Abercrombie Wind Farm

Application Number: **02560** Commencement Date: **20/08/2024** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Abercrombie Wind Farm

1.1.2 Project industry type *

Energy Generation and Supply (renewable)

1.1.3 Project industry sub-type

Wind Farm

1.1.4 Estimated start date *

01/02/2028

1.1.4 Estimated end date *

01/02/2070

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

The proposed Abercrombie Wind Farm Project (the 'Project') involves the construction, operation and decommissioning of a wind farm comprising up to 348 wind turbine generators (WTGs), with a total generating capacity of approximately 2,500 megawatts (MW). The Project is located approximately 40 kilometres (km) south west of the Hay township within the Hay Shire Council and Edward River Council Local Government Areas (LGAs) and will almost exclusively occur on private agricultural land, currently used for cropping and grazing.

The Project area includes total landholdings of approximately 93,420 hectares (ha). Subject to finalisation of the Project layout, the Project is conservatively estimated to require the disturbance of approximately 3,158 ha of land within the Project area, representing less than 3.5% of the total Project area. As substantial areas of cleared and/or disturbed agricultural land are present across the Project area (approximately 25,750 ha, representing over 25% of the Project area), WTGs and ancillary infrastructure have been preferentially located in these areas to minimise clearing of native vegetation. As a result, the Disturbance area includes approximately 155 ha of disturbed non-native vegetation that requires limited to no clearing of native vegetation.

The Disturbance area will contain all construction and operational Project components including ancillary infrastructure. However, given the early stage of Project design development, the current Disturbance area is highly conservative and subject to ongoing refinement, with the final Disturbance area anticipated to reduce.

To enable flexibility and accommodate future micro-siting of WTGs and associated infrastructure as part of the detailed design phase, the Disturbance area is proposed to be located within an assessed corridor within the Project area, referred to as the Development corridor. The Development corridor is the Disturbance area with a further 100 m buffer to allow for future micro-siting and is approximately 11,202 ha or less than 12% of the Project area. The final Disturbance area will be located entirely within the broader Development corridor. Both are anticipated to be significantly smaller than the current preliminary areas.

Both the Disturbance area and the Development corridor have been located to avoid key habitat areas, including woodlands, wetlands and watercourses, to the extent practicable.

The WTGs will be spread across the Disturbance area (subject to micro-siting within the Development corridor). The Project will also include two battery energy storage systems (BESS) each up to 500 MW /2000 MW per hour (MWh) capacity and co-located with onsite substations. A preliminary Project layout is shown in Attachment 1b – Figures - Project layout, pg.1, Figure 1.

The Project will include the following key elements:

- Up to 348 three-bladed WTGs, with a tip height of up to 300 m and a hub height of about 200 m. Subject to final turbine model selection, each WTG is expected to have a generation capacity of up to 8 MW.
- Two BESS, each up to 500 MW/2000 MWh
- A primary terminal substation and three collector substations
- Underground or overhead 33 kV reticulation network to transmit generated electricity to the substations
- Permanent ancillary infrastructure, including:
    - Operation and maintenance (O&M) facility, including but not limited to site offices, warehouse and car park
    - Up to 10 permanent meteorological (met) masts, each located close to a WTG, with a height of up to approximately 200 m
    - Internal access tracks
    - Asset protection zones for bushfire protection
- Temporary construction facilities including:
    - Up to four construction compounds with laydown areas
    - Stockpile areas
    - Crane hardstand and WTG laydown areas
    - Up to four concrete batch plants
    - Gravel and/or sand borrow pits
    - A biosecurity vehicle wash down facility
    - Temporary construction workforce accommodation camp
- Local road and bridge crossing upgrades where required for the delivery, installation and maintenance of WTG and BESS components and associated materials.

The connection arrangements for the Project are still being finalised with two alternative options, both immediately adjoining the south boundary of the Project Area:

- A new dual circuit 330 kV interconnector transmission line to be constructed as part of the approved Project EnergyConnect; or
- An existing 220 kV transmission line

The connection to either option would occur via an overhead transmission approximately 300 m long connecting the southern substation to the transmission line.

Construction

Construction of the Project will require fixed or mobile concrete batching plants, project offices and laydown areas. Some elements of the Project, such as the WTGs, will be prefabricated offsite and transported to the Project area in parts for installation. Construction is anticipated to commence in Q1 2028 and is expected to take approximately five years.

The construction is expected to involve the following:

- Site establishment:
- Site surveying (excluding preliminary investigations noted below)
- Establish construction and operational compound sites, environmental controls accommodation camp, substation benching areas, laydown areas and concrete batching plants
- Delivery of construction materials including concrete and gravel
- Investigation, protection and relocation of utilities as required
- Road network upgrades, including minor intersection widening to accommodate delivery of materials (If required)
- Vegetation clearing and grubbing:
    - Topsoil removal and compaction for all project infrastructure.
- Earthworks:
    - Construction of temporary and permanent access tracks including gravelling and drainage installation
    - Construction of permanent met masts within the project area
    - Topsoil removal and soil compaction for WTG footings
    - Cut and fill to create level areas and establishment of crane hardstand and WTG laydown areas at each WTG
    - Construction of WTG footings
    - Trenching for installation of underground cables.
- Electrical works:
    - Laydown cables and installation of cable route markers
    - Electrical fit-out including either overhead and underground inter-array cabling, substations, O&M compound, battery enclosures, inverters, transformers
- Installation of a new underground and/or overhead transmission cable from the onsite collector substations to the connection point
- WTG erection:
    - Delivery and erection of WTGs
    - Electrical connection of the WTGs to inter-array cabling.
- BESS and substation installation:
    - Delivery and installation of BESSs, substations, transformers and associated electrical infrastructure
- Testing and rehabilitation:
    - Testing of electrical, communications and other associated facilities
    - Removal of construction equipment and rehabilitation of temporary construction areas
    - Establish landscaping vegetation around O&M compound and substations
    - Removal of temporary environmental control measures.

Site access

Access to the Project area is proposed to be via two access points along Sturt Highway, with an internal network of unsealed access tracks providing access across the Project area. Where possible, internal access tracks will follow existing tracks within the Project area. Access tracks will be retained during operation to allow for maintenance of the WTGs and ultimately decommissioning.

During construction, a number of options are being considered for the transport of the WTGs to site including the Ports of Adelaide, Portland or Geelong to the south and the Port of Newcastle to the east. Any road upgrades required to accommodate the final selected route will be confirmed and assessed as the design of the project progresses.

Operation and maintenance

The Project will operate 24 hours a day, seven days a week. Some elements of the Project may be taken offline from time to time for maintenance, though the wind farm will generally remain operational throughout its operational life (approximately 35 years).

Maintenance activities including maintenance of landscaping and asset protection zones, access tracks and inspection, testing and replacement of components on a rolling basis. The Project will facilitate around 30-40 FTE long-term service and maintenance jobs during operation.

Decommissioning and rehabilitation

At the end of operational life, the WTGs will be either refurbished, replaced or the project decommissioned. However, refurbishment, WTG replacement or decommissioning (including rehabilitation as appropriate) may occur earlier if the operator deems necessary. During decommissioning, all overhead Project structures will be removed as required, and the site rehabilitated to enable ongoing agricultural activities. If it is deemed viable to upgrade and re-power the Project with new equipment, further detailed stakeholder consultation will be undertaken, and all necessary environmental approvals will be sought.

Preliminary investigations

Geotechnical investigations, physical survey works and the erection of temporary meteorological monitoring masts (Preliminary investigations) are required to be completed in advance of the Project to enable the design of the Project to progress and so are excluded from being part of the proposed action, as the subject of this referral. The Preliminary investigations include the following:

- Geotechnical investigations including test pits and bore holes
- Physical survey works including the installation of survey pegs to mark out areas of the site
- The erection of two temporary met monitoring masts.

To ensure that the Preliminary investigations do not have any impacts on any matter of national environmental significance (MNES) protected by the EPBC Act, they will be carried out in:

- Existing cleared areas of the Project area, with vehicle access provided via existing access tracks, and locations set back a minimum of 40 m from all watercourses
- Accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010*.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

The Project will be assessed via the State Significant Development (SSD) process under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and is being referred under the EPBC Act for a determination as to whether it is a controlled action requiring Commonwealth approval.

Commonwealth legislation

Under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act), a referral to the Australian Government is required for proposed actions that have the potential to significantly impact on MNES or on Commonwealth land. Preliminary ecological investigations have identified potential adverse impacts to species and communities of national environmental significance, and the Project has accordingly been referred under the EPBC Act for a determination as to whether it is a controlled action requiring approval.

NSW legislation

The proposed Project is SSD under Section 2.6(1) of the EP&A Act. In particular, Clause 20 of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* operates to make the Project SSD as the Project is for the purpose of electricity generating works and has an estimated development cost in excess of $30 million.

Under the EP&A Act, the SSD development application for the Project is to be accompanied by an Environmental Impact Statement (EIS) that meets the requirements of Schedule 2 of the *Environmental Planning and Regulation 2021* (NSW) (EP&A Regulation).

A Scoping Report for the Project is proposed to be submitted to NSW Department of Planning, Housing and Infrastructure (DPHI) in Q3 2024 to enable the issue of Planning Secretary's Environmental Assessment Requirements, which will specify the matters required to be addressed in the EIS for the Project.

Once the EIS is prepared and submitted, it will be placed on public exhibition by DPHI. During the public exhibition period any person may make submissions in relation to the Project. The matters raised in submissions will be considered and responded to in a 'Response to Submissions Report'. This will also clarify any changes made to the Project, including in response to the matters raised in report.

The EIS is required to be accompanied by a Biodiversity Development Assessment Report (BDAR) in accordance with the *Biodiversity Conservation Act 2016* (NSW) (BC Act), which will incorporate an assessment of impacts to listed threatened and migratory species and ecological communities under the EPBC Act. The BC Act requires that the BDAR be prepared in accordance with the approved Biodiversity Assessment Method (BAM).

SSD development applications are required to be assessed in accordance with Section 7.14 of the BC Act, which requires the assessment under the EP&A Act to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR and empowers consent conditions to be imposed requiring the retirement of biodiversity credits to offset residual impacts to flora and fauna, following implementation of mitigation measures.

Under the bilateral agreement made under Section 45 of the EPBC Act, controlled actions which require approval under the EPBC Act and which are assessed via the SSD process under the EP&A Act do not require separate assessment under the EPBC Act.

Assuming development consent is granted for the Project any further secondary approvals required for the Project will be sought from NSW government agencies.

NSW environmental planning instruments

The Project area is zoned as RU1 – Primary Production under both the *Conargo Local Environmental Plan (LEP) 2013* and *Hay LEP 2011*. Clause 2.36(1) of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* operates so that 'development for the purpose of electricity generating works may be carried out by any person with consent on any land' on land which is zoned RU1 – Primary Production. Therefore, the Project is permissible with consent under the EP&A Act.

Other applicable NSW legislation and environmental planning instruments will also be considered in the EIS including relevant State Environmental Planning Policies.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

In early 2024, Abercrombie Wind Farm Pty Ltd commenced community and stakeholder consultation regarding their plans to develop a wind farm. Community consultation to date has included:

- Multiple face-to-face briefings and meetings with landowners within the Project area
- Consultation with local Traditional Owner representatives (discussed further below)
- Correspondence and Project briefings with Edward River Council, Hay Shire Council and a Local Member of Parliament
- Project briefings with NSW government departments such as DPHI
- Letters sent to neighbours introducing the Project and providing feedback channels for future engagement
- A community drop-in session held in Hay on 26 July 2024.

A Community Consultation Strategy is being prepared for the Project and will be documented in the EIS. A Community Consultative Committee (CCC) will be established for the Project to create a forum for providing updates, seeking feedback and answering questions relating to issues of interest to the community around the Project area. It is intended that the CCC will be in place throughout the development, construction, and operational phases of the Project. A project website has also been established, which will provide regular project updates and keep all interested parties informed of the project planning, design and assessment process.

Initial consultation conducted to date includes correspondence with each of:

- Edward River Council
- Hay Shire Council
- Heritage NSW office
- Hay Local Aboriginal Land Council
- Deniliquin Local Aboriginal Land Council
- The Office of the Registrar, Aboriginal Land Rights Act 1983
- The National Native Title Tribunal, requesting a list of registered native title claimants, native title holders and registered Indigenous Land Use Agreements
- Native Title Services Corporation Limited (NTSCORP Limited)
- Murray Local Land Services.

Abercrombie Wind Farm Pty Ltd will continue to engage the public, community and public authorities during the preparation of the EIS. The outcomes of the consultation will be included in the EIS and incorporated into the Project and specialist studies where relevant.

In relation to Traditional Owner representatives, an advertisement was placed in the local newspaper (The Riverine Grazier) on 24 July 2024 seeking Aboriginal parties who may have an interest in the area and correspondence dated 18 July 2024 was issued to Aboriginal parties considered likely to have an interest in the area. At present, there are five Registered Aboriginal Parties (RAPs) for the Project including the Hay and Deniliquin Local Aboriginal Land Councils (LALC). Abercrombie Wind Farm Pty Ltd will continue to

engage with Traditional Owner representatives throughout each phase of the Project to ensure that cultural heritage is appropriately managed at all times. Consultation and surveys will be carried out in accordance with all relevant guidelines, including:

- The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the *Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW 2023)
- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011)
- The Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (DECCW, 2010b)
- The Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, 2010a).

This consultation will be recorded and reported on in the Aboriginal Cultural Heritage Assessment Report (ACHAR), which will form an appendix to the EIS.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	37001024095
Organisation name	JACOBS GROUP (AUSTRALIA) PTY LTD
Organisation address	452 Flinders Street Levels 12, 13. Melbourne VIC 3000

Referring party details

Name	Thomas Sinclair
Job title	Environmental scientist
Phone	0419589557
Email	thomas.sinclair@jacobs.com
Address	452 Flinders Street Levels 12, 13. Melbourne VIC 3000

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	20648096726
Organisation name	ABERCROMBIE WIND FARM PTY LTD
Organisation address	3006 VIC

Person proposing to take the action details

Name	Gautam Vimalanathan
Job title	Project Development Manager
Phone	0475962735
Email	gavim@vestas.com
Address	4/312 St Kilda Road Melbourne VIC 3004

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

Abercrombie Wind Farm Pty Ltd is a wholly owned subsidiary of Vestas Development A/S.

Vestas is the renewable energy industry's global partner on sustainable energy solutions. It designs, manufacture, install, and service wind turbines across the globe. Vestas Development A/S is the division of Vestas responsible for developing wind farm projects.

No previous referrals have been submitted by Abercrombie Wind Farm Pty Ltd. However, other companies owned by Vestas Development A/S have previously referred the following actions to date:

- Piambong Wind Farm (2024/09793)
- Winterbourne Wind Farm (2020/8734)
- Lotus Creek Wind Farm (2020/8867).

No proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources have been taken against Abercrombie Wind Farm Pty Ltd.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

Vestas Development A/S as the parent company do not have an existing environmental policy and/or planning framework.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	20648096726
Organisation name	ABERCROMBIE WIND FARM PTY LTD
Organisation address	3006 VIC

Proposed designated proponent details

Name	Gautam Vimalanathan
Job title	Project Development Manager
Phone	0475962735
Email	gavim@vestas.com
Address	4/312 St Kilda Road Melbourne VIC 3004

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	37001024095
Organisation name	JACOBS GROUP (AUSTRALIA) PTY LTD
Organisation address	452 Flinders Street Levels 12, 13. Melbourne VIC 3000
Representative's name	Thomas Sinclair
Representative's job title	Environmental scientist
Phone	0419589557
Email	thomas.sinclair@jacobs.com
Address	452 Flinders Street Levels 12, 13. Melbourne VIC 3000

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	20648096726
Organisation name	ABERCROMBIE WIND FARM PTY LTD
Organisation address	3006 VIC
Representative's name	Gautam Vimalanathan
Representative's job title	Project Development Manager
Phone	0475962735
Email	gavim@vestas.com
Address	4/312 St Kilda Road Melbourne VIC 3004

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

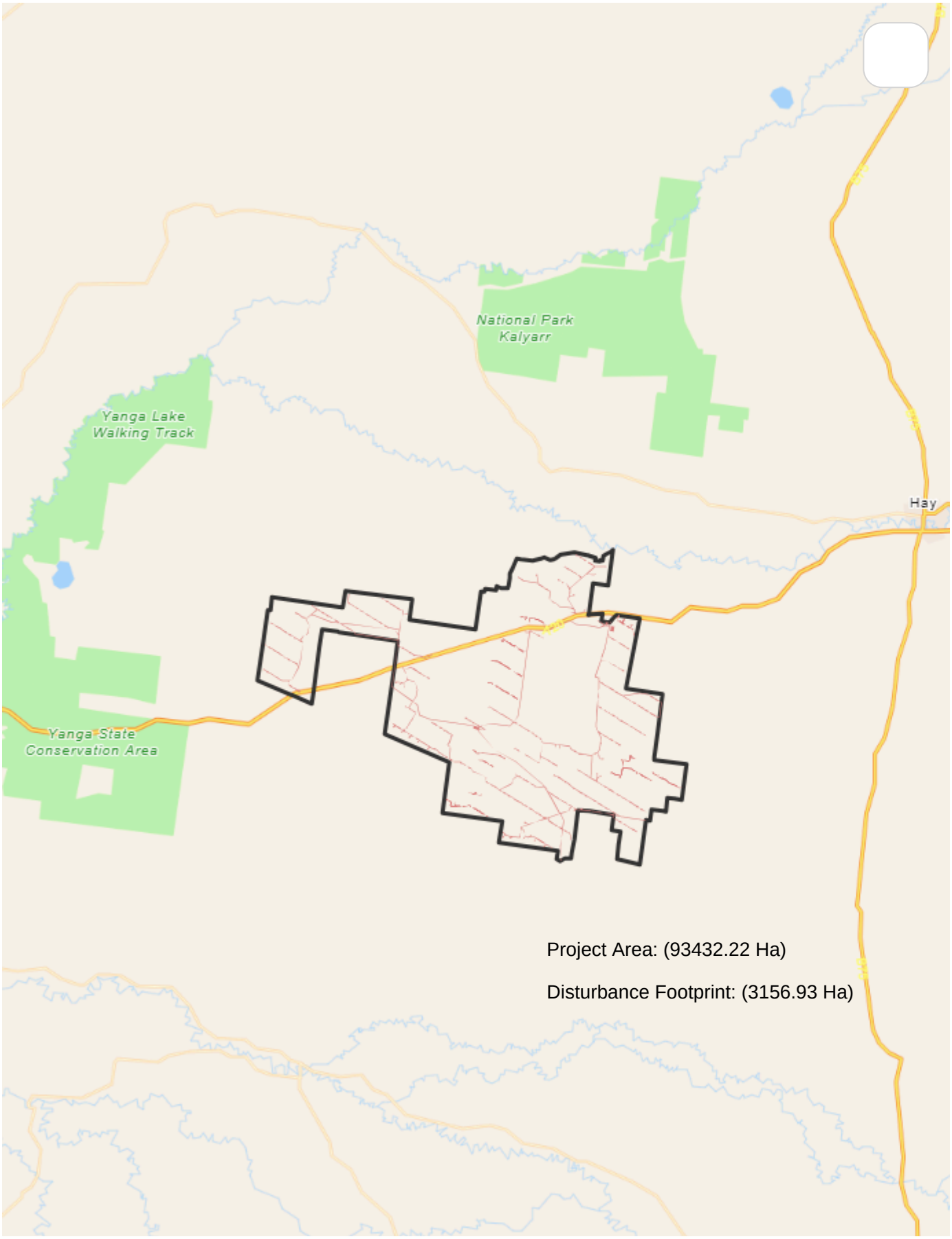
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Person proposing to take the action

2. Location

2.1 Project footprint



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2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Sturt Highway, Maude, NSW, 2711

2.2.2 Where is the primary jurisdiction of the proposed action? *

New South Wales

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The majority of the Project area is located on privately owned freehold land (Host landholders).

A number of Crown land roads and parcels including Crown reserves are located across the Project area. Although there are no Crown land Licences within the Project area, a number of Crown land parcels across the Project area are subject to Crown land Enclosure Permits. In addition to being mapped as a Crown Reserve, one small section of land near the south western corner of the Project area associated with Maude Road is subject to a Crown Lease for the purposes of grazing.

A search of the National Native Title Tribunal database completed on 6 May 2024 confirmed that there are currently no registered Native Title claims relating to the Project area.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The Project area is located on the Hay Plains, approximately 40- km south-west of Hay, NSW. Several additional large population centres are also located nearby, and include Balranald, about 38 km west of the Project area, followed by Swan Hill located 80 km south-west of the Project area.

The Project area is a predominantly flat landscape and comprises a large mosaic of shrublands, with grassland and wetland habitats, interrupted by substantial areas of land cleared established for agricultural use. Where practicable, WTGs and ancillary infrastructure have been located in these heavily disturbed areas subject to existing agricultural use.

Native vegetation is dominated by modified and intact chenopod shrublands, interspersed with sporadic patches of potentially derived grassland, with lignum/nitre goosefoot shrubland wetlands in lower-lying areas. On minor hills, partly wooded cypress pine sandhills are present, with Eucalypt dominated riparian woodland surrounding creek lines and permanent waterbodies. A long history of farming and livestock grazing has altered the structure and species composition of chenopod shrublands at different scales across the Project area.

Substantial areas of agricultural land, that are cleared of native vegetation, are also present across the Project area. In association with the cropping portions of the Project area, several areas of intensive farming operations and infrastructure are present, including shearing sheds, stock pens, feed and machinery storage sheds, and a large track network across the Project area. Agricultural activities within the Project area will continue to co-exist during Project construction and operation.

Eucalypt woodland patches, primarily located along drainage lines and existing waterways, provide areas of continuous canopy and provide stepping stones, nesting, and refuge habitat for native fauna, including birds and bats, between low open shrublands. Large shrubland and wetland areas dominated by lignum and nitre goosefoot also provide key linkages for wildlife movement and refuge habitat in the landscape for native birds, reptiles, microbats, and mammals. A range of plant community types (PCTs) are present in the Project area varying in condition and patch sizes.

Alongside native vegetation communities within the Project area, several permanent waterbodies also exist, including farm dams, creeks, a lake, and numerous smaller drainage channels.

3.1.2 Describe any existing or proposed uses for the project area.

The existing land use within the Project area is primarily agriculture associated with grazing land for sheep and cattle along with large areas of cropping paddocks. The land surrounding the Project area on all sides is zoned RU1– Primary Production under both the Conargo and Hay LEPs and is understood to also be used for grazing and agricultural purposes. The Project area is surrounded by major roads including Sturt Highway, which bisects the Project area, and Cobb Highway to the east.

Following construction of the Project, the Project area is proposed to be used for wind energy generation alongside continued agriculture activities including grazing and cropping.

The Project area is situated entirely within the South West Renewable Energy Zone (SWREZ) selected as suitable for renewable energy development due to an abundance of high-quality renewable resources, proximity to the approved Project EnergyConnect transmission line and relative land use compatibility. It anticipated the Project will connect to either the new Project EnergyConnect dual circuit 330 kV

interconnector transmission line or the existing 220 kV transmission line, both of which abut the southern boundary of the Project area. The connection to either option will occur via an overhead transmission approximately 300 m long connecting the southern substation to the transmission line.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

The Project area is comprised of flat agricultural land with minimal elevation change and no prominent landscape or unique features.

There are no conservation areas within the Project area, however, the western boundary of the Project area is located approximately 20 km east of the Yanga State Conservation Area (Yanga SCA).

The Project area is not within a mapped Area of Outstanding Biodiversity Value as defined under the BC Act. However, the Project area contains areas mapped under the NSW Biodiversity values map associated with the Abercrombie Creek, which crosses the southern extent of the Project area. The Murrumbidgee River is also located adjacent to the Project area and within 2.3 km of the closest proposed WTG. The Murrumbidgee River, Abercrombie Creek, Forest Creek systems and associated tributaries form part of the Lower Murray Darling River aquatic ecological community, listed as an endangered ecological community under the NSW *Fisheries Management Act 1994* (FM Act).

The northern western extent of the Project area is located within the Lowbidgee floodplain, a listed nationally important wetland (refer to Attachment 1b – Figures, Surface water features, pg.3, Figure 3).

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The overall terrain of the Project area is relatively flat, associated with the Hay plains, with the lowest point having an elevation of 69 m Australian Height Datum (AHD) and the highest elevation of 83 m AHD.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

The existing flora and fauna in the Project area has been identified by database searches (including PMST, NSW BioNet, and the Threatened Biodiversity Database Collection) using a 10 km buffer applied to the Project area along with a preliminary site survey undertaken in November and December 2023. This information was utilised to develop a Likelihood of Occurrence assessment (LoO) (Attachment 3 - Assessments of Significance, Section 2.1, pp 6-9).

Terrestrial ecology

Based on preliminary ground-truthing surveys undertaken in November and December 2023, the Project area was observed to consist primarily of large areas of low chenopod shrublands, alongside lignum/nitre goosegoot shrubland wetlands interspersed by patches of potentially derived grasslands. Several drainage channels, creeks and waterways are present across the Project area, typically bounded by riparian Eucalypt woodland. There are also extensive areas of cleared and/or disturbed agricultural land present across the Project area, including large areas of improved pasture in the central-northern portions of the Project area. Given these landscapes and the results of desktop database searches, the Project area has potential habitat for a range of threatened fauna and flora species based on the following habitat features:

Large areas of intact low-lying chenopod shrublands, with additional patches of potentially derived grasslands and lignum/nitre goosefoot shrubland wetlands supporting specialist grassland/shrubland flora and fauna, including threatened EPBC listed flora such as *Swainsona murrayana* (Slender Darling Pea), *Brachyscome papillosa* (Mossgiel Daisy) and *Lepidium monoplocoides* (Winged Peppercress)

Several small tributaries of the Murrumbidgee River including Uara Creek, Fiddlers Creek, and Black Creek traverse the Project area

Larger permanent creek systems of Abercrombie Creek and Forest Creek are located across the southern extents of the Project area

Several large livestock dams, and one freshwater lake (Dry Lake) are situated within the Project area

Some of these water bodies may provide suitable habitat to support the Southern Bell Frog (*Litoria raniformis*) and habitat for migratory bird species

Several intermittently flooded shrubland wetlands are present across the Project area, connected through drainage depressions and have potential to support a range of fauna species

Large patches of Eucalypt woodland, predominately restricted to existing creek lines and scattered White Cypress Pine woodland with habitat trees and fallen logs of various sizes providing suitable habitat for small to large birds.

Based on a search of the Protected Matters Search Tool (PMST), accessed 21st August 2024 (Attachment 2 – PMST Search Results, pg. 2-10), NSW BioNet search, and observations of habitats at the site, the following EPBC listed communities and species have the potential to occur in or within 10 km of the Project area:

- 6 threatened ecological communities (TECs) (4 PMST, 2 BioNet)
- 23 threatened terrestrial fauna species (22 PMST, 1 site habitat observation)
- 6 threatened fish species (6 PMST)
- 9 threatened flora species (8 PMST, 1 BioNet)
- 13 listed migratory species (9 PMST, 3 BioNet, 1 site habitat observation)
- 20 listed marine species (16 PMST, 3 BioNet and 1 site habitat observation).

These are discussed further in Sections 4.1.4 and 4.1.5 of this referral.

One TEC, Natural Grasslands of the Murray Valley Plains, which is considered moderately likely to occur in the southeastern corner of the Project area was not listed in the PMST search but was reported within NSW BioNet search. This TEC is listed as critically endangered under the EPBC Act. Further discussion on this TEC and the flora of the Project area is contained in Section 3.2.2.

The threatened and listed fauna species that are likely to occur in the Project area are listed in Attachment 3 – Assessments of Significance, Section 2.1, pp 7-9. During preliminary field surveys undertaken in November and December 2023 there was a possible incidental sighting of the Diamond Firetail (*Stagonopleura guttata*) (Vulnerable under EPBC Act). No other EPBC listed threatened species were recorded during the preliminary field surveys.

All threatened species with a moderate to high likelihood of occurrence in the Project area are listed below and those that are EPBC Act listed are shown in bold:

- ***Austrostipa metatoris***
- ***Austrostipa wakoolica***
- ***Brachyscome papillosa***
- ***Lepidium monoplocoides***
- ***Maireana cheelii***
- ***Solanum karsense***
- ***Swainsona murrayana***
- ***Aphelocephala leucopsis*, Southern Whiteface**
- *Artamus cyanopterus cyanopterus*, Dusky Woodswallow
- ***Botaurus poiciloptilus*, Australasian Bittern**
- ***Calidris ferr*uginea, Curlew Sandpiper**
- *Certhionyx variegatus*, Pied Honeyeater
- *Circus assimilisn*, Spotted Harrier
- ***Climacteris picumnus victoriae*, Brown Treecreeper (south-eastern)**
- *Epthianura albifrons*, White-fronted Chat
- ***Falco hypoleucos*, Grey Falcon**
- *Falco subniger*, Black Falcon
- ***Grantiella picta*, Painted Honeyeater**
- *Grus rubicunda*, Brolga
- *Haliaeetus leucogaster*, White-bellied Sea-Eagle
- *Hieraaetus morphnoides*, Little Eagle
- ***Lathamus discolor*, Swift Parrot**
- ***Lophochroa leadbeateri leadbeateri*, Major Mitchell's Cockatoo (eastern)**
- ***Melanodryas cucullata cucullate*, Hooded Robin (south-eastern)**
- ***Neophema chrysostoma*, Blue-winged Parrot**
- *Oxyura australis*, Blue-billed Duck
- ***Pedionomus torquatus*, Plains-wanderer**
- *Petroica phoenicea*, Flame Robin
- ***Polytelis swainsonii*, Superb Parrot**
- *Pomatostomus temporalis temporalis,* Grey-crowned Babbler (eastern subspecies)
- ***Rostratula australis*, Australian Painted Snipe**
- ***Stagonopleura guttata*, Diamond Firetail**
- *Stictonetta naevosa*, Freckled Duck
- ***Litoria raniformis*, Southern Bell Frog**
- *Saccolaimus flaviventris*, Yellow-bellied Sheathtail-bat
- ***Aprasia parapulchella*, Pink-tailed Legless Lizard**
- ***Hemiaspis damelii*, Grey Snake**

The following species have been listed as Migratory or marine under the EPBC Act and have a moderate to high likelihood of occurrence in the Project area:

- *Apus pacificus*, Fork-tailed Swift
- *Calidris acuminata,* Sharp-tailed Sandpiper

- *Calidris ferruginea,* Curlew Sandpiper
- *Calidris melanotos*, Pectoral Sandpiper
- *Chalcites osculans*, Black-eared Cuckoo
- *Gelochelidon nilotica*, Gull-billed Tern
- *Haliaeetus leucogaster*, White-bellied Sea-Eagle
- *Hirundapus caudacutus,* White-throated Needletail
- *Hydroprogne caspia*, Caspian Tern
- *Lathamus discolor*, Swift Parrot
- *Merops ornatus,* Rainbow Bee-eater
- *Motacilla flava*, Yellow Wagtail
- *Neophema chrysostoma*, Blue-winged Parrot
- *Rostratula australis*, Australian Painted Snipe
- *Tringa glareola*, Wood Sandpiper
- *Tringa nebularia,* Common Greenshank
- *Tringa stagnatilis*, Marsh Sandpiper

Aquatic ecology

The Project area is largely flat with minor drainage depressions and shrubland wetlands which hold water during rainfall and flooding. Across the Project area, several watercourses and irrigation channels, including Fiddlers Creek, Black Creek, Uara Creek and Abercrombie Creek, provide suitable habitats for aquatic fauna species. These watercourses are tributaries of the nearby Murrumbidgee River, located to the north of the Project area.

Based on the PMST Search, six threatened fish species list under EPBC Act have moderate to high potential to occur in the Project area:

- Silver Perch (*Bidyanus bidyanus*) (listed as critically endangered)
- Murry Hardyhead (*Craterocephalus fluviatilis*) (listed as endangered)
- Flathead Galaxias (*Galaxias rostratus*) (listed as critically endangered)
- Trout cod (*Maccullochella macquariensis*) (listed as endangered)
- Murray Cod (*Maccullochella peelii*) (listed as vulnerable)
- Macquarie Perch (*Macquaria australasica*) (listed as endangered).

Silver Perch and Murray Cod may occur in Fiddlers Creek and Uara Creek, which run through the northern portions of the Project area. Other native fish species are associated with the Murrumbidgee River, which does not intersect with the Project area. However, several smaller tributaries of the Murrumbidgee River do intersect with the Project area, creating potential pathways for fish species into the Project area.

It is also noted that Murrumbidgee River, Abercrombie Creek, Forest Creek and associated tributaries form part of the Lower Murray Darling River aquatic ecological community which is listed as an endangered ecological community under the FM Act. This community provides habitat for a range of native fish, wetland birds and aquatic invertebrates.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The Project area comprises large areas of open chenopod shrubland, primarily of Bladder saltbush (*Atriplex vesicaria*) and Cotton Bush (*Maireana aphyll*a) in a flat landscape, with low sandhills of White Cypress Pine (*Callitris glaucophylla*). In lower-lying areas there are occurrences of Lignum (*Duma florulenta*) and Nitre (*Chenopodium nitrariaceum*) swamps, and River Red Gum (*Eucalyptus camaldulensis*) and Black Box (*Eucalyptus largiflorens*) riparian woodland occurs along drainage lines and creeks. The Project area also contains large areas of cleared land and non-native vegetation (cropping land) (approximately 25,750 ha or

over 25% of the Project area), primarily located within the central and northern portions of the Project area. Where practicable, WTGs and ancillary infrastructure have been located in these heavily disturbed areas subject to existing agricultural use.

Soil landscape mapping, sourced from the NSW eSPADE database, indicates that the Project area predominantly contains grey, brown, and red clays with discrete areas of siliceous sands. The red-brown earths soil landscape may also be present but is not mapped within the boundaries of the Project area. Siliceous sand landforms are suspectable to wind erosion but may contain deposits up to 1.4 m deep. The siliceous sands are likely associated with former paleochannels, and the grey, brown and red clays are likely to be a shallow deposit of soil.

One EPBC listed TEC, the critically endangered 'Natural Grasslands of the Murray Valley Plains' was identified as likely to be present in the Project area following preliminary field surveys. Further targeted floristic surveys are to be completed in mid-2025 (late winter to spring) to confirm whether the condition of the vegetation and species composition is consistent with the listing advice. However, it is noted that the presence of this TEC within the Disturbance area is unlikely, as current Project layout has been developed to avoid identified areas of this potential TEC within the southern portions of the Project area. In addition, whilst there are associated PCTs (PCTs 44, 45 and 46) present within the Disturbance area to the north of the Project area, this part of the Project area outside the limits of the known distribution range of this TEC, and as such does not meet listing criteria for this TEC.

There are also areas of improved pasture and exotic vegetation in the Project area which are mostly restricted to heavily grazed or disturbed areas. These generally consist of exotic grasses such as Rye Grass (*Lolium* spp.), Wild Oats (*Avena* spp.) and Barley Grass (*Hordeum* spp.). Patches of exotic vegetation were also observed on the verges of established tracks and along periphery of irrigated land with crops. However, outside these areas, the abundance of exotic vegetation is low. As discussed above, WTGs and ancillary infrastructure have been preferentially located in these heavily disturbed areas.

During field surveys conducted in November and December 2023, a total of 17 PCTs were mapped across the Project area (refer to Attachment 3 - Assessments of Significance, Section 2.1, pp 6-8 for further details on preliminary field surveys), including:

- 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) (PCT 11)
- Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) (PCT 13)
- 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) (PCT 15)
- Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion) (PCT 17)
- Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains (PCT 24)
- White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zone (PCT 28)
- Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion (PCT 44)
- Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion (PCT 45)
- Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loan on the Hay Plain, Riverina Bioregion (PCT 46)
- Black Bluebush low open shrubland of the alluvial plains and sandplains of the arid and semi-arid zones (PCT 153)
- Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion (PCT 157)
- Nitre Goosefoot shrubland wetland on clays of the inland floodplains (PCT 160)

- Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones (PCT 163)
- Cotton Bush open shrubland of the semi-arid (warm) zone (PCT 164)
- Disturbed annual saltbush forbland on clay plains and inundation zones mainly of south-western NSW (PCT 166)
- Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion (PCT 216)
- Derived Giant Redburr low shrubland on alluvial plains of the semi-arid (warm) climate zone (PCT 236).

In addition to the native vegetation communities mapped within the Project area, large expanses of non-native vegetation (cropping land) are distributed across the landscape, primarily within the central and northern portions of the Project area.

3.3 Heritage

3.3.1 Describe any Commonwealth heritage places overseas or other places recognised as having heritage values that apply to the project area.

There are no Commonwealth Heritage places in or within 10 km of the Project area.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

A desktop Aboriginal heritage assessment was undertaken, including searches of registers and preliminary predictive modelling of the potential for unidentified Aboriginal heritage objects across the Project area. An Aboriginal Heritage Information Management System (AHIMS) database search of the Project area was undertaken on 14 December 2023 (Attachment 4 – AHIMS search results, all Pages. Note, Attachment 4 will not be made publicly available due to the cultural sensitivity of the information). A total of 143 AHIMS registered sites were identified within the Project area. The sites included a variety of site features, the most common of which were Artefacts, Burials, Earth Mounds and Hearth features. Of note, a total of 35 sites were identified as including burial components. The results of preliminary Aboriginal heritage predictive modelling undertaken to date indicate there are further areas with a high likelihood of containing Aboriginal heritage objects within the Project area. This will be confirmed during ongoing consultation with Traditional Owner stakeholders and via cultural heritage surveys to be documented in the Aboriginal Cultural Heritage Assessment Report (ACHAR) for the Project.

A search of the National Native Title Tribunal register of native title claims was undertaken on 6 May 2024. The search did not identify any current registered native title claims or determinations or land to which an Indigenous Land Use Agreement applies within the Project area. However, the Project area adjoins the Toogimbie Indigenous protected area (IPA), located to the north east of the Project area. The Toogimbie IPA was declared in March 2004 and covers an area of 4,611 ha previously used for pastoral and agricultural purposes. The Nari Nari Tribal Council now manage the IPA for the restoration and protection of country and culture including around 1000 ha of eucalypt-lined creeks and waterways, wetland areas and vast lignum flats.

An ACHAR for the Project will be undertaken as part of the EIS and the final design will seek to avoid and minimise impacts to Aboriginal heritage in consultation with Traditional Owner stakeholders.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The Project area is located within the lower Murrumbidgee River catchment in southern NSW and the Murrumbidgee River is located to the north of the Project area. The distance from the Murrumbidgee River to the Project area ranges from approximately 250 metres at the north east corner to over 20 km at the north west corner. The Project area is largely flat with some minor drainage depressions that hold water during rainfall and flooding. A number of watercourses and irrigation channels are present within the Project area including Fiddlers Creek, Black Creek, Forest Creek, Uara Creek and Abercrombie Creek traverse the Project area, most of which are tributaries of the Murrumbidgee River. The waterways within the Project area generally flow in a westerly direction.

The Lowbidgee floodplain, a listed nationally important wetland, is located between Maude and Balranald and intersects with the northern western extent of the project area (refer to Attachment 1b – Figures, Surface Water features, pg.3, Figure 3). The floodplain provides key habitat for a range of waterbird species including herons, spoonbills, cormorants and egrets. Key habitat areas within the floodplain including waterbodies and watercourses have been avoided as much as practicable in the Development corridor and Disturbance area.

A review of the ePlanning Spatial Viewer indicates that the Project is not located within a Flood Planning Area. Any localised flooding in the Project area is considered likely to originate primarily from local catchment runoff and flooding in Abercrombie Creek. Given the flat terrain and proximity to the Murrumbidgee River, flooding is considered to be a potential risk during construction and operation, and this will be further considered in the design of the Project.

An assessment of flooding, surface and groundwater impacts will be included in the EIS. The project design and EIS will consider appropriate mitigation measures to minimise flood risks during construction and operation.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no World Heritage properties in or within 10 km of the Project area. As such, the Project will not have direct or indirect impacts on any World Heritage Properties.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no National Heritage Places in or within 10 km of the Project area. As such, the Project will not have direct or indirect impacts on any National Heritage Places.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Ramsar wetland
No	No	Banrock Station Wetland Complex
No	No	Hattah-Kulkyne Lakes
No	No	Riverland
No	No	The Coorong, and Lakes Alexandrina and Albert Wetland

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Ramsar Wetlands within or in proximity to the Project area. Furthermore, the Project area is not hydraulically or physically connected to any Ramsar wetland. Four wetlands were listed in the PMST search. The closest Ramsar wetland is Hattah-Kulkyne Lakes, which located approximately 150 km south west of the Project area.

Therefore, the Project is not anticipated to have any direct and/or indirect impacts on a Ramsar wetland. Impacts to listed migratory and water birds have been considered separately.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Aphelocephala leucopsis	Southern Whiteface
No	No	Aprasia parapulchella	Pink-tailed Worm-lizard, Pink-tailed Legless Lizard
Yes	Yes	Austrostipa metatoris	
Yes	Yes	Austrostipa wakoolica	
No	Yes	Bidyanus bidyanus	Silver Perch, Bidyan
Yes	Yes	Botaurus poiciloptilus	Australasian Bittern
Yes	Yes	Brachyscome papillosa	Mossgiel Daisy
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)
No	No	Craterocephalus fluviatilis	Murray Hardyhead
Yes	Yes	Falco hypoleucos	Grey Falcon
No	No	Galaxias rostratus	Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
Yes	Yes	Grantiella picta	Painted Honeyeater
No	Yes	Hemiaspis damelii	Grey Snake
Yes	Yes	Hirundapus caudacutus	White-throated Needletail
Yes	Yes	Lathamus discolor	Swift Parrot
No	No	Leipoa ocellata	Malleefowl
Yes	Yes	Lepidium monoplocoides	Winged Pepper-cress
Yes	Yes	Litoria raniformis	Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Lophochroa leadbeateri leadbeateri	Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo
No	No	Maccullochella macquariensis	Trout Cod
No	Yes	Maccullochella peelii	Murray Cod
No	No	Macquaria australasica	Macquarie Perch
Yes	Yes	Maireana cheelii	Chariot Wheels
Yes	Yes	Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)
Yes	Yes	Neophema chrysostoma	Blue-winged Parrot
No	No	Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat
Yes	Yes	Pedionomus torquatus	Plains-wanderer
Yes	Yes	Polytelis swainsonii	Superb Parrot
Yes	Yes	Rostratula australis	Australian Painted Snipe
Yes	Yes	Solanum karsense	Menindee Nightshade
No	Yes	Stagonopleura guttata	Diamond Firetail
Yes	Yes	Swainsona murrayana	Slender Darling-pea, Slender Swainson, Murray Swainson-pea
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions
No	No	Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia
No	Yes	Natural Grasslands of the Murray Valley Plains
No	No	Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions

Direct impact	Indirect impact	Ecological community
No	No	Weeping Myall Woodlands

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The Project has the potential to impact on TECs and threatened species that may occur in the area, during both construction and operation. Impacts during construction include clearing of vegetation and habitat; as well as indirect impacts such as habitat degradation. Potential operational impacts on listed threatened species bird and bat species include collision with WTGs and/or transmission lines.

A LoO Assessment has been undertaken against the known habitats and environments of the Project area (Attachment 3 - Assessments of Significance, pg. 14, Table A-1) to determine which species may be impacted by the Project. The species that have been assessed as having a moderate to high LoO are listed below, along with the potential direct or indirect impacts as a result of the Project. Recorded EPBC listed threatened species and TECs within the Project area are shown Attachment 1b – Figures, Recorded threatened species - EPBC Listed species and TECs, pg.2, Figure 2.

TECs

Potential indirect impacts such as habitat degradation, changes to hydrology and weed encroachment to the following TEC may occur in the southern portion of the Project area (Attachment 3 - Assessments of Significance, pg. 14, Table A-1):

- Natural Grasslands of the Murray Valley Plains – (critically endangered) (moderate LoO).

As the extent of the TEC is outside of the Disturbance area and Development corridor no direct impacts are currently anticipated.

Additionally, the Finalised Priority Assessment List (FPAL) for the assessment period commencing 1 October 2023 includes a relevant TEC, which has been nominated for listing by the Threatened Species Scientific Committee (TSSC):

- ‘Sandhill pine woodlands in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions’ – proposed for assessment as ‘Endangered’ with an assessment completion date of 30 April 2025.

The TEC ‘Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions’ is currently listed as Endangered under the BC Act and associated with PCT 28 located within the Disturbance area. The Project will require the removal of approximately 12.79 ha of associated habitat for this BC Act listed TEC, with potential Commonwealth listing following the assessment period.

The potential impacts on these TECs during construction and operation for each of these species will be confirmed during field surveys and assessed in the BDAR to be included in the EIS.

Threatened flora species

The following seven flora species are considered to have a moderate to high likelihood of occurring in Project area (Attachment 3 - Assessments of Significance, pg. 15-17, Table A-1):

- *Austrostipa metatoris* (A spear grass) – (vulnerable) (moderate LoO)
    - Potential direct impacts: clearing of ~12.79 ha associated woodland habitat
- *Austrostipa wakoolica* (A spear grass) – (endangered) (moderate LoO)
    - Potential direct impacts: clearing of ~158.01 ha associated riparian/woodland wetland habitat
- *Brachyscome papillosa* (Mossgiel Daisy) – (vulnerable) (high LoO)
    - Potential direct impacts: clearing of ~2,701.22 ha associated grassland and floodplain swamp habitat
- *Lepidium monoplocoides* (Winged Peppercress) – (endangered) (moderate LoO)
    - Potential direct impacts: clearing of ~640.39 ha associated periodically inundated woodland habitat
- *Maireana cheelii* (Chariot Wheels) – (vulnerable) (high LoO)
    - Potential direct impacts: clearing of ~2,060.83 ha associated grassland/shrubland habitat
- *Solanum karsense* (Menindee Nightshade) – (vulnerable) (moderate LoO)
    - Potential direct impacts: clearing of ~585.08 ha associated woodland/shrubland habitat
- *Swainsona murrayana* (Slender Darling Pea) – (vulnerable) (high LoO)
    - Potential direct impacts: clearing of ~2,332.41 ha associated grassland/shrubland habitat.

Threatened fauna species

The following 22 threatened fauna species are considered to have a moderate to high likelihood occurring in the Project area (Attachment 3 - Assessments of Significance, pg. 18-41, Table A-1), including:

Birds:

- Southern Whiteface (*Aphelocephala leucopsis*) – (vulnerable) (moderate)
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
    - Unlikely to be impacted by WTG/transmission line collisions as the species is primarily ground foraging and sedentary.
- Australasian Bittern (*Botaurus poiciloptilus*) – (endangered) (high)
    - Potential direct impacts: WTG/transmission line collisions, ~462.03 ha of associated PCT (woodland/shrubland wetland) clearing
    - Potential indirect impacts: disruption of species behaviour, habitat degradation/fragmentation
- Sharp-tailed Sandpiper (*Calidris acuminata*) – (vulnerable) (high)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
- Curlew Sandpiper (*Calidris ferruginea*) – (critically endangered) (moderate)
    - Potential direct impacts: ~0.25 ha of associated PCT (grassland wetland) clearing, WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Brown Treecreeper (south-eastern subspecies) (*Climacteris picumnus victoriae*) – (vulnerable) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
- Grey Falcon (*Falco hypoleucos*) – (vulnerable) (moderate)
    - Potential direct impacts: WTG/transmission line collisions, ~3,002.8 ha of associated PCT (foraging habitat) clearing
- Painted Honeyeater (*Grantiella picta*) – vulnerable under EPBC Act (moderate)
    - Potential direct impacts: ~12.79 ha of associated PCT (open woodland) clearing, WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- White-throated Needletail (*Hirundapus caudacutus*) – (vulnerable) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
- Swift Parrot (*Lathamus discolor*) – (critically endangered) (moderate)

    - Potential direct impacts: WTG/transmission line collisions, ~0.25 ha of associated PCT (open woodland) clearing
    - Potential indirect impacts: disruption of species behaviour
- Major Mitchell's Cockatoo (eastern subspecies) (*Lophochroa leadbeateri leadbeateri*) – (endangered) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
- Hooded Robin (south-eastern) (*Melanodryas cucullata cucullata*) – (endangered) (moderate)
    - Potential direct impacts: ~12.79 ha of associated PCT (open woodland) clearing
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
    - Unlikely to be impacted by WTG/transmission line collisions as the species is primarily ground foraging and sedentary
- Blue-winged Parrot (*Neophema chrysostoma*) – (vulnerable) (high)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
- Plains Wanderer (*Pedionomus torquatus*) – (critically endangered) (moderate)
    - Potential direct impacts: ~180.36 ha of associated PCT (grassland) clearing. No mapped habitat within the Project area but is known to utilise PCT 44, 45, 46
    - Unlikely to be impacted by WTG/transmission line collisions as the species is ground dwelling.
- Superb Parrot (*Polytelis swainsonii*) – (vulnerable) (moderate)
    - Potential direct impacts: WTG/transmission line collisions, ~27.85 ha of associated PCT (open woodland/grassland) clearing
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
- Australian Painted Snipe (*Rostratula australis*) – (endangered) (moderate)
    - Potential direct impacts: WTG/transmission line collisions, ~462.03 ha of associated PCT (grassland wetland/shrubland) clearing
    - Potential indirect impacts: disruption of species behaviour
- Diamond Firetail (*Stagonopleura guttata*) – (vulnerable) (moderate)
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour
    - Unlikely to be impacted by WTG/transmission line collisions as the species is low flying, likely below RSA
- Common Greenshank (*Tringa nebularia*) – (endangered) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour

<u>Amphibians:</u>

- Southern Bell Frog (*Litoria raniformis)* – (vulnerable) (high)
    - Potential direct impacts: ~145.47 ha of associated PCT (grassland wetland) clearing
    - Potential indirect impacts: habitat degradation/siltation

<u>Reptiles:</u>

- Grey Snake (*Hemiaspis damelii*) – (endangered) (high)
    - Potential indirect impacts: habitat degradation/fragmentation, disruption of species behaviour

<u>Aquatic ecology:</u>

- Silver Perch (*Bidyanus bidyanus*) – (critically endangered) (high)
    - Potential indirect impacts: water pollution/siltation
- Murray Cod (*Maccullochella peelii*) – (vulnerable) (high)
- Potential indirect impacts: water pollution/siltation

Where the threatened fauna species is associated with a PCT requiring clearance within the Disturbance area, the total potential direct impacts to suitable habitat have been calculated and included above. This calculated potential direct impact does not indicate confirmed breeding or foraging habitat, only habitats known to be used and typically associated with a particular threatened fauna species. The potential impacts on suitable breeding, roosting and foraging habitat during construction and operation for each of these species will be confirmed during further targeted field surveys and assessed in the BDAR to be included in the EIS.

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

An EPBC Act Assessment of Significance has been completed for known entities or entities with a moderate to high likelihood of occurring within the Project area (Attachment 3 - Assessments of Significance, pg. 41-139, Tables B.1.1-B.1.2, B.2.1-B.2.4, B.3.1-B.3.7, B.4.1-B.4.13 and B.5.1), based on results of the LoO assessment (Attachment 3 - Assessments of Significance, pg. 14-41, Table A-1). The Assessments of Significance were completed in accordance with *EPBC Act Policy Statement 1.1 Significant Impact Guidelines*.

While the larger Project area was used to select species to include within the LoO assessment and the Assessments of Significance, the Disturbance area (approximately 3,158 ha) was used to determine the potential direct impacts to potential threatened entities.

As targeted threatened species surveys have not been conducted at this stage, these assessments are based on potentially suitable habitats informed by a desktop assessment and preliminary site surveys. The Assessments of Significance will be refined via additional site surveys including targeted surveys for threatened flora to be undertaken as part of the Biodiversity Development Assessment Report (BDAR), which will form an appendix to the EIS.

Based on the preliminary Assessments of Significance, it is considered that the Project has the potential to have a significant impact on the following flora species listed under the EPBC Act, as determined within Attachment 3 – Assessments of Significance, pg. 61-64, 84-89, Table B.3.2 and Table B.4.2:

- *Lepidium monoplocoides* (listed as endangered)
- *Brachyscome papillosa* (Mossgiel Daisy) (listed as vulnerable)
- *Maireana cheelii* (Chariot Wheels) (listed as vulnerable)
- *Swainsona murrayana* (Slender Darling Pea) (listed as vulnerable).

The Project will remove potential habitat (i.e., grasslands and chenopod shrublands) for these Matters of National Environmental Significance (MNES) flora species within the Disturbance area. This vegetation removal will potentially result in the modification of critical habitat (as defined with the Assessment of Significance) for these species, if found to be present, and increase the risk of weed and pathogen encroachment, as well as potentially disrupt the breeding cycle of a population during construction and interfere with the recovery of these species.

However, it is important to note that the potential habitat loss is associated with a series of small discrete areas across a very large Project area. Additionally, following construction, if present, remaining populations of threatened flora species are considered likely to persist in the Project area over the long-term given the minor impacts associated with an operational wind farm and the extent of habitat that will remain in-situ. Overall, and on a precautionary basis, the Project has the potential to have a significant impact on these species as there is potential that it will, unless appropriately mitigated:

- Lead to a long-term decrease in the size of an important population of a species
- Adversely affect habitat critical to the survival of a species
- Reduce the area of occupancy of these species
- Disrupt the breeding cycle of an (important) population
- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- Result in invasive species that are harmful to a vulnerable/endangered species becoming established in the vulnerable species' habitat
- Interfere substantially with the recovery of the species.

While 22 threatened fauna species were identified as having a moderate to high likelihood of occurring within the Project area, based on outcomes of the Assessment of Significance (Attachment 3 - Assessments of Significance, pg. 47-128, Tables B.2.1-B.2.4, B.3.3-B.3.7, B.4.4-B.4.11), the Project has not been identified as having potential significant impact on any fauna species listed under the EPBC Act. As key habitat areas, including woodlands, wetland swamps and watercourses have been largely avoided in current Disturbance area designs, as well as availability of additional suitable habitat in the surrounding areas, significant impacts to fauna species are not considered likely. As these habitats are retained, including connectivity to surrounding habitat beyond the Project area, fauna species are expected to exist in the Project area during and post construction of the wind farm. While there are uncertainties surrounding the blade strike risk for threatened bird species utilising the airspace of the Project area, this will be assessed further in the planned Bird and Bat Utilisation Surveys and operational impacts managed in an adaptive bird and bat management plan.

4.1.4.7 Do you think your proposed action is a controlled action? *

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

The Project has potential significant impacts to MNES including EPBC listed threatened flora species (see Attachment 3 – Assessment of Significance, pg. 61-64, 84-89, Table B.3.2, Table B.4.2). In particular, the potential loss of habitat for endangered and vulnerable EPBC listed flora species including *Lepidium monoplocoides, Brachyscome papillosa*, *Maireana cheelii* and *Swainsona murrayana* is likely to be a controlled action, as unless appropriately mitigated, the Project has the potential to:

- Lead to a long-term decrease in the size of an important population of a species of *Brachyscome papillosa*, *Maireana cheelii* and *Swainsona murrayana*
- Reduce the area of occupancy of *Lepidium monoplocoides,* and an important population of *Brachyscome papillosa*, *Maireana cheelii* and *Swainsona murrayana*
- Adversely affect habitat critical to the survival of *Brachyscome papillosa*, *Maireana cheelii* and *Swainsona murrayana*
- Disrupt the breeding cycle of a population of *Lepidium monoplocoides* and an important population of *Brachyscome papillosa*, *Maireana cheelii* and *Swainsona murrayana.*
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that *Lepidium monoplocoides, Brachyscome papillosa*, *Maireana cheelii,* and *Swainsona murrayana* are likely to decline
- Result in invasive species that are harmful to *Lepidium monoplocoides, Brachyscome papillosa, Maireana cheelii* and *Swainsona murrayana* becoming established in these species' habitat
- Interfere (substantially) with the recovery of the *Lepidium monoplocoides*, *Brachyscome papillosa, Maireana cheelii*, and *Swainsona murrayana.*

The Project has potential to have a significant impact on these species unless appropriately mitigated as there is a chance or possibility that it will seriously disrupt the lifecycle, population and survival of an ecologically significant proportion of the population.

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

A desktop assessment and preliminary biodiversity field surveys, including the rapid PCT mapping survey was undertaken in November and December 2023 to identify key constraints and disturbed sites with exotic vegetation, existing access tracks and agricultural cropping land as opportunities to place infrastructure to avoid key biodiversity values. This included identification of key locations with high biodiversity conservation value to avoid or minimise impacts, including woodlands, wetlands, permanent watercourses and potential TECs.

In response, the Project design was updated, with proposed WTG locations and cabling revised to minimise impacts.

The Project layout design has been designed to minimise disturbance to woodlands areas, such as PCTs 11, 13 and 15 as well as PCTs with associated TECs, including PCT 44, 45 and 46 to the south of the Project area (refer to Attachment 1b – Figures, Recorded threatened species - EPBC Listed species and TECs, pg. 2, Figure 2).

Wherever practicable, WTGs have also been placed over 500 m away from drainage lines, wetlands and creeks. This conservative approach has been adopted to not only avoid disturbance within high ecological value areas, but also surrounding areas to limit edge effects and incursion on high value habitats including avoiding and minimise impacts to habitat for birds and bats.

As part of the forthcoming EIS assessment phase, the Project will undergo further biodiversity constraints analysis and additional vegetation mapping to assist with decisions around selective avoidance and impact minimisation of key biodiversity values to subsequently reduce impacts and offset costs. In addition to the Disturbance area that will be refined for the EIS, to ensure a conservative and flexible approach to avoiding constraints, the Development corridor will be used to drive BAM surveys and allow for micro-siting for future Project design development. This Development corridor includes a 100 m buffer applied to all construction and operational infrastructure to account for potential design changes and allow for flexibility to avoid and minimise potential impacts on MNES.

The construction and operation of the Project will be undertaken in accordance with several future environmental management plans (including a bird and bat adaptive management plan, vegetation management, erosion and sediment control, water quality management plan and weed and pest management plan), which will be developed to minimise environmental impacts.

Residual impacts which are unable to be mitigated will be offset in accordance with the Biodiversity Offsets Scheme (BOS) established under the BC Act.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

The Project will seek to achieve an environmental outcome where impacts to MNES, including threatened species and TECs, are avoided and minimised as much as practicable during the construction and operation of the Project (see Section 4.1.4.10 of this referral). Where complete avoidance and/or mitigation is not possible, residual impacts will be offset in accordance with the BOS established under the BC Act.

The BC Act requires the biodiversity offset credit requirements to be calculated in accordance with the BAM and enables flexibility to deliver offsets by:

- Retiring biodiversity credits following either acquisition on the open market or setting up a Biodiversity Stewardship Site to generate credits; or
- Making payments into the Biodiversity Conservation Fund using the offsets payment calculator.

All biodiversity offsets which relate to any MNES will comply with the EPBC Act Environmental Offsets Policy (Commonwealth, 2012). Given the NSW Assessment Bilateral Agreement, in which the Australian Government has endorsed the NSW BOS, the NSW BOS will be used to assess and establish biodiversity offset requirements. Additionally, under this Agreement, the BAM will be implemented as the adopted methodology for calculating biodiversity credit requirements.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
No	No	Actitis hypoleucos	Common Sandpiper
Yes	Yes	Apus pacificus	Fork-tailed Swift
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Calidris melanotos	Pectoral Sandpiper
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
Yes	Yes	Gelochelidon nilotica	Gull-billed Tern
Yes	Yes	Hirundapus caudacutus	White-throated Needletail
Yes	Yes	Hydroprogne caspia	Caspian Tern
No	No	Motacilla flava	Yellow Wagtail
No	No	Myiagra cyanoleuca	Satin Flycatcher
Yes	Yes	Tringa glareola	Wood Sandpiper
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.5.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

A LoO assessment was completed based on PMST search results and preliminary vegetation mapping across the Project area (Attachment 3 - Assessments of Significance, pg. 18-35, Table A-1). Following this, an Assessment of Significance was completed for EPBC listed marine and migratory species with a moderate to high likelihood of occurring within the Project area in accordance with the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines* (Assessments of Significance are presented in Attachment 3 - Assessments of Significance, pg. 131-135, Table B.5.1).

Fifteen migratory/marine species were considered to have a moderate to high likelihood occurring in the Project area (Attachment 3 - Assessments of Significance, pg. 18-35, Table A-1), including:

- Fork-tailed Swift (*Apus pacificus*) – (marine/migratory) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Sharp-tailed Sandpiper (*Calidris acuminata*) – (marine/migratory) (high)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Curlew Sandpiper (*Calidris ferruginea*) – (marine/migratory) (moderate)
    - Potential direct impacts: ~0.25 ha of associated PCT (grassland wetland) clearing, WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Pectoral Sandpiper (*Calidris melanotos*) – (marine/migratory) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Black-eared Cuckoo (*Chalcites osculans*) – (marine) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Gull-billed Tern (*Gelochelidon nilotica*) – (marine/migratory) (high)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*) – (marine) (high)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- White-throated Needletail (*Hirundapus caudacutus*) – (marine/migratory) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour, habitat fragmentation/degradation
- Caspian Tern (*Hydroprogne caspia*) – (migratory/marine) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Swift Parrot (*Lathamus discolo*r) – (marine) (moderate)
    - Potential direct impacts: WTG/transmission line collisions, ~0.25 ha of associated PCT (open woodland) clearing
    - Potential indirect impacts: disruption of species behaviour
- Rainbow bee-eater (*Merops ornatus*) – (marine) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Blue-winged Parrot (*Neophema chrysostoma*) – (marine) (high)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Australian Painted Snipe (*Rostratula australis*) – (marine) (moderate)

    - Potential direct impacts: WTG/transmission line collisions, ~462.03 ha of associated PCT (grassland wetland/shrubland) clearing
    - Potential indirect impacts: disruption of species behaviour
- Wood Sandpiper (*Tringa glareola*) – (migratory/marine) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour
- Common Greenshank (*Tringa nebularia*) – (migratory/marine) (moderate)
    - Potential direct impacts: WTG/transmission line collisions
    - Potential indirect impacts: disruption of species behaviour.

While the Project has been developed to minimise direct impacts to suitable wetland habitat and waterways across the Project area, there are potential operational impacts to migratory/marine species associated with an operational wind farm. Such impacts include the disruption of migratory flight paths as birds between foraging grounds in southern mainland Australia or otherwise disperse between large river systems including the Murrumbidgee River and the Forest Creek. Many of these species have recent BioNet records within the Project area and populations across the broader locality, indicating that migratory bird species frequent the Project area. The introduction of WTGs across this area therefore has potential to impact migratory birds.

4.1.5.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.5.5 Describe why you consider this to be a Significant Impact. *

Targeted bird and bat utilisation surveys will be undertaken to inform the assessment of the Project including WTG collision risk assessments and provide an informed assessment of impact significance for the EIS. A 24-month bird and bat utilisation survey program will be undertaken for the Project and is anticipated to commence in Summer 2024/25.

Given the availability of high-quality wetland habitats surrounding the Project area, and number of BioNet records in the surrounding area it is likely that migratory and marine species utilise the airspace across the Project area on occasion. Whilst flight heights of migratory and marine species in comparison to the rotor swept area (RSA) of the proposed WTGs will be confirmed via further targeted bird and bat utilisation surveys, given the high mobility of these species and anticipated movement between relatively close patches of preferred habitats, it is possible that migratory species will intersect with WTGs RSA resulting in collision impacts.

As a result, the Project has potential to have a significant impact on migratory species.

Using a precautionary approach, the outcomes of the Assessment of Significance (Attachment 3 - Assessments of Significance, pg. 131-135, Table B.5.1) indicate that the Project has potential to have a significant impact on the Sharp-tailed Sandpiper, Gull-billed Tern, and Caspian Tern as there is potential that unless appropriately mitigated, it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for these species
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of these species.

4.1.5.7 Do you think your proposed action is a controlled action? *

Yes

4.1.5.8 Please elaborate why you think your proposed action is a controlled action. *

The Project is a controlled action as it has the potential to significantly impact on MNES listed migratory species.

The Project has potential to have a significant impact on migratory species such as Sharp-tailed Sandpiper, Gull-billed Tern and Caspian Tern as there is a chance or possibility that it will, unless appropriately mitigated, seriously disrupt the lifecycle of an ecologically significant proportion of their population due to the uncertainties around the number of individuals occupying the air space at risk of WTG and transmission line strike collision during operation.

4.1.5.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

A desktop assessment and preliminary biodiversity field surveys, including the rapid PCT mapping survey was undertaken in November and December 2023 to identify key constraints and disturbed areas with exotic vegetation including existing access tracks and agricultural cropping land as opportunities to place infrastructure to avoid key biodiversity values. This included identification of key locations with high biodiversity conservation value to avoid or minimise impacts, including woodlands, wetlands, permanent watercourses and potential TECs.

In response, the Project design was updated, with proposed WTG locations and cabling revised to minimise impacts. The Project layout has been designed to avoid and minimise disturbance to areas of preferred habitat for migratory species, as much as practicable, including placement of WTGs over 500 m away from drainage lines, wetlands and creeks. This conservative approach has been adopted to not only avoid disturbance within high ecological value areas, but also surrounding areas to limit edge effects and incursion on high value habitats including avoiding and minimising impacts to habitat for migratory birds.

As part of the forthcoming EIS assessment phase, the Project will undergo further biodiversity constraints analysis, additional vegetation mapping and assessment of airspace utilisation by birds to assist with decisions around selective avoidance and impact minimisation of key biodiversity values to subsequently reduce impacts and offset costs. In addition to the Disturbance area that will be refined for the EIS, to ensure a conservative and flexible approach to avoid constraints, the Development corridor will be used to drive BAM surveys and allow for micro-siting for future Project design development. The Development corridor includes a 100 m buffer applied to all construction and operational infrastructure to account for potential design changes and allow for flexibility to avoid and minimise potential impacts on MNES.

The construction and operation of the Project will be undertaken in accordance with several future environmental management plans (including a bird and bat adaptive management plan, vegetation management plan, erosion and sediment control plan, water quality management plan as well as a weed and pest management plan), which will be developed to minimise environmental impacts. Residual impacts which are unable to be mitigated will be offset in accordance with the Biodiversity Offsets Scheme (BOS) established under the BC Act.

4.1.5.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

The Project will seek to achieve an environmental outcome where impacts to MNES, including migratory species, are avoided and minimised as much as practicable during the design, construction, and operation of the Project (see Section 4.1.5.10 of this referral). Where complete avoidance and/or mitigation is not possible, residual impacts will be offset in accordance with the BOS established under the BC Act.

The BC Act requires the biodiversity offset credit requirements to be calculated in accordance with the BAM and enables flexibility to deliver offsets by:

- Retiring biodiversity credits following either acquisition on the open market or setting up a Biodiversity Stewardship Site to generate credits; or
- Making payments into the Biodiversity Conservation Fund using the offsets payment calculator.

All biodiversity offsets which relate to any MNES will comply with the EPBC Act Environmental Offsets Policy (Commonwealth, 2012). Given the NSW Assessment Bilateral Agreement, in which the Australian Government has endorsed the NSW BOS, the NSW BOS will be used to assess and establish biodiversity offset requirements. Additionally, under this Agreement, the BAM will be implemented as the underpinning methodology for calculating biodiversity credit requirements.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is not a nuclear action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is located inland and there are no Commonwealth Marine Areas within or surrounding the Project area. As such, the Project is unlikely to have any direct or indirect impacts on any Commonwealth Marine Area.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is over 1,500 km from the Great Barrier Reef. As such, the Project is unlikely to have any direct or indirect impacts on the Great Barrier Reef.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is not a coal seam gas or large coal mining development. As such, there will be no water resource impacts in relation to such development associated with the Project.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Commonwealth land area
No	No	Commonwealth Land - Australian Telecommunications Corporation

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The PMST search listed four Commonwealth Land parcels that are all associated with telecommunications in or within 10 km of the Project area, with one of these commonwealth land parcels listed as being within the Project area (Australian Telecommunications Corporation [15315]) (refer to Attachment 2 – PMST Search Results, pg. 8).

An interrogation of the Australian Communication and Media Authority (ACMA) Radiocommunications Licences database carried out on 13 May 2024 identified the Telstra Pico Repeater Everslee (site ID: 9008022) as being within the south west corner of the Project area. However, as this site does not intersect with the Disturbance area or Development corridor, with the site located over 1.5 km away from the limit of the Development corridor, the Project is not anticipated to impact on Commonwealth Land area (refer to Attachment 1b – Figures, Commonwealth Lands, pg.4, Figure 4).

A further review of Department of Finance's Commonwealth Owned Land spatial dataset undertaken on 7 August 2024 did not identify any Commonwealth Land parcels within the Project.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Commonwealth heritage places within or surrounding the Project area. As such, the Project is unlikely to have any direct or indirect impacts on them.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

The following alternatives were considered by the proponent to meet Project objectives during the preliminary project development stages. As the Project progresses additional alternatives may become apparent. The key alternatives considered to date include:

- Option 1: No development option (The Project will not occur)
- Option 2: Alternative energy sources
- Option 3: Alternative site location for Project within the SWREZ
- Option 4: Alternative site layout
- Option 5: The Project, which includes up to 348 WTGs located within the Project area.

A summary of these options is detailed below:

Option 1: The No Development option will not deliver a low-cost, renewable energy option to the NEM, and will not support the NSW and Australian Governments' renewable energy and emissions reduction targets. The Project is expected to reduce up to 6 million tonnes of CO2 emissions by powering up to 1.54 million NSW homes annually. Thus, Option 1 will not contribute to the Project objectives and as such was not considered further.

Option 2: This option will meet NSW's needs for renewable energy generation. However, wind power has been selected over solar as:

- The SWREZ is recognized as having high wind resource, ideal for wind power
- Wind power consumes less energy and produces more energy compared to solar power
- Solar requires more land area per MWh produced, therefore, will likely require additional native vegetation clearing and an increase in associated impacts on biodiversity values
- Onshore wind energy generation is one of the lowest-cost technologies and this cost is projected to continue to decrease in the near future.

Option 3: Alternative site locations were considered at the origination phase of the Project. The project location was selected as the preferred option due to:

- Strategic position within the SWREZ
- High wind resource
- Availability of a large tract of suitable land with low population density
- Potential connection point to the National Energy Market (NEM) via the existing 220kV transmission line or proposed Project EnergyConnect 330kV transmission line to the south of the site
- Proximity to the public road network and existing internal access tracks.

Option 4: The preliminary Project layout has been iteratively developed based on feedback from host landowners, the community and preliminary environmental assessments. Through this process the 348 WTG locations have been selected to reduce the overall footprint and impacts to key biodiversity values including MNES. The revisions to the Project layout have focused on:

- Avoiding and/or minimising vegetation clearance and impacts to key habitat features
- Minimising the Disturbance area in response to environmental constraints
- Where feasible, utilise areas already disturbed for project infrastructure
- Avoiding impacts to any Aboriginal cultural heritage items.

The Project layout will be subject to further refinement during the EIS and further design development to minimise environmental and community impacts. This will be informed by further technical studies and ongoing community and stakeholder consultation.

Option 5 (the Project) was selected as the preferred option due to:

- Delivery of renewable, low-cost energy to the NEM that meets NSW needs for generation capacity and will contribute to the NSW Government's 2050 net zero emissions target

- The availability of a large tract of suitable land with generally flat terrain for ease of constructability
- A Project layout that minimises vegetation clearance and impacts to key biodiversity values including MNES
- The Project is anticipated to be highly compatible with existing agricultural land uses, as minimal impacts to current agricultural activities are expected during both construction and operation
- There is low population density and homogenous agricultural land use within and surrounding the Project area and, as a result, the number of sensitive receivers will be minimised
- Proximity to the public road network and existing internal access tracks
- It forms part of the SWREZ selected as suitable for renewable energy development in NSW
- Close proximity to potential connection points to the NEM via the existing 220kV transmission line or Project EnergyConnect, both immediately south of the Project area.

The Project as described in Section 1.2 will provide a significant amount of new generation capacity which will support the transition towards increased renewable energy uptake in the grid and facilitate the planned retirement of coal fired power stations in NSW. The supply of additional generation capacity will help meet load demand as a result of the retiring thermal generation.

Further, the Project will deliver renewable, low-cost energy to the NEM and will contribute to the NSW Government's 2050 net zero emissions target. Renewable energy such as wind energy will contribute towards cleaner electricity generation and reduce greenhouse gas emissions. The Project will also provide opportunities for local and regional investment, accompanying the growth of the renewable energy sector across NSW.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	08/09/2024	Nil	High

3.1.3 Natural features, important or unique values that applies to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	09/09/2024	Nil	High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 2 - PMST Search Results.pdf PMST Search	21/08/2024	Nil	High
#2.	Document	Att 3 - AWF Assessments of Significance Rev 02.pdf Assessment of Signficance	14/10/2024	Nil	High

3.3.2 Indigenous heritage values that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 4 - AHIMS Search - Sensitive - Redacted.pdf AHIMS Search results	14/12/2022	Yes	Medium
#2.	Document	Att 4 - AHIMS Search Results - Sensitive.pdf AHIMS Search results (Non-redacted)	14/12/2022	Yes	Medium

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	08/09/2024	No	High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	08/09/2024	No	High
#2.	Document	Att 3 - AWF Assessments of Significance Rev 02.pdf Assessment of Signficance	15/10/2024	No	High

4.1.4.5 (Threatened Species and Ecological Communities) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3 - AWF Assessments of Significance Rev 02.pdf Assessment of Signficance	15/10/2024	No	High

4.1.4.8 (Threatened Species and Ecological Communities) Why you think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3 - AWF Assessments of Significance Rev 02.pdf Assessment of Signficance	15/10/2024	No	High

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	08/09/2024	No	High

4.1.5.2 (Migratory Species) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3 - AWF Assessments of Significance Rev 02.pdf Assessment of Signficance	14/10/2024	No	High

4.1.5.5 (Migratory Species) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3 - AWF Assessments of Significance Rev 02.pdf Assessment of Signficance	14/10/2024	No	High

4.1.10.2 (Commonwealth Land) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	08/09/2024	No	High

4.1.10.3 (Commonwealth Land) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1b - Figures.pdf Figures	08/09/2024	No	High
#2.	Document	Att 2 - PMST Search Results.pdf PMST Search	20/08/2024	No	High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	37001024095
Organisation name	JACOBS GROUP (AUSTRALIA) PTY LTD
Organisation address	452 Flinders Street Levels 12, 13. Melbourne VIC 3000
Representative's name	Thomas Sinclair
Representative's job title	Environmental scientist
Phone	0419589557
Email	thomas.sinclair@jacobs.com
Address	452 Flinders Street Levels 12, 13. Melbourne VIC 3000

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Thomas Sinclair of JACOBS GROUP (AUSTRALIA) PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	20648096726
Organisation name	ABERCROMBIE WIND FARM PTY LTD
Organisation address	3006 VIC
Representative's name	Gautam Vimalanathan
Representative's job title	Project Development Manager
Phone	0475962735
Email	gavim@vestas.com
Address	4/312 St Kilda Road Melbourne VIC 3004

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Gautam Vimalanathan of ABERCROMBIE WIND FARM PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Gautam Vimalanathan of ABERCROMBIE WIND FARM PTY LTD**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☐ I would like to receive notifications and track the referral progress through the EPBC portal. *