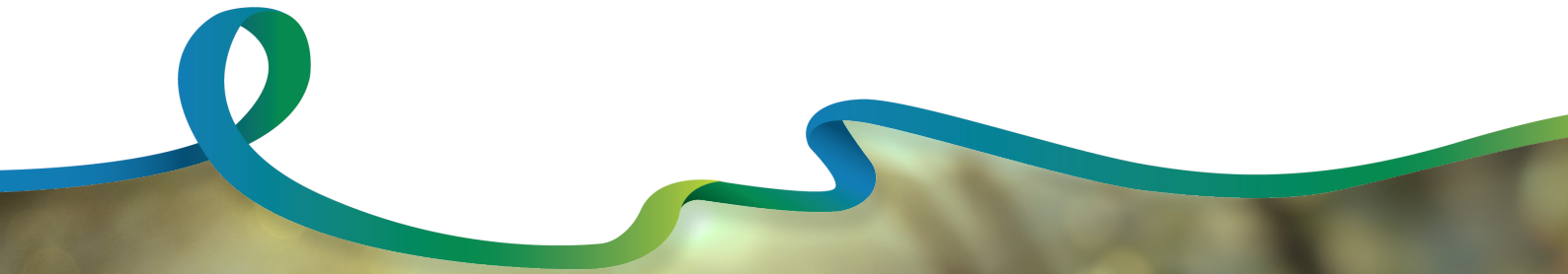


EIS Volume 1

EIS Document Information



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Acknowledgements

ElectraNet acknowledges all Traditional Owners of the land upon which Project EnergyConnect will be constructed and celebrates their enduring connections to Country, knowledge and stories. We pay our respects to their Elders and Ancestors and recognise the deep and ongoing feelings of relationship and attachment they hold for their lands.

ElectraNet places great value on our relationships with all stakeholders and seeks to work in partnership with them, to develop the Project in a manner that generates the maximum benefit for both local communities and the broader South Australian community. ElectraNet has appreciated the cooperation of members of the local community, landholders, local councils and government agencies in identifying potential issues and assisting in the development of Project design and management solutions. This process will be ongoing as the Project design is finalised, and ElectraNet is committed to open and transparent engagement with stakeholders and community members throughout the EIS process and beyond.

This EIS was prepared with assistance from a number of people and organisations. ElectraNet and JBS&G would like to extend their appreciation to the Project EnergyConnect Steering Committee and Working Group, which included representatives from the Department of Agriculture, Water and the Environment (Commonwealth), Department for Energy and Mining, Department for Infrastructure and Transport, Planning and Land Use Services within the Attorney-General's Department, Department for Environment and Water, Environment Protection Authority (SA), NSW Department of Planning, Industry and Environment and TransGrid.

Disclaimer

This Environmental Impact Statement (EIS) has been prepared by JBS&G on behalf of ElectraNet Pty Ltd (ElectraNet) for submission to the South Australian Minister for Planning and Local Government under the *Development Act 1993* (SA), and the Commonwealth Minister for Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). The EIS has been prepared for that purpose only and the information contained in the EIS should not be relied upon by any other person to make any decision.

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EIS Project Team

In 2018, ElectraNet appointed JBS&G Australia Pty Ltd (JBS&G) as independent environmental and social practitioners to undertake the route selection and environmental assessment and approval process for the South Australia portion of Project EnergyConnect.

JBS&G is a leading environmental consultancy with offices across Australia and more than 250 multi-disciplined environmental professionals. The contact details for JBS&G are as follows:



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Abbreviations and Acronyms used in the EIS

Abbreviation/ Acronym	Definition
AADT	annual average daily traffic estimates
AARD	Aboriginal Affairs and Reconciliation Department (SA)
ABS	Australian Bureau of Statistics
AC	alternating current
ACARA	Australian Curriculum, Assessment and Reporting Authority
ACCC	Australian Competition and Consumer Commission
ACECQA	Australian Children’s Education and Care Quality Authority
ACT	Australian Capital Territory
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AHIMS	Aboriginal Heritage Information Management System (NSW)
AHSA	Aboriginal Heritage Study Area
AIHW	Australian Institute of Health and Welfare
ALA	Atlas of Living Australia
ALT	Australian Landscape Trust
AMEMP	Asset Maintenance Environmental Management Plan
ANU	Australia National University
ANZG	Australian and New Zealand Guidelines
ARENA	Australian Renewable Energy Agency
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
ASL	altitude sea level
ASS	acid sulfate soils
AUD	Australian dollar
AWS	automatic weather station
BAM	Bushland Assessment Method
BCM	Bushland Condition Monitoring
BDBSA	Biological Databases of South Australia
BESS	battery energy storage system
BOM	Bureau of Meteorology
CASA	Civil Aviation Safety Authority
CBD	Convention on Biological Diversity (UN)
CCA	Climate Change Authority
CEC	Clean Energy Council
CEFC	Clean Energy Finance Corporation
CEMP	Construction Environmental Management Plan
CER	Clean Energy Regulator
CFS	Country Fire Service
CAMBA	China–Australia Migratory Bird Agreement
CGE	computable general equilibrium

Abbreviation/ Acronym	Definition
CHMP	Cultural Heritage Management Plan
CO ₂	carbon dioxide
COAG	Council of Australian Governments Energy Council
CP	conservation park
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Development Application
DAWE	Department of Agriculture, Water and the Environment (Cth) (formerly DEH)
dBa	A-weighted decibels
DC	District Council
DCLW	District Council of Loxton Waikerie
DEH	Department of Environment and Heritage (Cth)
DEM	Department of Energy and Mining (SA)
DER	distributed energy resources
DESE	Department of Education, Skills and Employment
DEW	Department for Environment and Water (SA) (formerly DEWNR)
DELWP	Department of Environment, Land, Water and Planning (Vic)
DEWNR	Department of Environment, Water and Natural Resources (SA)
DISER	Department of Industry, Science, Energy and Resources (NSW)
DIT	Department for Infrastructure and Transport (SA) (formerly DPTI)
DoE	Department of the Environment (Cth)
DoEE	Department of the Environment and Energy (Cth) (formerly DoE)
DO	PDI Act Desired Outcome
DOJSB	Department of Jobs and Small Business (Cth)
DoTaRS	Department of Transport and Regional Services (Cth)
DPC-AAR	Department of Premier and Cabinet – Aboriginal Affairs and Reconciliation (SA)
DPE	Department of Planning and Environment (NSW)
DPF	designated performance feature
DPIE	Department of Planning, Industry and Environment (NSW) (formerly DPE)
DPTI	Department of Planning, Transport and Infrastructure (SA)
DSM	demand side management
ECD	ecological character description
ECI	early contractor involvement
EIS	Environmental Impact Statement
EMF	electromagnetic fields
EMP	environmental management plan
EMS	environmental management system
EP Act	<i>Environment Protection Act 1993</i> (SA)
EPA SA	Environment Protection Authority South Australia
EPA WA	Environment Protection Authority Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPC	engineering, procurement and construction
EPP	Environmental Protection Policy
ERP	emergency response procedure
ESA	ecological study area (50 km corridor centred on the proposed alignment)

Abbreviation/ Acronym	Definition
ESCOSA	Essential Service Commission of South Australia
ESD	ecologically sustainable development
EV	electric vehicles
FCAS	frequency control ancillary services
FIRB	Foreign Investment Review Board
FLB	Flinders Lofty Block IBRA Region
FTE	full-time equivalent
GIS	geographic information systems
GPG	gas-powered generation
GPS	global positioning system
GR	game reserve
GRP	gross regional product
GSP	gross state product
GW	gigawatt
GWh	gigawatt hour
Ha	hectare
HA	Heritage Agreement (also see VHA)
HC	hydrocarbons
HCM	Highway Capacity Manual Volume 2
HSA	non-Aboriginal cultural heritage study area
HSE	health, safety and environment
HSEMS	health, safety and environment management system
HV	heavy vehicle
HVAC	high-voltage alternating current
HVDC	high-voltage direct current
HVNL	Heavy Vehicle National Law
IA	impact assessment
IAIA	International Association for Impact Assessment
IAP2	International Association for Public Participation
IBRA	Interim Biogeographic Regionalisation for Australia
ICN	industry capability network
ICNIRP	International Commission on Non-Ionizing Radiation
IEO	Index of Education and Occupation
IER	Index of Economic Resources
ILUA	Indigenous Land Use Agreements
IMS	incident management system
IRSAD	Index of Relative Socio-Economic Advantage and Disadvantage
ISA	Infrastructure South Australia
ISP	Integrated System Plan
ISRD	Index of Relative Socio-Economic Disadvantage
IUCN	International Union for Conservation of Nature
JAMBA	Japan–Australia Migratory Bird Agreement
km	kilometres
km ²	square kilometres

Abbreviation/ Acronym	Definition
kV	kilovolt
LCV	light commercial vehicle
LGA	local government area
LiDAR	light detection and ranging
LRET	large-scale renewable energy target
m	metres
MAB	UNESCO Man and Biosphere programme
MCA	multi-criteria analysis
MDBA	Murray-Darling Basin Authority
MDBP	Murray-Darling Basin Plan
MDBSA	Murray-Darling Basin South Australia
MDD	Murray-Darling Depression IBRA Region
mG	milligauss
Mg/L	milligrams per litre
ML	megalitres
MNES	matter of national environmental significance
MP	Member of Parliament
MW	megawatt
NEL	National Electricity Law
NEM	National Electricity Market
NEMMCO	National Electricity Marketing and Management Company (refer to AEMO)
NEPM	National Environment Protection Measure
NER	National Electricity Rules
NGERS	National Greenhouse and Energy Reporting Scheme
NHVR	National Heavy Vehicle Regulator
NNAC	Ngadjuri Nation Aboriginal Corporation
NO _x	nitrogen oxides
NPW Act	<i>National Parks and Wildlife Act 1972</i> (Schedules 7, 8 and 9 of the Act)
NRHA	National Rural Health Alliance
NRM	natural resources management
NSESD	National Strategy for Ecologically Sustainable Development (Cth)
NSW	New South Wales
NTTT	National Native Title Tribunal
NTU	nephelometric turbidity units
NVC	Native Vegetation Council (SA)
OEMP	Operations Environmental Management Plan
OHL	overhead line
OPGW	optical ground wire
ORMs	Objectives for a Healthy River Murray
OTR	Office of the Technical Regulator (DEM)
PACR	Project Assessment Conclusion Report
PADR	Project Assessment Draft Report
PASS	potential acid sulphate soil
PDI Act	<i>Planning, Development and Infrastructure Act 2016</i> (SA)

Abbreviation/ Acronym	Definition
PHIDU	Public Health Information Development Unit
PIRSA	Primary Industries and Regions South Australia
PLUS-AGD	Planning and Land Use Services within Attorney-General's Department (formerly part of DPTI)
PM	particulate matter
PMST	EPBC Act Protected Matters Search Tool
PO	PDI Act Performance Outcome
PSCR	Project Specification Consultation Report
PUA	Pastoral Unincorporated Area
PV	photovoltaic
RCG	Regional Council of Goyder
RDA	Regional Development Australia
RDAMR	Regional Development Australia Murraylands and Riverland
RET	Renewable Energy Target
REZ	Renewable Energy Zones
RISE	Regional Industry Structure and Employment model
RIT-T	Regulatory Investment Test for Transmission
RIV	Riverina IBRA Region
RoCoF	Rate of Change of Frequency
ROKAMBA	Republic of Korea–Australia Migratory Bird Agreement
RMMAC	River Murray and Mallee Aboriginal Corporation
RMPA	River Murray Protection Areas
RPC	Renmark Paringa Council
RR	regional reserves
SA	South Australia
SAET	South Australian Energy Transformation
SAMDBNRMB	South Australian Murray-Darling Basin Natural Resources Management Board
SANI	South Australia-New South Wales Interconnector project (mid-1990s)
SANTS	South Australia Native Title Services
SAPN	South Australia Power Networks
SAPOL	South Australia Police
SARIG	South Australian Resources Information Gateway
SATC	South Australian Tourism Commission
SEB	significant environmental benefit
SEIFA	Socio-Economic Index for Areas
SEP	stakeholder engagement plan
SNI	South Australia-New South Wales Interconnector project (2002)
SO _x	sulphur oxides
SPC	State Planning Commission (SA)
SPP	State Planning Policy
SPRAT	Species Profiles and Threats Database
SSC	state suburbs
SSNVA	State Significant Native Vegetation Areas
SWL	standing water level (below ground surface)

Abbreviation/ Acronym	Definition
TDS	total dissolved salinity
TEC	threatened ecological community
TLC	transmission line corridor (1 km corridor centred on the proposed alignment)
TMP	traffic management plan
TRA	Tourism Research Australia
TSA	traffic study area
TTS	temporary threshold shift
TWh	terawatt hour
TZVI	theoretical zone of visual influence
UAV	unmanned aerial vehicle
UCL	urban centres / localities
UGC	underground cable
UIA Riverland	Unincorporated Riverland area
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UXO	unexploded ordinance
VHA	Vegetation heritage agreement (pursuant to section 23 of the Native Vegetation Act 1991)
VIA	visual impact assessment
VLT	visual landscape type
VPP	virtual power plant
VRET	Victorian Renewable Energy Target

Glossary of Terms used in the EIS

Term	Definition
access track	A cleared and graded track to allow the safe movement of vehicles and equipment. A permanent access track to each tower base is required for ongoing operation and maintenance. Some access tracks would be temporary and only used during the construction phase.
approval	The act of formally confirming, sanctioning, ratifying or agreeing to something. Approval must be obtained from an appropriate person with accountability or delegated authority.
aspect	An element of an organisation's activities or products or services that can interact with the environment.
brake / winch site	A temporarily cleared area where plant and equipment is located for the purposes of spooling and winching a conductor into place on erected towers along a transmission line corridor. Dependent upon the angle of line deviation, the location of the brake and winch site at that angle may or may not be within the nominated transmission line easement. The brake and winch site is only required for the construction phase. It does not need to be maintained for ongoing operation and / or maintenance of the transmission line.
disturbance area	The area that would be directly impacted by construction and operation (including maintenance activities). This incorporates all infrastructure elements (including the proposed transmission line alignment, substation site works and other ancillary works i.e. the operational footprint) as well as locations for proposed construction elements such as construction compounds, access tracks and site access points, laydown and staging areas, borrow pits, concrete batching plants, brake/winch sites, site offices and accommodation camps.
effect	An effect can occur on a pathway as a result of an aspect/source. It is a deviation from the expected and can be positive and/or negative.
EIS Guidelines	Guidelines issued by the State Planning Commission to be followed by ElectraNet when preparing the EIS
impact	Any certain and defined change to a receptor, whether adverse or beneficial, wholly or partially resulting from an aspect / source. Note, an impact is not a risk as it is deemed to be certain.
internal audit	Systematic reviewing of process undertaken internally by experts in specific disciplines.
investigation corridor	Refers to the initial 20 km wide route investigation corridor and subsequent refined 15 km investigation corridor encompassing all route options assessed in this EIS
linkage	Source-pathway-receptor linkage. A linkage is confirmed where a source affects a pathway and ultimately leads to an impact on an identified receptor. The linkage can be broken by the application of a control strategy or inherent nature of location, e.g., distance to sensitive receptors.
monitoring locations	Monitoring locations are used to demonstrate compliance with approval conditions, outcomes and operational performance.
nominal route alignment	This refers to the initially identified potential alignment based on initial constraints and opportunities mapping, preliminary environmental studies and early stakeholder consultation.
operational footprint	The area that would be directly impacted by permanent components of the project, including all proposed infrastructure elements such as transmission towers, substation infrastructure and permanent access tracks. The operational footprint includes: <ul style="list-style-type: none"> • areas where vegetation is permanently removed (e.g. immediately around towers and substations and on access tracks) • areas between towers where vegetation trimming would be undertaken where required to meet vegetation clearance heights. Vegetation clearance heights are set under the Electricity (Principles of Vegetation Clearance) Regulations 2010 for operational and safety requirements, including bushfire risk management.
pathway	The means by which material originating from the source reaches a receptor.

Term	Definition
the Project	The construction of ~204 km of 330 kV transmission line between Robertstown and the SA-NSW border, including a substation near Robertstown
Project EnergyConnect	A proposed high voltage electricity transmission interconnector to be constructed between Robertstown in South Australia (SA) and Wagga Wagga in New South Wales (NSW), with an added connection from Buronga in NSW to Red Cliffs in north-west Victoria
proposed alignment	The alignment of the transmission line identified through the Project route selection process which is the subject of this EIS. The proposed alignment will be subject to ongoing refinement at the local level as the design phase progresses and engagement continues with landholders, Traditional Owners and other stakeholders.
receptor	A discrete, identifiable attribute or associated entity that is measurably impacted by an effect to a pathway.
risk	'The impact of uncertainty on objectives' (ISO 31000:2009). It consists of two components—the consequence and its likelihood.
transmission line corridor	A nominal 1 km wide corridor (500 m buffer either side of the alignment as at January 2021) used as a guide for the assessment of impacts. The final alignment of the transmission line is expected to remain largely within the transmission line corridor
transmission line easement	An area surrounding and including the transmission line, which is a legal 'right of way' and allows for ongoing access and maintenance of the line and will be acquired from landholders. The easement would typically be 80 metres wide.
sensitive receptor	A discrete, identifiable attribute or associated entity that is measurably impacted by an effect to a pathway. Examples of a sensitive receptor are a third party, workers, or a particular species or assemblage of a species.
source	A natural entity, a specific location or infrastructure component of a project.
stringing access corridor	A temporary corridor along the centre of the transmission line used during construction to enable stringing of cables between towers. This would typically be 10 m wide and suitably prepared (e.g. by slashing or rolling) to allow a dozer to lay the draw wires out on the ground.

Definition of Study Areas discussed in the EIS

Environmental Aspect	Study Area Definition
Ecological study area	A 50 km wide corridor (i.e. a 25 km buffer either side of the proposed alignment). Note that the early ecological constraints investigations and the EPBC referral used an ESA centred on the indicative alignment at the time. The alignment has subsequently been refined (as described in Chapter 4 Route Selection) and the ESA used in this EIS is based on the proposed alignment presented in this EIS.
EPBC Protected Matters search area	A 10 km corridor (i.e. 5 km buffer either side of the proposed alignment).
Aboriginal heritage study area	A 10 km corridor (i.e. 5 km buffer either side of the proposed alignment).
Non-Aboriginal cultural heritage study area	A 1 km corridor (i.e. 500 m buffer either side of the proposed alignment).
Visual impact assessment study area	Theoretical Zone of Visual Influence established for the Project. This is a maximum radius of 6.2km from each tower location along the length of the transmission line corridor.
Air quality study area	A 1 km corridor (i.e. 500 m buffer either side of the proposed alignment) used to identify sensitive receptor locations.
Noise assessment study area	A 6.4 km buffer of the proposed alignment comprising 1 km corridor (i.e. 500 m buffer either side of the proposed alignment) and an extra 5.4 km buffer (i.e. 2.7km either side of the 1 km corridor) to assess the extended noise impact.
Traffic study area	A 10 km corridor (i.e. 5 km buffer either side of the proposed alignment).
Socio-economic study area	The LGAs of Regional Council of Goyder, Mid Murray Council, District Council of Loxton Waikerie, Berri Barmera Council and Renmark Paringa Council. Within the study area, the local Project context considered a 5 km buffer either side of the proposed alignment and the four communities closest to the alignment – Robertstown, Morgan, Cadell and Cooltong