Gippsland Offshore Wind Transmission 2GW Project

Application Number: **02529** Commencement Date: **30/07/2024** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Gippsland Offshore Wind Transmission 2GW Project

1.1.2 Project industry type *

Energy Generation and Supply (non-renewable)

1.1.3 Project industry sub-type

Transmission Line

1.1.4 Estimated start date *

01/01/2027

1.1.4 Estimated end date *

31/12/2062

1.2 Proposed Action details

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

The Victorian Government has committed to emissions reduction through the *Climate Change Act 2017*, which establishes a long-term target of net-zero greenhouse gas emissions by 2045. This requires unprecedented amounts of renewable energy generation to meet the demand for electricity. Victoria's

legislated offshore wind energy generation targets are an initial target of at least 2 gigawatts (GW) of installed offshore windfarm capacity by 2032, and subsequent targets of 4 GW by 2035 and 9 GW by 2040.

In December 2022, the Australian Government (Minister for Climate Change and Energy) declared an area in the Bass Strait off the coast of Gippsland, Victoria as suitable for offshore renewable energy generation. In May 2024, the Australian Government awarded the first feasibility licences for offshore wind projects within the declared area in Gippsland.

New transmission infrastructure is required in Gippsland to connect future offshore wind energy facilities to the existing transmission network located in the Latrobe Valley. To enable the initial 2 GW target to be achieved, VicGrid (an administrative office of the Victorian Department of Energy, Environment and Climate Action (DEECA)), proposes the Gippsland Offshore Wind Transmission 2 GW Project (the project), which would comprise the construction, operation and decommissioning of a new overhead transmission line from an onshore connection hub in the area of Giffard inland from the Gippsland coast to a grid connection near Loy Yang Power Station in the Latrobe Valley.

The new transmission line would become part of Victoria's transmission network, the Declared Shared Network, and would transfer offshore wind energy generated off the coast of Gippsland to the National Electricity Market. This shared transmission infrastructure would minimise the potential for multiple proponents developing individual transmission lines from the coast to the Latrobe Valley.

The broader study area is provided as the project area and disturbance footprint for this referral. It is approximately 43,200 hectares (see Att_1_1_Study Area Map) and much larger than what the actual project area will be. The study area is approximately 50-55 km in length and has a width varying from 3 to 12 km. It starts around 6 km inland from the coast, in the area of Giffard, and extends north-west past Stradbroke West to Willung, across to Flynns Creek and terminates near Loy Yang Power Station.

The exact location of the project infrastructure within the study area is not yet known. A detailed refinement process will be carried out to avoid or minimise negative impacts at the outset of the project's development. This allows statutory assessments of the project to focus on mitigating and managing unavoidable impacts.

The refinement of the study area will be an iterative process that involves the analysis of technical, environmental, social and economic factors and incremental improvements to project design. It is anticipated that the final actual disturbance footprint would be less than approximately 2 per cent of the study area.

Further technical studies, on-ground environmental assessments, and engagement with landholders, First Peoples, and local communities will be carried out to refine the study area to a study corridor, then a preferred corridor, and ultimately a preferred route for the transmission line. The refinement process will result in a more specific project area and disturbance footprint in-line with investigations and consultation to be undertaken as part of the environmental assessment and approval process.

A transmission line easement is required to enable the use of transmission line infrastructure. The preferred route will be approximately 100-150m wide to support an easement of approximately 45-60 km in length and approximately 70 m in width. The easement would include all land required for ongoing maintenance and operations, including access tracks.

The main components of the project are:

- A double-circuit, High Voltage Alternating Current (HVAC) overhead transmission line, to transmit electricity from a proposed new onshore coastal connection hub substation in the area of Giffard to the National Electricity Market grid via a grid connection near the Loy Yang Power Station in the Latrobe Valley.
- An onshore coastal connection hub, comprising of high voltage (HV) substation plant and equipment, including transformers, synchronous condensers and switchgear. This will provide future offshore wind energy facilities with a shared connection point that is part of the Declared Shared Network.

- A grid connection substation, near Loy Yang Power Station. This may comprise of new bays installed within the existing switchyard at the existing Declared Shared Network at Loy Yang Power Station, in the Latrobe Valley, to allow connection of the new HV circuits.

The project excludes the following:

- The Renewable Energy Zone (REZ) Curtailment Abatement Service (RCAS). The RCAS is described in Section 1.1.2.5.
- The offshore windfarms and associated onshore and offshore transmission infrastructure.

Key construction activities are:

- Installation of towers and an overhead transmission line
- Construction of a connection hub substation
- Potential removal, destruction and lopping of native and non-native vegetation to:
    - Establish construction work sites
    - Provide access for construction, operations and maintenance purposes
    - Enable the transmission line to be constructed (e.g., stringing) without undue interference
    - Establish minimum clearance spaces for operation of a high voltage transmission line in accordance with the *Electricity Safety (Electric Line Clearance) Regulations 2020*.
- Construction and use of temporary and permanent access tracks to facilitate access for construction and/or maintenance activities
- Establishment and use of temporary construction pads for tower assembly and line stringing
- Installation of temporary hurdle frames to facilitate line stringing where required, such as over roads, or other power or communications lines
- Potential utility service relocations or modifications, noting that further ground disturbance may be required, for example for the relocation of other services such as Basslink
- Establishment and use of temporary site offices, compounds, laydown areas
- Other construction related activities to support the development of the Project, including but not limited to, site preparation activities, temporary fencing and gate installation, equipment and plant delivery, traffic control, erosion control, waste disposal, spoil treatment and disposal, and stormwater management
- Progressive rehabilitation along sections of the transmission line, and within all temporary construction areas and laydown areas.

The defined action may be refined in the future where it would not have the potential for a significant impact on the environment including Matters of National Environmental Significance (MNES), and where it would generally not require primary planning approval.

The final location and design of the proposed infrastructure and construction activities, including the foundation types and total footprint, would be dependent on the specific ground conditions, technical and environmental constraints, including an objective to avoid impacts to MNES to the extent practicable.

Key operational activities include:

- Maintenance of the land and vegetation within the easement and substation sites to ensure the safe and reliable operation of the transmission infrastructure as required under the *Electricity Safety Act 1998*
- Routine inspections and maintenance of the transmission line and easements, and terminal stations
- Responding to faults and complaints and undertaking repairs.

The design lifespan of the transmission line is up to approximately 70-100 years and the terminal station is up to approximately 45 years. At the end of its operational lifespan, the project would be decommissioned or upgraded to extend its operational lifespan. If decommissioned, infrastructure would be removed, and associated land returned to previous land use or as agreed with the landholder.

Investigative works, such as geotechnical and environmental investigations, site surveys and locating existing utilities and services are excluded from the action.

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

Yes

1.2.3 Is the proposed action the first stage of a staged development (or a larger project)?

No

1.2.4 Related referral(s)

EPBC Number	Project Title
2022/09346	Gippsland Renewable Energy Zone Project
2022/09379	Greater Gippsland Offshore Wind Project
2020/8650	Star of the South Offshore Wind Farm Project

1.2.5 Provide information about the staged development (or relevant larger project).

The Federal Government has issued 12 feasibility licences for offshore wind projects off the coast of Gippsland. While there is a relationship between the project and offshore wind energy generation in the Gippsland declared area, each offshore wind energy facility is proposed by a separate legal entity, and the precise location and timeframes for their development are uncertain. The offshore wind energy facilities are therefore separate to the project.

Similarly, separate to this current project, preliminary network modelling indicates that a second connection hub and transmission line would be needed to meet the future Victorian Government legislated offshore wind energy targets of 4 GW by 2035 and 9 GW by 2040.

The second connection hub would need to be in a location that can service the Gippsland declared area, however the transmission infrastructure would require a separate easement in a different location to ensure energy system security and reliability. As a consequence, it is anticipated that the infrastructure would be located outside the current study area.

The need for additional transmission infrastructure is dependent on commercial markets' investment in wind energy facilities, budget commitments to fund additional infrastructure, and would be subject to technical studies, community engagement and government decision making processes at a later time.

The Victorian State Government has committed to the onshore transmission infrastructure in Gippsland towards achieving Victoria's 2 GW target, with the infrastructure to be delivered by VicGrid. There is no commitment towards additional infrastructure beyond the 2 GW target.

The project's transmission infrastructure can operate independently and is not reliant on the development of infrastructure associated with Victoria's 4 GW and 9 GW targets.

REZ Curtailment Abatement Service (RCAS)

A REZ Curtailment Abatement Service (RCAS) is a service that will be required by AEMO for the project to provide a storage or demand response service to facilitate transfer of 2 GW of offshore wind generation into the grid. AEMO's requirement for the project to enter into an agreement with a RCAS provides for grid security and reliability. A RCAS would need to be supplied by one or more battery energy storage systems (BESSs) located between the grid connection point and the metropolitan Melbourne load centre and may be located outside the study area. If there is a failure during the operation of transmission infrastructure proposed by the project, a RCAS is able to transmit electricity to the grid until AEMO can respond to the failure and recalibrate transmission across the network.

A RCAS does not form part of the project (and therefore this referral) as:

- The operation of the proposed transmission infrastructure is not contingent on an RCAS and without it, the project can deliver up to 1.4 GW of offshore wind generation into the grid; and
- While the target of 2 GW requires an RCAS, this requirement can be met by one or more BESSs that could be existing, approved and being developed, or yet to be developed.

Related existing EPBC referrals

A key objective of the project is to avoid the proliferation of transmission corridors that are separately proposed, approved and delivered by other proponents. The referrals listed further below include proposed transmission infrastructure project areas, from the Gippsland coast to the Latrobe Valley, that partially overlap with the project's study area. Those referrals were made before it was clear that VicGrid would deliver onshore transmission infrastructure.

Existing referrals with onshore transmission in Gippsland are:

- EPBC Referral 2020/8650 – Star of the South Offshore Wind Farm Project – a proposed offshore wind farm to be located approximately 7-23 km off the Gippsland coast, and associated infrastructure. This includes offshore and onshore transmission cables connecting to up to four onshore substations indicatively located inland of Reeves Beach or McGaurans Beach, and a transmission line connecting to the National Electricity Market at either the existing Hazelwood Terminal Station or Loy Yang Power Station.
- EPBC Referral 2022/09346 – Gippsland Renewable Energy Zone Project – a market-led proposal by AusNet comprising of a 500 kV transmission line to transmit renewable energy from Gippsland to the National Electricity Market at either the Hazelwood Terminal Station or Loy Yang Power Station.
- EPBC Referral 2022/09379 – Greater Gippsland Offshore Wind Project – a proposed offshore wind farm to be located approximately 10-43 km off the Gippsland coast between Woodside Beach and Seaspray, and associated infrastructure. This includes onshore and offshore transmission cables connecting to an onshore substation located in the area of Giffard and a transmission line from the onshore substation connecting to the National Electricity Market at either Hazelwood Terminal Station or Loy Yang Power Station.
- EPBC Referral 2022/09163 (Seadragon Offshore Wind Farm) – the referral was withdrawn in April 2024.

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 following Commonwealth and State legislation is relevant to the construction and operation of the project:

Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) – This referral is submitted to determine whether the proposed action requires assessment and approval under the EPBC Act, and if so, what form the assessment must take.

Environment Effects Act 1978 (Vic) (EE Act) – VicGrid has requested the Victorian Minister for Planning to consider whether to declare the project "public works" under section 3 of the EE Act. If the Minister decides to declare the project "public works", an Environment Effects Statement (EES) would be required under the EE Act.

Planning and Environment Act 1987 (Vic) (PE Act) – It is likely that a planning scheme amendment (PSA) under the PE Act will be sought for the project, providing a single, consolidated planning control for the proposed action under an Incorporated Document embedded within the Latrobe Planning Scheme and Wellington Planning Scheme. Victorian processes allow for a PSA to be prepared by the Minister for Planning as planning authority and exhibited and reviewed by a panel in conjunction with an EES under the EE Act. This approach aligns the environmental impact assessment and planning approvals processes.

Aboriginal Heritage Act 2006 (Vic) – A Cultural Heritage Management Plan (CHMP) is required under the *Aboriginal Heritage Act 2006*. The CHMP will be assessed by the Registered Aboriginal Party for the study area, the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC). VicGrid has been actively engaging with GLaWAC about the project since 2022.

Other secondary approvals and consents are likely to be required in accordance with Commonwealth and Victorian legislation, including:

- *Native Title Act 1993* (Cth)
- *Traditional Owner Settlement Act 2010* (Vic)
- *Flora and Fauna Guarantee Act 1988* (Vic)
- *Heritage Act 2017* (Vic)
- *Water Act 1989* (Vic)
- *National Parks Act 1975* (Vic)
- *Crown Land (Reserves) Act 1978* (Vic)
- *Land Act 1958* (Vic)
- *Forests Act 1958* (Vic)
- *Road Management Act 2004* (Vic)
- *Victorian Plantations Corporation Act 1993* (Vic)
- *Local Government Act 2020* (Vic)

EPBC Act related documents/guidelines

If the project is determined a 'controlled action' requiring assessment and approval under the EPBC Act, assessment of potential impacts on MNES will need to address the Significant Impact Guidelines 1.1 – Matters of National Environmental Significant (DEWHA, 2013), and any listing advice, conservation advice, recovery plans, survey guidelines and policy statements applicable to the specific species or communities potentially impacted by the project.

State and Local Policy

The study area is located within the Latrobe and Wellington local government areas. The project would therefore be subject to the Latrobe Planning Scheme and Wellington Planning Scheme, including their respective Planning Policy Frameworks of state, regional and local planning policies. Each planning scheme also contains zones, overlays, particular and general provisions which will be considered in the assessment of the project.

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. *

VicGrid is committed to meaningful, principled and inclusive public engagement. Inclusive engagement supports better decisions for all parts of government. As an administrative office within the DEECA, VicGrid applies the *Victorian Government Public Engagement Framework 2021-2025* which sets out six public engagement principles: Meaningful, Inclusive, Transparent, Informed, Accountable, Valuable.

Throughout the engagement process, consideration will be given to those potentially affected by or interested in project decisions and outcomes. Key stakeholders identified for the project include:

- Government – Decision makers, elected representatives, Australian Government departments, Victorian Government departments, DEECA (internal), local government, water and catchment management authorities, CFA (Country Fire Authority), education and jobs/training providers
- Community and partners - Landholders and residents within and near the study area, local townships and communities, Traditional Owner and native title groups, local community groups, wider Victorian community, special interest groups (e.g., Landcare), difficult to reach and culturally and linguistically diverse people and groups
- Industry – Transmission developers, offshore wind energy developers, energy industry groups, utility service providers, agriculture industry associations, peak bodies and enterprises, commercial businesses and property developers, media, peak bodies.

GLaWAC is the Registered Aboriginal Party for the entire study area and the registered Native Title holder. VicGrid understands and respects Traditional Owners' legal and cultural rights, along with their deep connections with Land, Sky and Sea Country as original custodians.

VicGrid is committed to the *Pupangarli Marnmarnepu 'Owning Our Future' Aboriginal Self-Determination Reform Strategy* and will partner with First Peoples in the region to identify key considerations and concerns, and benefits and opportunities that may be of interest. Partnerships with First Peoples will support the protection of Country, maintain spiritual and cultural heritage and practices, and acknowledge broader aspirations if First Peoples are impacted by new critical energy infrastructure.

Engagement to date

VicGrid has consulted extensively on early planning for building transmission in Gippsland. Feedback received from community, landholders and stakeholders has helped to balance a range of factors when identifying a preferred study area, connection hub and technology for the project.

VicGrid used a variety of engagement tools and communication channels over the course of 2023 to early 2024 to share information and seek feedback. As of 27 May 2024, this has included:

- 8 local community drop-in sessions
- 3 community and landholder roundtable sessions
- 42 stakeholder briefings
- 1069 report downloads
- 13,162 website page views
- 2,311 visitors to the interactive map
- 313 letters delivered to landholders
- 32,000 newsletters delivered
- 4 factsheets
- 4 online webinars.

In early 2023, VicGrid published an Offshore Wind Transmission Development and Engagement Roadmap (see Att_6), which set out key steps to plan new offshore wind transmission through direct and ongoing engagement with local communities and key stakeholders. The four phases in the roadmap undertaken to date are:

- Phase 1: From April to May 2023, VicGrid introduced its role in transmission planning and development and invited feedback on what criteria should be used to assess and decide on project

options, and also sought to understand better how local communities wanted to engage. Feedback from this phase helped to inform the draft Options Assessment Method (Assessment Method) - a decision-making tool for assessing and deciding on options for new transmission infrastructure for offshore wind energy.

- Phase 2: In July to August 2023, VicGrid consulted on the draft Assessment Method (see Att_7), and sought to understand the relative importance of each assessment criterion, referred to as the project objectives and guiding principles. A state-wide community attitudes survey and targeted community attitudes surveys in Gippsland heard from a wide range of audiences and those living in areas of interest in Gippsland.
- Phase 3: In December 2023, VicGrid published the final Options Assessment Method (see Att_8). This phase involved informing the community and stakeholders about how their feedback informed the weighting of assessment criteria, including how the Assessment Method will balance social and environmental factors alongside technical considerations.
- Phase 4: In March 2024, VicGrid published the preferred option for transmission infrastructure in Gippsland, an identified study area for the project, and next steps (see Att_5_Offshore Wind Energy Transmission Gippsland Options Assessment). This phase included establishing a dedicated landholder liaison team to engage with landholders in the study area. This liaison will include conducting environmental and other assessments on the land of both willing public and private landholders.

A summary of what has been heard through this engagement is provided in Phase 1 Engagement Summary Report (see Att_9) and Phase 2 Engagement Summary Report (see Att_10).

Future engagement

From May 2024, the project enters its next phase of engagement which is centred around refinement of the study area to a study corridor, then a preferred route and then a preferred transmission easement. Engagement for the project will be supported by a new engagement plan developed by VicGrid, which will outline the different phases of engagement that will be undertaken from May 2024 to 2027.

Refinement of the study area to a study corridor and then a preferred route will take place in parallel with field investigations, technical studies and landholder, First Peoples and community engagement. Engagement activities will have a strong focus on landholders and First Peoples engagement, giving each group the ongoing opportunity to provide feedback and influence decision-making for the project, where possible. A range of tools will be used to reach different audiences and ensure communications and engagement activities remain inclusive, accessible and easy-to-understand at each stage of corridor refinement.

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.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

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Alternatively, email us at privacy@awe.gov.au.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	90719052204
Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004

Referring party details

Name	Alexandra Niakolas-Molluso
Job title	Senior Planning and Environment Project Officer
Phone	+6138508119
Email	alexandra.niakolas-molluso@deeca.vic.gov.au
Address	2 Lonsdale Street, Melbourne, VIC 3004

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	90719052204
Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004

Person proposing to take the action details

Name	Danny Benjamin
Job title	Executive Director, Project Delivery
Phone	1800418341
Email	vicgrid@deeca.vic.gov.au
Address	PO Box 500, East Melbourne VIC 3002

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. *

The proponent, VicGrid was established in 2021 and became an administrative office within DEECA in 2024. VicGrid has no development history or records of responsible environmental management.

VicGrid has no past or present proceedings against it under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources.

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

VicGrid is committed to the sustainable conduct of its activities consistent with DEECA's public value outcomes published online: What we do (deeca.vic.gov.au). VicGrid is developing a project-specific environment policy and will develop an environmental management framework prior to the commencement of construction.

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	90719052204

Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004

Proposed designated proponent details

Name	Danny Benjamin
Job title	Executive Director, Project Delivery
Phone	1800418341
Email	vicgrid@deeca.vic.gov.au
Address	PO Box 500, East Melbourne VIC 3002

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	90719052204
Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004
Representative's name	Alexandra Niakolas-Molluso
Representative's job title	Senior Planning and Environment Project Officer
Phone	+6138508119
Email	alexandra.niakolas-molluso@deeca.vic.gov.au
Address	2 Lonsdale Street, Melbourne, VIC 3004

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	90719052204
Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004
Representative's name	Danny Benjamin
Representative's job title	Executive Director, Project Delivery
Phone	1800418341
Email	vicgrid@deeca.vic.gov.au
Address	PO Box 500, East Melbourne VIC 3002

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

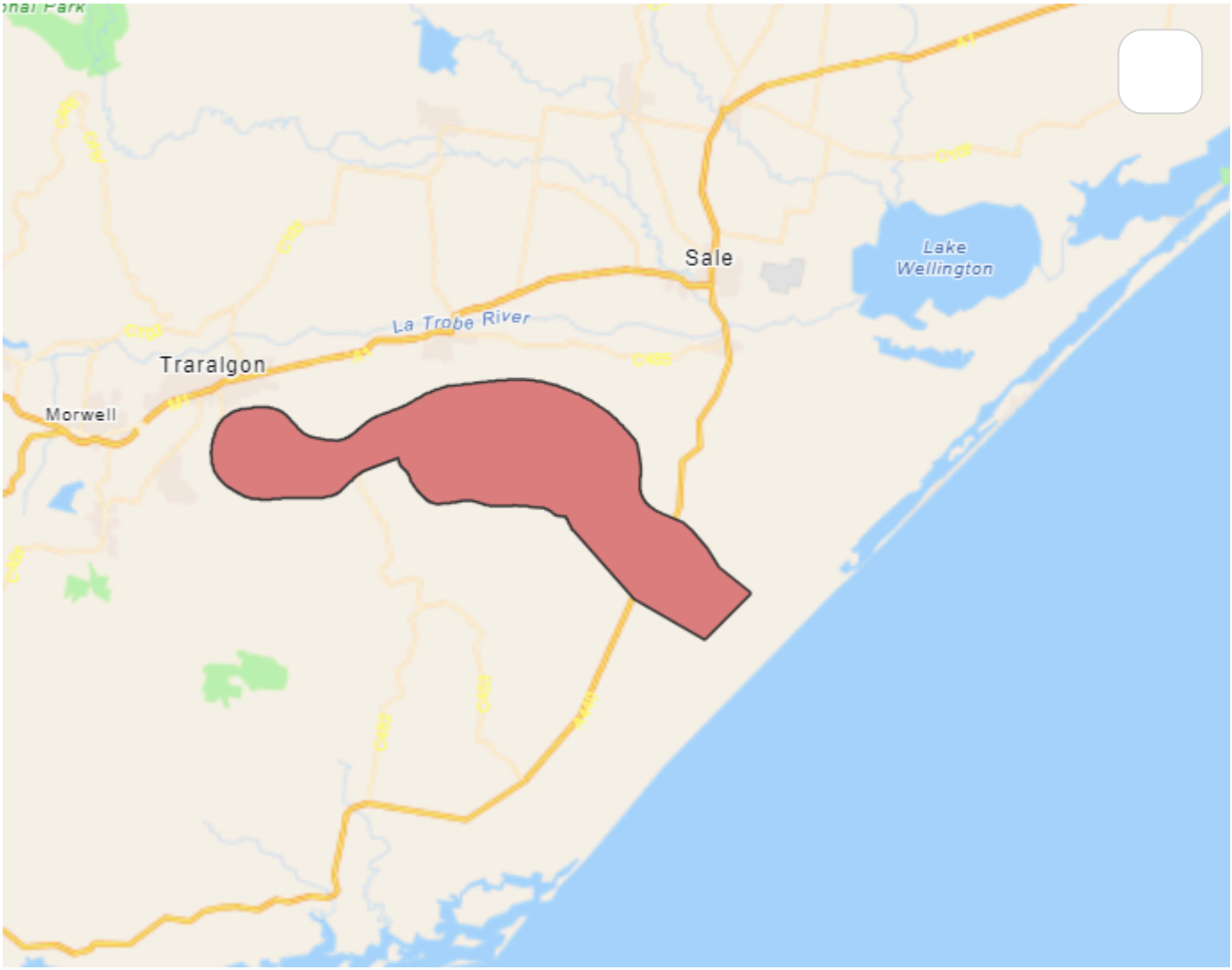
1.4 Payment details: Payment allocation

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



Project area (43152.35 Ha)
Disturbance footprint (43152.35 Ha)

Maptaskr © 2024 -38.004779, 148.079376

Powered By Esri - Sources: Esri, TomTom, Garmin, F…

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Giffard to Loy Yang, Gippsland South

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

Victoria

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 study area comprises of freehold land and Crown land. The location and status of Crown land within the study area is shown in Att_1_6_Public Land Tenure Map.

Crown lands are managed in accordance with numerous legislative frameworks, including the *Land Act 1958* (Vic), *Crown Land (Reserves) Act 1978* (Vic), *National Parks Act 1975* (Vic), *Victorian Plantations Corporation Act 1993* (Vic), *Forests Act 1958* (Vic), *Road Management Act 2004* (Vic) and the *Local Government Act 2020* (Vic) by the respective public land manager(s) which includes Parks Victoria, DEECA, delegated Committees of Management and road authorities. The Crown land is used for a range of uses including the publicly accessible state parks and forests, nature conservation reserves, commercial plantations, other public purposes and roads.

Freehold land within the study area is generally used for farming purposes, plantation and mining licences and contiguous lots may be held the same owner. Land tenure is unlikely to significantly change as the further subdivision of existing freehold farming land within the study area is constrained by planning policy and controls in the respective planning schemes. The policies and controls seek to limit land size in the Farming Zone at least 80 hectares in the Latrobe local government area and at least 40 hectares in the Wellington local government area.

3. Existing environment

3.1 Physical description

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

Conditions within the study area vary depending on the location and are heavily influenced by past and present land use activities.

Zones

Land within the study area is included in multiple zones under the Latrobe Planning Scheme and Wellington Planning Scheme. This includes the Farming Zone, Public Conservation and Resource Zone, Special Use Zone (to provide for brown coal and electricity generation within the Latrobe City), Public Park and Recreation Zone, Public Use Zone (PUZ1 – Service and Utilities, PUZ6 – Local Government), Transport Zone 2, Transport Zone 3 and Rural Living Zone. However, most of the study area is zoned Farming Zone or Public Conservation and Resource Zone, in keeping with the prevailing rural character of the study area.

No change in the current zoning of the land is expected to be undertaken for the project, however this will need to be worked through during the assessment phase of the project.

Settlements

The nearest major urban centres to the study area are Traralgon (0.3 km), Morwell (7.5 km) and Sale (14 km). The nearest townships are Traralgon South (2 km), Rosedale (2.7 km) and Seaspray (6.5 km).

The nearest hamlets are Flynn and Gormandale. Other smaller communities that are within or close to the study area are Flynns Creek, Hiamdale, Willung, Stradbroke and Giffard West, which generally comprise dispersed housing on farming properties.

Roads

Major arterial roads in the study area include Traralgon Creek Road, Callignee South Road, Hyland Highway, Willung Road, Gormandale-Stradbroke Road, Rosedale-Stradbroke Road, South Gippsland Highway, Giffard West Road and Giffard Road. Minor roads and tracks in the study area are typically unsealed roads. Traralgon Creek Road, Hyland Highway and South Gippsland Highway are included in the

Transport Zone 2 (TRZ2), being part of the Principal Road Network managed by the State. Willung Road, Gormandale-Stradbroke Road and Giffard Road are included in the Transport Zone 3 (TRZ3) being Significant Municipal Roads managed by the relevant Council.

The study area would be accessible via the major freeway and arterial road network comprising of the Princes Highway, Hyland Highway and South Gippsland Highway. These are all are sealed highways. The study area would also be accessible via a network of secondary highway and arterial roads that are unsealed. This includes Gormandale-Stradbroke Road and Harraps Highway. Direct site access would be supported by the network of local unsealed roads and private access tracks (and where necessary existing private access tracks would be extended/improved to provide access).

Farms and dwellings

Although dwellings on farming lots are more prevalent in the Hiamdale and Willung localities, there are very few lots with dwellings generally across the study area. The planning schemes do not identify the study area as an existing or planned urban area. To minimise the fragmentation of agricultural land, the Wellington and Latrobe planning schemes generally restrict subdivision of land within the Farming Zone to a minimum size of 40 hectares in the Wellington local government area and 80 hectares in the Latrobe local government area. These planning schemes also restrict the creation of smaller lots for housing.

Mining and power generation

Conditions in the north-western part of the study area are strongly influenced by industrial uses including the Loy Yang A and Loy Yang B power stations (and associated coal mine) and supporting industrial activities in nearby Traralgon and Morwell. The Latrobe Valley has been associated with historical coal mining since the 1890s. Brown coal mining continues to occur within the study area at the large Loy Yang coal mine, which supplies brown coal to the adjacent Loy Yang A and Loy Yang B power stations. The study area crosses over several brown coal regions including Stradbroke, Coolungoolun and Rosedale, and contains the Loy Yang coal mining lease area. Known geotechnical constraints for these brown coal fields include unconsolidated soils, high pressure aquifers and significant influence from major structural geology features, including the Baragworth Anticline, Rosedale Monocline and extensional faulting. The project will need to consider impacts from historical and ongoing mining operations. Significant depressions in groundwater levels also occur around the Latrobe Valley coal pits, where dewatering for mining has occurred over many years. See Att_3_Preliminary Environmental Assessment, Sections 4.2, 4.3, 4.4, 4.6 and 4.7.

Parks and Reserves

A large proportion of the study area, particularly through the central parts, is reserved for parks and reserves, with approximately 23% of the study area managed by Parks Victoria for conservation purposes. This includes large parks and reserves such as Holey Plains State Park, Stradbroke Flora and Fauna Reserve, Giffard (Rifle Range) Flora Reserve. These large parks and reserves are generally considered to be in good condition supporting large, contiguous areas of intact native vegetation, providing an extensive range of high value habitats for threatened flora and fauna species in the landscape. While high quality vegetation is largely restricted to the large parks and reserves, these areas often extend on to adjacent private land. See Att_3_Preliminary Environmental Assessment, Section 4.9.

Native vegetation and habitat

Forests and reserves within the study area, including Holey Plains State Park, Mullungdung State Forest, Stradbroke Flora and Fauna Reserve, and Giffard (Rifle Range) Flora Reserve, have been identified as supporting areas of high quality native vegetation and habitat.

While agricultural and timber plantation development have previously resulted in the removal of most remnant native vegetation, these areas can still support patches of native vegetation and large scattered trees of moderate quality that provide habitat for variety of native flora and fauna species.

Waterways and water bodies

Major waterways within the study area, including Traralgon Creek, Flynn Creek and Monkey Creek are considered to be in moderate condition based on their Index of Stream Condition (ISC) score, which assesses hydrology, physical form, riparian vegetation, water quality, and aquatic life. Merriman Creek downstream of Taylors Lane is also considered to be in moderate condition based on its ISC score, but upstream of Taylors Lane is considered to be in very poor condition. See Att_3_Preliminary Environmental Assessment, Section 4.5.

Potential contamination and acid sulfate soils

Potential contamination sources identified within and surrounding the study area are discussed in Att_3_Preliminary Environmental Assessment, Section 4.7. Key potential contamination sources are:

- Loy Yang Power Station - an operational coal-fired power station, listed as an EPA Victoria Priority Site (uncertain whether current of former), has been subject to numerous EPA Victoria Audits
- Hyland Highway Landfill – directly south of Loy Yang Power Station, currently operating and collects leached ash from the Loy Yang Power Station, has been subject to numerous EPA Victoria Audits
- Rosedale Landfill - located close to the intersection of Merton Vale Road and Farleys Road
- Giffard West Fire Station - located off the corner of South Gippsland Highway and Giffard West Road
- Willung Fire Station - located on Willung Hall Road, Willung
- La Trobe Regional Airport - located approximately 8 km north-west of the study area
- Gas and oil pipelines - running east-west, intersecting the northern portion of the study area
- Numerous sand, gravel and limestone quarries - scattered throughout the study area
- Agricultural and forestry land use - which represent a potential for contamination (e.g., from herbicide, pesticide and fertiliser use).

The Atlas of Australian Acid Sulfate Soils indicates that the majority of the study area is classified from “low probability/low confidence” to “extremely low probability/low confidence” for acid sulfate soils (ASS). However, the Atlas maps small areas within the study area as having a “high probability/low confidence” for ASS, including in Holey Plains State Park associated with The Long Swamp and Ben Winch Swamp.

Generation of acidic conditions is also associated with sulfide enrichment of rock. Mining activities in the north-western portion of the study area close to Loy Yang Power Station indicate an increased potential for sulfide enrichment of the underlying geology.

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

A desktop review of existing land use within the study area is provided in Att_3_ Preliminary Environmental Assessment. Key land uses, and planning zones and overlays within and surrounding the study area are shown in Att 1_9_Key Land Use Features Map, Att 1_7_Planning Zones Map and Att_1_8_Planning Overlays Map.

Land uses in and around the study area generally comprise agriculture, forestry plantation, extractive industry and energy generation, environmental conservation and public recreation. Land is also used for major arterial roads, utilities and dwellings associated with farms. The study area also encompasses several small rural residential communities.

Agriculture

Agricultural land uses comprising domestic livestock grazing, beef and dairy cattle livestock production are present within the study area. Other forms of agriculture include dryland cropping and irrigated cropping using central pivot irrigation systems.

Timber plantations and forestry

Timber plantation and forestry land uses in the study area are predominantly softwood plantations, with some hardwood plantations.

Native hardwood and commercial timber production is present in forest areas, however under the Forestry Transition Program, native timber harvesting in Victoria's state forests was scheduled to end by 1 January 2024.

Extractive industries

Extractive industry includes open cut brown coal mining associated with energy production, as well as gravel and stone quarries. The largest of the extractive industry activities is the Loy Yang open cut coal mine located to the south of Traralgon, which has an existing mining licence area, future mining blocks and a retention licence area. The coal mine has been operating since 1982 and is in a Special Use Zone 1 (SUZ1) in the Latrobe Planning Scheme. The State Resource Overlay applies to large areas of the Latrobe and Wellington Planning Scheme to protect long-term opportunity to mine brown coal resources.

Smaller stone and gravel quarries are located within the portion of the study area within the Wellington local government area.

Mining licences are Mining Licence (MIN5189), Exploration Licence (EL4683) and Retention Licence (RL2015) associated with AGL's Loy Yang Coal Mine; and a separate Exploration Licence (EL006645) for brown coal that traverses the central portion of the study area generally along Merriman Creek. One Petroleum Retention Lease (PRL2) and one Petroleum Exploration Permit (PEP166) apply to the study area. Several extractive industry work authorities also apply to land within the study area for extraction of limestone, sand, clay and gravel (WA828, WA312, WA355, WA369, WA850, WA224, WA262).

Public open space, conservation and tourism

Some land within the study area is used for environmental conservation and public recreation. This includes State Forests, State Parks, Conservation Areas, and conservation reserves (Holey Plains State Park, Mullungdung State Forest, Stradbroke Flora and Fauna Reserve, and Giffard (Rifle Range) Flora Reserve).

Utilities

The study area contains the Loy Yang A and Loy Yang B coal-fired power stations which provide input to the National Electricity Market and are associated with the Loy Yang brown coal mine. Loy Yang A, owned by AGL, has a maximum generating capacity of 2,210 MW and is currently targeting closure in 2035. Loy Yang B, owned by Alinta Energy, has a maximum generating capacity of 1,200 MW and is currently scheduled for closure in 2047. The proposed grid connection for the project may be located within the existing 500 kV switchyard adjacent to the Loy Yang A power station.

Other major utilities within the study area (see Att_1_10_Key Existing and Proposed Major Infrastructure) include:

- APA's existing Basslink 400 kV HVDC overhead line and 500 kV HVAC overhead line, which traverse the central and southern parts of the study area, and the Basslink convertor station located east of the Loy Yang Power Station.
- A Saline Wastewater Outfall which runs from Loy Yang Power Station along the southern parts of the study area to the coast.
- Three gas pipelines (PL117, PL75, PL43) and one oil pipeline (PL35) which run along the northern edge of the study area.

The proposed Star of the South Offshore Wind Farm and proposed Greater Gippsland Offshore Wind Farm have undertaken investigations for a potential transmission corridor within the study area.

Other Notable Features

Other notable existing land use features within the study area include:

- Fire lookouts at Flynn, Harriers Swamp and Holey Hill
- A camping ground and day visitor area at Harriers Swamp and Holey Hill
- Shooting range (Traralgon Field & Game) at 295 Scales Road, Flynns Creek
- Giffard West Public Hall and the CFA Fire Station.

The study area also intersects with the Public Acquisition Overlay for the proposed Traralgon Bypass.

Townships

The nearest towns to the study area are Traralgon and Rosedale. The nearest hamlets are Flynn and Gormandale. Other smaller communities within or close to the study area are Flynns Creek, Hiamdale, Willung, Stradbroke and Giffard West. The smaller communities generally comprise of dispersed housing on farming properties.

Dwellings

Data received from Geoscape on 10 April 2024 shows there are over 900 buildings within the study area's 43,200 hectares, including uninhabited structures such as farm sheds. The majority of these buildings are not dwellings. Analysis of aerial imagery indicates that approximately 100 of the identified buildings are dwellings as shown in Att 1_9_Key Land Use Features Map.

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

Avoidance of outstanding natural features such as those identified in the vicinity of the study area was a key consideration in selection of the study area. Further corridor and route refinement will continue to identify opportunities to avoid outstanding natural features within the study area where practicable.

Key natural features within the study area include:

- Large parks and reserves such as Holey Plains State Park, Stradbroke Flora and Fauna Reserve, Giffard (Rifle Range) Flora Reserve and Mullungdung State Forest, which retain large contiguous areas of high quality native vegetation and habitats known to support a diversity of native flora and fauna, including several threatened species and ecological communities. This includes three EPBC Act listed threatened species (Dwarf Kerrawang, Wellington Mint-bush and Martin's Toadlet) with known populations highly localised to Holey Plains State Park and nearby reserves. While not endemic to these reserves, it is noted that one of the larger intact populations of EPBC Act listed Green-striped Greenhood in Victoria occurs within Mullungdung State Forest.
- Several tributaries of the Latrobe River, such as Blind Joe Creek, Flynns Creek and Sheepwash Creek, which flow into the Latrobe River approximately 40–55 km upstream of the Gippsland Lakes Ramsar site at Lake Wellington.

Key natural features in the vicinity of the study area include the following wetlands of national and international significance which are known to be important as drought refuges for waterbirds and provide important habitat for migratory birds:

- Gippsland Lakes – Ramsar site (including the Lake Wellington and Lake Victoria Nationally Important Wetlands). The study area is located approximately 8.75 km from the western end of Lake Reeve, which is the nearest point of the Gippsland Lakes Ramsar site.
- Corner Inlet – Ramsar site and Nationally Important Wetland. The study area is located more than 23 km from the eastern end of the Corner Inlet Ramsar site.
- Jack Smith Lake State Game Reserve – Nationally Important Wetland. The study area is located approximately 5.25 km north of these wetlands.

The location of key natural features within and surrounding the study area is shown in Att_1_4_Waterways and Wetlands Map and Att_1_6_Public Land Tenure Map.

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 geomorphology within the study area is complex and encompasses a variety of landforms, from flat plains to dunes, stream plains, floodplains, dissected terrain, and wetlands as described by the Victorian Geomorphological Framework (https://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/landform_geomorphological_framework).

Two main geomorphic units dominate: *Plains without Dunes* (Darnum, Loy Yang, Giffard, Leongatha South, Munro plains), and *Dunefields* (Gormandale, Wonthaggi South, Liptrap). Smaller parts of the study area comprise other geomorphic units including *Prior stream plains* (Agnes, Yarram, Yinnar, Tinamba, Clydebank), *Floodplains and morasses* (Powlett, Tarwin, Moe, Latrobe, Thomson, Avon, Mitchell, Jack and Tarra Rivers, Dowd's Morass), *Dissected plains* (Yallourn North, Inverloch), and *Wetlands* (Wland). Refer to https://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/grg_vic_warragul for further information and mapping for these units.

The study area is characterised by undulating topography, with areas of steeper gradients associated with the Holey Plains State Park and Mullungdung State Forest, and flatter gradients along Merriman Creek and towards the coast.

Elevations throughout the study area range from approximately 20-40 m Australian Height Datum (AHD) at the connection hub investigation area located about 6 km inland from the coastline, up to approximately 220 m AHD to the south-east of Hiamdale near the northern end of Mullungdung State Forest towards the eastern extent of the Strzelecki Ranges.

Land adjacent to Merriman Creek where it passes through the study area is characterised by elevations of approximately 120-130 m AHD near Hiamdale, approximately 90-100 m AHD as the creek passes between Holey Plains State Park and Stradbroke Flora and Fauna Reserve, and approximately 70-90 m AHD east of Taylors Lane to the edge of the study area.

Parts of Holey Plains State Park within the study area are characterised by typical elevations ranging from approximately 90 m AHD along the southern boundary adjacent to Merriman Creek, rising up to approximately 210 m at locations such as Holey Hill and other peaks. Areas of lower elevation within the state park occur along deep gullies and swamps.

The western parts of the study area around Loy Yang Power Station are typically characterised by elevations around 100-130 m AHD. Higher elevations (140-220 m AHD) are prevalent along the southern edge of the study area towards Callignee State Forest and Traralgon South Flora and Fauna Reserve, while lower elevations of approximately 60-70 m AHD surround the Loy Yang coal mine.

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 investigations and the values described below relate to the whole of the study area. It is anticipated that the disturbance footprint for the project would occupy less than approximately 2 per cent of the study area. The process to refine the study area into a preferred route will seek to avoid or minimise disturbance of areas supporting significant flora and fauna values as much as practicable.

Flora and fauna investigations undertaken to date are documented in:

- Att_3_Preliminary Environmental Assessment, Section 4.9 and Appendix B – results of a desktop assessment, including searches of databases, mapping, relevant literature and publicly available reports relevant to study area; and rapid ground-truthing of potentially significant biodiversity areas from publicly accessible areas.
- Att_4_Preliminary Likelihood Assessment – likelihood of occurrence and likelihood of impact assessment for EPBC Act listed threatened species and ecological communities, and listed migratory species informed by desktop assessment, rapid ground-truthing and targeted habitat assessments, flora surveys and targeted fauna surveys (call playback, spotlighting, songmeters) on Parks Victoria managed land within the study area.

Large reserves within the study area such as Holey Plains State Park, Stradbroke Flora and Fauna Reserve, Mullungdung State Forest, and Giffard (Rifle Range) Flora Reserve support large areas of high quality, intact native vegetation providing an extensive range of high value habitats for threatened flora and fauna species in the landscape. In particular, these reserves are important for many threatened woodland species that are unlikely to occur in fragmented habitats across roadsides and private land. These reserves also link forested corridors to the Ninety Mile Beach, Gippsland Lakes and the Strzelecki Ranges.

Riparian vegetation along creeks and larger waterbodies typically in private land can also support habitat for threatened waterbirds and less mobile reptiles and amphibians, while high quality seasonal wetlands can support threatened flora. Aquatic habitats are primarily restricted to creeks and floodplains present within the landscape of the study area. There are no major rivers, lakes or reservoirs occurring within the study area which limit the range of aquatic habitats. Large, older trees, particularly hollow-bearing trees are also present in the study area both within conservation reserves and on private land, where they provide important habitat for a range of native fauna.

In addition to native vegetation communities and habitats associated with the aforementioned conservation reserves and wetland environs, the study area also supports substantial areas of agricultural land and pine and eucalypt plantation. Agricultural land is dominated by improved pasture that is largely associated with the Merriman Creek floodplain and adjoining low-lying areas, which form a central corridor throughout much of study area. Other vegetation and habitat values variously present throughout agricultural lands include native paddock trees, windrows, dams and seasonally damp habitats supporting species-poor stands of native graminoids, e.g., Rushes (*Juncus* spp.) and Sedges (*Carex* spp.).

Pine plantation, and to a lesser degree Eucalyptus plantation, covers a substantial proportion of the study area, often situated on the periphery of, and with scattered occurrences inside, conservation reserves. Many plantation parcels also include various native vegetation and habitat values, often associated with drainage lines and generally significantly degraded.

Despite the scattered and degraded condition of habitat in agricultural lands and plantations, a moderate suite of native flora and fauna will utilise these environments. As previously mentioned, hollow-bearing paddock trees provide important habitat for a suite of faunal species, while native vegetation associated with minor drainage lines and seasonally damp areas provide a degree of connectivity between larger habitat patches. As much of the former vegetation of the Merriman Creek floodplain has been cleared, native vegetation within agricultural properties is likely to provide a significant proportion of what remains of these vegetation types within the study area (e.g., EVC 3: Damp Sands Herb-rich Woodland and EVC 18: Riparian Forest).

Thirty-two listed threatened flora species have been assessed to have a 'moderate' or 'high' likelihood of occurring within the study area, based on the likely extent of suitable habitat and prevalence within the region. Of these, seven are listed as threatened under the EPBC Act, including two recorded in the study area during field investigations undertaken to date:

- River Swamp Wallaby-grass (*Amphibromus fluitans*) (EPBC Vulnerable)
- Thick-lip Spider-Orchid (*Caladenia tessellata*) (EPBC Vulnerable)
- Dwarf Kerrawang (*Commersonia prostrata*) (EPBC Endangered, *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) Endangered) – recorded in study area at previously recorded sites in Giffard (Rifle Range) Flora Reserve
- Matted Flax-lily (*Dianella amoena*) (EPBC Endangered, FFG Critically Endangered)
- Strzelecki Gum (*Eucalyptus strzeleckii*) (EPBC Vulnerable, FFG Critically Endangered)
- Wellington Mint-bush (*Prostanthera galbraithiae*) (EPBC Vulnerable, FFG Endangered) – recorded in study area at previously recorded sites in Holey Plains State Park, occurring in high-quality areas of heathy woodland
- Green-striped Greenhood (*Pterostylis chlorogramma*) (EPBC Vulnerable, FFG Endangered).

In addition, one EPBC Act listed threatened flora species, Swamp Everlasting (*Xerochrysum palustre*) (EPBC Vulnerable, FFG Critically Endangered) has been assessed to have a 'low-moderate' likelihood of occurring within the study area.

Forty-six listed threatened fauna species have been assessed to have a 'moderate' or 'high' likelihood of occurring within the study area, based on the likely extent of suitable habitat and prevalence within the region. Of these, 18 are listed as threatened under the EPBC Act, including one recorded in the study area during field investigations undertaken to date:

- Australasian Bittern (*Botaurus poiciloptilus*) (EPBC Endangered, FFG Critically Endangered)
- Gang-gang Cockatoo (*Callocephalon fimbriatum*) (EPBC Endangered, FFG Endangered) – recorded in study area within Holey Plains State Park
- Latham's Snipe (*Gallinago hardwickii*) (EPBC Vulnerable)
- White-throated Needletail (*Hirundapus caudacutus*) (EPBC Vulnerable, FFG Vulnerable)
- Swift Parrot (*Lathamus discolor*) (EPBC Critically Endangered, FFG Critically Endangered)
- Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Endangered, FFG Vulnerable)
- Blue-winged Parrot (*Neophema chrysostoma*) (EPBC Vulnerable)
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Vulnerable, FFG Vulnerable)
- Dwarf Galaxias (*Galaxiella pusilla*) (EPBC Endangered, FFG Endangered)
- Australian Grayling (*Prototroctes maraena*) (EPBC Vulnerable, FFG Endangered)
- Growling Grass Frog (*Litoria raniformis*) (EPBC Vulnerable, FFG Vulnerable)
- Martin's Toadlet (*Uperoleia martini*) (EPBC Endangered, FFG Critically Endangered)
- Southern Brown Bandicoot (*Isoodon obesulus obesulus*) (EPBC Endangered, FFG Endangered)
- Southern Greater Glider (*Petauroides volans*) (EPBC Endangered, FFG Endangered)
- Yellow-bellied Glider (*Petaurus australis*) (EPBC Vulnerable, FFG Vulnerable)
- New Holland Mouse (*Pseudomys novaehollandiae*) (EPBC Vulnerable, FFG Endangered)
- Grey-headed Flying-fox (*Pteropus poliocephalus*) (EPBC Vulnerable, FFG Vulnerable)
- Swamp Skink (*Lissolepis coventryi*) (EPBC Endangered, FFG Endangered).

In addition, one EPBC Act listed fauna species, Glossy Black-Cockatoo (*Calyptorhyncus lathami lathami*) (EPBC Vulnerable, FFG Vulnerable) has been assessed to have a 'low-moderate' likelihood of occurring within the study area.

Att_2_1_Threatened Flora Map and Att_2_2_Threatened Fauna Map show the location of previous threatened species records from the Victorian Biodiversity Atlas in the study area.

The Bureau of Meteorology's Groundwater Dependent Ecosystems Atlas (http://www.bom.gov.au/water/groundwater/gde/) indicates that potential terrestrial Groundwater Dependent Ecosystems (GDEs) are present over large portions of the study area, most notably towards the central portion and that numerous potential aquatic GDEs, including creeks and wetlands, traverse the study area.

Att_1_3_Modelled GDE Map shows the location of potential GDEs from the Groundwater Dependent Ecosystems Atlas in the study area.

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

Native vegetation in the study area is present in the Gippsland Plain bioregion, which comprises low-lying flat coastal dunes, fertile floodplains and swamps that have historically been cleared for grazing. The coastal dunes are predominantly sandy soils supporting heathy woodlands and damp sands herb-rich woodlands. The floodplains and swampy flats support swamp scrub, plains grassy woodlands and forests, plains grassland and gilgai wetland ecosystems.

Key areas with native vegetation coverage within the study area include:

- Holey Plains State Park – includes extensive banksia and open eucalypt woodlands low sandy ridges
- Stradbroke Flora and Fauna Reserve, Mullungdung State Forest and Giffard (Rifle Range) Flora Reserve – provide extensive areas of remnant forest, woodland and swampland habitats
- Riparian and floodplain vegetation associated with Sunville Creek, Warrigal Creek, Four Mile Creek, Little Monkey Creek, Monkey Creek, Crooke Creek, Merriman Creek, Blind Joe Creek, Flynns Creek and Sheepwash Creek
- Remnant woodland vegetation occurring on roadsides
- Remnant vegetation occurring on private land, primarily in the form of swamp scrub and native grasslands.

Twenty-six Ecological Vegetation Classes (EVCs) are modelled to occur within the study area based on the 2005 EVC dataset:

Endangered EVCs:

- EVC 29 Damp Forest
- EVC 45 Shrubby Foothill Forest
- EVC 53 Swamp Scrub
- EVC 55 Plains Grassy Woodland
- EVC 56 Floodplain Riparian Woodland
- EVC 74 Wetland Formation
- EVC 83 Swampy Riparian Woodland
- EVC 132 Plains Grassland
- EVC 164 Creekline Herb-rich Woodland
- EVC 259 Plains Grassy Woodland/Gilgai Wetland Mosaic
- EVC 334 Billabong Wetland Aggregate
- EVC 863 Floodplain Reedbed

Depleted EVCs:

- EVC 1 Coastal Dune Scrub/Coastal Dune Grassland Mosaic
- EVC 7 Clay Heathland
- EVC 30 Wet Forest

Vulnerable EVCs:

- EVC 2 Coast Banksia Woodland

- EVC 3 Damp Sands Herb-rich Woodland
- EVC 16 Lowland Forest
- EVC 136 Sedge Wetland
- EVC 18 Riparian Forest
- EVC 191 Riparian Scrub
- EVC 151 Plains Grassy Forest
- EVC 698 Lowland Forest/Heathy Woodland Mosaic

Least Concern EVCs:

- EVC 9 Coastal Saltmarsh
- EVC 10 Estuarine Wetland
- EVC 48 Heathy Woodland.

Att_1_2_Modelled 2005 EVC Map shows the location of modelled 2005 EVCs in the study area.

One additional EVC is modelled to occur in the study area based on the pre-1750 EVC dataset, this being EVC 125: Plains Grassy Wetland (Endangered).

Three threatened ecological communities listed under the EPBC Act as critically endangered have been identified as having a 'moderate' or 'high' likelihood of occurring within the study area. These are:

- Gippsland Red Gum (*Eucalyptus tereticornis* subsp. *mediana*) Grassy Woodland and Associated Native Grassland
- Natural Damp Grassland of the Victorian Coastal Plains
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains.

Four threatened communities listed under the FFG Act have been identified as having the potential to occur within the study area. These are:

- Central Gippsland Plains Grassland Community
- Forest Red Gum Grassy Woodland Community
- Herb-rich Plains Grassy Wetland (West Gippsland) Community
- Plains Grassland (South Gippsland) Community.

One EPBC Act listed threatened ecological community and one FFG Act listed threated community have been recorded during the limited field investigations to date within the Rosedale Bushland Reserve, these being:

- EPBC Act listed Gippsland Red Gum (*Eucalyptus tereticornis subsp. mediana*) Grassy Woodland and Associated Native Grassland
- FFG Act listed Forest Red Gum Grassy Woodland Community.

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.

A preliminary desktop assessment has been undertaken to identify heritage values relevant to the study area as described in Att_3_Preliminary Environmental Assessment, Section 4.11.

The location of known heritage places within and in proximity to the study area is shown in Att_1_5_Heritage Features Map.

There are no World Heritage Properties, National Heritage Places or Commonwealth Heritage Places within or in proximity to the study area.

The study area intersects with five historical heritage places listed on the Victorian Heritage Inventory. These are:

- H8221-0002 Broomfields Lane – former dairy and vineyard
- H8221-0003 Dunrobin – homestead complex
- H8221-0004 Traralgon South – former township location
- H8221-0005 Minniedale Road – former homestead and farming complex
- H8221-0009 Flynns Creek Upper School – former school site.

There are no places listed on the Victorian Heritage Register within the study area.

There are no places subject to a Heritage Overlay in the Latrobe Planning Scheme or Wellington Planning Scheme within the study area.

Although no assessment of the potential for unidentified historical heritage places or archaeological sites to occur within the study area has been undertaken for the project to date, it is noted that known historical heritage places within and in proximity to the study area are typically associated with the past and present use of the area for agriculture, forestry and power generation. Assessment of the potential for unidentified historical heritage places or archaeological sites to occur within the study area, including historical research and site investigations are planned to inform the corridor and route refinement process. The project will be designed to avoid potential impacts to historical heritage places where possible.

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

A preliminary desktop assessment has been undertaken to identify Indigenous heritage values relevant to the study area as described in Att_3_Preliminary Environmental Assessment, Section 4.10.

The study area is entirely within the Agreement Area of the Recognition and Settlement Agreement between the Victorian Government and the GLaWAC under the *Traditional Owner Settlement Act 2010* (Vic). The Recognition and Settlement Agreement commenced on 22 October 2010, the same day the Federal Court recognised that the Gunaikurnai people hold native title over much of Gippsland under the *Native Title Act 1993* (Cth).

GLaWAC is also the Registered Aboriginal Party for the whole of the study area for the purposes of the *Aboriginal Heritage Act 2006* (Vic).

The study area crosses several areas of Aboriginal cultural heritage sensitivity, as defined by Division 3 of the *Aboriginal Heritage Regulations 2018*. These areas of Aboriginal cultural heritage sensitivity include, but are not limited to, waterways, dune deposits and the Holey Plains State Park. The location of areas of cultural heritage sensitivity within and in proximity to the study area is shown in Att_1_5_Heritage Features Map.

A search of the Victorian Aboriginal Heritage Register 2023 / 2024 (access number 12103) identified 88 registered cultural heritage places (Aboriginal Places) in the study area (all of which have associated areas of Aboriginal cultural heritage sensitivity), with a total of 189 components. Aboriginal Places comprise 64 artefact scatters, 13 low density artefact distributions, nine scarred trees, one earth feature, and an object collection.

The overall study area has moderate to high archaeological sensitivity. Previous reports and prior Aboriginal place find locations indicate there is high archaeological sensitivity along the major waterways of the study area. Areas of high sensitivity also include the margins of swamps and other still waterbodies (including those at Loy Yang, Holey Plains State Park, Stradbroke Flora and Fauna Reserve, and Giffard).

Previous investigations have identified several landforms as sensitive for Aboriginal cultural heritage. These landforms include dune deposits, terraces and fans, hills, undulating plains, rises, ridges, crests and spurs, Haunted Hills gravels, and silcrete outcrops. The highest concentrations of cultural material have been located on elevated landforms, such as those in proximity to sources of fresh water (creeks and creek tributaries and swamps).

Physical locations that may have associated intangible Aboriginal cultural heritage significance within the study area could include songlines, major landmarks (such as boundaries between clans or language groups), ceremonial sites, or a cultural landscape.

It is expected that the project will require an EES under the EE Act, in which case a mandatory CHMP will be required under section 49 of the *Aboriginal Heritage Act 2006* (Vic). As the project is considered a high impact activity and will occur in areas of cultural heritage sensitivity as defined in the *Aboriginal Heritage Regulations 2018*, a mandatory CHMP would be triggered irrespective of whether an EES is required.

The CHMP will provide an understanding of the Aboriginal cultural heritage likely to be impacted by the project, an understanding of potential harm to Aboriginal cultural heritage, and detailed management conditions and contingency plans developed in conjunction with the Registered Aboriginal Party. The CHMP will be subject to evaluation and approval by GLaWAC as the Registered Aboriginal Party for the study area.

In addition to the CHMP, a Cultural Values Assessment will be prepared, to identify intangible and tangible Aboriginal cultural heritage values associated with the study area.

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. *

Surface water

The south-eastern parts of the study area fall within the South Gippsland basin, which drains to Bass Strait via multiple river systems, including Merriman Creek. The western and northern parts of the study area fall within the Latrobe River basin, which drains into the Ramsar-listed Gippsland Lakes via Lake Wellington. While the study area does not intersect with the Latrobe River, it intersects with several of its tributaries such as Flynns Creek, Blind Joe Creek, Sheepwash Creek and Traralgon Creek.

The study area intersects with several creeks and minor tributaries as described in Att3_Preliminary Environmental Assessment, Section 4.5 and summarised below:

Traralgon Creek – The westernmost section of the study area (west of the proposed grid connection near Loy Yang Power Station) overlaps with the main branch and several tributaries of Traralgon Creek, a tributary of the Latrobe River. Within the study area the creek is considered to be in moderate condition based on its ISC score. The Traralgon Creek catchment area consists of farmland, timber plantations, natural woodland, and urban areas. Traralgon Creek is associated with a Land Subject to Inundation Overlay (LSIO) in the Latrobe Planning Scheme, which represents the approximate 1% Annual Exceedance Probability (AEP) flood extent.

Sheepwash Creek – A fragmented tributary of the Latrobe River, the study area overlaps with the detached reach in Loy Yang. It is not associated with a LSIO.

Flynns Creek – Originates in the Strzelecki State Forest Mount Tassie Block and flows north into the Latrobe River north of Flynn. The study area crosses the creek and multiple tributaries. Within the study area the creek is considered to be in moderate condition based on its ISC score. Land use around Flynns Creek is dominated by pasture and grazing, including where intersecting with the study area. The creek is associated with an LSIO in the Latrobe Planning Scheme.

Blind Joe Creek – A tributary of the Latrobe River. The study area intersects with Blind Joe Creek and multiple unnamed tributaries north-east and north-west of Hiamdale. It is not associated with a LSIO.

Crooke Creek – A tributary of the Latrobe River. Crooke Creek and its tributaries are within the northernmost part of the study area. It is not associated with a LSIO.

Merriman Creek – Originates near Balook and enters the sea (Bass Strait) near Seaspray. The reach between the Callignee Plantation and Taylors Lane is considered to be in very poor condition based on its ISC score; the other reaches are in moderate condition. The study area contains named and unnamed tributaries, such as Bayliss Gully, Kangaroo Creek and Waterholes Creek. The majority of Merriman Creek flows through pasture and grazing areas, although where it intersects with the study area, there are also a few parcels of softwood plantation, active quarries and state park. The creek is associated with an LSIO, which represents the approximate 1% AEP flood extent, and a Floodway Overlay in the Wellington Planning Scheme.

Monkey Creek – Originates in Mullungdung State Forest and flows east into Merriman Creek in Giffard, considered to be in moderate condition based on its ISC score. The creek flows primarily through state forest, public conservation areas, and softwood plantation, including through the study area. It is not associated with a LSIO.

Little Monkey Creek – A tributary of Monkey Creek, intersects the study area at two locations – south of Stradbroke Flora and Fauna Reserve, and where Little Monkey Creek meets Monkey Creek near the South Gippsland Highway. Little Monkey Creek primarily flows through state forest land, including through the study area. It is not associated with a LSIO.

Hoddinott Creek – Located in the southern portion of the study area, near the South Gippsland Highway, Hoddinott Creek is a tributary of Sunville Creek, which is in turn a tributary of Warrigal Creek (both outside study area). Warrigal Creek flows south into the Jack Smith Lake. This creek is not associated with a LSIO.

There are also several swamps and still waterbodies within the study area, concentrated at Loy Yang south of the Hyland Highway, within Holey Plains State Park and Stradbroke Flora and Fauna Reserve, and around Giffard (Rifle Range) Flora Reserve. These include Long Swamp, Harriers Swamp and Ben Winch Swamp, which are contained entirely within Holey Plains State Park.

The study area does not intersect with a Ramsar wetland or a wetland listed in the Directory of Important Wetlands. However, multiple ‘Current Wetlands’ mapped by DEECA in the Victorian Wetland Inventory are located within the study area.

The location of wetlands and waterways within and in proximity to the study area is shown in Att_1_4_Waterways and Wetlands Map.

Much of the central part of the study area is within the Merriman Creek (Seaspray) Special Water Supply Catchment Area declared under the *Catchment and Land Protection Act 1994*. The study area is not located in any declared Irrigation Districts under the *Water Act 1989* (Vic).

The Catchment Management Authority (CMA) for the study area is West Gippsland CMA.

Groundwater

The study area is characterised by two main aquifer units under the Victorian Aquifer Framework (VAF) as described in Att_3_Preliminary Environmental Assessment, Section 4.4 and summarised below:

- **Quaternary Aquifer (QA–100):** present over a significant portion of the study area and extends from the coast inland. The distance inland varies. This aquifer extends from the coast across the eastern and south-central parts through to Willung but not including Holey Plains State Park. This aquifer is also present around Flynns Creek and Traralgon Creek in the western parts of the study area. Within the study area this unit is generally relatively thin (less than 10m) and is likely to host the water table in relatively low-lying areas.
- **Upper Tertiary/Quaternary Aquifer (102utqa)**: underlies the QA–100 aquifer, or outcrops where the QA–100 aquifer is absent. It has variable thickness and is generally relatively thin (less than 10m) near the coast, thickening to typically greater than 30m in the west.

The Victorian Aquifer Framework mapping available through Visualising Victoria's Groundwater (https://www.vvg.org.au/), indicates that:

- Depth to groundwater is highly variable over the study area, ranging from less than 5m below ground level (mbgl) in areas with relatively low elevation such as near waterways, to greater than 50mbgl in areas of relatively high elevation. Significant depressions in groundwater levels occur around the Latrobe Valley coal pits where dewatering for mining has occurred over many years.
- Regional groundwater salinity within the study area is likely to be variable, typically in the ranges of 500 to 1,000 mg/L and 1,000 to 3,500 mg/L, with a significant portion in the central north characterised by < 500 mg/L salinity.

The Victorian Aquifer Framework indicates existing bores are present throughout the study area, with a high density of bores around the Loy Yang (and the other Latrobe Valley coal mines outside).

The rural water authority for the study area is Southern Rural Water.

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

EPBC Act section	Controlling provision	Impacted	Reviewed
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. *

No places listed on the World Heritage List are located within the study area.

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. *

No places listed on the National Heritage List are located within the study area.

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	Gippsland Lakes

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 located within the study area. Gippsland Lakes is the nearest wetland listed under the Ramsar Convention. The Gippsland Lakes are fed by a number of river systems. The largest of the rivers are the Latrobe River and the Avon River (flowing into Lake Wellington and subsequently Lake Victoria), and the Mitchell River, Nicholson River and Tambo River (flowing into Lake King). The study area intersects with several tributaries of the Latrobe River, such as Blind Joe Creek, Flynns Creek and Sheepwash Creek, which flow into the Latrobe River approximately 40–55 km upstream of Lake Wellington.

The nearest point of the study area to Gippsland Lakes is Lake Reeve. The study area is located approximately 8.75 km from western end of Lake Reeve. According to the Gippsland Lakes Ramsar Site Ecological Character Description (DSEWPaC, 2010), Lake Reeve is a coastal barrier lagoon and saltmarsh complex adjacent to Ninety Mile Beach. Water enters Lake Reeve from the eastern end near Lake Victoria. Only the eastern end of Lake Reeve contains permanent water. The rest of the lake is shallow and usually dries up by early summer.

Works within the study area will not directly impact any Ramsar wetlands. Works within the study area are unlikely to indirectly impact any Ramsar wetlands. There may be potential for some impact on water quality associated with construction works such as vegetation clearance and access track waterway crossings. However, with implementation of standard erosion and sediment control practices such impacts are expected to be minimal and would be localised and not impact on the Ramsar wetlands. Construction of the transmission line above ground would limit the need for deep excavation and the need for ground disturbance works in proximity to waterways as conductors could fly-over waterways.

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	No	Amphibromus fluitans	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass
No	No	Anthochaera phrygia	Regent Honeyeater
Yes	No	Botaurus poiciloptilus	Australasian Bittern
Yes	No	Caladenia tessellata	Thick-lipped Spider-orchid, Daddy Long-legs
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris canutus	Red Knot, Knot
No	No	Calidris ferruginea	Curlew Sandpiper
Yes	No	Callocephalon fimbriatum	Gang-gang Cockatoo

Direct impact	Indirect impact	Species	Common name
Yes	No	Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo
No	No	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	No	Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)
Yes	No	Commersonia prostrata	Dwarf Kerrawang
No	No	Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)
No	No	Delma impar	Striped Legless Lizard, Striped Snake-lizard
Yes	No	Dianella amoena	Matted Flax-lily
No	No	Dodonaea procumbens	Trailing Hop-bush
Yes	No	Eucalyptus strzeleckii	Strzelecki Gum
No	No	Falco hypoleucos	Grey Falcon
Yes	No	Galaxiella pusilla	Eastern Dwarf Galaxias, Dwarf Galaxias
Yes	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Glycine latrobeana	Clover Glycine, Purple Clover
No	No	Grantiella picta	Painted Honeyeater
No	No	Heleioporus australiacus	Giant Burrowing Frog
No	No	Hirundapus caudacutus	White-throated Needletail
Yes	No	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern)
Yes	No	Lathamus discolor	Swift Parrot
No	No	Lepidium hyssopifolium	Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed
Yes	No	Lissolepis coventryi	Swamp Skink, Eastern Mourning Skink
No	No	Litoria aurea	Green and Golden Bell Frog
Yes	No	Litoria raniformis	Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog
No	No	Mastacomys fuscus mordicus	Broad-toothed Rat (mainland), Tooarrana

Direct impact	Indirect impact	Species	Common name
Yes	No	Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)
No	No	Neophema chrysogaster	Orange-bellied Parrot
Yes	No	Neophema chrysostoma	Blue-winged Parrot
No	No	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
No	No	Petauroides volans	Greater Glider (southern and central)
Yes	No	Petaurus australis australis	Yellow-bellied Glider (south-eastern)
No	No	Potorous tridactylus trisulcatus	Long-nosed Potoroo (southern mainland)
No	No	Prasophyllum spicatum	Dense Leek-orchid
Yes	No	Prostanthera galbraithiae	Wellington Mintbush
Yes	No	Prototroctes maraena	Australian Grayling
Yes	No	Pseudomys novaehollandiae	New Holland Mouse, Pookila
Yes	No	Pteropus poliocephalus	Grey-headed Flying-fox
Yes	No	Pterostylis chlorogramma	Green-striped Greenhood
No	No	Pycnoptilus floccosus	Pilotbird
No	No	Rostratula australis	Australian Painted Snipe
No	No	Senecio psilocarpus	Swamp Fireweed, Smooth-fruited Groundsel
Yes	No	Stagonopleura guttata	Diamond Firetail
No	No	Sternula nereis nereis	Australian Fairy Tern
No	No	Thelymitra epipactoides	Metallic Sun-orchid
No	No	Thesium australe	Austral Toadflax, Toadflax
No	No	Tringa nebularia	Common Greenshank, Greenshank
Yes	No	Uperoleia martini	Martin's Toadlet
Yes	No	Xerochrysum palustre	Swamp Everlasting, Swamp Paper Daisy

Ecological communities

Direct impact	Indirect impact	Ecological community
Yes	No	Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland
Yes	No	Natural Damp Grassland of the Victorian Coastal Plains
Yes	No	Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains

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. *

VicGrid will undertake a process to refine the study area to a preferred route. This process will seek to avoid important habitat and known locations of threatened species and ecological communities. It is anticipated that the disturbance footprint would be less than approximately 2 per cent of the study area. As such the opportunity to avoid and minimise impacts to protected matters is strong, particularly where these are in isolated/specific areas. However, avoidance of all such areas may not be practicable in the context of balancing other environmental, cultural heritage, land use and technical constraints. As such, a preliminary assessment has determined that the project has potential to intersect and impact areas of native vegetation, threatened ecological communities, and threatened species or their habitats, which are likely to occur within the study area.

There is potential for impacts to threatened species and ecological communities, if present, due to:

- Clearing for temporary construction areas, permanent infrastructure, establishment and maintenance of electric line safety clearance zones, potentially resulting in the loss or degradation of native vegetation, including threatened ecological communities, threatened flora and habitat for threatened species
- Clearing for the transmission line easement, including associated bushfire management and electric line safety clearance zones, potentially causing fragmentation of native vegetation and habitat affecting movement and dispersal of threatened species
- Construction activity potentially resulting in the spread or introduction of weeds, pests and pathogens into native vegetation and habitat areas
- Construction of access tracks or other works within waterways or wetlands potentially resulting in the loss or modification of habitat, or creation of movement barriers, affecting threatened aquatic species
- Construction activity within or in proximity to waterways or wetlands resulting in ground disturbance and runoff of sediments, chemicals and rubbish into waterways or waterbodies potentially degrading habitat for threatened species
- Construction activity causing changes to groundwater/surface water levels, potentially altering ecohydrology conditions that support threatened ecological communities, threatened species or habitat
- Installation of above ground transmission infrastructure (i.e., towers and conductors) potentially increasing collision risk for some bird and bat species, including listed threatened species
- Increased artificial light, noise or vibration generated during construction activities potentially causing disturbance or interfering with breeding of native fauna, including threatened species

- Movement of construction plant and machinery potentially increasing collision risk for native fauna, including threatened species
- Fragmentation of contiguous native vegetation and habitats increasing the potential for edge effects such as micro-climatic changes, weed and pest invasion, etc potentially impacting retained adjacent threatened ecological communities, threatened species and habitat
- Introduction of a newly cleared area and transmission towers as access and vantage points, potentially contributing to increased risk of predation of native fauna, particularly if the project is located in proximity to forested and woodland areas.

Potential impacts to threatened species and ecological communities are likely to result primarily from clearing of native vegetation. Vegetation clearing resulting in habitat loss and fragmentation could potentially lead to a long-term decrease in the size of populations, fragmentation of populations, and/or disruption of breeding cycles.

It is highly unlikely that all threatened species and ecological communities present within the study area would be impacted by the project, as the nature and extent of impacts to threatened species and ecological communities will depend on the location of the project within the broad study area.

The potential for listed threatened species to be impacted through collision with transmission infrastructure is still to be confirmed as a collision risk assessment is yet to be completed for the project. A collision risk assessment is planned to assess potential impacts on bird (and bat) species, including listed threatened species as relevant. As part of the assessment, consideration will be given to important habitat for threatened bird and bat species in the surrounding landscape, migration routes, nesting sites, and main flight paths between habitats and roosting sites to understand how the proposed aerial infrastructure could fragment flight paths/ migration routes and / or pose a greater risk of collision to threatened species. An understanding of flight heights and behaviours, and morphological traits (e.g., wing length, body length) as an important predictor of bird and bat exposure to collision risk, will also be applied to understand the ability of particular species to avoid the transmission infrastructure or collision risk.

The project refinement process will seek to avoid dissecting areas of contiguous native vegetation and habitat, particularly those supporting threatened species or ecological communities.

To a lesser extent, the potential for impacts to threatened species and ecological communities may also exist outside the large contiguous areas of native vegetation and habitat, particularly if the project:

- Intersects vegetated roadside and riparian corridors, which can provide important habitat corridors in agricultural landscapes devoid of other contiguous vegetation
- Impacts important habitat values within the agricultural landscapes, such as through the removal of large, hollow-bearing trees which can provide habitat for threatened species; or the infilling of wetlands or swamp areas supporting native vegetation (which can provide habitat for threatened species such as Swamp Skink) for access tracks or construction pads.

Further assessment of ecological values within the study area will be required to determine the extent and quality of threatened ecological communities, threatened species and habitat impacted as the project corridor refinement and design progress.

Att_4_Preliminary Likelihood Assessment describes the threatened species and ecological communities relevant to the study area and their likelihood of occurrence, as well as the likelihood of significant impacts to occur from the project, without considering mitigation measures.

Section 4.1.4.5 outlines potential impacts to the threatened species and ecological communities identified as having a ‘moderate’ or ‘high’ likelihood of occurrence within the study area.

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. *

A preliminary assessment has been undertaken based on primarily desktop information and the potential for the project to be located within a currently undefined location within the study area. For each EPBC Act listed threatened species and ecological community identified as relevant to the study area, the assessment has determined a preliminary likelihood of significant impact (before any avoidance or mitigation measures are applied).

Further assessment will be required to determine the potential for the project to impact on specific species and ecological communities. The specific species and ecological communities that would be impacted will depend on the final design of the project as there is capacity to avoid potential habitat by avoiding areas of extensive native vegetation and identified populations of threatened species where practicable. Detailed ecological field investigations, including native vegetation and habitat assessment and mapping, and targeted surveys are planned for the next 12-18 months to inform the corridor and route refinement process and design, and identify avoidance and mitigation measures.

Based on the preliminary assessment, the following 12 EPBC Act listed threatened species have been assessed as having a 'moderate' or 'high' likelihood of a significant (unmitigated) impact:

- Dwarf Kerrawang (*Commersonia prostrata*) – Potential impact through clearing of native vegetation where this species is present, particularly around wetlands and waterways. Potential for significant impact given known populations mostly limited to Holey Plains State Park and Giffard (Rifle Range) Flora Reserve in the study area, therefore any potential impacts through clearing of native vegetation could lead to a significant impact.
- Strzelecki Gum (*Eucalyptus strzeleckii*) – Potential impact through clearing of native vegetation where this species is present. Potential for significant impact as the species is expected to be locally abundant in some locations within the study area and impacts to all individuals may not be fully avoidable during corridor refinement.
- Wellington Mint-bush (*Prostanthera galbraithiae*) – Potential impact through clearing of native vegetation where this species is present. Potential for significant impact as the species is mostly known only from Holey Plains State Park where it is known to be locally abundant, therefore any potential impacts through clearing of native vegetation could lead to a significant impact.
- Green-striped Greenhood (*Pterostylis chlorogramma*) – Potential impact through clearing of native vegetation where this species is present. Potential for significant impact as the species is known to be locally abundant in Holey Plains, Stradbroke and Mullungdung reserves, therefore any potential impacts through clearing of native vegetation could lead to a significant impact.
- Gang-gang Cockatoo (*Callocephalon fimbriatum*) and Blue-winged Parrot (*Neophema chrysostoma*) – Potential impact through clearing of native vegetation, particularly nesting trees and important foraging habitat. Potential for significant impact if clearing of foraging habitat within the large state parks and reserves and removal of nesting trees is unavoidable.
- Martin's Toadlet (*Uperoleia martini*) – Potential impact through clearing of native vegetation, particularly around wetlands and waterways within the large state parks and reserves. Potential for significant impact given the species is known only from the Holey Plains State Park, therefore any potential impacts through clearing of native vegetation could lead to a significant impact.
- Southern Greater Glider (*Petauroides volans*) and Yellow-bellied Glider (*Petaurus australis*) – Potential impact through clearing of native vegetation, particularly large, hollow-bearing trees within Holey Plains State Park and along Merriman Creek. Potential for significant impact if clearing of foraging habitat within the large state parks and reserves and along Merriman Creek, and removal of hollow-bearing trees is unavoidable.
- Southern Brown Bandicoot (*Isoodon obesulus obesulus*) – Potential impact through clearing of native vegetation, particularly sandy heathlands and heathy woodlands present in Holey Plains, Stradbroke

and Mullungdung reserves.Potential for significant impact given clearing of suitable habitat is unlikely to be fully avoidable, however the species is not known to occur within study area, despite suitable habitat present.

- New Holland Mouse (*Pseudomys novaehollandiae*) – Potential impact through clearing of native vegetation, particularly sandy heathlands and heathy woodlands present in Holey Plains, Stradbroke and Mullungdung reserves. Potential for significant impact as it is unlikely that suitable habitat is fully avoidable by the project, however the species is not known to occur within the study area and an important population is unlikely present.
- Swamp Skink (*Lissolepis coventryi*) – Potential impact through clearing of native vegetation, particularly around wetlands and waterways. Potential for significant impact given extensive areas of suitable swampy habitat are likely to occur within the study area which are unlikely to be fully avoidable, and any potential impacts through clearing of native vegetation could lead to a significant impact.

The following 15 EPBC Act listed threatened species have been assessed as having a 'low' likelihood of significant (unmitigated) impacts:

- River Swamp Wallaby-grass (*Amphibromus fluitans*) and Swamp Everlasting (*Xerochrysum palustre*) – Small, isolated populations expected to be present within high-quality areas of seasonal wetlands, which are likely to be avoidable during corridor refinement and micro-siting of ground disturbance works (ground storey species not requiring removal for line safety clearance in easement).
- Thick-lip Spider-orchid (*Caladenia tessellata*) – Small, isolated populations expected to be present within high-quality areas of heathy woodland, which are likely to be avoidable during corridor refinement and micro-siting of ground disturbance works (ground storey species not requiring removal for line safety clearance in easement).
- Matted Flax-lily (*Dianella amoena*) – Small, isolated populations expected to be present within high-quality areas of grassy woodland, which are likely to be avoidable during corridor refinement and micro-siting of ground disturbance works (ground storey species not requiring removal for line safety clearance in easement).
- Australasian Bittern (*Botaurus poiciloptilus*) – Large, well-vegetated wetland habitat is likely to be avoidable during corridor refinement due to limited occurrence in study area and technical constraints associated with siting infrastructure in these areas.
- Latham's Snipe (*Gallinago hardwickii*) – Clearing of smaller, vegetated wetland habitat is likely to be minimised through corridor refinement. While some potential habitat removal may be unavoidable, it is unlikely to have a significant impact on the species given the study area is unlikely to support an important population or habitat critical to survival of this species.
- Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) – The species has not previously been recorded in the study area, however there is low potential for impact if clearing of native vegetation, particularly nesting trees and foraging habitat within the large state parks and reserves is unavoidable.
- White-throated Needletail (*Hirundapus caudacutus*) – Aerial species, no potential for significant impact through clearing of native vegetation.
- Swift Parrot (*Lathamus discolor*) – Study area provides infrequently visited winter foraging grounds, not listed as important habitat and relatively few important winter-flowering eucalypt species within study area.
- Hooded Robin (*Melanodryas cucullata cucullata*) and Diamond Firetail (*Stagonopleura guttata*) – Study area is at the edge of the range for these species with the woodland within the study area receiving too much rainfall to be considered optimal habitat for species.
- Dwarf Galaxias (*Galaxiella pusilla*) and Australian Grayling (*Prototroctes maraena*) – Potential impact through clearing riparian vegetation, which may impact water quality and consequently affect suitable habitat, particularly along Flynns Creek and Merriman Creek. Significant impacts to waterways likely to be avoidable during corridor refinement due to technical constraints associated with siting infrastructure in these areas.

- Growling Grass Frog (*Litoria raniformis*) – Potential impact through clearing of native vegetation, particularly around wetlands and waterways. Significant impacts to waterways likely to be avoidable during corridor refinement due to technical constraints associated with siting infrastructure in these areas.
- Grey-headed Flying-fox (*Pteropus poliocephalus*) – Potential impact through clearing of native vegetation, particularly along waterways. Significant impacts unlikely given there are no known camps within the study area and limited suitable habitat is present for camp establishment, there is limited foraging habitat available, and the species can disperse easily if disturbed.

There is a 'low' likelihood that the project may have a significant (unmitigated) impact on the Gippsland Red Gum (*Eucalyptus tereticornis subsp. mediana*) Grassy Woodland and Associated Native Grassland, Natural Damp Grassland of the Victorian Coastal Plains or Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains. There is potential impact through clearing of native vegetation where these communities are present, however only small, isolated patches of these TECs are expected in the study area and as such, are likely avoidable through corridor refinement

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. *

Preliminary assessments have identified the likely presence of listed threatened ecological communities, threatened species and habitat within the study area.

While VicGrid is committed to avoiding impacts to listed threatened species and ecological communities where practicable, due to the large scale of the proposed infrastructure and associated ancillary works, and the presence of other environmental, cultural heritage, land use and technical constraints, there is currently a high level of uncertainty that a significant impact can be avoided for all of the listed threatened species and ecological communities likely to be present.

Based on the information currently available, and adopting a conservative approach to assessment, there is potential for the project to have a significant impact on listed threatened species and ecological communities as discussed in section 4.1.4.5.

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 broad study area is currently identified for the project for the purpose of maximising opportunities to avoid and minimise impacts to MNES (and other values) through the completion of detailed field investigations and consultation, which will inform the refinement of the study area into a study corridor and subsequent preferred route, design and construction methods.

Detailed field investigations are planned to identify the location of threatened ecological communities, threatened species and habitat, including mapping and condition assessment. Targeted surveys for threatened flora and fauna species will be undertaken in accordance with relevant Commonwealth and State survey guidelines within identified areas of suitable habitat. If detailed field investigations are not able

to be fully completed (e.g., due to land access constraints), alternative methods for evaluating the location of threatened species and ecological communities will be developed in consultation with DCCEEW and a precautionary approach adopted where uncertainty exists.

A corridor and route refinement process has been developed for the project. The process will include methods for identification and evaluation of areas likely to support listed threatened species and ecological communities at each stage of the refinement process. It is intended that areas supporting listed threatened species and ecological communities would be avoided where practicable, with highest priority given to avoidance of impacts to species or communities listed as critically endangered or having a distribution highly localised to the vicinity of the study area.

The extent to which the corridor and route refinement process can avoid impacts to listed threatened species and ecological communities and the need for additional mitigation measures will be determined through further assessment.

Further to the process to refine the route, preliminary mitigation measures to avoid and minimise potential impacts on listed threatened species and ecological communities, if present, include:

- Minimise native vegetation clearance by applying the principles of avoid and minimise throughout the design, construction and operation of the project, and offset unavoidable native vegetation loss.
- Minimise fragmentation impacts, for example, by siting the proposed transmission line route outside of or along the edges of contiguous native vegetation and habitat areas, where practicable, and limiting clearance widths and understorey removal in ecologically sensitive areas to the minimum extent necessary to manage bushfire and electricity line safety risks.
- Micro-siting towers and other infrastructure based on the findings of ecological surveys to avoid ecological values, where practicable, including consideration of tower heights and span lengths to avoid ecologically sensitive areas.
- Minimise collision risk for bird and bat species based on the findings of a collision risk assessment, for example through siting of transmission infrastructure and use of visual aids, where practicable.
- Scheduling works to avoid impacting breeding and nesting of species, where practicable.
- Minimise works in waterways and riparian areas, for example by utilising existing track crossings where practicable, and by siting towers with sufficient setback to avoid impacts on flows and to maximise conductor clearance to overfly riparian vegetation.
- Develop and implement environmental management plans/procedures for construction, operation and maintenance of the project that outline measures to:
- protect areas of native vegetation, threatened ecological communities, threatened species habitat and other ecologically sensitive areas, for example by establishing no-go zones
- mitigate potential for harm to native fauna during habitat clearance, or due to entrapment in excavations, vehicle collision, or creation of barriers preventing movement to important foraging or breeding resources
- manage noise, vibration, and light spill from construction areas which could disturb threatened species
- prevent the introduction or spread of weeds, pests or pathogens
- prevent erosion and the release of sediment, chemicals, fuels or other pollutants to waterways or wetlands.

Mitigation measures will be further explored and identified during detailed environmental investigations to be undertaken for the project.

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

It is not yet known if there will be any offset requirements for the project. This would be confirmed through further assessment and following application of measures that prioritise avoidance and minimisation of impacts to listed threatened species and ecological communities. Where required, an offset plan would be prepared in accordance with the EPBC Act Environmental Offsets Policy (DSEWPaC, 2012) (https://www.dcceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy).

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
No	No	Apus pacificus	Fork-tailed Swift
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris canutus	Red Knot, Knot
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Calidris melanotos	Pectoral Sandpiper
No	No	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
Yes	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Hirundapus caudacutus	White-throated Needletail
No	No	Monarcha melanopsis	Black-faced Monarch
No	No	Motacilla flava	Yellow Wagtail
Yes	No	Myiagra cyanoleuca	Satin Flycatcher
No	No	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
No	No	Pandion haliaetus	Osprey

Direct impact	Indirect impact	Species	Common name
Yes	No	Rhipidura rufifrons	Rufous Fantail
No	No	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. *

The study area is not likely to contain important habitat for any listed migratory species. However, the project has potential to intersect and impact areas of native vegetation, including around wetlands and waterways, which may provide occasional foraging habitat and movement corridors for listed migratory species.

The following wetlands of national and international significance occur in proximity to the study area, and are known to be important as drought refuges for waterbirds and provide important habitat for migratory birds:

- Gippsland Lakes – Ramsar site
- Corner Inlet – Ramsar site and Nationally Important Wetland
- Jack Smith Lake State Game Reserve – Nationally Important Wetland
- Lake Wellington – Nationally Important Wetland
- Lake Victoria – Nationally Important Wetland.

There is potential for some of the species dependent on these surrounding important wetland habitats and other listed migratory species to occasionally utilise habitats within the study area for foraging.

project activities have potential to impact listed migratory species utilising the study area through loss of potential foraging habitat due to vegetation clearing, changes in water quality due to construction area runoff, or changes in groundwater levels or surface water inflows to wetland habitats. Installation of above ground transmission infrastructure (i.e., towers and conductors) could also potentially increase collision risk for some listed migratory bird species moving through the study area.

Att_4_Preliminary Likelihood Assessment describes the listed migratory species relevant to the study area and their likelihood of occurrence, as well as the likelihood of significant impacts to occur from the project, without considering mitigation measures.

Of the 16 listed migratory species assessed as potentially occurring within the study area, the following 5 were assessed as having a ‘moderate’ or ‘high’ likelihood of occurring:

- Fork-tailed Swift (*Apus pacificus*) – As an almost exclusively aerial species that does not breed in Australia, the project is unlikely to significantly impact this species through clearing of native vegetation. Preliminary review indicates a significant impact due to collision is unlikely due to this being an adept aerial species that is unlikely to collide with static infrastructure.
- Latham's Snipe (*Gallinago hardwickii*) – Small areas of suitable wetlands and water bodies occur in the study area however the project will not impact any significant wetlands or lagoons (i.e., Gippsland Lakes) that would be preferred by a large number of individuals. The project is unlikely to have a significant impact on this species given the study area is unlikely to support important habitat or an ecologically significant proportion of a population of this species. Preliminary review indicates a

significant impact due to collision is unlikely – avoiding siting transmission line crossing or passing near suitable wetland habitat where birds may collide when taking off or descending would further reduce risk.

- White-throated Needletail (*Hirundapus caudacutus*) – As a mostly aerial species, which can periodically roost in trees but does not breed in Australia, the project is unlikely to significantly impact this species through clearing of native vegetation. Preliminary review indicates a significant impact due to collision is unlikely due to this being an adept aerial species that is unlikely to collide with static infrastructure.
- Satin Flycatcher (*Myiagra cyanoleuca*) – Potential impact through clearing of foraging habitat within the large state parks and reserves, however this species is highly mobile and able to utilise a wide range of habitats in the surrounding area if displaced. The project is unlikely to have a significant impact on this species given the study area is unlikely to support important habitat or an ecologically significant proportion of a population of this species. Preliminary review indicates a significant impact due to collision is unlikely due to species' preference to forage within the forest canopy.
- Rufous Fantail (*Rhipidura rufifrons*) – Potential impact through clearing of foraging habitat within the large state parks and reserves, particularly damp and wet forest areas. The project is unlikely to have a significant impact on this species given the study area is unlikely to support important habitat or an ecologically significant proportion of a population of this species. Preliminary review indicates a significant impact due to collision is unlikely due to species' preference to forage within mid-level vegetation.

Further assessment of habitat availability and condition within the study area and utilisation of the study area by listed migratory species will be required to determine the extent of potential impacts on listed migratory species. Detailed ecological field investigations, including habitat assessment and mapping, and targeted surveys are planned for the next 12-18 months to inform the corridor and route refinement process and design, and avoidance and mitigation measures relating to listed migratory species and habitat. A collision risk assessment is also planned to assess potential impacts on bird (and bat) species, including listed migratory species as relevant.

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

No

4.1.5.6 Describe why you do not consider this to be a Significant Impact. *

The study area is not likely to support important habitat or an ecologically significant proportion of the population of a listed migratory species as defined in the Significant Impact Guidelines 1.1: Matters of National Environmental Significance. As such, there is a 'low' likelihood of the project having a significant impact on a listed migratory species.

The project is unlikely to impact any large, wetland areas that could support large numbers of listed migratory species given such habitat types are rare within the study area and if present, are likely to be avoidable by the corridor refinement process noting such areas also pose technical constraints to establishing transmission infrastructure.

Some uncertainty exists in relation to the potential for collision risk for listed migratory species, noting that a collision risk assessment is yet to be completed for the project. However, given the limited availability of suitable habitat for most listed migratory species within the study area and relatively low numbers of previous records of these species utilising the study area, a significant impact is still considered unlikely despite the uncertainty.

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

No

4.1.5.9 Please elaborate why you do not think your proposed action is a controlled action. *

As described in section 4.1.5.6, the project is unlikely to have a significant impact on any listed migratory species and is therefore not considered to be a controlled action.

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. *

The avoidance and mitigation measures set out in section 4.1.4.10 in relation to listed threatened species and ecological communities will also assist in mitigation of potential impacts to listed migratory species. In particular, potential impacts to listed migratory species would be reduced by applying the mitigation measures relating to corridor and route refinement, and minimising native vegetation clearance and habitat loss, collision risk, works in waterways and riparian areas, and water quality impacts.

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

It is not anticipated that any offset requirements will be required for the project in relation to listed migratory species. However, this would be confirmed through further assessment and following application of measures that prioritise avoidance and minimisation of impacts to listed migratory species.

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 does not involve a nuclear action, as defined in Section 22 of the EPBC Act.

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 study area is located approximately 10 km from the Commonwealth Marine Area off the Gippsland coastline.

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 study area is located more than 1,000 km from the Great Barrier Reef Marine Park.

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 does not involve a large coal mining, coal seam gas or unconventional gas development.

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.

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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 study area does not affect any Commonwealth Land. The nearest Commonwealth Land is located more than 10 km north-east of the study area on Seaspray Road, near Longford.

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. *

The study area does not include any Commonwealth heritage places overseas.

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)

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)
- Migratory Species (S20)
- 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. *

Options Assessment Method

To select the study area for the project, an initial area of interest was identified in October 2022 for the development of the new offshore wind transmission connection point(s) in Gippsland (see Figure 4 of Att_5_Offshore Wind Energy Transmission Gippsland Options Assessment). The area of interest was selected based on the Australian Government's declared offshore wind area off the Gippsland coast. VicGrid's investigations and local engagement started by considering this area of interest, and a range of corridor and technology options for achieving the needs and objectives for offshore wind energy transmission.

VicGrid used a comprehensive Options Assessment Method to evaluate a wide range of potential transmission corridor and technical options. The assessment compared different options against a set of criteria, informed by community feedback, desktop analysis and technical advice. The Final Options Assessment Method is available online at https://engage.vic.gov.au/project/offshore-wind-transmission/page/final-options-assessment-method.

Key features of the Options Assessment Method included:

- A filtering process that allows VicGrid to assess a wide range of technically feasible options
- The establishment of assessment criteria comprising project Objectives that maximise positive outcomes, and Guiding Principles that minimise negative outcomes
- An assessment of social, environmental, cultural, land use, economic and technical factors alongside electricity transmission factors
- Early engagement with landholders and local communities to inform the development, weighting and scoring of assessment criteria
- Robustness testing of the results through sensitivity analysis
- Separate discussions with GLaWAC about partnership and engagement approaches on offshore wind transmission.

Selection of preferred corridor option and study area

VicGrid developed a long list of 12 transmission corridor options by mapping existing land uses, features, values, and areas of sensitivity to identify potential pathways for the new transmission. VicGrid used the Options Assessment Method to undertake a high-level analysis of the long list of corridor options and identify key points of difference between the options. The 5 best-performing options were included in a short list for detailed assessment using the criteria in the Options Assessment Method. The 12 long list options and 5 short list options are shown in Figure 10 and Figure 12 respectively of Attachment 5_Offshore Wind Energy Transmission Gippsland Options Assessment.

The assessment identified a preferred option, known as Corridor 5, which has the following features in comparison with the other 4 short list options:

- Shorter length (approximately 68 km) and fewer engineering complexities which helps to reduce the project cost, flow-on cost to consumers and construction time
- Avoids major residential areas and sensitive community assets
- Opportunities to explore alignment with other infrastructure, including roads and the Basslink transmission line, a preference raised through local community engagement
- Balances different land uses, interacting with a lower proportion of agricultural land and a higher proportion of public and plantation land – such that they are more similar in size
- Central to the offshore wind declared area, with flexibility to respond and extend to different offshore wind farm locations.

VicGrid used the identified preferred option to create a broader study area. The study area around the preferred corridor option is necessarily broad to help retain flexibility to respond to new information that will be identified through community and landholder engagement, technical studies and field work. This flexibility will maximise opportunities for the design and location of the new transmission infrastructure to avoid or minimise impacts as much as possible.

Selection of preferred technology option

VicGrid identified and assessed transmission technology options to meet the first offshore wind energy target of at least 2 GW by 2032. VicGrid also took into consideration how these options may need to be expanded to cater for the longer term targets of at least 4 GW by 2035 and 9 GW by 2040.

A long list of 8 technical options was identified, with different transmission technologies and designs including HVAC and High Voltage Direct Current (HVDC) overhead and underground options, operating at different voltages. VicGrid used the Options Assessment Method to undertake a high-level analysis of the long list of technical options and to identify key points of difference between the options. See Table 14 and Table 15 of Att_5_Offshore Wind Energy Transmission Gippsland Options Assessment for the description and assessment results for the long list options.

The 5 best-performing options were included in a short list for detailed assessment, including:

- HVAC overhead options operating at 500 kV and 330 kV (T1 and T3)
- 1 HVDC underground option operating at +/-525 kV (T10)
- 2 Hybrid options comprising a combination of both HVAC 330 kV overhead and HVDC +/- 525 kV underground technologies (T11A and T11B). The Hybrid technical option (T11) was developed into two options (T11A and T11B) to reflect the different ways a hybrid option can cater for both the 2 GW and longer-term offshore wind energy targets.

See Table 16 and Table 17 of Att_5_Offshore Wind Energy Transmission Gippsland Options Assessment for the description and assessment results for the short list options.

The assessment found that the HVAC 330 kV and 500 kV overhead options scored the highest overall, particularly due to lower cost impacts to energy consumers and lower engineering complexities. In addition to the significant additional costs, the underground HVDC options would involve longer construction times and higher procurement risk. This could make it harder to achieve the target timeframes for building the new Gippsland offshore wind energy transmission project.

The overhead transmission options did not score as well as underground options in relation to potential visual impacts and local landholder and community preferences for underground cable infrastructure. The scoring for the preferred options was tested for sensitivity to changes that assigned more weight to minimising impacts on host landholders and communities. This sensitivity testing still resulted in higher overall scores for the HVAC 330 kV and 500 kV overhead options.

The underground options require a narrower easement width than the HVAC overhead options, which reduces land use impacts to a smaller footprint. However, the overhead options were assessed as more favourable from an agricultural land use perspective, as grazing and cropping is generally permitted within an overhead line easement albeit with restrictions, whereas cropping is generally not permitted within an underground easement. Impacts on biodiversity are expected to be similar across overhead and underground transmission infrastructure. Underground options may involve more disturbance of flora and fauna during construction but HVDC underground easements are narrower than HVAC overhead easements which may reduce the potential operational impact

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_1 Study Area Map.pdf Map that shows study area		No	High

1.2.7 Public consultation regarding the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_ EPBC Referral Att 10_Phase 2 Engagement Report.pdf Phase 2 engagement report	31/10/2023	No	High

#2.	Document	Gippsland OSW TX 2GW Project_ EPBC Referral Att 6_Development and Engagement Roadmap.pdf Development and engagement roadmap	28/02/2024	No	High
#3.	Document	Gippsland OSW TX 2GW Project_ EPBC Referral Att 7_Draft OAM.pdf Draft Options Assessment Method	01/07/2024	No	High
#4.	Document	Gippsland OSW TX 2GW Project_ EPBC Referral Att 8_Final OAM.pdf Final Options Assessment Method	31/10/2024	No	High
#5.	Document	Gippsland OSW TX 2GW Project_ EPBC Referral Att 9_Phase 1 Engagement Report.pdf Phase 1 engagement report	01/07/2024	No	High
#6.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 5_ Gippsland Options Assessment Report.pdf Report that outlines options assessment method and results	29/02/2024	No	High

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

	Type	Name	Date	Sensitive	Confidence
#1.	Link	What we do https://www.deeca.vic.gov.au/our-department/what..			High

2.2.5 Tenure of the action area relevant to the project area

	Type	Name	Date	Sensitive	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_6 Public Land Tenure Map.pdf Map that shows public land tenure	22/07/2024	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitive	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 3_Gippsland Prelim Enviro Assessment.pdf Desktop preliminary environmental assessment	22/07/2024	No	High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitive	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_10 Major Infrastructure Map.pdf map showing existing and Proposed Major Infrastructure	22/07/2024	No	High

#2.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_7 Planning Zones Map.pdf map of planning zones	22/07/2024	No	High
#3.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_8 Planning Overlays Map.pdf map showing planning overlays	22/07/2024	No	High
#4.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_9 Key Land Use Features Map.pdf Map showing key land use features	22/07/2024	No	High
#5.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 3_Gippsland Prelim Enviro Assessment.pdf Desktop prelim enviro assessment			High

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

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_4 Waterways and Wetlands Map.pdf Map of Waterways and Wetlands	22/07/2024	No	High
#2.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_6 Public Land Tenure Map.pdf Map that shows public land tenure			High

3.1.4 Gradient relevant to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Geomorphology of Victoria - Warragul https://vro.agriculture.vic.gov.au/dpi/vro/vrosi..			High
#2.	Link	Victorian Geomorphological Framework (VGF) https://vro.agriculture.vic.gov.au/dpi/vro/vrosi..			High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_ EPBC Referral Att 4_ Preliminary Likelihood Assessment Tables.pdf Preliminary Likelihood Assessment Tables	22/07/2024	No	High
#2.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_3 Modelled GDE Map.pdf Map of Modelled GDE	22/07/2024	No	High
#3.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 2_1 REDACTED Threatened Flora Records Map.pdf Threatened flora records redacted	30/09/2024	No	High
#4.	Document				

		Gippsland OSW TX 2GW Project_EPBC Referral Att 2_1 Threatened Flora Records Map.pdf Threatened flora records	30/09/2024	Yes	High
#5.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 2_2 REDACTED Fauna Records Map.pdf Threatened fauna records redacted	30/09/2024	No	High
#6.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 2_2 Threatened Fauna Records Map.pdf Threatened fauna records	30/09/2024	Yes	High
#7.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 3_Gippsland Prelim Enviro Assessment.pdf Desktop prelim enviro assessment			High
#8.	Link	Groundwater Dependent Ecosystems Atlas http://www.bom.gov.au/water/groundwater/gde/			High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_2 Modelled 2005 EVC Map.pdf map of 2005 EVCs in the study area	22/07/2024	No	High

3.3.1 Commonwealth heritage places overseas or other places that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_5 Heritage Features Map.pdf map of heritage features	22/07/2024	No	High
#2.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 3_Gippsland Prelim Enviro Assessment.pdf Desktop prelim enviro assessment			High

3.3.2 Indigenous heritage values that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_5 Heritage Features Map.pdf map of heritage features			High
#2.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 3_Gippsland Prelim Enviro Assessment.pdf Desktop prelim enviro assessment			High

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 1_4 Waterways and Wetlands Map.pdf Map of Waterways and Wetlands		High
#2.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 3_Gippsland Prelim Enviro Assessment.pdf Desktop prelim enviro assessment		High
#3.	Link	Victorian Aquifer Framework mapping https://www.vvg.org.au/		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	Gippsland OSW TX 2GW Project_ EPBC Referral Att 4_ Preliminary Likelihood Assessment Tables.pdf Preliminary Likelihood Assessment Tables		No	High

4.1.4.11 (Threatened Species and Ecological Communities) Proposed offsets relevant to avoidance or mitigation measures

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	EPBC Act environmental offsets policy https://www.dcceew.gov.au/environment/epbc/publi..			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	Gippsland OSW TX 2GW Project_ EPBC Referral Att 4_ Preliminary Likelihood Assessment Tables.pdf Preliminary Likelihood Assessment Tables			High

4.3.8 Why alternatives for your proposed action were not possible

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Gippsland OSW TX 2GW Project_EPBC Referral Att 5_ Gippsland Options Assessment Report.pdf Report that outlines options assessment			High
#2.	Link	Final Options Assessment Method https://engage.vic.gov.au/project/offshore-wind-..			High

5.2 Declarations

Completed Referring party's declaration

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

ABN/ACN	90719052204
Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004
Representative's name	Alexandra Niakolas-Molluso
Representative's job title	Senior Planning and Environment Project Officer
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Email	alexandra.niakolas-molluso@deeca.vic.gov.au
Address	2 Lonsdale Street, 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. *

☑ By checking this box, I, **Alexandra Niakolas-Molluso of VicGrid**, 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	90719052204
Organisation name	VicGrid
Organisation address	2 Lonsdale Street, Melbourne, VIC 3004
Representative's name	Danny Benjamin
Representative's job title	Executive Director, Project Delivery

Phone	1800418341
Email	vicgrid@deeca.vic.gov.au
Address	PO Box 500, East Melbourne VIC 3002

☑ 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, **Danny Benjamin of VicGrid**, 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, **Danny Benjamin of VicGrid**, 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. *