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Project EnergyConnect (NSW – Western Section).

Biodiversity Offset Package



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Approved by	Yousseph Ters	14/03/22			



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1. Introduction

1.1. Overview of EnergyConnect

Transgrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity transmission operator in South Australia (SA)) are seeking regulatory and environmental planning approval for the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an added connection to north-west Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

EnergyConnect comprises several components or 'sections' (shown on Figure 1). EnergyConnect aims to secure increased electricity transmission between SA, NSW and Victoria, while facilitating the longer-term transition of the energy sector across the National Electricity Market (NEM) to low emission energy sources. EnergyConnect has been identified as a priority transmission project in the NSW Transmission Infrastructure Strategy (Department of Planning and Environment, 2018), linking the SA and NSW energy markets and would assist in transporting energy from the South-West Renewable Energy Zone to major demand centres.

The EnergyConnect (NSW – Western Section) was approved under Division 5.2, Part 5 of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) on 28 September 2021 (Infrastructure Approval (SSI 10040)). This Biodiversity Offset Package relates to EnergyConnect (NSW – Western Section) (the project).

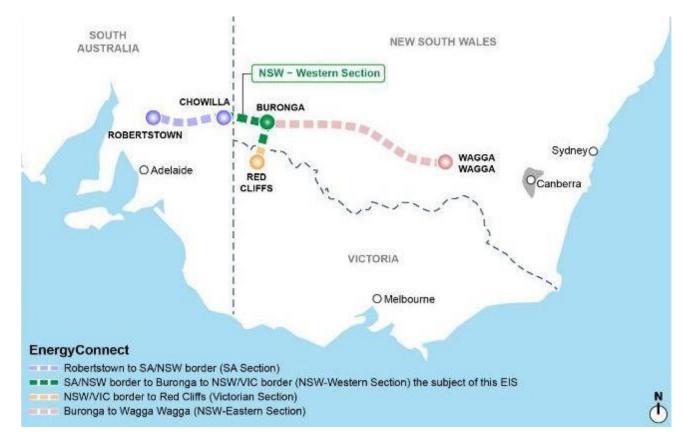


Figure 1: Overview of EnergyConnect



1.2. Key project features

The key components of the project include:

- about 135 kilometres of new 330 kilovolt (kV) double circuit transmission line and associated infrastructure between the SA/NSW border near Chowilla and the existing Buronga substation
- an upgrade of the existing 22 kilometre 220 kV single circuit transmission line between the existing Buronga substation and the NSW/Victoria border at Monak, near Red Cliffs in Victoria to a 220 kV double circuit transmission line, and the decommissioning of the 220 kV single circuit transmission line (known as Line 0X1) — a significant upgrade and expansion of the existing Buronga substation to a combined operating voltage 220 kV/330 kV
- a minor realignment of the existing 0X2 220 kV transmission line, in proximity to the Darling River
- a temporary 220 kV transmission line bypass to the south of the Buronga substation during construction
- new and/or upgrade of access tracks as required along the length of the project
- ancillary works required to facilitate the construction of the project (e.g. laydown and staging areas, concrete batching plants, brake/winch sites, earthwork material sites, construction water supply points, site offices and accommodation camps).

The final alignment and easement of the transmission line would be confirmed during detailed design and would be located within the transmission line corridor. Construction of the project is planned to commence in mid-2022. The construction of the transmission lines would take approximately 24 months.

1.3. Conditions of approval

This Biodiversity Offset Package (the Package) has been prepared in accordance with Condition D26 and D27 of the Infrastructure Approval (SSI 10040) for Project EnergyConnect (NSW – Western Section), the project Environmental Impact Statement (EIS), the project Biodiversity Development Assessment Report (BDAR) including the Biodiversity Offset Strategy and amendments following the lodgement of the Response to Submissions (RTS) and Amendment Report.

Relevant conditions are detailed in Table 1. Specifically, this Biodiversity Offset Package includes details on the biodiversity offset measures which will be implemented and delivered in accordance with the EIS. It includes detailed costings for each measure, including the equivalent payments to the Biodiversity Conservation Fund (BCF) if the relevant measure is not implemented and delivered. The Package also includes timing and responsibilities for implementation and confirmation that the measures will have been implemented by 31 December 2023.

In relation to Condition D27, the Proponent has established an escrow account totalling \$48 million to provide security to the Minister for Planning and Public Spaces for the Transgrid's offset obligations under the approval in relation to payments to the Biodiversity Conservation Fund in the event that the biodiversity offsets are not delivered in accordance with the Package.

Condition D25 a) contains restrictions of clearing and habitat that the Project must not exceed unless otherwise agreed to by the Planning Secretary. Condition D25 b) requires the Project to minimise clearing of native vegetation and key habitat. Transgrid and its construction contractor SecureEnergy are currently considering all potential impacts to biodiversity, including the biodiversity values included in Condition D25 a), and are finalising the design and construction methodology to minimise impacts to the greatest extent practicable, in accordance with the commitment in Revised mitigation measure B1 and the requirements of Condition D25 and Condition A1.



Transgrid expects that clearing of the biodiversity values included in Condition 25 a) will not exceed, and in some cases will be less than, the specified limits. Furthermore, Transgrid also expects that total clearing will be less than the total indicative clearing extents described in Section 13.2 of the BDAR. However, based on the final design and construction methodology, there might be small changes (including increases) to the indicative direct impacts on some plant community types presented in Section 9.1.2 of the BDAR.

All clearing will occur in accordance the approved Biodiversity CEMP Sub-plan for the Project. Appendix A of the Biodiversity CEMP Sub-plan contains the Project's Pre-clearing and Clearing Procedure. Section 4 of the procedure commits to the following:

- the predicted extent clearing of native vegetation will be monitored against:
 - the extent of clearing permitted by condition D25 of the Infrastructure Approval. All reasonable and feasible measures will be implemented to ensure that clearing to no more than the values detailed within condition D25; and
 - the Plant Community Types as detailed within the Revised Biodiversity Development Assessment Report (Final BDAR)(August 2021).

The predicted extent of clearing will also consider the type of clearing (i.e. Disturbance Area A);

In the unlikely event clearing predictions exceed the restrictions in Condition D25 a) or the indicative clearing extents included in the BDAR, Transgrid will inform the NSW Department of Planning and Environment.

The revised mitigation measures in the EIS commit to minimising potential impacts during development of the detailed design and construction methodology (Revised mitigation measure B1) and to confirming final offset requirements and meeting any additional credit liability based on actual clearing (Revised mitigation measure B15). The requirement to confirm the final credit liability in accordance with BAM and provide an offset that meets any additional credits identified is included and addressed in the approved Biodiversity CEMP Sub-plan, which must be implemented. Transgrid will carry out the Project in accordance with these commitments.



Table 1 Biodiversity Offset Package conditions

Condition	Description
D26	Prior to carrying out any development that would impact on biodiversity values, the Proponent must prepare a Biodiversity Offset Package (Package) that is consistent with the EIS, in consultation with BCS and to the satisfaction of the Secretary in writing. The Package must include, but not necessarily be limited to:
	 a) details of the specific biodiversity offset measures to be implemented and delivered in accordance with the EIS; b) the cost for each specific biodiversity offset measure, which would be required to be paid into the Biodiversity Conservation Fund if the relevant measure is not implemented and delivered (as calculated in accordance with Division 6 of the Biodiversity Conservation Act 2016 (NSW) and the offsets payment calculator that was established as at 29 July 2021); c) the timing and responsibilities for the implementation and delivery of the measures required in the Package; and d) confirmation that the biodiversity offset measures will have been implemented and delivered no later than 31 December 2023. Following approval, the Proponent must implement and deliver the Biodiversity Offset
B 07	Package.
D27	Prior to carrying out any development that could impact the biodiversity values requiring offset, the Proponent must establish an escrow account and pay into that account \$48 million, in accordance with the Deed of Agreement with the Planning Secretary executed on 13 September 2021. The Proponent must comply with the terms of the Deed. Note: this condition provides security to the Minister for the performance of the Proponent's obligations under this approval in relation to biodiversity offsets and release funds for payment into the Biodiversity Conservation Trust in the event that the biodiversity offsets (either in whole or part) are not delivered in accordance with the Package by the Proponent.

2. Biodiversity Offset Scheme and offset rules

Through the NSW Biodiversity Offset Scheme (BOS), credits are to be offset through Offset Trading Groups (OTGs) based on their threat status (Table 2 and Table 3). The *Biodiversity Conservation Regulation 2017* (BC Reg) sets the offset rules under the scheme. There are two sets of rules: the 'like-for-like' offset rules and 'variation' rules (Section 2.1). (Section 2.1).

Table 2: Offset trading groups for threatened ecological communities

Threat status	Offset trading group name for ecosystem credits
Critically endangered ecological community	Name of the critically endangered ecological community
Endangered ecological community	Name of the endangered ecological community
Vulnerable ecological community	Name of the vulnerable ecological community



Table 3: Offset trading groups for non-threatened Plant Community Types (PCTs)

Threat status group	Offset trading group tiers for ecosystem credits
Very High Threat (∀HT)	Tier 1: PCTs in the same vegetation class with a percentage cleared value \ge 90% (being the name of the vegetation class – percentage cleared value \ge 90%)
High Threat (HT)	Tier 2: PCTs in the same vegetation class with a percent cleared value \geq 70% and <90% (being the name of the vegetation class – percentage cleared value \geq 70% and <90%)
Moderate Threat (MT)	Tier 3: PCTs in the same vegetation class with a percentage cleared value ≥50% and <70% (being the name of the vegetation class – percentage cleared value ≥50% and <70%)
Low Threat (LT)	Tier 3: PCTs in the same vegetation class with a percentage cleared value ≥50% and <70% (being the name of the vegetation class – percentage cleared value ≥50% and <70%)

2.1. Offset rules

Like-for-like Biodiversity Credits (Clause 6.3 of the BC Reg)

- 1) This clause applies to the determination of like-for-like biodiversity credits for the purposes of the application of the offset rules or variation rules.
- In the case of impacts on threatened ecological communities, like-for-like biodiversity credits represent
 - a) the same threatened ecological community located in
 - i) the same or an adjoining Interim Biogeographic Regionalisation of Australia subregion as the impacted site, or
 - ii) any such subregion that is within 100 kilometres of the outer edge of the impacted site, and
 - b) if the threatened ecological community contains hollow bearing trees—vegetation that contains hollow bearing trees.
- 3) In the case of impacts on the habitat of threatened species that are ecosystem credit species or other native vegetation (other than impacts on threatened ecological communities), like-for-like biodiversity credits represent
 - a) the same class of native vegetation located in
 - i) the same or an adjoining Interim Biogeographic Regionalisation of Australia subregion as the impacted site, or
 - ii) any such subregion that is within 100 kilometres of the outer edge of the impacted site, and
 - b) the same or a higher offset trading group, and
 - c) if the impacted habitat contains hollow bearing trees-vegetation that contains hollow bearing trees
- 4) In the case of impacts on threatened species that are species credit species, like-for-like biodiversity credits represent the same threatened species.

Variation rules under the Biodiversity Offset Scheme (Clause 6.4 of the BC Reg)

- The circumstances in which the ordinary offset rules for the determination of the like-for-like biodiversity credits required to be retired as a biodiversity conservation measure may be varied are as follows (the variation rules)
 - a) The proponent who is to retire the biodiversity credits has taken reasonable steps to obtain the requisite like-for-like biodiversity credits and requests the variation of the ordinary offset rules.
 - b) In the case of impacts on threatened ecological communities or on the habitat of threatened species that are ecosystem credit species or other native vegetation—the biodiversity credits to be retired need not represent the same threatened ecological community or the same class of



vegetation or represent a location in the same or adjoining Interim Biogeographic Regionalisation of Australia subregion, so long as—

- i) they represent the same vegetation formation, and
- ii) they are in the same or a higher offset trading group, and
- iii) they represent a location that is in-
 - (a) the same Interim Biogeographic Regionalisation of Australia region as the impacted site, or
 - (b) a subregion that is within 100 kilometres of the outer edge of the impacted site, and
- iv) if the impacted habitat contains hollow bearing trees—they represent vegetation that contains hollow bearing trees or artificial hollows.
- c) In the case of impacts on threatened species that are species credit species—the biodiversity credits to be retired need not represent the same threatened species, so long as
 - i) if the impacted species is a plant-they represent a plant, and
 - ii) if the impacted species is an animal-they represent an animal, and
 - iii) they represent a species that has the same or a higher category of listing under Part 4 of the Act as a threatened species, and
 - iv) they represent a location that is in-
 - (a) the same or an adjoining Interim Biogeographic Regionalisation of Australia subregion as the impacted site, or
 - (b) any such subregion that is within 100 kilometres of the outer edge of the impacted site.
- 2) The variation rules do not apply in relation to impacts on threatened species or ecological communities that are excluded by the Environment Agency Head.

2.2. Reasonable steps

To apply the 'variation rules' the proponent is required to take 'reasonable steps' to obtain the requisite 'like-for-like' biodiversity credits and requests a variation of the 'like-for-like' offset rules. The 'reasonable steps' are defined in the BC Reg (Clause 6.5) as:

- 1) Checking the public register of biodiversity credits, and
- 2) Lodging an entry in the public register of persons seeking biodiversity credits for a minimum specified period, and
- 3) Contacting landholders who are entered on the public register of biodiversity stewardship site expressions of interest.

Transgrid is committed to carry out this process in accordance with the BOS. Due to the complexities in delivering complex biodiversity offsets for large linear infrastructure Transgrid is seeking to apply the 'variation rules' for credit liability. This process will ensure a proportion of the credit liability is secured through 'like for like' offsets, with the remainder secured against the variation rules.

2.3. Offset region

The region in which offsets can be secured as part of this package is shown on Figure 2. This includes nine separate IBRA subregions (each within 100 kilometres of the disturbance footprint) which extend from the South Australian border in the west, along the Murray River to Balranald and then straight east to Narrandera, north-east to Hillston and north to Wilcannia. This creates a large search area from which biodiversity credits can be secured for the project.



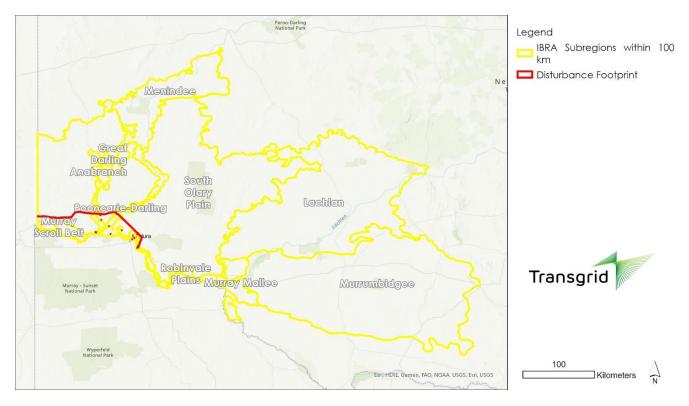


Figure 2: Offset region

3. Biodiversity credit liability

The biodiversity impacts of the project were assessed in the Biodiversity Development Assessment Report (BDAR) prepared in accordance with the NSW Biodiversity Assessment Method 2017 (BAM) and Secretary's environmental assessment requirements (SEARs).

Residual impacts of the project that are not able to be managed through mitigation will be offset in accordance with BAM calculations for both ecosystem and species credits. The biodiversity credit liability for the project includes:

- 10,715 ecosystem credits
- 1,562 species credits.

The calculations in the BDAR are based on indicative disturbance areas only, as detailed design for the project has not yet been completed. Accordingly, the final biodiversity offset liability is subject to the timing of detailed design and construction methodology refinements and would be determined at that stage.

Ecosystem credit requirements are detailed further in Table 4, with 'like-for-like' and 'variation' offset trading groups in Table 6 and Table 7 respectively. Species credit requirements are detailed in Table 5 and Table 8 for 'variation rules'. The 10,715 ecosystem credits are required across 23 separate PCTs. Species credits are required for four flora and five fauna species (Table 5), with a total of 79 credits required for flora species credits are required for four flora and 1,483 credits required for fauna species credits.

On a PCT basis, more than 70% of credit requirements comes from four PCTs, namely:

• PCT 58 (Black Oak - Western Rosewood open woodland) - 21% of credits



- PCT 170 (Chenopod sandplain mallee woodland/shrubland) 20% of credits
- PCT 15 (Black Box open woodland wetland with chenopod understorey) 18% of credits
- PCT 153 (Black Bluebush low open shrubland) 14% of credits

There are up to 15 Offset Trading Groups under the 'like-for-like' offset rules (Table 6) and up to 9 Offset Trading Groups under the 'variation rules' (Table 7). It's important to note that there is potential to roll up credit requirements into a higher threat status, so depending on the values found at Biodiversity Stewardship Sites (BSAs), fewer Offset Trading Groups may be needed to meet the biodiversity credit obligations.

The total financial liability for ecosystem and species credits for the project has been calculated through the Biodiversity Offset Payment Calculator (BOPC) at \$47,117,669 (including GST) which includes \$46,230,822 for ecosystem credits and for \$886,847 for species credits. This aligns with the \$48M which has been secured in an escrow account to ensure the timely delivery of biodiversity offsets for the project.



Table 4: Ecosystem credit requirements

		OTG Class	отс						
PCTID	PCT Name		Formation	MSB	SOP	GDA	PD	RP	Total
153	Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones	Aeolian Chenopod		14	1,360	0	153	0	1,527
154	Pearl Bluebush low open shrubland of the arid and semi-arid plains	Shrublands - LT		0	237	0	15	0	252
163	Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones	Riverine	Arid Shrublands -	16	54	0	0	0	70
216	Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion	Chenopod Shrublands - LT	LT	0	0	0	0	21	21
143	Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.	Sand Plain Mulga Shrublands - LT		0	49	0	0	0	49
157	Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion	Riverine Chenopod Shrublands - MT	Arid Shrublands -	198	118	0	0	0	316
139	Prickly Wattle tall open shrubland of dunes and sandplains of semi- arid and arid regions	Sand Plain Mulga Shrublands - MT	MT	0	0	0	35	0	35
159	Old Man Saltbush shrubland mainly of the semi-arid (warm) climate zone (south western NSW)	Riverine Chenopod Shrublands - VHT	Arid Shrublands - VHT	12	33	0	0	0	45
11	River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Riverine Forests - LT	Forested Wetlands - LT	0	0	0	20	3	23
17	Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Floodplain Shrublands - MT	Freshwater Wetlands - MT	0	0	0	0	1	1
63	Spiny Lignum - Slender Glasswort open forbland sailine wetland on lake edges in the semi-arid and arid climate zones			0	0	0	8	0	8
166	Disturbed annual saltbush forbland on clay plains and inundation zones mainly of south-western NSW	Inland Saline Lakes - LT	Saline Wetlands - LT	58	11	12	45	0	126
253	Gypseous shrubland on rises in the semi-arid and arid plains	1		0	64	0	0	0	64
19	Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains	Riverine Sandhill Woodlands - HT		0	12	41	0	5	58

		OTG Class	отс	IBRA Subregions [#]					
PCTID	PCT Name		Formation	MSB	SOP	GDA	PD	RP 0 0 0 0 0 164 7 0 0 0 121	Total
21	Slender Cypress Pine - Sugarwood - Western Rosewood open woodland on sandy rises mainly in the Riverina Bioregion and Murray Darling Depression Bioregion	Riverine Sandhill Woodlands - HT	Semi-arid Woodlands - HT	0	449	0	20	0	469
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	Dune Mallee		0	791	0	0	0	791
172	Deep sand mallee of irregular dunefields of the semi-arid (warm) zone	Woodlands - LT	Semi-arid	0	317	0	0	0	317
170	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	Riverine Sandhill Woodlands - HTSemi Wood HTDune Mallee Woodlands - LTSemi Woodlands - LTSand Plain Mallee Woodlands - LTSemi Woodlands - LTSemi-arid Sand Plain Woodlands - LTInland Floodplain Woodlands - MT	Woodlands - LT	0	2,151	0	0	0	2,151
221	Black Oak - Pearl Bluebush open woodland of the sandplains of the semi-arid warm and arid climate zones	Plain Woodlands -		0	58	0	0	0	58
13	Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Floodplain		0	0	0	0	164	164
15	Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	· · ·	Semi-arid Woodlands -	0	48	508	1,359	7	1,922
58	Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion		MI	0	2,207	21	0	0	2,228
252	Sugarwood open woodland of the inland plains mainly Murray Darling Depression Bioregion			0	20	0	0	0	20
Total				298	7,979	582	1,655	201	10,715

IBRA subregions:

- MSB Murray Scroll Belt
- SOP South Olary Plain
- GDA Great Darling Anabranch
- PD Pooncarie-Darling
- RP Robinvale Plain

Table 5: Species credit requirements

Species	Common Name	BC Act Status	EPBC Act Status	Group	Total
Acacia acanthoclada	Harrow Wattle	Endangered	Not Listed	Flora	1
Atriplex infrequens	A saltbush	Vulnerable	Vulnerable	Flora	13
Austrostipa nullanulla	A spear-grass	Endangered	Not Listed	Flora	37
Santalum murrayanum	Bitter Quandong	Endangered	Not Listed	Flora	28
Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Listed	Fauna	286
Hamirostra melanosternon	Black-breasted Buzzard	Vulnerable	Not Listed	Fauna	213
Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Listed	Fauna	213
Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Not Listed	Fauna	286
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	Endangered	Vulnerable	Fauna	485
Total	·				1,562

Vegetation Class	% Cleared	Offset Trading Group#		IBRA	Subreg	ions		Total
			MSB	SOP	GDA	PD	RP	
Aeolian Chenopod Shrublands	0.4	LT	14	1,597	0	168	0	1,779
Dune Mallee Woodlands	0.19	LT	0	1,108	0	0	0	1,108
Inland Floodplain Shrublands	0.63	MT	0	0	0	0	1	1
Inland Floodplain Woodlands	0.57	MT	0	48	508	1,359	171	2,086
Inland Riverine Forests	0.42	LT	0	0	0	20	3	23
Inland Saline Lakes	0.1	LT	58	75	12	53	0	198
Riverine Chenopod Shrublands	0.26	LT	16	54	0	0	21	91
Riverine Chenopod Shrublands	0.6	MT	198	118	0	0	0	316
Riverine Chenopod Shrublands	0.92	VHT	12	33	0	0	0	45
Sandhill Pine Woodland TEC	0.7	TEC	0	461	41	20	5	527
Sand Plain Mallee Woodlands	0.41	LT	0	2,151	0	0	0	2,151
Sand Plain Mulga Shrublands	0.3	LT	0	49	0	0	0	49
Sand Plain Mulga Shrublands	0.5	MT	0	0	0	35	0	35
Semi-arid Sand Plain Woodlands	0.3	LT	0	58	0	0	0	58
Semi-arid Sand Plain Woodlands	0.5	MT	0	2,227	21	0	0	2248
Total	-	·	298	7,979	582	1,655	201	10,715

Table 6: 'like-for-like' ecosystem credit offset trading groups

[#] Offset Trading Groups:

- LT Low Threat Status
- MT Moderate Threat Status
- HT High Threat Status
- VHT Very High Threat Status
- TEC Threatened Ecological Community

Vegetation Formation	% Cleared	Offset Trading Group	IBRA	IBRA Subregions				
			MSB	SOP	GDA	PD	RP	
Arid Shrublands	0.3	LT	30	1,700	0	168	21	1,919
Arid Shrublands	0.5	MT	198	118	0	35	0	351
Arid Shrublands	0.92	VHT	12	33	0	0	0	45
Forested Wetlands	0.42	LT	0	0	0	20	3	23
Freshwater Wetlands	0.63	MT	0	0	0	0	1	1
Saline Wetlands	0.1	LT	58	75	12	53	0	198
Semi-arid Woodlands	0.41	LT	0	3,317	0	0	0	3,317
Semi-arid Woodlands	0.57	MT	0	2,275	529	1,359	171	4,334
Sandhill Pine Woodland TEC	0.7	TEC	0	461	41	20	5	527
Total			298	7,979	582	1,655	201	10,715

Table 7: 'variation rules' ecosystem credit offset trading groups

Table 8: 'variation rules' species credits offset trading groups

Variation Rule	Status	Credits Required
Atriplex infrequens	EPBC Vulnerable	13
Plants	Endangered	66
Plants	Critically Endangered	0
Animal	Vulnerable	513
Polytelis anthopeplus monarchoides	EPBC Vulnerable	485
Animal	Vulnerable	998
Total	1,562	



4. Biodiversity Offset Package

The biodiversity offset strategy for the project includes three key components:

- Establishing BSAs on lands with equivalent biodiversity values to those impacted by the project;
- One-off funding for Electromagnetic Frequency (EMF) research capped at \$150,000 with a proportional reduction in credit liability for indirectly impacted fauna species by 10%;
- Purchasing credits from the market from established BSAs; and
- Making a payment into the Biodiversity Conservation Fund for outstanding liability.

Transgrid has committed to meeting and retiring the total quantum of its credit liability in accordance with the BAM. The Package will primarily retire the project's credit liability through the establishment of a series of BSAs. Any residual credit liability not met through these offset strategies will met through the payment into the Biodiversity Conservation Fund.

Detailed vegetation survey and mapping in accordance with BAM has been completed and a BSA application to the Biodiversity Conservation Trust (BCT) that was lodged for the property 'Big Bend' in December 2021. These surveys have confirmed the presence of suitable PCTs and threatened species which will directly contribute towards the offset liability of the project.

4.1. Establishment of Biodiversity Stewardship Agreements

Under the BC Act, land with appropriate biodiversity values can be established under a BSA to allow for inperpetuity conservation and management. BSAs allow the landholder to create biodiversity credits that can be traded to offset development impacts. Transgrid are actively progressing a number of potential BSAs that have been identified to contain equivalent biodiversity values to those required to be offset by the project.

Transgrid has completed surveys in accordance with the BAM and submitted a BSA application for the property 'Big Bend' (BSA 1) (Figure 3). This BSA covers more than 6,000 hectares of high conservation value arid and semi-arid shrublands and woodlands which are poorly conserved at the state level. Additionally, the vegetation present at the BSA is in much higher condition than surrounding properties due to a history of conservation management practices including retention of old growth mallee and wildfire prevention. This BSA would represent a significant increase in funded and managed biodiversity land in far south-western NSW.

A detailed summary of credits created at each BSA is provided in the following sections.

4.2. 'Big Bend' BSA 1

A total of seven PCTs totalling approximately 6,400 hectares have been mapped at 'Big Bend', including one Endangered Ecological Community (EEC), namely *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions* (Table 9).

PCT	PCT Name	BC Act Status	Hectares	Credits	OTG Class	OTG Formation
21	Slender Cypress Pine - Sugarwood - Western Rosewood open woodland on sandy rises mainly in the Riverina Bioregion and Murray Darling Depression Bioregion	Sandhill Pine Woodland EEC	2.25	13	Sandhill Pine Woodland EEC	Sandhill Pine Woodland EEC
58	Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion		255.32	972	Semi-arid Sand Plain Woodlands - MT	Semi-arid Woodlands - MT
143	Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.		403.08	686	Sand Plain Mulga Shrublands - LT	Arid Shrublands - LT
170	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones		3,535.09	22,750	Sand Plain Mallee Woodlands - LT	Semi-arid Woodlands - LT
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion		2,141.03	8,267	Dune Mallee Woodlands - LT	Semi-arid Woodlands - LT
172	Deep sand mallee of irregular dunefields of the semi-arid (warm) zone		73.93	378	Dune Mallee Woodlands - LT	Semi-arid Woodlands - LT
252	Sugarwood open woodland of the inland plains mainly Murray Darling Depression Bioregion		13.22	21	Semi-arid Sand Plain Woodlands - MT	Semi-arid Woodlands - MT
Total			6,423.92	33,087		

At the vegetation formation level, these seven PCTs are equivalent to four Offset Trading Groups as detailed in Table 10 and shown on Figure 3. 'Big Bend' generates more than 33,000 ecosystem credits.



Figure 3: 'Big Bend' BSA 1

Table 1	0: Approximate	'ecosystem credits'	generated at	'Big Bend'
			3	

OTG	Hectares	Credits	Credits/ha
Arid Shrublands - LT	403.08	686	1.7
Sandhill Pine Woodland EEC	2.25	13	5.8
Semi-arid Woodlands - LT	5,750.05	31,395	5.5
Semi-arid Woodlands - MT	268.54	993	3.7
Total	6423.92	33,087	

In addition to 'ecosystem credits', 'Big Bend' also generates 204 'species credits' from four threatened plant species as detailed in Table 11.

Table 11: Approximate	'species credits'	generated at 'Big Bend'
		generated at Eig Dena

Species	Common Name	BCA Status	EPBC Status	Big Bend Credits Created
Acacia acanthoclada	Harrow Wattle	Endangered	Not Listed	126
Santalum murrayanum	Bitter Quandong	Endangered	Not Listed	3
Cratystylis conocephala	Bluebush Daisy	Endangered	Not Listed	1
Dodonaea stenozyga	Desert Hopbush	Critically Endangered	Not Listed	210
Total	~	340		

4.3. EMF research

A contribution will be made by Transgrid for one-off funding into research to allow for a better understanding of the risk from EMF on bird species in Australia. The one-off funding for EMF research will be provided by the completion of construction expected to be mid 2023. This would form a commitment of \$150,000 and include a proportional reduction in the credit liability for indirect impacts to fauna species by 10%, as a maximum supplementary measure.

Transgrid met with Charles Sturt University as Wagga Wagga on 9 March 2022 to discuss the commitment and the process for research funding. Transgrid understands that Charles Sturt University is the only university in Australia that has an accredited ornithology course, making it an ideal candidate to carry out the required research. University and Transgrid agreed to meet regularly and to confirm the indicative process and timeline to scope, fund and carry out the required research. A follow-up meeting is scheduled on 14 March 2022.

Fauna species credits indirectly impacted by the project are detailed in Table 12. A total of 1,483 species credits are required to offset the impacts of the project on these species. The EMF research proposal accounts for 10% of these credits, equating to 149 credits.

Species	Common Name	BC Act Status	EPBC Act Status	Group	Total	10%
Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Listed	Fauna	286	29
Hamirostra melanosternon	Black-breasted Buzzard	Vulnerable	Not Listed	Fauna	213	21
Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Listed	Fauna	213	21
Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Not Listed	Fauna	286	29
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	Endangered	Vulnerable	Fauna	485	49
Total						

Table 12: Indirect impact species credit contribution

4.4. Contribution to the offset liability and outstanding credit liability

The Biodiversity Offset Package currently includes a BSA and an EMF research proposal. Collectively these account for 40% of the ecosystem credit liability under like for like rules and 46% when variation trading rules are applied, 100% of the flora species credit liability, and 10% of the fauna species credit liability of the project. Of the 10,715 ecosystem credits required for the project, a total of 5,009 can be secured through BSA 1. This leaves a current credit deficit of 5,706 ecosystem credits, or 54% of the total credit liability to be met through additional BSAs, purchase and retirement of exiting credits and/or payment into the BCF. Despite this deficit, there is about a 28,774 ecosystem credit surplus from BSA 1 within the Semi-arid Woodlands Low Threat Offset Trading Group.



Table 13: Ecosystem credit liability analysis

PCT	Like for Like Vegetation Class Offset Trading Group	Variation rules Vegetation Formation Offset Trading Group	PCT Credits Required	'Big Bend' BSA 1 Credits Created	Credits Retired from BSA 1	PCT Credit Deficit	PCT Credit Surplus	Credit Deficit after like for like trades	Credit Deficit after variation rule trades	BOPC Price Per Credit	Approximate Residual BCF Payment
153	Aeolian Chenopod		1,527	0	0	1,527	0	1,527	1,233 ¹	\$4,518	\$5,570,694
154	Shrublands -LT		252	0	0	252	0	252	0 ¹		
163	Riverine Chenopod	Arid Shrublands - LT	70	0	0	70	0	70	0 ¹		
216	Shrublands-LT		21	0	0	21	0	21	0 ¹		
143	Sand Plain Mulga Shrublands - LT		49	686	49	0	637	0	0		
157	Riverine Chenopod Shrublands-MT	Arid Shrublands - MT	316	0	0	316	0	316	316	\$2,782	\$ 879,112
139	Sand Plain Mulga Shrublands - MT	Arid Shrublands - MT	35	0	0	35	0	35	35	\$2,782	\$97,370
159	Riverine Chenopod Shrublands-VHT	Arid Shrublands - VHT	45	0	0	45	0	45	45	\$9,086	\$408,870
11	Inland Riverine Forests - LT	Forested Wetlands - LT	23	0	0	23	0	23	23	\$7,378	\$169,694
17	Inland Floodplain Shrublands - MT	Freshwater Wetlands - MT	1	0	0	1	0	1	1	\$13,332	\$13,332
63			8	0	0	8	0	8	8	\$10,717	\$85,736
166	Inland Saline Lakes - LT	Saline Wetlands - LT	126	0	0	126	0	126	126	\$10,717	\$1,350,342
253			64	0	0	64	0	64	64	\$10,717	\$685,888
19	Riverine Sandhill	Sandhill Pine	58	0	0	58	0	58	58	\$4,976	\$288,608
21	Woodlands - HT	Woodland EEC	469	13	13	456	0	456	456	\$4,976	\$2,269,056
170	Sand Plain Mallee Woodlands - LT	Semi-arid Woodlands	2,151	22,750	2151	0	20,599	0	0		
171	Dune Mallee	- LT	791	8,267	791	0	7,476	0	0		
172	Woodlands - LT		317	378	317	0	61	0	0		

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PCT	Like for Like Vegetation Class Offset Trading Group	Variation rules Vegetation Formation Offset Trading Group	PCT Credits Required	'Big Bend' BSA 1 Credits Created	Credits Retired from BSA 1	PCT Credit Deficit	PCT Credit Surplus	Credit Deficit after like for like trades	Credit Deficit after variation rule trades	BOPC Price Per Credit	Approximate Residual BCF Payment
221	Semi-arid Sand Plain Woodlands - LT		58	0	0	58	0	58	01		
13	Inland Floodplain		164	0	0	164	0	164	164	\$2,782	\$456,248
15	Woodlands - MT	Semi-arid Woodlands	1,922	0	0	1,922	0	1,922	1,922	\$2,782	\$5,347,004
58	Semi-arid Sand	- MT	2,228	972	972	1,256	0	1,255 ²	1,255 ²	\$2,782	\$3,491,410
252	Plain Woodlands - MT		20	21	20	0	1	0	0		
Total			10,715	33,087	4,313	6,402	28,774	6,401	5,706		\$21,113,364

1 under the variation rules, the 637 surplus credits for PCT 143 have been used to offset deficits for PCTs in the Arid Shrublands – LT formation. Under the variation rules, 58 surplus credits for PCT 172 have been used to offset deficit for PCT 221 in the Arid Shrublands – LT formation

2 under the like for like trading rules, the 1 surplus credit for PCT 252 has been used to offset PCT 58.



In relation to species credits, a total of 1,562 species credits are required with 79 flora species credits and 1,483 fauna species credits (Table 14). Following the variation rules for flora there is a credit surplus of 274 species credits (Critically Endangered and Endangered Threat Status). While no fauna species credits have been generated at BSA 1, the financial contribution to EMF research reduces fauna species credit liability by 10% (from 1,483 to 1,334 species credits). There is an outstanding 1,334 species credit liability for the project (Table 14).

Variation Rule	Status	Credits Required	'Big Bend' BSA 1 Credits Created	EMF Research	Credit deficit [#]	Credit Surplus	Approximate BCF Payment ^{##}
Atriplex infrequens	EPBC Vulnerable	13	0	0	13	0	\$2,249
Plants	Endangered	66	130	0	0	64	\$0
Plants	Critically Endangered	0	210	0	0	210	\$0
Animal	Vulnerable	998	0	100	898	0	\$269,294
Polytelis anthopeplus monarchoides	EPBC Vulnerable	485	0	49	436	0	\$135,147
Total	1	1,562	204	149	1,347	138	\$406,690

Table 14: Species credit liability analysis

under the variation rules, credit deficits from species with lower threat status can be offset with a species with a higher threat status (e.g. Vulnerable with Critically Endangered)

the remaining liability for fauna species credits has been pro-rated by the proportion of each species in each offset trading group against the BOPC price for that species

4.5. Cost of each specific biodiversity offset measure

The cost of each specific biodiversity offset measure is included in Table 15 below. Costs have been determined through an evaluation of the credit liability of each component and equivalent payment to the Biodiversity Conservation Fund. Note there is a slight variation between the total in Table 15 and the indicative total in Section 3 due to trading with the 'variation rules' which reduced credit liability for some credit classes which have higher costs associated in the BOPC. Overall, the total amount is largely consistent and the variation is much less than 1% of the total amount.

Table 15: Cost of each specific biodiversity offset measure

Offset Measure	Ecosystem credits	Species Credits	Equivalent BCF payment (incl GST)
'Big Bend' BSA 1	4,313	66	\$25,117,458
EMF research		149	\$40,444
Residual ¹	5,709	1,334	\$21,520,054
Total	•	\$46,677,956	

1 Sum of the 'Approximate Residual BCF Payment' totals from Table 13 and Table 14

4.6. Payment to the Biodiversity Conservation Fund

Following the analysis of ecosystem and species credit liability, there is an approximate 5,706 ecosystem credit and 1,334 species credit deficit remaining for the project. Should Transgrid not be able to retire the additional biodiversity credits prior to 23 December 2023, an outstanding payment of approximately \$21,520,054 will be required to be transferred to the BCF. A final review of this calculation will be necessary after the appropriate credits have been retired from BSA 1.

4.7. Additional BSAs

While the Biodiversity Offset Package described above complies with the requirements of the NSW Biodiversity Offset Scheme and Condition D26, Transgrid is actively targeting additional properties for acquisition and establishment of BSAs to meet the outstanding credit obligation of this project and reduce associated BCF payments.

Transgrid has identified three other properties (**Mathematic**', **Mathematic**' and **Mathematic**') that can potentially meet outstanding credit obligations for the project and other Transgrid projects. Transgrid is consulting with the relevant landholders and has completed rapid ecological surveys for all three properties. Transgrid and the landholder for **Mathematic**' have signed a Memorandum of Understanding to purchase the property, and Transgrid has commenced the detailed biodiversity assessments necessary to inform BAM calculations and confirm credit generation potential. Detailed biodiversity assessment of the other two potential BSA sites will commence pending the outcomes of consultation with the landholders.

Transgrid notes that the options identified above do not form part of the current Biodiversity Offset Package at this stage, as they are not sufficiently progressed and insufficient information is currently available to confirm potential credit generation. When proposed additional BSAs are confirmed, Transgrid will update the package to include equivalent BCF Payments for each option and the outstanding credit and, therefore, the ultimate financial liability of the project, in accordance with Condition D26. This will occur in consultation with the Energy Assessments Section and Biodiversity Conservation Section of the NSW Department of Planning and Environment.

Specialist advice to Transgrid indicates that all three proposed additional BSAs can be established and the credits generated and retired no later than 31 December 2023. Regardless of the outcomes for each proposed additional BSA, Transgrid will address the project's outstanding credit liability through BCF payments before 31 December 2023 as required by Condition D26.

4.8. Purchase of existing credits

As of 13 January 2022, there are no ecosystem credits available on the credit supply register meeting the current residual credit liability which could be acquired for the Project. Transgrid will actively review BOS credit registers prior to the 31 December 2023 and where available credits meeting the residual credit liability exist and are commercially viable, consider the purchase of these existing credits as an alternative to payment into the BCF.

5. Timing and responsibilities

Key milestones for the elements the Biodiversity Offset Package, the proposed additional BSAs and other relevant requirements from the condition of approvals are presented in Table 16. The responsibility for the

each action associated with biodiversity offsetting remains with Transgrid, supported by specialist ecological consultants as required, as indicated in the table. The indicative implementation timing is shown graphically in Figure 4.

Transgrid submitted the 'Big Bend' BSA application in December 2021, which is based on correspondence provided by the BCT for review and approval timeframes would result in credits being made available in June 2022.

As Transgrid is actively targeting additional properties for BSA establishment, additional BSA applications to the BCT will need to be made no later than Q3 2022 as outlined in Table 16.

Should any measure proposed within the BOP not be delivered prior to 23 December 2023, then the cost of the respective measure as outlined in Table 15 will be met through equivalent payment to the BCF prior to 31 December 2023. Table 15 will be updated as additional proposed BSAs are confirmed, as described in Section 4.7.

Milestone	Component	Status	Forecast Dates	Responsibility
Payment into escrow account	For BCF. Total of \$48m	Completed	Q3 2021	Project Director
Big Bend BSA	Application submitted	Completed	Q4 2021	Project Ecologist
	Application approved	In progress (BCT review)	Q2 2022	Project Ecologist
Biodiversity Offset Package	BOP Approved	In progress (DPE review)	Q1 2022	Project Environmental Manager
Expressions of Interest	On existing public registers	In progress	Q1 2022	Project Ecologist
Rapid ecological surveys and landholder consultation	Site surveys	Completed	Q1 2022	Project Ecologist
BSA	Application submitted	In progress	Q2 2022	Project Ecologist
	Application approved	Not Started	Q4 2022	Project Ecologist
BSA	Application submitted	Not Started	Q3 2022	Project Ecologist
	Application approved	Not Started	Q2 2023	Project Ecologist
BSA	Application submitted	Not Started	Q3 2022	Project Ecologist
	Application approved	Not Started	Q2 2023	Project Ecologist
Updated Biodiversity Offset Package	Stakeholder consultation	Not Started	Q2 2023	Project Environmental Manager
	Approved	Not Started	Q3 2023	Project Environmental Manager

Table 16: Biodiversity Offset Package key milestones and responsibilities

Milestone	Component	Status	Forecast Dates	Responsibility
Electric and Magnetic Fields (EMF) study fund committed	\$150k funding contribution for scientific studies of EMF on birds in Australia	In progress. Meeting with Charles Sturt University occurred 09/03/22 to start process. Process, timeline and target date to be confirmed in consultation with the university.	Q4 2022	Project Environmental Manager
Residual payments to BCF	For any outstanding credits for West	Not Started	Q4 2023	Project Environmental Manager

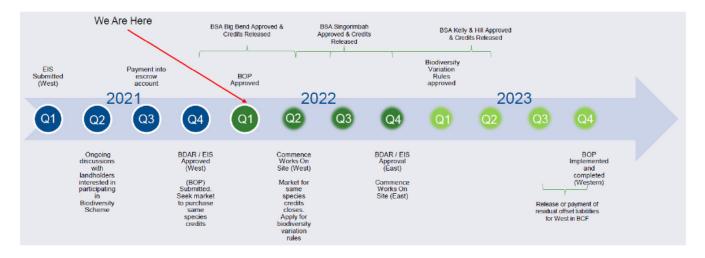


Figure 4: Indicative implementation timing

6. Review

The Biodiversity Offset Package is a working document which will be updated as additional information, particularly in relation to additional BSAs or credit availability, becomes available. This will ensure that Transgrid has the ability to acquit their offset liability through as many BSAs as possible prior to the final financial transfer of outstanding liability to the Biodiversity Conservation Fund on or prior to 23 December 2023 as per Condition D26 of the Infrastructure Approval (SSI 10040).

Updates to the Biodiversity Offset Package will occur in consultation with the Energy Assessments Section and Biodiversity Conservation Section of the NSW Department of Planning and Environment to the satisfaction of the Planning Secretary, as required by Condition D26.