams. Provide details of a waste management plan.

**15.3** Describe the likely impact and measures for the control of dust, vibration, noise, emissions, drag out (i.e. onto public roads) and litter during both construction and maintenance.

**15.4** Describe the location of surface water and groundwater infrastructure and the potential for groundwater interception when digging footings and how dewatering might be managed (if required).

**15.5** Describe sources of water for construction, including for the construction worker's accommodation camps, concrete batching plant and dust suppression.

**15.6** Describe the impacts and proposed management of stormwater during construction and operation, including any opportunities for retention and reuse. Provide details of a soil erosion and drainage management plan.

**15.7** Identify the risks of contamination of surface and groundwater from spills of fuel (or other toxic substances). Describe measures for the prevention and containment of spills, describe the contingency plans to be implemented in the event of spills, and comment on their expected effectiveness.

**15.8** Address the implications of seismicity in the area in relation to both the construction and operation of the transmission line.



**15.9** Outline the approximate size of the construction workforce including any need for any construction workers camps or accommodation. Describe the location and management of accommodation camps including sources of water and power, and the management of waste, wastewater and noise impacts.

**15.10** Outline any on site infrastructure required during construction (eg. borrow pits, site compounds, concrete batching facilities, etc.) including the management and decommissioning of these areas.

**15.11** Describe the location(s) where mobile concrete batching plants would be used and the management of wastewater, dust emissions and noise from such plant.

**15.12** Describe the rehabilitation of the areas needed for construction including lay down, concrete batching and construction worker's accommodation areas.

**15.13** Outline the proposed environmental management measures that would be adopted to deal with the identified construction, operational and maintenance effects. Include reference to any baseline studies, monitoring programmes, training programmes and reporting mechanisms (internally and to public authorities). Outline the effectiveness of mitigation measures for perceived and recognised impacts. Include consideration of previously demonstrated best practice or approaches which may have been used for similar works in similar habitats, which may be of benefit and/or have been endorsed for their proven low impact effects. Equally, innovative or new approaches should also be included.

#### Planning and Environmental Legislation and Policies

**Assessment Requirement 16:** A range of planning, environmental and energy related statutory requirements would need to be met for the construction and operation of the proposed development.

**16.1** Describe the proposed transmission line in terms of its consistency with the relevant Development Plans, Planning and Design Code, the Planning Strategy and the State Planning Policies.

**16.2** Describe the proposed transmission line in terms of its consistency with relevant State and Commonwealth legislation.

**16.3** Outline any other Commonwealth or State Government initiatives that may relate to the proposed transmission line, including greenhouse issues, principles of ecologically sustainable development, power generation, and the conservation or protection of the biological environment. Describe the proposal in terms of its consistency with these initiatives.

**16.4** Identify any potential implications of the proposed transmission line for International Conventions and Agreements to which the Commonwealth of Australia is a party.

## Appendix C: Assessment against Planning and Design Code

| RURAL ZONE         |  |  |   |
|--------------------|--|--|---|
| Policy             | Description  | Consistency  | Assessment  |
| DO 1, DO 2, PO 1.1 | Primary production land uses, value adding activities and renewable energy facilities. | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | No significant long-term land use impacts are considered to result from the construction and/or operation of the transmission line or ancillary infrastructure. Construction activities will result in short term impacts/interference with existing primary production activities but can be reasonably managed/remediated through a CEMP. Transmission infrastructure can generally co-exist with primary production activities. Some fragmentation and loss of land is expected from construction of permanent infrastructure, however the majority of land under easement will continue to be available for farming with some constraints to use of certain equipment, practices or aerial spraying activities, when in close proximity to the line. Landowners to receive monetary compensation for easements.               |
| PO 2.1, 2.2        | Development sited and designed with suitable vehicle access and minimise cut and fill. | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | The route follows existing access tracks and transmission lines where possible. Notwithstanding, the creation of new tracks will be required to provide access to tower locations. Micro-siting should have regard for cut and fill requirements.   |
| PO 10.1            | Large buildings sited and designed to reduce impacts and scenic and rural vistas.      | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | High voltage transmission lines have an inherent significant visual impact. The route selection has sought to minimise the visual impact on sensitive receptors by providing separation from key scenic and tourist sites. The transmission line is not located on any ridgelines. Terrain varies across the route from flat to undulating at the western extent, flattening out towards the east in the Murray River region. Following construction disturbed areas will be rehabilitated to minimise exposed surfaces. Visual impacts are further mitigated by existing development (in particular transmission lines), local topography, existing vegetation and the permeable nature of the lattice tower design. On balance the visual impact is considered to be acceptable for a development of this nature and magnitude. |

| RURAL INTENSIVE ENTERPRISE ZONE |   |  |  |
|---------------------------------|---|--|--|
| Policy                          | Description   | Consistency  | Assessment   |
| DO 1, PO 1.1                    | Intensive land uses associated with the surrounding rural zone. | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | No significant long-term land use impacts are considered to result from the construction and/or operation of the transmission line or ancillary infrastructure (refer Rural Zone above). |

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|        |   |  |  |
|--------|---|--|--|
| PO 1.2 | Telecommunication facilities (in the form of monopoles) to mitigate visual amenity and maintain a pleasant rural character. | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | The transmission is 10km from the closest residential zoned land, and 330m from the closest dwelling at Cooltong. Visual impacts are expected to be medium to high at 1-2 receptors at Cooltong. Elsewhere along the alignment sensitive receptors are sufficiently separated from the transmission resulting in low to negligible views. Electricity infrastructure is not uncommon in rural zones and is considered to form part of the rural character. |
| PO 2.2 | Development sited and designed with suitable vehicle access and minimise cut and fill.                                      | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Refer Rural Zone PO 2.1, 2.2   |

| CONSERVATION ZONE    |  |  |  |
|----------------------|--|--|--|
| Policy               | Description  | Consistency  | Assessment   |
| DO 1, PO 1.1, PO 1.2 | Small-scale, low-impact land uses that provide for conservation and protection of the natural environment whilst allowing the public to experience natural assets. | <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> PARTIAL | Electricity infrastructure is not envisaged in the zone. The route selection is the result of a multi-criteria analysis to provide the least impactful solution on reserves and ecologically sensitive areas. The route traverses the southern boundary of Taylorville Station, utilizing an existing transmission easements and/or boundary track. The route continues along the boundary of Calperum and Hawk's Nest Stations, and the Cooltong Conservation Park. The development essentially 'skirts' around, rather than bisecting these areas, and utilizes areas that have already been disturbed, such as from access tracks, transmission or fence lines. |
| PO 3.1, 3.2          | Avoid important habitat, nesting and breeding areas.   | <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> PARTIAL | Refer above.   |
| PO 4.1, 4.2, 4.4     | Built form sited and design unobtrusively to minimise visual impact  | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Refer Rural Zone PO 10.1.  |

| REMOTE AREAS ZONE |   |  |  |
|-------------------|---|--|--|
| Policy            | Description   | Consistency  | Assessment   |
| DO 1, PO 1.1      | A range of primary production rural activities, aerospace, defence, mining and remote settlements | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | No significant long-term land use impacts are considered to result from the construction and/or operation of the transmission line or ancillary infrastructure (refer Rural Zone above). |
| PO 2.1, 2.2       | Development sited and designed to protect natural features and reduce visual impact.              | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Refer Rural Zone PO 10.1.  |

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| RURAL HORTICULTURE ZONE |   |  |  |
|-------------------------|---|--|--|
| Policy                  | Description   | Consistency  | Assessment   |
| DO 1, PO 1.1            | Intensive agriculture and associated activities to process, package and service the sector. | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | No significant long-term land use impacts are considered to result from the construction and/or operation of the transmission line or ancillary infrastructure (refer Rural Zone above). |
| PO 2.1, 2.2             | Development sited and designed with suitable vehicle access and minimise cut and fill.      | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | Refer Rural Zone PO 2.1, 2.2   |
| PO 11.1                 | Large buildings sited and designed to reduce impacts and scenic and rural vistas.           | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Refer Rural Zone PO 10.1.  |

| GENERAL DEVELOPMENT POLICIES: Infrastructure and Renewable Energy Facilities |  |  |  |
|--|--|--|--|
| Policy   | Description  | Consistency  | Assessment   |
| DO 1, PO 1.1   | Infrastructure provision that minimises hazards, is environmentally and culturally sensitive and manages adverse visual impacts. | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | The route selection is the result of a multi-criteria analysis to provide the least impactful solution taking into account constraints (including airports, built up areas, wetlands, sensitive land uses and receptors, native title, cultural heritage sites and reserves). The route selection process is the result of several years' work to provide, on balance, a solution that meets the project key objectives whilst minimising environmental, cultural and visual impact. |
| PO 2.1   | Siting to reduce visual impact (except for high-voltage transmission lines)  | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Refer Rural Zone PO 10.1.  |
| PO 2.2, 2.3  | Ancillary development incorporates vegetation buffers; with revegetation of exposed earthworks.                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> PARTIAL | Bundey Substation is located in within the Rural Intensive Enterprise Zone at the eastern of the transmission line. The nearest sensitive receptor (dwelling) will have very low visibility to the facility. No additional landscaping is proposed, with existing screening vegetation in place along each road reserve, and the need to provide suitable level of passive surveillance.   |
| PO 3.1   | Progressive rehabilitation of disturbed land as land is decommissioned.  | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | The development necessitates vegetation removal. Where feasible vegetation should be rolled or trimmed rather than complete removal. Post construction, disturbed areas will be rehabilitated or allowed to natural regenerate. This may include surface contouring, scarifying, respreading of topsoil and cleared vegetation. A condition of approval is proposed for a Decommissioning and Rehabilitation for when the project reaches the end of its operational life.           |
| PO 4.1   | No adverse impact to air transport safety, and operation of airfields/landing strips.  | <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> PARTIAL | Transmission line conductors have low visibility from the air creating potential for collision particularly during night flying and low cloud conditions. Impact to Renmark and Waikerie aerodromes considered, as well as two private unregistered airstrips  |

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|         |   |  |  |
|---------|---|--|--|
|         |   |  | which are in close proximity to the transmission line. One located on Sugarwood Station – raised as a concern by landowner. Applicant has resolved to find a design solution to ensure ongoing operation of the airstrips are not impeded by the development (i.e. location and height of line vs approach and takeoff requirements to airstrip will comply with Civil Aviation Safety Authority (CASA) requirements) . Aerial crop activities may be constrained in close proximity the transmission line. Pilots are generally trained in low-level flying and must be licensed by CASA. Risk assessment undertaken prior to flight would include identifying location of towers. Markers will be attached to the conductors where aerial activities are known to occur. |
| PO 4.2  | Separation from dwellings, tourist accommodation and high trafficked public places. | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Refer Rural Intensive Enterprise Zone PO 1.2.  |
| PO 13.1 | Provision for temporary on-site waste storage enclosures.                           | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | A draft Waste Management and Minimisation Plan (WMMP) has been prepared by the Applicant. Waste facilities will be provided within construction areas to facilitate separation of waste streams for reuse and recycling. Where possible materials will be returned to suppliers for reuse/recycling.   |
| PO 13.2 | Temporary facilities sited and operated to minimise environmental impact.           | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | The temporary construction camp proposed for Morgan is close to the township and therefore at risk of interface impacts with local residents. Laydown yards and helicopter landing facilities are identified along the transmission route close to public roads or existing access tracks, but appropriately distanced from sensitive receptors. All temporary facilities will operate under a CEMP suite of documents that seek to minimise, mitigate and manage environmental impact.  |

| GENERAL DEVELOPMENT POLICIES: Interface between Land Uses |   |  |   |
|---|---|--|---|
| Policy  | Description   | Consistency  | Assessment  |
| DO 1, PO 1.2  | Development located and designed to minimise adverse impacts to adjacent land uses. | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | No significant long-term land use impacts are considered to result from the construction and/or operation of the transmission line or ancillary infrastructure. Refer Rural Zone DO 1, DO 2, PO 1.1.  |
| PO 4.1  | Noise emissions below EPP criteria.   | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Construction activities are inherently noisy. During Stages 1 (land clearance) and 2 (tower installation) a total of 17 sensitive receptors located within a 1.16km radius of construction activities will experience short term, relatively minor noise impacts above the continuous noise EPP criteria but not exceeding the maximum 60dB(A). Stage 3 (stringing of transmission lines by helicopter) is predicted to have a wider spread, more acute short-term impact than Stages 1 and 2 which are land based. Modelling predicts a total of 129 sensitive receptors will experience noise between |

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|        |   |  |   |
|--------|---|--|---|
|        |   |  | <p>45-60dB(A); and 12 sensitive receptors where noise levels will exceed the maximum 60dB(A) thereby potentially disrupting day to day life. For all construction stages the planning and timing of construction works should have consideration for sensitive receptors. Night works should be avoided. Advance warning of helicopter activity will assist in managing resident inconvenience/distress.</p> <p>Noise generating activities during the operational phase include helicopter noise from line inspections (annual); heavy vehicle noise from line inspections (biannual); and Corona discharge. Predicted noise level of corona discharge is 41dB(A), well below the EPP night time criteria.</p> |
| PO 4.1 | Noise from heavy vehicle movements, plant and outdoor work spaces mitigated for sensitive receivers.                | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | <p>The most significant impacts in terms of the volume, type and frequency of traffic movements will occur during the construction phase. Impacts can be appropriately managed through a combination of minor upgrades and safety improvements, temporary speed restrictions, traffic management controls, pavement monitoring, avoidance of peak periods, permitting conditions and maintenance requirements. Temporary laydown areas will operate under a CEMP suite of documents.</p> <p>The operational phase of the project – outside of any substantial repair or upgrade work – is expected to generate very few vehicle movements (1-2 visits per year) and requires no further assessment.</p>         |
| PO 5.1 | Air pollution control measures to prevent harm to human health and amenity of sensitive receivers.                  | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | <p>Construction activities for the development will cause localised, fugitive dust emissions and generate greenhouse gas emissions from heavy machinery, helicopter landing and take-off, and vehicle movements. The level and impact of dust emissions can be mitigated through avoidance; site selection; good construction practices; and site rehabilitation. With only two sensitive receptors within the 350m area of impact, concerted effort can be made to mitigate emissions to an acceptable level at these locations.</p>   |
| PO 7.1 | Development designed to avoid distraction to roads users through reflective solar glare.                            | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | <p>Glare or reflection is generally not expected from telecommunications towers.</p>  |
| PO 8.1 | Prevent diminution or loss of existing communication services due to electrical interference in rural/remote areas. | <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> PARTIAL | <p>Interference with UHF and AM/FM radio may occur within 20-30m of the transmission line (ie within the 80m corridor easement). Most radio usage on farms expected to occur outside of the easement with minor disruptions when passing underneath, or in close proximity to, the line. Corona discharge may similarly affect television, radio, CB, broadband and mobile phone reception when in very close proximity to the line. The line will be constructed in accordance with national standards for electromagnetic interference. A new radio tower at the Bunday substation will boost telecommunications at this location.</p>  |



| GENERAL DEVELOPMENT POLICIES: Transport, Access and Parking |  |  |   |
|---|--|--|---|
| Policy  | Description  | Consistency  | Assessment  |
| DO 1, PO 1.1  | Development integrated with the existing transport system to minimise potential impact on the safety and functional performance of the transport network.  | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Vehicle movements to and from the proposed transmission route and corridor will be reliant on both the state arterial and local road network. Some use of over-dimensioned or over mass (or both) vehicles along designated project routes expected during construction period. Expected volumes, type and frequency of movements are comfortably within the capacity of the existing road network. Some road upgrade works identified including a new access point via the Goyder Highway near Overland Corner. Renmark Paringa Council identified maintenance and upgrade requirements relating to the Wentworth Road as a priority matter. The operational phase of the project – outside of any substantial repair or upgrade work – is expected to generate very few vehicle movements (1-2 visits per year) and requires no further assessment. |
| PO 1.2  | Development designed to discourage heavy vehicles movements through residential streets.   | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL | Heavy vehicle routes during construction will be specified in a Traffic Management Plan. No movement through residential zones proposed.  |
| PO 1.3  | Heavy vehicle movements, loading areas and parking spaces separated from passenger vehicles.   | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | Heavy vehicle routes and movements during construction will be specified in a Traffic Management Plan. Temporary laydown areas and construction camps will have designated parking for passenger vehicles as required.  |
| PO 1.4  | Loading, unloading and turning of traffic avoids the interruption of and queuing on public roads.  | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | Heavy vehicle routes during construction will be specified in a Traffic Management Plan. Impacts can be appropriately managed through a combination of minor upgrades and safety improvements, temporary speed restrictions, traffic management controls, pavement monitoring, avoidance of peak periods, permitting conditions and maintenance requirements.   |
| PO 3.1  | Safe and convenient access minimises impact or interruption on the operation of public roads.  | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | Refer above.  |
| PO 3.3, 3.4, 3.5, 3.7, 3.8, 3.9                             | Access points sited and designed to accommodate the type and volume of traffic; minimise adverse impacts to neighbouring properties, and not interfere with existing street trees, furniture or infrastructure. Appropriate separation from level crossings. | <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL            | Refer above.<br>The new access point via the Goyder Highway near Overland Corner will reduce reliance on an existing single access track.   |

## Appendix D: Repealed Policy under the *Development Act 1993*

### DEVELOPMENT PLANS VIA ROUTE (West to East)

1. Goyder – Consolidated 24 Nov 2016
2. Mid Murray – Consolidated 25 Feb 2021
3. Loxton Waikerie – Consolidated 19 April 2017
4. Land Not Within a Council Area Riverland – Consolidated 18 Oct 2012
5. Berri Barmera – Consolidated 8 Dec 2016
6. Renmark Paringa – Consolidated 31 Oct 2017

### PRIMARY PRODUCTION ZONE

The Primary Production Zone supports primary production activities, wind farms and ancillary development. Tourist facilities are also envisaged to diversify the region employment and economic base. The zone policies seek to prevent the fragmentation of large allotments to maintain commercially viable land parcels. The clustering of buildings and vegetative screening is encouraged to reduce visual impact and preserve viable farming land. The design and appearance of structures should suit their intended purpose, address climatic conditions, and complement the rural landscape.

### ENTERPRISE ZONE & PRIMAY PRODUCTION ZONE, ENTERPRISE PA 2

The Enterprise Zone/Policy Area is situated entirely in the Goyder and Mid Murray council areas. The approximately 350m<sup>2</sup> zone/policy area is sparsely populated and comprises mallee woodlands. The land has been continually grazed over generations and continues to be used for this purpose. The policies envisage a staged evolution of the zone into a multi-purpose precinct for the co-location of higher intensity and value-adding activities related to primary production. This may include intensive animal husbandry, vermiculture, stock feed plant, composting and renewable energy facilities. The concept plan for the zone incorporates a 3 kilometre wide peripheral buffer to manage interface impacts.

### RURAL ZONE

The rural zone comprises the majority of dryland agricultural production within the Mid Murray council area. Other envisaged primary production activities include horticulture, vineyards and pasture, and associated storage and processing facilities. Limited value-adding land uses are envisaged including tourist accommodation (associated with existing farm dwellings) and tourism development associated with the natural environment. Wind farms and ancillary development also constitute the desired character of the zone. Residential development should not limit use of the land for primary production, and is only envisaged when associated with farming, horticulture or viticulture.

### CONSERVATION ZONE

The proposed transmission line corridor passes through White Dam Conservation Park (within Mid Murray Council) and Pooginook Conservation Park (within Loxton Waikerie Council). The Conservation Zone is set aside for the retention of native vegetation, conservation of wildlife habitat and interpretation of natural and cultural heritage. Development is limited to activities associated with conservation management, scientific monitoring and interpretation of the natural environment. The visual impact of structures should be minimised through their design, siting and use of landscape screening. Within Mid Murray Council, all forms of development are non-complying in the

zone except for those described above. Within Loxton Waikerie Council, the non-complying list of development is extensive.

#### **REMOTE AREAS ZONE**

The Remote Areas Zone encompasses the remote, outback areas of the State. Land uses are arranged according to resource availability and include mining, petroleum exploration and production, wind farms, and defence activities. Other portions of the zone are utilised for farming—namely, wool and wheat production. Remote townships and Aboriginal lands are located through the zone, along with tourism development that reflects the State’s outback identified.

#### **RIVER MURRAY FRINGE ZONE**

This zone applies to the portion of transmission line skirting the Chowilla region, north-east of Cooltong/Renmark. The zone includes the riverine environments and parts of the River Murray valley. Envisaged development includes farming and recreation, as well as holiday homes in compact groups and sited to minimise adverse impact on the environment and natural character of the area.

#### **RIVER MURRAY FLOOD ZONE**

The objectives of the zone are to conserve the River Murray, improve water quality and protect natural ecological processes. To that end, development is limited to structures for public recreation, water extraction, wetland management and irrigation management. Replacement of existing dwellings is contemplated where designed to allow for the flow of floodwaters.



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Attorney-General's  
Department  
Level 5, 50 Flinders Street  
GPO Box 1815  
Adelaide South Australia 5001