Gippsland 1 Offshore Wind Farm

Application Number: **02968** Commencement Date: **24/06/2025** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Gippsland 1 Offshore Wind Farm

1.1.2 Project industry type *

Energy Generation and Supply (renewable)

1.1.3 Project industry sub-type

Wind Farm

1.1.4 Estimated start date *

01/01/2029

1.1.4 Estimated end date *

31/12/2072

1.2 Proposed Action details

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

The proposed project is the construction, operation and decommissioning of the Gippsland 1 Offshore Wind Farm and supporting infrastructure (approximate capacity of 2.8 GW).

The Project consists of the following areas as shown in **Attachment 1 – Figures and Maps**:

- Offshore wind farm (OWF) site (approximately 700 km2) – within the Feasibility Licence Area in Commonwealth waters.
- Offshore cable referral area (approximately 4300 km2) – in Commonwealth waters.
- Nearshore cable referral area (approximately 150 km2) – in Victorian coastal waters.
- Onshore transmission referral area (approximately 230 km2) – on land.

The referral is for the full 2.8 GW but the Project will be phased, with the phasing to be determined based on decisions around commercial viability during the development stage.

The referral area is larger than the expected footprint of the final Project to allow flexibility during the design process due to uncertainty around the location of other infrastructure, including assets being planned by other offshore wind farm developers and VicGrid's connection hub. Flexibility also enables design modifications in response to environmental constraints, the results of more detailed technical investigations and impact assessments, stakeholder consultation, and commercial viability.

The preferred transmission corridor for the export cables would be the most direct: from the OWF site, between the Greater Eastern and Aurora Green Feasibility Licence Areas, to shore near McGaurans Beach, connecting to the proposed VicGrid connection hub at Giffard. However, given the early development stage of the Project and the investigations needed to inform design, a wider area has been referred. If the final export corridor route comes ashore at McGaurans Beach, the onshore direct route would be approximately 9 kilometres from McGaurans Beach to Giffard. If it is not possible to come ashore at McGaurans Beach, another option is in the vicinity of Reeves Beach.

Main components

Offshore generation

The Project includes up to 200 offshore turbines within the wind farm area. The largest **wind turbine generator** (WTG) under consideration has an anticipated maximum tip height of 350 metres. It is too early to determine the actual turbine dimensions as this is dependent on a number of factors, including their commercial availability at the time of procurement.

Turbine foundations would be fixed bottom. Given the early development stage of the Project, the selection of foundation type is pending, but suction bucket jacket (SBJ), pin pile jacket, monopile or gravity base foundations are being considered. The final selection of WTG and foundations would be determined based on water depth, seabed conditions, supply chain and logistics considerations, and be informed by environmental impacts.

Offshore transmission

A network of **inter-array cables** will link the individual WTGs to each other and to the offshore substations. It is expected that there would be up to 200 inter-array cables within the OWF site. The disturbance width of each inter-array cable is expected to be less than 50 metres during construction, depending on the installation method.

Offshore substations would receive electricity from the inter-array cables and increase the voltage level using transformers to meet the export cable voltage level. Given the distance from shore, **reactive compensation stations** (RCSs) are also proposed, the purpose of which is to keep the power flowing smoothly from the offshore substations to the onshore substation. It is presently assumed up to six offshore substations and up to three RCSs may be required. These would be platform-based structures, connected to the seabed via fixed foundations. Each structure is anticipated to have a maximum seabed footprint of approximately 90 x 90 metres.

High voltage **subsea export cables** would transfer the energy from the offshore substations to the shoreline. The export cables would typically have a disturbance width of less than 50 metres each, it is expected that up to six export cables may be required. The final length of the offshore export cable routes would be approximately between 90 and 120 kilometres from the OWF site to the coastline.

Cables would generally be buried up to 5 metres below the seabed. At some locations burial may not be possible due to geotechnical conditions or other offshore activities, and cable protection such as rock armouring or mattresses may be required.

Onshore transmission

It is anticipated that a trenchless crossing method would be used beneath the primary dune to bring the offshore export cables to land. At the possible McGaurans Beach shore crossing, Ørsted has undertaken geotechnical and geophysical site investigations, providing valuable data on the subsurface conditions at this location. This information will directly inform the design of the shore crossing, ensuring the selected method is technically viable and environmentally appropriate.

Cable joint bays would be installed underground most likely behind the primary dune and act as the connection point between the offshore export cable and onshore infrastructure. The cable joint bays are concrete underground pits, each with an expected footprint of approximately 25 x 10 metres. Manholes would be installed at the surface to allow access during operation.

The **onshore cable** corridor is expected to have a temporary construction width of 80 metres and an operational easement width of up to 60 metres. Temporary construction compounds would be required along the onshore route and at the shore crossing. The onshore transmission corridor is expected to be undergrounded with cables to be buried approximately 1 to 2 metres below ground level.

Key construction activities

The indicative construction period is expected to be approximately 3 to 4 years but could be longer depending on phasing.

Offshore WTG (Commonwealth waters)

- Transport of wind turbine components, offshore substations, and foundation structures to staging areas.
- Seabed preparation works may be required to level and prepare the seabed prior to foundation installation.
- Installation of foundation structures for offshore infrastructure and placement of scour protection where required.
- Installation of wind turbine components and offshore substation platforms onto foundations.
- Transport, laying and burial of inter-array and export cables using trenching equipment, and application of protective measures where necessary.
- Testing and commissioning of the wind farm.

Offshore and nearshore cable (across both Victorian and Commonwealth waters)

- Seabed preparation works may include minor levelling to accommodate the final export cable alignment and provide sufficient space for construction operations.
- Offshore export cables would be installed using trenching equipment, such as a cable plough or a remotely operated vehicle (ROV).
- Intersections with other existing infrastructure may be required and would be managed according to industry best practice (such as the International Cable Protection Committee guidelines).
- Trenchless shore crossing at the landfall location.

Onshore transmission

- Preparation of temporary construction compounds.

- Existing roads will be used to the extent possible, however, there may be a need to create new temporary access tracks or upgrade existing access tracks (with locations chosen to avoid and minimise impacts on native vegetation to the extent possible).
- Site preparation along selected cable routes, including surface grading and vegetation removal, where required.
- Transport and delivery of materials, components, and equipment to site.
- Excavation and trenching for underground transmission cable installation followed by reinstatement of disturbed ground.
- Excavation and preparation of the shore crossing site and transition joint bay (TJB).
- Installation of underground cables and associated termination compounds.
- Connection of cables to VicGrid's connection hub, testing, and final commissioning.
- Demobilisation of equipment, removal of temporary construction facilities, and rehabilitation of work areas.

Key operational activities

The wind farm is anticipated to be operational for 35 years. Operations and maintenance (O&M) would be coordinated from a dedicated O&M base. Activities would include regular monitoring and inspection of assets using sensors, drones, subsea vehicles and technicians, with component replacement as needed. Critical infrastructure such as turbines and substations would follow a scheduled maintenance program. Other surveys and monitoring would be undertaken during the O&M phase to comply with measures arising from environmental assessments. Crew transfer vessels and/or helicopters would transport personnel to and from the offshore site, and environmental management and monitoring would continue throughout operations.

The O&M port is not yet known and a number of existing facilities exist. As such the development of an O&M port/base is not considered within the scope of this referral. However, the transiting of vessels and/or helicopters from the O&M base to the OWF is considered within scope of the Project.

Key decommissioning activities

Decommissioning activities would be subject to further refinement towards the end of the Project's life cycle and would be reviewed in discussion with the transmission system operator and regulators. Requirements for decommissioning would be detailed within a Commercial Licence Management Plan and a Transmission and Infrastructure Licence Management Plan to be approved by the Offshore Infrastructure Regulator (OIR). These Management Plans would address how infrastructure is to be removed, and how the respective Commercial Licence and Transmission Infrastructure Licence areas will be remediated, in accordance with the OEI Act and Regulations.

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
2023/09682	Gippsland Offshore Wind Farm Marine Survey Investigations
2024/09980	Gippsland Offshore Wind Transmission 2GW Project

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

The Project is not part of a larger staged development but will itself be a phased development.

The referral is based on the assumption that the Project will be constructed and delivered as a single stage, representing the maximum potential magnitude of impacts. The preferred staging approach would be progressively refined to align with the broader development of Victoria's offshore wind industry, taking into account the capacity of key supporting infrastructure, including ports, supply chain readiness, transmission networks, and grid connection capabilities.

Regardless of the final construction approach, the detailed environmental impact assessment would evaluate potential staged works, considering how the timing, scale, and sequencing of these works could influence the nature, extent, and management of environmental impacts to Matters of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This approach will ensure feasible construction scenarios, including phased delivery, are thoroughly assessed to inform appropriate mitigation and management strategies.

This Project is related to VicGrid's Gippsland offshore wind transmission 2GW project (EPBC 2024/09980). VicGrid's project would provide a connection point for offshore wind projects to connect to the National Electricity Market (NEM) via a proposed connection hub near Giffard and a new transmission infrastructure to transmit energy to the existing Victorian energy infrastructure in the La Trobe Valley. VicGrid's project includes a connection hub into which Ørsted's cables would be connected. As part of the connection hub, VicGrid will also obtain planning and environmental approvals for substation(s) that would be owned and constructed by Ørsted within the connection hub footprint.

Construction ports will be required to support the development of the Project, providing large laydown areas for turbine components such as foundations, towers and blades, which would be delivered by vessels from manufacturing sites prior to offshore installation. One or more port locations may be used, including existing and proposed port locations. Any upgrades or development of construction ports are separate to this project and excluded from this referral. Similarly, if any developments are proposed for the future O&M base, these would be developed separately by port authorities or land managers and are excluded from this referral.

Operation of the Project will be reliant on an O&M base, likely located at a port facility. Ørsted is not proposing to develop an O&M base, instead coming to a commercial agreement with a 3rd party port authority or land manager. As such, any development required for an O&M base would be led by port authorities and land managers and subject to a separate approvals process, if required. The development of the Project is not reliant on new O&M facilities being established, as several facilities could be re-purposed to support an offshore wind project. Nevertheless, it is understood that new O&M facilities may be developed by port authorities to respond to market demands and these will be under the control of those respective port authorities.

Transport to and from construction ports and the O&M base is considered within the scope of this referral, and potential impacts, such as marine traffic, collision risk, refuelling, waste management, and biosecurity risks, have been considered, with further detail provided in **Attachment 3 – Preliminary Marine Environmental Assessment**

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

The Project is required to obtain the following primary planning and environmental approvals:

Commonwealth

- Approval under the EPBC Act subject to a decision that the Project is a 'controlled action'.
- Under the *Offshore Electricity Infrastructure Act 2021* (OEI Act), components of the Project that are located in Commonwealth waters require further licences including a Commercial Licence and a Transmission and Infrastructure Licence, as well as an approved management plan for each licence.

State

- Referral under the *Environment Effects Act 1978* for a determination whether an Environment Effects Statement (EES) is required.
- Planning approval most likely in the form of a Planning Scheme Amendment (PSA) for use and development of land and native vegetation removal under the *Planning and Environment Act 1987*.
- Approval of a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006*.
- Consent under the *Marine and Coastal Act 2018* for use, development or works on marine and coastal Crown land.

The Project may also require the following other approvals:

- Sea dumping permit under the *Environment Protection (Sea Dumping) Act 1981* (Cth).
- A cetacean interference permit under the EPBC Act (to the extent any interference is incidental to project activities).
- Permit under the *Underwater Cultural Heritage Act 2018* (Cth) relating to protected underwater cultural heritage.
- Consent under the *Road Management Act 2004* (Vic) for works within any road reserves.
- Permit under the *Water Act 1989* (Vic) to conduct works near certain waterways.
- Permit or consent under the *Heritage Act 2017* (Vic) to disturb a listed historic heritage place.
- Permit under the *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) for removal or disturbance of listed flora.
- Authorisation under the *Wildlife Act 1975* (Vic) to take or disturb protected wildlife.
- Licence under the *Catchment and Land Protection Act 1994* (Vic) for removal of soil that is likely to contain any part of a noxious weed.
- Consent under the *Country Fire Authority Act 1958* (Vic) for works during a total fire ban.

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. *

Ørsted commenced engagement with the Gippsland community prior to the submission of the application for a Feasibility Licence to introduce the proponent and provide project briefings. Ørsted's Stakeholder Engagement Strategy (**Attachment 7 – Ørsted Gippsland Stakeholder Engagement Strategy**) defines and directs how engagement is carried out.

This consultation is guided by and adheres to:

- International Association for Public Participation (IAP2) Australasia: Quality Assurance Standard in Community and Stakeholder Engagement.
- Australian Energy Infrastructure Commissioner: Considerations for Offshore Wind Industry on Community Engagement (2023).
- Clean Energy Council: First Nations engagement guide for the renewables industry (2024).
- Community Engagement and Benefit Sharing in Renewable Energy Development in Victoria: A guide for renewable energy developers (DEECA).

The Project recognises that working in close partnership with Traditional Owners, particularly Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC), is an integral part of the development and success of the Project. Ørsted has been seeking Traditional Owner involvement on a range of topics including native title and cultural heritage, environmental impact study delivery, project design, local supply chain and procurement participation. Consultation with Traditional Owners will continue to align with their preferred schedule and method to reduce consultation fatigue.

To date, the Project has also consulted with stakeholders, including:

- Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Australian Maritime Safety Authority (AMSA)
- Offshore Infrastructure Regulator (OIR)
- Offshore Infrastructure Registrar (NOPTA)
- Federal Department of Defence
- Victorian Department of Energy, Environment and Climate Action (DEECA)
- Victorian Department of Transport and Planning (DTP)
- Relevant local councils and councillors including South Gippsland Shire Council, Wellington Shire Council and Flinders Council
- Gippsland Federal and State Members of Parliament
- VicGrid and Offshore Wind Energy Victoria (OWEV)
- Parks Australia and Parks Victoria
- Director of National Parks
- Committee for Gippsland and Committee for Wellington
- Latrobe Valley Authority
- Australian Energy Market Operator (AEMO)
- Bureau of Meteorology (BoM)
- Local tertiary institutions including Federation University and TAFE Gippsland
- Victorian Farmers Federation
- Maritime Union of Australia
- Peak bodies representing commercial fisheries including South East Trawl Fishing Association (SETFIA), Seafood Industry Victoria, Seafood Industry Tasmania and Top Fish Tasmania
- VR Fish and Victorian recreational fisheries
- Local fisherman's co-operatives
- Birdlife Victoria
- Adjacent permit holders
- Local community members.

This consultation and engagement focused on areas such as:

- Developing an understanding of local community interests, expectations, concerns and values.

- Activities carried out under the Feasibility Licence, as required by the Feasibility Licence conditions, approved Management Plan and as required under the OEI Act and associated Regulations.
- Initiation of longer-term relationships and partnerships with key stakeholders.
- Exploration of expectations and local knowledge relevant to the design and delivery of environmental impact studies and technical investigations.
- Exploration of potential job and supply chain opportunities for the Project, including upskilling opportunities, apprenticeships and partnering with local institutions.
- Early investigations through stakeholder discussions as to the preferred nature and scale of any future project benefit sharing program.
- Sharing knowledge on offshore wind best practices around the world.
- Understanding the potential impacts of the Project on existing marine users including the fishing industry.
- Community consultation opportunities and ways to reduce engagement fatigue.

Targeted engagement and communications approach

Consultation and engagement utilise diverse channels to gather stakeholder feedback and inputs. This includes:

- Information sessions
- Stakeholder meetings and briefings
- Community group presentations and participations in community and sector events
- Delegation tours
- Telephones, email and phone enquiries
- Landholder door knocks

We also participated in the Gippsland Offshore Wind Days, held in towns across Gippsland in late 2024, and throughout 2025. These events allowed locals to meet developers as well as Victorian and Commonwealth government representatives and speak directly to project teams.

A suite of communications products has also been developed to help share information about offshore wind, the development lifecycle and Ørsted's approach to managing significant impacts. These include:

- Comprehensive website
- Social media channels
- Printed and electronic newsletters
- Fact sheets
- Maps and visual renders
- Videos, animations

EBPC Referral – prior engagement with agencies

In September and October 2025, Ørsted scheduled targeted, proactive briefings with key agencies to support the Project's referrals to DCCEEW and DTP under the EPBC Act and EE Act. These briefings represented a significant milestone in advancing the Project team's knowledge of required environmental impact assessments and understanding of environmental and cultural sensitivities within the referral area, and were designed to ensure that agencies were well-informed ahead of the referral process.

A confidential summary report outlining the key discussion points from these meetings is attached. (**Attachment 8 – Ørsted Pre Referral Summary Consultation Report**)

After this referral appears on the public EPBC Portal, Ørsted will continue to proactively communicate with key agencies that the referral has been lodged and to provide accessible explanations of what is being referred and why.

Relevant themes from consultation carried out so far

Consultation to date has given us a strong appreciation of matters of significant interest to the local Gippsland community. Where possible, Ørsted has been incorporating feedback into the ongoing project design process. The following table provides a summary of relevant key issues and concerns that have been raised with us and measures already taken to address this feedback.

Theme: Protecting biodiversity and ecological values

- **Key sentiment, concerns shared:** Gippsland's coastal and marine areas and the unique biodiversity and ecology of the Bass Strait need to bemapped and protected. Interest in proposed study methods, and how these will provide a strong environmental baseline to guide the sustainable design, layout, and operation of the wind farm, as well as necessary environmental impact assessments.
- **Ørsted response:** Preparation of comprehensive regulatory planning approval applications to ensure compliance with legislation that safeguards biodiversity and ecological values. Input has also influenced the design and implementation of the marine and environmental surveys, which have commenced and will continue for several years.

Theme: Fishing and co-existence

- **Key sentiment, concerns shared:** Potential impacts of offshore wind farms on commercial fishing and local economic prosperity need to be considered
- **Ørsted response:** Ongoing planning for how coexistence with key fishing groups can be achieved throughout the Project's lifecycle. Ongoing notification to fishers of relevant, planned works at sea.

Theme: Visual amenity

- **Key sentiment, concerns shared:** Concerns about the visual impact of offshore wind projects
- **Ørsted response:** Ørsted's project is located more than 50 km off the coast and is unlikely to create any significant visual impact. Engagement on this concern, however, will continue.

Theme: Protection of tangible and intangible cultural heritage values

- **Key sentiment, concerns shared:** Need for Project to fully understand cultural values – including underwater cultural values. Traditional Owners should be included in development of offshore wind projects from the outset.
- **Ørsted response:** Development of a partnership agreement with GLaWAC, signed in May 2025, to enable cooperation throughout the development of the project in a way that results in respect for Gunaikurnai aspirations, meaningful benefits to Traditional Owners and delivery of shared outcomes.Working with the Gunaikurnai community to better understand cultural heritage and Sea Country values.

Engagement will continue throughout the feasibility study phase in alignment with marine studies and further development of the whole project concept design. Feedback will continue to inform Ørsted's understanding of the local environment, issues, and opportunities, will guide mitigation strategies, and will help to plan to avoid or reduce cumulative impacts.

Ørsted's Stakeholder Engagement Strategy (see **Attachment 7**) sets out a comprehensive plan for future consultation until the approximate time feasibility studies are expected to be complete (2027). It provides a clear strategy to address community and stakeholder feedback and includes diverse initiatives to obtain detailed stakeholder and community feedback to inform various aspects of the Project and the preparation of formal approvals documents.

Ørsted will record all engagement activities, including any issues or concerns raised by stakeholders and will clearly describe where stakeholder input or feedback has been incorporated into the Project's design and management.

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.

Personal information may be disclosed to other Australian government agencies, persons or organisations where necessary for the above purposes, provided the disclosure is consistent with relevant laws, in particular the Privacy Act 1988 (Privacy Act). Your personal information will be used and stored in accordance with the Australian Privacy Principles.

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

☑ **Confirm that you have read and understand this Privacy Notice ***

1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	20093846925
Organisation name	AECOM AUSTRALIA PTY LTD
Organisation address	Wurundjeri and Bunurong Country, Tower 2, Level 10, 727 Collins Street, Melbourne VIC 3008

Referring party details

Name	Nav De Silva
Job title	Senior Environmental Engineer - Impact Assessment and Permitting
Phone	0422555215
Email	nav.desilva@aecom.com
Address	Wurundjeri and Bunurong Country Level 10, Tower Two 727 Collins Street Melbourne, Australia

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	56663760209
Organisation name	ORSTED OFFSHORE AUSTRALIA 1 PTY LTD
Organisation address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

Person proposing to take the action details

Name	Sarah Wang
Job title	Regional Consent Lead - APAC Environment and Permitting
Phone	+886 905529016
Email	SARWA@orsted.com
Address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

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. *

Gippsland 1 Offshore Wind Farm is being developed by Orsted Offshore Australia 1 Pty Ltd (hereinafter referred to as Ørsted), an indirect wholly-owned subsidiary of the Danish multinational energy company, Ørsted A/S, established for the development of the Gippsland 1 Offshore Wind Farm Project. Headquartered in Fredericia, Denmark, Ørsted A/S is the largest energy company in Denmark.

Ørsted's international business has extensive experience in building offshore wind farms across Europe, United States and Asia Pacific. Since building the world's first offshore wind farm in Denmark in 1991, Ørsted have gained unrivalled experience and know-how, defining the industry as it exists today. Ørsted has built more offshore wind farms than any other developer in the world, including the world's largest – Hornsea 2. Ørsted has experience taking projects through their full development cycle, with 10.2 GW of installed offshore wind capacity and a further 12 GW either under construction or awarded.

Ørsted has an excellent record of responsible environmental management internationally and is not subject to any proceedings under a Commonwealth, State or Territory law in Australia or globally for the protection of the environment or the conservation and sustainable use of natural resources. In Australia, Ørsted has a recent history of environmental management, primarily focused on early site investigation activities for the Project. Its experience to date has involved engagement with regulators, Traditional Owners, and stakeholders to ensure surveys and approvals are managed in line with statutory requirements.

Ørsted will bring its global experience and local expertise in offshore wind to deliver projects which positively contribute to the supply of renewable energy in Australia.

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

Ørsted's relevant documentation is attached as **Attachment 2 – Ørsted's Global Policy for Quality, Health, Safety and Environment (QHSE)**

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	56663760209
Organisation name	ORSTED OFFSHORE AUSTRALIA 1 PTY LTD
Organisation address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

Proposed designated proponent details

Name	Sarah Wang
Job title	Regional Consent Lead - APAC Environment and Permitting
Phone	+886 905529016
Email	SARWA@orsted.com
Address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

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	20093846925
Organisation name	AECOM AUSTRALIA PTY LTD
Organisation address	Wurundjeri and Bunurong Country, Tower 2, Level 10, 727 Collins Street, Melbourne VIC 3008
Representative's name	Nav De Silva
Representative's job title	Senior Environmental Engineer - Impact Assessment and Permitting
Phone	0422555215
Email	nav.desilva@aecom.com
Address	Wurundjeri and Bunurong Country Level 10, Tower Two 727 Collins Street Melbourne, Australia

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	56663760209
Organisation name	ORSTED OFFSHORE AUSTRALIA 1 PTY LTD
Organisation address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000
Representative's name	Sarah Wang
Representative's job title	Regional Consent Lead - APAC Environment and Permitting
Phone	+886 905529016
Email	SARWA@orsted.com
Address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

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

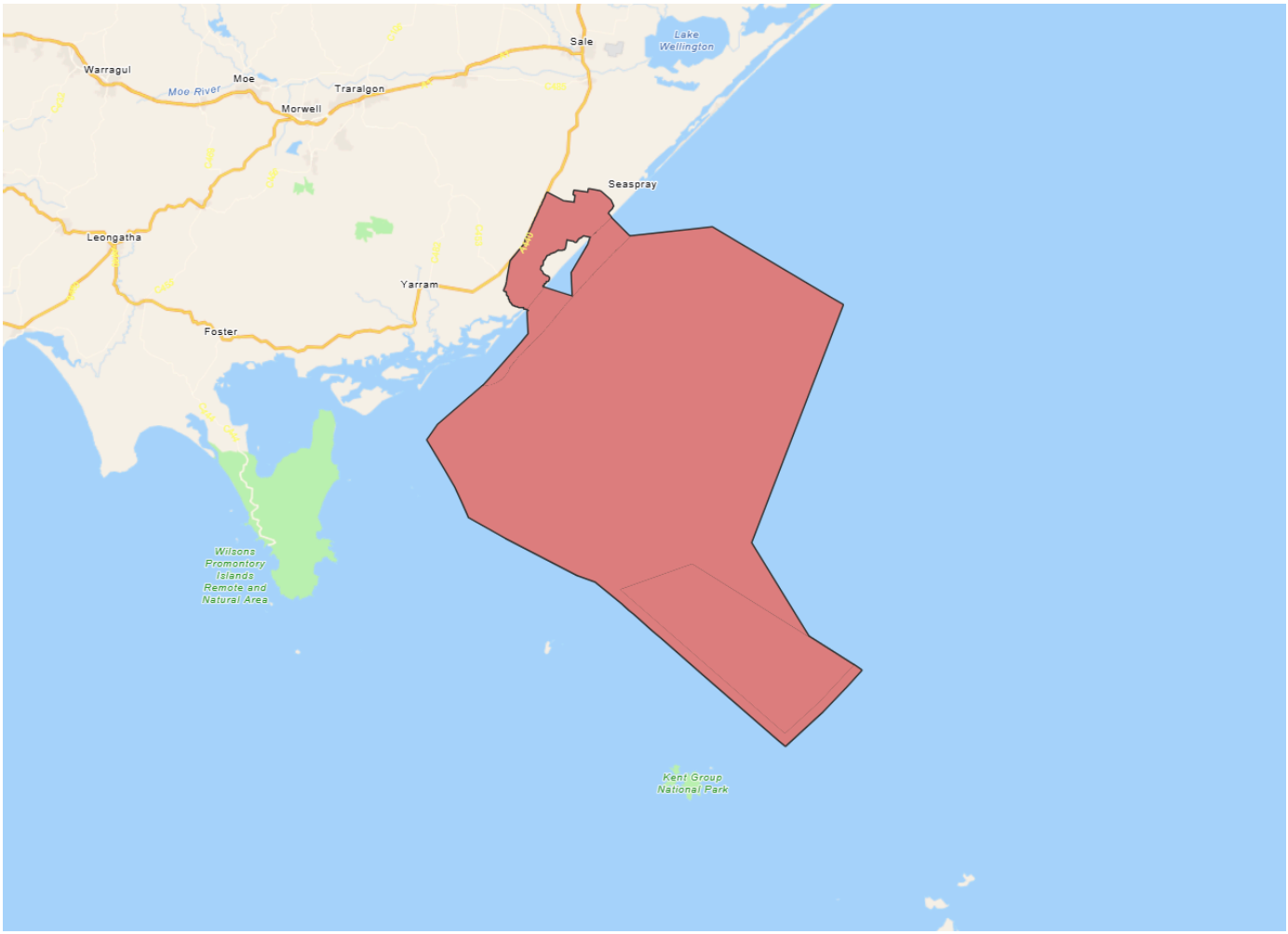
1.4 Payment details: Payment allocation

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: 539124.97 Ha **Disturbance Footprint:** 539124.97 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Approximately 56km Offshore in Commonwealth waters and McGaurans Beach Road, Giffard

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

Commonwealth Marine

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

Yes

2.2.4 Where is the secondary jurisdiction of the proposed action? *

Victoria

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

The following provides a breakdown of the Project components' land tenure:

- The OWF site and offshore cable referral area are within Commonwealth waters.
- The nearshore cable referral area is entirely made up of Crown land in Victorian State Waters
- A portion of the onshore transmission referral area is located on Crown land (shown in **Attachment 1 – Figures and Maps**).

Offshore

The OWF site will be within the area of Feasibility Licence FL-004, which was granted to Ørsted on 29 April 2024. FL-004 is approximately 700 square kilometres in area and is located approximately 56 kilometres offshore from the Gippsland coast within Part 2 of the Gippsland Offshore Electricity Infrastructure Declared Area (OEI-01-2022).

At this stage, the offshore cable referral area is larger than the anticipated final project footprint to allow for flexibility during project design, route refinement, and to accommodate technical and environmental considerations. As a result, it currently includes the Feasibility Licence Areas of other proposed offshore wind developments, including the Ørsted Gippsland 2 (FL-009), Star of the South (FL-006), Blue Mackerel (FL-001), Aurora Green (FL-012) and Greater Eastern (FL-010) projects.

The referral area contains a number of offshore easements which also traverse through the onshore transmission referral area and nearshore cable referral area, including the Tasmanian Gas Pipeline and Basslink-Loy Yang to Basslink-George Town transmission line. These would be considered during the siting and designing of the cable corridor and there may be opportunity for existing easements to be utilised to position project infrastructure. However, this would be subject to further investigations, design development and engagement with relevant stakeholders.

Nearshore and Onshore

The onshore transmission referral area contains a combination of freehold and Crown land. The final project footprint would be much smaller than the referral area and directly affected Crown land parcels and freehold land would be confirmed during cable corridor detailed design.

For Crown land, the appropriate agreements, leases and/or licences would be sought with the Victorian government. Once planning approvals are obtained and subject to native title arrangements with GLaWAC, the relevant lease and/or licence agreements would be established with the Victorian government for project assets on Crown land. A lease and/or licence agreements would also be established with the Victorian government to occupy the nearshore cable referral area within Victorian coastal waters.

Freehold land would be either purchased, leased or secured via easements through commercial agreements with individual landowners.

In accordance with the Project consultation program, affected landowners and land managers would be consulted regarding land access during construction and potential longer-term agreements for project operations.

3. Existing environment

3.1 Physical description

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

The referral area (shown in **Attachment 1 – Figures and Maps**) encompasses four distinct areas and has been deliberately defined to be much larger than the actual project footprint. This wider area allows for flexibility in the final design and siting of infrastructure, which is particularly important given current uncertainties around the location of other offshore wind developments and VicGrid's proposed shared connection hub. Flexibility in the referral area also enables the Project to respond to environmental constraints, technical investigations, stakeholder feedback and commercial considerations as the design progresses.

Offshore and nearshore marine environment

Although the broad region of Australia's south-eastern marine waters is generally considered to have low productivity, the OWF site sits within an area of cool nutrient rich waters between Victoria and Tasmania. The dominant substrates are a mix between sand and shell with potentially small areas of rocky reefs. Average water depth within the OWF site is understood to be around 59 metres below Mean Sea Level (MSL). In the wider offshore cable referral area, depths may extend between 60 to 70 metres MSL, getting shallower within 30 kilometres of the coast.

The Bass Strait has a history of industrial and economic activity that has significantly shaped its environment and surrounding communities. Its waters have long supported offshore oil and gas extraction. The area has experienced some environmental change over time due to this industrial disturbance. More recently, climate change has started to pose growing threats to the region's marine ecosystem, with warming sea temperatures, shifting species distributions, and more frequent extreme weather events placing further stress on habitats.

Oceanography

The ambient metocean conditions of the Bass Strait area are characterised by a predominantly westerly to south-westerly wind and wave climate, with some occurrence of easterly storms. Wind speeds typically vary around 6 to 12 metres per second, with little seasonal variation. Significant wave heights are typically range between 1.5 and 2.5 metres but can go up to around 7 metres. There is slight seasonal variation, with more energetic wave conditions occurring during winter and the least energetic wave conditions during the summer months.

Ørsted has deployed metocean instrumentation to further characterise the environment within the OWF site.

Pelagic environment

The pelagic environment is ecologically important as a feeding and migratory route for a number of listed threatened marine mammals, reptile, fish and shark species. It is a temperate marine system, the relatively shallow waters supporting mixing of the water column that creates an oxygen rich pelagic zone, increasing productivity to support larger pelagic fauna and foraging seabirds. The nearshore environment is wave-dominated and well mixed, supporting high productivity and abundant small pelagic fish species.

The area typically experiences easterly flowing surface currents of 0.1 to 0.6 metres per second, sometimes greater than 1 metre per second. Currents are slightly stronger in the months of April to August, and weaker during summer. Subsurface water temperatures range from around 12 degrees Celsius in August to September to 21 degrees Celsius in February to March. The tidal range in this area is of approximately three metres.

Benthic environment

Offshore and nearshore marine environment

The substrate throughout the offshore portion of the referral area is predominantly mapped as 'calcareous gravel, sand and silt' and may overlap with small areas of mesophotic rocky reefs. The inner portion (approximately 25 kilometres) of the offshore cable referral area is mapped as 'sand, silt and gravel with

less than 50% mud.' Given it covers a broad area, the offshore cable referral area is expected to exhibit multiple benthic environments which would be further understood throughout detailed surveys.

The eastern areas of the Beagle Australian Marine Park immediately adjacent to the OWF site have been found to have a mean depth of 55 metres and extensive areas of mobile, sedimentary bedforms with limited areas of raised hardground reef. Sponges have been found to be the dominant organism (159 morphospecies).

Nearshore marine environment

A Feature Activity Sensitivity Tool (FeAST) search was undertaken on the nearshore cable referral area, which identified the following features that represent conservation and protected areas:

- 2% of the referral area intersects the Woodside Beach offshore sediments
- 2% intersects with the McGauran Beach offshore sediments
- 1% intersects the Ninety Mile Beach patch reefs.

It also identified that the following benthic habitat types are present throughout all offshore portions of the referral area:

- Littoral sand
- High energy littoral rock
- High energy infralittoral rock
- Sublittoral sand and muddy sand
- Non-reef sediment epibenthos.

The majority of the nearshore cable referral area is mapped by Seamap Australia as 'mixed soft substrata' with the intersection with the shore mapped as 'sand' and very small, sporadic areas identified as 'invertebrates' and 'consolidated hard substrata.' This area provides a lack of vegetation and little shelter, making it an uncommon permanent habitat for vertebrate animals.

Survey activities are currently (as of October 2025) being undertaken to characterise the benthic habitat along the preferred alignment. **Attachment 3 - Preliminary Marine Environment Assessment** provides a detailed analysis of the existing marine environment.

Protected areas

The OWF site and offshore transmission referral area lie near the boundary of the following protected areas:

- Beagle Australian Marine Park (Commonwealth) – located approximately two kilometres west of the OWF site and offshore transmission referral area.
- Kent and Hogan Island Groups and the Kent Group Marine Reserve (State – TAS) - scattered between approximately 14 and 95 kilometres south of the OWF site and offshore transmission referral area.

The nearshore cable referral area lies near the boundary of the following protected area:

- Ninety Mile Beach Marine National Park (State – VIC) - near the nearshore cable referral area, this is excluded from the referral area.

Onshore

The onshore transmission referral area is near the regional cities of Sale and Traralgon. Major roads in the referral area include Giffard Road, Giffard West Road, Woodside Beach Road which connect to the South Gippsland Highway. North-west of the referral area are the Loy Yang and Hazelwood Terminal power stations.

The onshore transmission referral area extends along the coast from near Lake Denison in the north to McLoughlins Beach to the south. It extends inland adjoining South Gippsland Highway and narrows north towards Stradbroke, bordering Bruthen Creek to the south-west.

The general land use of the area is dominated by agricultural farmland with rural housing, with pockets of forestry, rural townships and conservation areas. Due to a long history of agriculture, the landscape is a mosaic of degraded habitat, roadside vegetation and isolated large and small patches of good habitat, particularly along the coast.

Wetlands of international importance

Two Ramsar wetland sites are near to but completely outside of the referral area:

- Corner Inlet
- Gippsland Lakes.

Threatened Ecological Communities (TECs)

The following two Commonwealth TECs have potential to occur within the onshore transmission referral area:

- Natural Damp Grassland of the Victorian Coastal Plains
- Subtropical and Temperate Coastal Saltmarsh.

Threatened flora species and native vegetation

The onshore transmission referral is located within the West Gippsland Catchment Management Authority (CMA) region and lies within the Gippsland Plain Victorian bioregion. This bioregion occupies south-eastern Victoria and is characterised by flat to gently undulating coastal and alluvial plains. Key landforms include barrier dunes, floodplains, and swampy flats. The terrain supports a diverse range of native vegetation, which reflect the underlying geomorphology and soil types.

There are multiple areas with significant remnants of high-quality native vegetation found in Victorian State reserves and forests, as well as vegetation on private land, along roadside verges and within riparian corridors in the referral area and adjacent. These areas support a mosaic of EVCs which are predicted to contribute to the regional ecological network.

Protected Areas

Protected Areas (Coastal Reserves, Conservations Reserves, State Forest, etc.) occur within the onshore transmission referral area. The largest of these are:

- McLoughlins Beach – Seaspray Coastal Reserve
- Darriman H29 and H33 Bushland Reserve
- Fresh-water Swamp, Woodside Beach Wildlife Reserve (hunting)
- Woodside H27 and H28 Bushland Reserves
- Warrigal Creek Streamside Reserve.

Seascape, landscape and visual

The Project is broadly based on a coastal environment. A **Preliminary Seascape, Landscape and Visual Impact Assessment (Attachment 6)** determined that the area between McLoughlins Beach and Woodside Beach is of local significance and the Wilsons Promontory Lightstation is classified as nationally significant.

The assessment determined that from the Woodside Beach Lookout some of the nearest turbines may be partially visible above the horizon line during clear conditions, whilst others are screened by distance and the curvature of the earth. The impact on landscape value from this representative location has been ranked as ‘moderate’ because the view location is within a landscape of local significance, as identified by

the Coastal Spaces Landscape Assessment Study (2004). However, the overall impact is assessed as low for both wind turbine configuration scenarios. This assessment of the visual impacts from these locations is provided in **Attachment 6 – Preliminary Seascape, Landscape and Visual Impact Assessment**.

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

Offshore and nearshore

Commercial and recreational fishing

Commercial fishing currently occurs within all marine areas of the referral area. There are at least 24 commercial fisheries within or nearby the OWF site, including the Victorian and Tasmanian Rock Lobster Fisheries, which intersect the middle of the OWF site. Other fisheries which the OWF site falls within the Southern and Eastern Scalefish and Shark Fishery, the Bass Strait Central Zone Scallop Fishery, the Small Pelagic Fishery, Southern Squid Jig Fishery, the Eastern Tuna and Billfish Fishery, and Southern Bluefin Tuna Fishery (AMFA, 2024). According to the Fishery Status Reports (DAFF, 2024), the areas of highest fishing intensity (denoted as medium intensity in the report) in 2023 included areas that fell within the Small Pelagic Fishery, the Southern and Eastern Scalefish and Shark Fishery, and the Southern Bluefin Tuna Fishery. This suggests these fisheries are the most commonly used.

Victorian coastal waters along the coastline near the OWF site also host several state fisheries including eel fishery, giant crab fishery, octopus' fishery, rock lobster fishery, scallop fishery, sea urchin fishery and Wrasse fishery (VFA, 2025). Victorian coastal waters contain the eastern rock lobster zone, central and eastern abalone zone, a scallop fishery and an octopus fishery. Lakes Entrance is one of the largest commercial fishing fleets in Victoria, with approximately 36 commonwealth licenced fishing vessels, catching over 3000t of seafood per year.

Recreational activities offshore of the East Gippsland region include recreational fishing, diving and boating. There are boat ramps at Seaspray and Woodside, Golden and McLoughlins Beaches however most recreational fishers would likely concentrate in the lakes and estuaries which can be fished from smaller vessels. Recreational fishing is popular along Ninety Mile Beach, Woodside Beach and Seaspray Beach which generally occurs within three nautical miles of the shoreline.

Recreational fishing in the Commonwealth Marine Area is expected to be limited compared with State waters, primarily due to the longer travel times required to access the area.

Tourism

Gippsland offers a variety of marine-based tourism opportunities including diving, charter boat cruises, whale and wildlife watching, sailing, snorkelling, surfing and kayaking, where tourists may travel through the nearshore cable referral area and potentially the offshore cable referral area. Most tourism activities are unlikely to utilise the OWF site, due to its distance from the coast and therefore travel time to get there.

Shipping and navigation routes

Regional vessel tracking information shows that the main shipping traffic from the Port of Melbourne avoids the OWF site, however, the lanes cross the offshore cable referral area. There are also significant vessel movements closer to shore from the Port of Corner Inlet and Port Albert and Lakes Entrance that may travel through the nearshore cable referral area. It is anticipated that much of this caters for amateur and professional fishermen, leisure boating, charter vessels and larger commercial vessels.

Oil and gas activities

There are no National Offshore Petroleum Titles within the OWF site. The offshore cable referral area intersects with the following active National Offshore Petroleum Titles:

- Greenhouse Gas Assessment Permit G-5-AP (expiry in 2026)
- Greenhouse Gas Assessment Permit G-19-AP (expiry in 2030)
- Production Licence VIC/L15, operated by Esso Australia.

The BassGas pipeline (VICPL30) runs approximately two kilometres north-west of the OWF site and through the offshore cable referral area. Activities within the OWF site are not expected to interfere with this pipeline, however, cable infrastructure siting and construction would consider the pipeline's location and discuss any potential interfaces with operators.

Electricity and cable infrastructure

The INDIGO-Central and Sydney-Melbourne-Adelaide-Perth (SMAP) internet cables pass through the OWF site and offshore cable referral area, while Basslink (electricity cable) passes through all components of the referral area.

Onshore

The general land use of the area is dominated by agricultural farmland with rural housing, with pockets of forestry managed by DEECA, rural townships and conservation areas managed by Parks Victoria in conjunction with Traditional Owners.

Townships and residential

There are several coastal areas used for camping and residential purposes surrounding McGaurans Beach and Reeves Beach mainly related to tourism. The referral area also borders the townships of Woodside to the west and Giffard to the north-east. These areas generally have a low population density.

Agricultural farmland

The local land use is dominated by pasture for livestock (dairy and beef) and mixed grazing properties, as part of the broader Gippsland area being a major milk and beef producing area for Victoria. Properties typically have rural housing and shed buildings, and may have stock water dams or groundwater bores. Parcels range from small (a few hectares) to larger grazing properties (up to dozens of hectares).

Forestry, conservation and ecology

Significant remnants of high-quality native vegetation are found in Holey Plains State Park, Stradbroke Flora and Fauna Reserve, Giffard (Rifle Range) Flora Reserve, McLoughlins Beach – Seaspray Coastal Reserve, Mullungdung State Forest, and a number of smaller conservation reserves. These areas retain a relatively continuous cover of native vegetation and support a mosaic of EVCs that are also modelled to occur in the onshore transmission referral area.

Moderate to high-quality remnant vegetation likely persists in smaller reserves, on private land, along roadside verges, and within riparian corridors. Although largely cleared for agriculture, the surrounding agricultural matrix retains landscape connectivity value through scattered paddock trees, linear strips of remnant vegetation, and small patches of native understorey and canopy species. These features provide low to moderate habitat value and support the movement of fauna between larger habitat patches.

Other projects

There are a number of other onshore and offshore projects known under development or proposed within or nearby to the referral area, including:

- There are currently other Feasibility Licences in the Gippsland declared area, and it is anticipated that a number of the projects associated with these licences will also be developed to meet Victoria's energy objectives. These potentially include:
    - Ørsted's Gippsland 2 OWF
    - Southerly Ten's Star of the South OWF
    - Iberdrola's Aurora Green OWF
    - Corio Generation's Greater Eastern OWF
    - JERA Nex's Blue Mackerel North OWF
    - Ocean Winds' High Sea Wind OWF
    - Southerly Ten's Kut-Wut Bratauallung
    - RES and Origin's Navigator North OWF.
- VicGrid is facilitating the development of a transmission network needed to connect offshore wind energy generated off the Gippsland coast to Victoria's grid.

- Tasmanian Gas Pipeline is a transmission pipeline operating and transporting gas from Longford in southern Victoria to northern Tasmania which passes though the referral area.
- Basslink HVDC Interconnector and telecoms cable (Telstra/Basslink Telecoms) passes through the referral area.
- CarbonNet is a proposed carbon capture and storage project that includes an initial Pelican Storage Site north-east of the referral area and a potential second Kookaburra Storage Site which would overlap with the Project's OWF site.
- Marinus Link is a planned electricity and data interconnector between north-west Tasmania and the Latrobe Valley, Victoria which is to be located south-east of the Project's OWF site, crossing Victoria's shore at Waratah Bay.

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

The Project has undertaken multiple preliminary assessments to identify key environmental and socio-cultural sensitivities within the referral area and support the identification of potential impacts from the Project. These are referenced throughout this referral and are attached.

Offshore and nearshore

The environment in and around the offshore portion of the referral area includes several environmental assets and sensitivities including Biologically Important Areas (BIAs), marine protected areas, marine heritage sites, Ramsar wetland sites and Marine National Parks. To understand the existing offshore environment for this referral, the Project has undertaken a **Preliminary Marine Environment Assessment** (**Attachment 3**). In addition, **Attachment 1 – Figures and Maps** show locations of ecological significance identified.

Commonwealth marine areas

The Commonwealth marine waters in south-eastern Australia are generally considered to have low productivity except for localised hotspots. The key ecological features of the south-east marine region that are within proximity to the OWF site include:

- Upwelling east of Eden – 118 kilometres north-east.
- Big horseshoe canyon – 174 kilometres north-east.
- East Tasmania subtropical convergence zone – occurs between the north-eastern tip of Tasmania and the Tasman Peninsula, thus does not interact with the OWF site.
- Bass Cascade – occurs to the east of the OWF site, but the Project would not be expected to impact its occurrence or limit access for marine fauna.
- Shelf rocky reefs and hard substrates.

Other marine protected areas

The OWF site and offshore cable referral area lie near the boundary of the following protected areas:

- Beagle Australian Marine Park – located approximately 2 kilometres west of the OWF site and offshore transmission referral area.
- Kent and Hogan Island Groups – scattered between approximately 14 and 95 kilometres south of the OWF site and offshore transmission referral area.

The Beagle Australian Marine Park is understood to be indicative of the central Bass Strait ecosystem, being of a similar depth and housing a range of benthic communities, reefs and sponge beds. It has been characterised as including soft sediments with some areas of low-rocky profile reef and sponge gardens, which are considered the most dominant benthic organism. It is also important foraging area for seabird species that breed on the Kent islands within the park.

The Kent Island Group is a cluster of five granitic islands which together with the marine waters within three nautical miles are a Tasmanian Marine Protected Area. The islands host a breeding colony of Australian fur seals (*Arctocephalus pusillus*) and are an important refuge for seabirds as some are known to breed on the islands. The Hogan Island Group is made up of seven islands, also supports colonies of Australian fur seal and is a place where several threatened bird species have been recorded.

Bird surveys are currently being undertaken to better understand the use of the OWF site by seabirds.

The Ninety Mile Beach Marine National Park is protected by the *National Parks Act 1975* (Vic) and lies near the nearshore cable referral area. Notably, the Marine National Park is known to be important to juvenile white sharks (the BIA covers a large area) which suggests this species is likely to be present in the wider area.

The nearshore cable referral area also contains the McLoughlins Beach – Seaspray Coastal Reserve which is a Protected Area that the Victorian Environmental Assessment Council (2020) indicates is not protected because of flora and fauna values, rather for recreation such as a camping site, bike paths and picnic

benches.

BIAs

BIAs are designated areas for important marine species to carry out critical life functions, protected under the EPBC Act. The offshore and nearshore portion of the referral area site is within a broader area classified as a BIA for the following marine species:

- Foraging and breeding area for the white shark
- Foraging area for the pygmy blue whale
- Migration and core range for the southern right whale
- Foraging area for a number of seabird species.

Onshore

Although majority of the onshore transmission referral area has been cleared for agriculture, parts of the referral area and surrounds remain of significant ecological value. This includes several environmental assets such as protected areas, wetlands, waterways and heritage. Sensitivities such as areas of native vegetation, threatened flora, fauna and ecological communities are discussed in Section 1.3.2.1. **Attachment 4 – Preliminary Terrestrial Ecology Assessment** expands on the existing ecological value of the onshore transmission referral area.

Protected areas

Protected areas (Coastal Reserves, Conservations reserves, State Forest, etc.) occur within the onshore transmission referral area. The largest of these protected areas include:

- McLoughlins Beach – Seaspray Coastal Reserve
- Darriman H29 and H33 Bushland Reserve
- Fresh-water Swamp, Woodside Beach Wildlife Reserve (hunting)
- Woodside H27 and H28 Bushland Reserves
- Warrigal Creek Streamside Reserve.

The onshore transmission referral area does not include land recognised in the *National Parks Act 1975* (Vic), but lies near the following land reserved under this Act:

- Gippsland Lakes Coastal Park – near the onshore transmission referral area to the north-east.
- Corner Inlet Marine and Coastal Park and Corner Inlet Maine National Park – near the onshore transmission referral area to the south-west.
- Nooramunga Marine and Coastal Park – near the onshore transmission referral area to the south-west.

Holey Plains State Park is within proximity to the referral area and is reserved under the *National Parks Act 1975* (Vic).

Surrounding wetlands

The Jack Smith Lake Wildlife Reserve is an area of environmental significance that is near but completely excluded from the referral area. Similarly, Ramsar wetlands (Corner Inlet and Gippsland Lakes) are located outside the referral area to the south and north boundaries of the onshore transmission referral area respectively. There are also several other more minor wetlands and waterways within and around the onshore transmission referral area.

Seascape and landscape

The Coastal Spaces Landscape Assessment Study was commissioned in December 2004 as part of the Coastal Spaces Initiative, led by the Victorian Department of Sustainability and Environment. It classifies the following locations within the onshore transmission referral area:

- Regionally significant - ESO under the Wellington Planning Scheme

- Locally significant - stretch of coast between Woodside and McLoughlins Beach.

Attachment 1 – Figures and Maps shows that the coastline within the onshore transmission referral area is largely affected by the ESO under the Wellington Planning Scheme.

The following locations were used around the onshore transmission referral area to characterise the surrounding landscape and visual value:

- Nationally significant - Wilsons Promontory Lighthouse (approximately 74 kilometres from the onshore referral area)
- Designated wilderness area - Wilsons Promontory Wilderness Zone (approximately 71 kilometres from the onshore referral area)
- State significant - Nooramunga Coast and Islands and Wilsons Promontory (approximately 43 kilometres from the onshore referral area).

Wilsons Promontory's landscape features include white sandy beaches set in remote and secluded coves, granite boulders tumbling into the sea, and rugged mountains close to the coast with dense and diverse vegetation. In addition, Nooramunga Coast and Islands are a coastal area and chain of small sand islands that protect mangroves and mudflats from the wild seas of the Bass Strait.

Environmental overlays

The onshore transmission referral area is not located within any land that is subject to the Significant Landscape Overlay (SLO).

The onshore transmission referral area contains some areas subject to the Environmental Significance Overlay (ESO) predominantly covering the beach and dune environments. The following ESO schedules are located within the onshore transmission referral area:

- Environmental Significance Overlay – Schedule 1 (ESO1) (Coastal and Gippsland Lakes Environs)
- Environmental Significance Overlay – Schedule 2 (ESO2) (Wetlands).

Attachment 1 – Figures and Maps show the Wellington Planning Scheme's overlays that occur within and immediately surrounding the onshore transmission referral area.

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 water depth of the OWF site typically ranges from 48 to 64 metres Mean Sea Level (MSL) with an average water depth of 59 metres MSL. Turbine foundations would be fixed bottom (i.e. firmly connected to the seabed, rather than floating). At this stage the foundation design is not yet fixed, but, for example if a monopile solution was preferred, these would be driven into the seabed. The depth is dependent on the geotechnical conditions but could be as deep as 60 metres.

Cables would generally be buried up to 5 metres below the seabed. Definition of burial depths would be subject to a cable burial risk assessment usually performed during detailed design. At some locations burial may not be possible due to geotechnical conditions or other offshore activities, and at those locations cable protection such as rock armouring or concrete mattresses may be required.

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 referral area and surrounds include several environmental and ecological assets and sensitivities such as BIAs, marine protected areas, marine heritage sites, Ramsar wetlands and Marine National Parks. To understand the existing offshore environment for this referral, the Project has undertaken a **Preliminary Marine Environment Assessment (Attachment 3)** and a **Preliminary Terrestrial Ecology Assessment (Attachment 4).** These attachments include a detailed likelihood of occurrence assessment, with relevant FFG Act and EPBC Act listed species.

Offshore and nearshore

Marine threatened ecological communities (TECs)

No marine TECs are identified as occurring in the referral area. However, the area adjoins the Subtropical and Temperate Coastal Saltmarsh TEC.

Listed threatened and/or migratory species

Threatened species

Fifty-two species have been identified under the EPBC Act and/or FFG Act as critically endangered, endangered, vulnerable or conservation dependent that are possibly, likely or known to occur in the offshore portion of the referral area. This includes 34 EPBC Act listed species (15 of which are also FFG Act listed), 18 exclusively FFG Act listed species and 3 threatened species identified by a PMST as unlikely to be present in the referral area.

Migratory species

The PMST search identified 34 EPBC Act listed migratory species that are possibly, likely or known to occur in the offshore portion of the referral area. One migratory species has been identified as unlikely to be present in the offshore portion of the referral area.

A 2-year marine baseline environmental survey is underway to confirm presence of threatened and migratory species within the OWF site and offshore cable referral area.

Birds

Bird surveys that were undertaken in the OWF site to date have identified 39 bird species over 8 months including species known to breed in the Bass Strait area:

- Shy albatross (*Thalassarche cauta*) – EPBC and FFG listed
- Short-tailed shearwater (*Puffinus tenuirostris*) – EPBC listed
- Common diving petrel (*Pelecanoides urinatrix*) – EPBC listed
- Fairy prion (*Pachyptila turtur*) – EPBC listed
- White-faced storm petrel (*Pelagodroma marina*)
- Little penguin (*Eudyptula minor*) – EPBC listed
- Australasian gannet (*Morus serrator*)
- Pacific gull (*Larus pacificus*) – EPBC listed
- Silver gull (*Chroicocephalus novaehollandiae*)
- Crested tern (*Thalasseus bergii*) – EPBC listed.

Turtles

There have been several sightings of threatened turtle species along the Gippsland shoreline, including the leatherback and green turtles (*Dermochelys coriacea* and *Chelonia mydas*), with leatherback most frequently sighted in East Gippsland waters. Turtles are most likely utilising waters within and around the offshore part of the referral area for feeding. Neither green nor leatherback turtles have known nesting habitat in Gippsland. Leatherback turtles are more commonly found foraging off the east coast and in Bass Strait. Although the OWF site is not considered key turtle habitat, current (as of August 2025) benthic habitat investigations would determine this possibility.

Fish and sharks

The dwarf galaxias (*Galaxiella pusilla*) was the only critically endangered fish species identified in the PMST search. It is a freshwater species but was identified due to the OWF site's proximity to Flinders Island, a known habitat for this species, and Mitchell River which opens into the Gippsland Lakes Ramsar site. Given this is a freshwater fish and Project works would not occur near key locations, this species is considered highly unlikely to be encountered or impacted by works. Additionally, the blue warehou (*Seriolella brama*) is the only conservation dependent fish species identified in the PMST search which may occur within the referral area.

The white shark (*Carcharodon carcharias*) is listed as vulnerable under the EPBC Act where the eastern population is known to be present along the entire eastern seaboard. The OWF site is not located within the white shark BIA; however, the offshore and nearshore cable referral areas intersect with it. Works in the nearshore cable referral area are considered more likely to impact this BIA, however the nursery area is poorly defined.

The grey nurse shark (*Carcharias taurus*) was also identified in the PMST search as a migratory species, but is uncommon in waters around Victoria. Therefore, it is unlikely to be present near the OWF site but may be a vagrant through the offshore cable referral area.

Other shark species identified are the school shark (*Galeorhinus galeus*), shortfin mako shark (*Isurus oxyrinchus*), whale shark (*Rhincodon typus*) and porbeagle/mackerel shark (*Lamna nasus*). The school shark has an important breeding area within Corner Inlet; but the OWF site is over 59km from this area. Although migratory and movement details on the other species are limited, the shortfin mako shark and porbeagle are oceanic species and may occur in passing through the OWF site and offshore cable referral area.

Fish surveys have started within the Project site with winter and summer surveys planned.

Mammals

The southern right whale (*Eubalaena australis*) is listed as an endangered species under the EPBC Act, with the eastern population of interest for the Project. The nearshore cable referral area lies within the reproductive BIA for this species. Both the OWF site and the offshore cable referral area fall entirely within the migratory BIA for this species, which spans the Bass Strait and around the southern coast of Australia. However, the OWF site lies only within the migratory section, indicating presence of the species during April - October.

The OWF site is mapped as a possible foraging area and BIA for the pygmy blue whale (*Balaenoptera musculus brevicauda*), a sub-species of the EPBC Act listed endangered blue whale. The species' migratory route along the east coast is not well defined, although acoustic records indicate that some do migrate along the east coast.

The PMST identified the dusky dolphin (*Lagenorhynchus obscurus*), humpback whale (*Megaptera novaeangliae*), and killer whale *(Orcinus orca)* as migratory species that may, is known to, or is likely to occur in the referral area. However, no BIAs for any of these species are mapped to occur in the offshore portion of the referral area.

The sei whale (*Balaenoptera borealis*), fin whale (*Balaenoptera physalus*) and pygmy right whale (C*aperea marginata*) were identified to have areas that are likely to or may support foraging, feeding or other behaviour within the referral area. Migratory and movement patterns for these species are largely unknown, similar for the fin whale breeding locations.

A combination of aerial surveys and underwater acoustic surveys for cetaceans have commenced and will be undertaken over 2 years.

Listed marine species

The PMST search also identified several listed marine species relevant to the offshore portion of the referral area, although these are not classed as MNES. Many overlap with threatened and/or migratory species listed under the EPBC Act and potential impacts discussed in this referral. The identified listed marine species that are considered likely to be present in the offshore portion of the referral area include:

- A number of seahorse and pipefish species
- Long-nosed fur-seal (*Arctocephalus forsteri*) – listed as threatened under the FFG Act
- Australian fur-seal (*Arctocephalus pusillus*).

Onshore

Native vegetation

Due to a long history of agriculture, the landscape is a mosaic of degraded habitat, roadside vegetation and isolated large and small patches of good habitat, particularly along the coast.

Native vegetation within the onshore transmission referral area is patchily distributed and primarily concentrated in coastal margins, forested uplands, riparian zones, and wetland basins. Much of the remaining landscape has been historically cleared, with native vegetation now largely retained in fragmented patches.

Threatened ecological communities

There are 2 TECs with potential to occur in the onshore transmission referral area under the EPBC Act. The Natural Damp Grassland of the Victorian Coastal Plains TEC is critically endangered under the EPBC Act and is likely to occur within the onshore transmission referral area which includes EVC 132 Plains Grassland and EVC 934 Brackish Grassland. The Subtropical and Temperate Coastal Saltmarsh TEC is vulnerable under the EPBC Act and is likely to occur within the onshore transmission referral area which includes EVC 9 Coastal Saltmarsh and EVC 10 Estuarine Wetland.

There are 2 FFG communities protected by the FFG Act, Coastal Moonah (*Melaleuca lanceolata* subsp. *lanceolata*) Woodland Community and Central Gippsland Plains Grassland Community, which has potential to occur within the onshore transmission referral area.

Threatened flora species

Nineteen flora species have been identified under the EPBC Act in the onshore transmission referral area, where 15 of these species are also FFG Act listed. In addition, 43 threatened onshore species are exclusively identified under the FFG Act.

Threatened and/or migratory fauna species

Although largely cleared for agriculture, the surrounding agricultural matrix retains landscape connectivity value through scattered paddock trees, linear strips of remnant vegetation, and small patches of native understorey and canopy species. These features provide low to moderate habitat value and may support the movement of fauna between larger habitat patches.

Forty-four threatened fauna species have been identified that have potential to occur in the onshore transmission referral under the EPBC Act, with 38 also listed under the FFG Act. In addition, 32 threatened fauna species are exclusively listed under the FFG Act. These threatened species are:

- 9 EPBC Act listed mammal species.
- 30 EPBC Act listed bird species.
- 5 EPBC Act listed frog and reptile species.

Thirty-three EPBC Act listed migratory fauna species are likely or have potential to occur in the onshore transmission referral area; all of which are birds.

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

Offshore and nearshore

Seagrass beds may be present in the adjacent Beagle Australian Marine Park, or shallower areas around the Kent or Hogan islands and there is unlikely to be any large rock, reef, kelp or seagrass habitats within the OWF site.

The presence of any significant macroalgae or seagrass beds was not indicated through the CoastKit, Feast assessment or Seamap data in the nearshore cable referral area. The nearest mapped seagrass is within the lakes of Corner Inlet outside the referral area. Towed camera surveys from 2012 (accessed via the CoastKit) confirmed seagrass was not sighted east of Wilsons Promontory and did not identify southern giant kelp (*Macrocystis angustifolia*) or urchins (*Heliocidaris erythrogramma and Centrostephanus rodgersii*) in the vicinity of the nearshore cable referral area. Algal presence, with brown, green and red algae can both found to be sparse across the Twofold Shelf bioregion (where the nearshore cable referral area falls) (Blake et al.).

Further benthic habitat surveys would be undertaken to better understand habitat values along the preferred alignment. However, based on the information provided above, it is expected that most of the offshore portion of the referral area is likely sandy material that may not hold significant habitat values.

Onshore

Significant remnants of high-quality native vegetation are found in Holey Plains State Park, Stradbroke Flora and Fauna Reserve, Jack Smith Lake Wildlife Reserve, Giffard (Rifle Range) Flora Reserve, McLoughlins Beach – Seaspray Coastal Reserve, Mullungdung State Forest, and a number of smaller conservation reserves. These areas of significant vegetation that are nearby the referral area are completely avoided. These areas retain a relatively continuous cover of native vegetation and support a mosaic of EVCs that are also modelled to occur in the onshore transmission referral area. They also likely contain large, mature trees that provide important habitat features such as nesting hollows for a range of fauna, including threatened species.

Generally, land use within the referral area is dominated by agricultural farmland outside these protected areas. Moderate to high-quality remnant vegetation likely persists in smaller reserves, on private land, along roadside verges, and within riparian corridors. These remnants are predicted to support medium to high-quality native vegetation, contributing to the regional ecological network.

Although largely cleared for agriculture, the surrounding agricultural matrix retains landscape connectivity value through scattered paddock trees, linear strips of remnant vegetation, and small patches of native understorey and canopy species. These features provide low to moderate habitat value and support the movement of fauna between larger habitat patches.

Based on the initial desktop assessment, 11 EVCs exist within the referral area covering approximately 3,140 ha and include the following:

- EVC 151 Plains Grassy Forest – ‘vulnerable’ bioregional conservation status, 1190 ha within referral area).
- EVC 16 Lowland Forest – ‘vulnerable’ bioregional conservation status, 53 ha within referral area).
- EVC 698 Lowland Forest/Heathy Woodland Mosaic – ‘vulnerable’ bioregional conservation status, 767 ha within referral area).
- EVC 10 Estuarine Wetland – ‘least concern’ bioregional conservation status, 390 ha within referral area).
- EVC 191 Riparian Scrub – ‘vulnerable’ bioregional conservation status, 299 ha within referral area.
- EVC 3 Damp Sands Herb-rich Woodland - – ‘vulnerable’ bioregional conservation status, 134 ha within referral area.
- EVC 53 Swamp Scrub - ‘endangered’ bioregional conservation status, 68 ha within referral area.
- EVC 1 Coastal Dune Scrub/Coastal Dune Grassland Mosaic - ‘depleted’ bioregional conservation status, 99 ha within referral area.

- EVC 687 Swamp Scrub/Plains Grassland Mosaic - ‘endangered’ bioregional conservation status, 96 ha within referral area.
- EVC 9 Coastal Saltmarsh - ‘least concern’ bioregional conservation status, 31 ha within referral area.
- EVC 2 Coast Banksia Woodland - ‘vulnerable’ bioregional conservation status, 8 ha within referral area.

It is likely that some of these EVCs would be affected by the Project, potentially including the two endangered EVCs (EVC 53 Swamp Scrub and EVC 687 Swamp Scrub/Plains Grassland Mosaic). However, potential impacts would be avoided or minimised through careful alignment design, such as siting the corridor north of Jack Smith Lake, along with targeted avoidance strategies and the implementation of low-impact construction techniques. These measures are expected to limit direct impacts to EVCs to less than 10 ha.

Ten flora species are listed under the EPBC Act and are likely to occur within the onshore transmission referral area. These species are elaborated in a detailed likelihood of occurrence assessment in **Attachment 4 – Preliminary Terrestrial Ecology Assessment**.

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.

The Australian Heritage Database includes places in the World Heritage List, the National Heritage List, the Commonwealth Heritage list, the Register of the National Estate, the List of Overseas Places of Historic Significance to Australia and places under consideration or that may have been considered for any one of these lists.

Offshore

There are no known underwater cultural heritage sites within the OWF site, and no offshore sites have been identified in the Australian Heritage Data. However, there are five known shipwrecks present within or near the offshore cable referral area and nearshore cable referral area as shown in **Attachment 1 – Figures and Maps**, including:

- SS Glenelg
- Magnolia
- City of Hobart
- Sarah
- Emily.

These shipwrecks are all protected under the *Underwater Cultural Heritage Act 2018* (Cth) and as such, cable corridor alignment would be designed to avoid direct and indirect impacts to these shipwrecks. In addition, the SS Glenelg shipwreck has a protected zone with a radius of 500 metres. No project activities will take place within this protected zone.

Onshore

Three sites have been identified from the Australian Heritage Database within or nearby the onshore transmission referral area, however, these are from the Register of the National Estate which was closed in 2007 and is no longer a statutory list. One of these sites is completely excluded from the referral area. Two sites refer to places of Indigenous significance; however, the sites' exact locations are not disclosed. Sites of cultural value will be further assessed as part of the CHMP and cultural values assessment undertaken for the Project.

The Victorian Heritage Database encompasses the Victorian Heritage Inventory (VHI) and Victorian Heritage Register (VHR) under the *Heritage Act 2017* (Vic) which replaces the Heritage Register and the Archaeological Inventory under the *Heritage Act 1995*.

There are two VHI sites in the referral area and no VHR sites. These are shown in **Attachment 1 – Figures and Maps**. These are expected to be avoided by the Project.

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

The onshore transmission referral area and nearshore cable referral are on land and waters of the Gunaikurnai people. A high proportion of the onshore transmission referral area contains areas of Aboriginal Cultural Heritage Sensitivity, predominantly relating to coastal dunes.

Ørsted has consulted with the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) as the Registered Aboriginal Party (RAP) for the referral area. Consultation has shown that at this stage of project development, GLaWAC have most interest in onshore and nearshore activities, particularly relating to cable landing sites. GLaWAC's current Sea Country Indigenous Protection Area proposal is likely to influence GLaWAC's ongoing interest in Sea Country matters as the Project progresses.

Attachment 5 - Preliminary Aboriginal Cultural Heritage Assessment provides details on areas of Aboriginal cultural heritage that apply to the referral area.

Commonwealth matters

There are no National Heritage places of Aboriginal heritage value located in the referral area. Therefore, there is no requirement on the grounds of Aboriginal heritage to submit a referral to the Department of Climate Change, Energy, the Environment and Water for a decision by the Australian Commonwealth Environment Minister on whether assessment and approval is required under the EPBC Act.

In addition, there are no known underwater cultural heritage sites within the OWF site, and no offshore sites have been identified in the Australian Heritage Data. An assessment is planned to identify whether there is any currently unknown submerged Aboriginal cultural heritage within the offshore referral area.

Victorian matters

For Victorian matters, the preparation, approval and implementation of the conditions of a CHMP in accordance with *Aboriginal Heritage Act 2006* (Vic) and compliance with contingency protocols outlined in the CHMP would provide sufficient mitigation for potential Project impacts on Aboriginal cultural heritage.

The geology of most of this area comprises alluvial terrace deposits and dune deposits which are landforms considered sensitive for Aboriginal cultural heritage. Therefore, as these landforms are present within the referral area, it is considered possible that additional previously unknown Aboriginal cultural heritage is also present within the referral area. As per the Victorian Aboriginal Heritage Register (VAHR) search undertaken on 23 June 2025, there are 111 registered Aboriginal cultural heritage places with 122 components within the onshore transmission referral area.

Most of the registered Aboriginal places within the referral area comprise multicomponent places with both artefact scatters and shell middens (55), all located in proximity to the coastline. There are also a number of single component place types within the referral area. The most common single place type is shell middens (26) followed by artefact scatters (18). The shell midden Aboriginal places and the Aboriginal ancestral remains are located on the coastal barriers situated along Ninety Mile Beach directly adjacent to the coastline. Other Aboriginal place types present in the referral area include one multicomponent place comprising an artefact scatter/earth feature/shell midden, two Aboriginal ancestral remains (burial), seven low-density artefact distributions (LDADs), three scarred trees and one historical reference.

As the region has been extensively cleared of native vegetation, it is difficult to determine the original vegetation pattern. However, some information is known on vegetation patterns prior to 1750 indicating that most of the onshore transmission referral area likely contained Lowland Forests 1750 EVCs and Plains Woodlands or Forests 1750 EVCs.

Aboriginal occupation often focused on waterways, and areas adjacent to water sources, including swamps, and these areas would have provided a wide range of food and material resources for Aboriginal people. Water rushes and marsh vegetation as well as a number of plant-food resources important to Aboriginal people would have grown in nearby watercourses and swamps.

3.4 Hydrology

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

The onshore transmission referral area is in the western region of the South Gippsland Basin. This region is characterised by low lying coastal plains that are predominantly used for agriculture.

The general direction of runoff through this region is north-west to south-east, with many waterways originating in the Mullungdung State Forest before flowing to the coastal wetlands and estuaries of Ninety Mile Beach. No major waterways are present within the onshore transmission referral area. Nearly all waterways that cross the low-lying coastal plains are ephemeral, with intermittent flow characteristics and extended dry periods. Many of these waterways have also been modified with little remaining riparian vegetation. These waterways include Morris Creek, Warrigal Creek, Hoddinott Creek, Sunville Creek and many other unnamed waterways.

To the south of the onshore transmission referral area is Bruthen Creek. This creek originates near Carrajong Lower and reaches its estuary around 30 kilometres away near McLoughlins Beach. The Bruthen Creek sub-catchment is linked to the Corner Inlet Ramsar site.

Flood data for the onshore transmission referral area is limited; however, it is assumed that flooding could occur on any waterway or drainage pathway. Flood maps exist showing inundation of the Bruthen Creek Estuary and the coastal wetlands that lie behind the dune system of Ninety Mile Beach, including potential areas of where the shore crossing could occur.

Two Ramsar wetland sites nearby but do not intersect the referral area: Corner Inlet, and Gippsland Lakes. The Jack Smith Lake wetland and the Victorian portion of Corner Inlet (separate to the Ramsar wetland) are two nationally important wetlands located adjacent to the onshore transmission referral area but are excluded from the referral area. Approximately 540 hectares of DEECA mapped wetlands occur within the onshore transmission referral area. No major waterways are present in the onshore transmission referral area. However, several minor watercourses and drainage features have been mapped in the referral area.

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	Yes	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	Yes	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

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

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

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

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

No

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

There are no World Heritage properties within the referral 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. *

There are no National Heritage places within the referral 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	Yes	Corner Inlet
No	Yes	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? *

Yes

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

The nearest Ramsar wetlands are:

- The Gippsland Lakes site immediately east of the onshore transmission referral area.
- Corner Inlet wetland immediately west of the onshore transmission referral area.

Although these Ramsar sites are close to the referral boundary, they are excluded from the referral area and no direct impacts are expected. The referral area is broad to allow flexibility for detailed design and approvals processes; however, proposed project works will occur well away from the Ramsar site boundaries. The Project has been deliberately designed to avoid direct disturbance to any Ramsar wetlands.

The presence of offshore infrastructure within Commonwealth waters located more than 60km away from the Ramsar sites, could pose indirect risks to migratory and waterbird species that utilise the Ramsar sites. The key potential impact is the risk of collision with turbines. Should this significantly alter the population numbers of particular bird species, it could in turn affect the ecosystem of the Ramsar wetland, though this is considered unlikely.

Offshore structures such as turbine and substation foundations may also result in localised changes to hydrodynamics, potentially altering wave regimes and sediment transport patterns, however these would be expected to be localised and dissipate well before any impacts to the Ramsar sites (given they are 60 kilometres away).

These potential impacts would be subject to further investigation during the assessment phase. Targeted coastal processes assessments and avian collision risk modelling would be undertaken to inform the significance and management of potential impacts.

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

No

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

A Significant Impact Assessment was undertaken to evaluate the potential impacts of the proposed action on Ramsar Wetlands. The assessment identified that the action does not have the potential to have a significant impact under the *Matters of National Environmental Significance Significant impact guidelines 1.1*.

Based on the current design and location of the Project, no area of any Ramsar wetland would be destroyed or substantially modified. The Project would not result in any substantial or measurable changes to the hydrological regime of nearby wetlands, including the volume, timing, duration or frequency of surface or groundwater flows. Similarly, the Project is not expected to cause substantial or measurable changes in water quality, such as increases in salinity, pollutants, nutrients or temperature that could adversely affect biodiversity, ecological integrity, social amenity or human health.

The final footprint would be sited away from the Ramsar wetlands and therefore there would be no direct impact on the Ramsar wetlands. Given the minimal disturbance footprint of the Project onshore, the nature of the construction activities and with the implementation of suitable mitigation measures, there is unlikely to be a significant indirect impact to these wetlands due to the construction and operation of the transmission infrastructure. Any effects are anticipated to be manageable through the application of construction mitigation measures detailed within a Construction Environment Management Plan (CEMP) to manage environmental impacts, including run off, erosion and/or acid sulphate soils. Trenchless construction techniques would be adopted to cross sensitive areas such as significant waterways, if required. With these techniques and plans in place, the Project would not result in any substantial or measurable change in the water quality of the Ramsar wetlands.

Further, the Project is required to meet a number of legislative obligations which will minimise its impact to sensitive values associated with the Ramsar sites, including:

- Potential impacts to waterways: consent under Victoria's *Water Act 1989*, and compliance with EPA requirements to protect waterways (including EPA Victoria publication 1834.1 Civil Construction, Building and Demolition guide and EPA Victoria publication 1896 Working within or adjacent to waterways).
- Potential impacts associated with acid sulphate soil, contamination of groundwater: Compliance with the *Environment Protection Act 2017* (Vic) and EPA publications (including Publication 655.1 Acid sulfate soil and rock).

As described within the referral, there is the risk of collision of seabirds with the turbines. Should this significantly alter the population numbers of particular bird species for which the Ramsar has been designated, it could in turn affect its international importance. This is considered unlikely as the overall number of birds impacted by the Project is predicted to be very small in comparison to the number of seabirds that use the Ramsar sites, and any change is likely to be within the range of natural variation of bird numbers that utilise the wetlands in differing years. Ørsted is committed to minimising impacts on birds and is currently gathering baseline data to inform a collision risk model to understand the significance of the risk in order to design suitable avoidance and mitigation measures.

The Project would also not seriously affect the habitat or lifecycle of native species that are dependent on the Ramsar wetlands, including invertebrates, fish or waterbirds, and it will not result in the introduction or spread of invasive species harmful to the ecological character of the wetlands. Through careful siting of infrastructure away from Ramsar boundaries, implementation of best-practice construction and operational controls, and compliance with relevant legislation and guidance, the Project is therefore not expected to have a significant impact on the ecological character of any declared Ramsar wetland under the EPBC Act.

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

No

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

The proposed action is unlikely to have a significant impact on the ecological character of the Ramsar sites listed in Section 4.1.3.2 when assessed against the significant impact criteria. The referral area avoids Ramsar listed wetlands and therefore no direct impacts (such as area of wetland being destroyed or substantially modified) are predicted. Detailed design of the onshore corridor and supporting sites would consider a range of technical, environmental and social factors to minimise indirect impacts to Ramsar wetlands. These would inform key design decisions and inform opportunities to avoid and mitigate any potential indirect impacts. It is considered that mitigation of any identified indirect effects would be managed through standard construction mitigation measures and outcomes from further environmental investigations.

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

Ramsar wetlands have been excluded from the referral footprint and no direct impacts are predicted. Indirect impacts, such as changes to water quality or the risk of invasive species, would be managed through standard construction mitigation measures, standard biosecurity measures and outcomes from further environmental investigations that would help inform the likelihood of a risk occurring.

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

No offsets are proposed - Not applicable.

4.1.4 Threatened Species and Ecological Communities

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

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

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

Threatened species

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Amphibromus fluitans	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass
Yes	Yes	Antechinus minimus maritimus	Swamp Antechinus (mainland)
Yes	Yes	Anthochaera phrygia	Regent Honeyeater
Yes	Yes	Ardenna grisea	Sooty Shearwater
Yes	Yes	Arenaria interpres	Ruddy Turnstone
Yes	Yes	Balaenoptera borealis	Sei Whale
Yes	Yes	Balaenoptera musculus	Blue Whale
Yes	Yes	Balaenoptera physalus	Fin Whale
Yes	Yes	Botaurus poiciloptilus	Australasian Bittern
Yes	Yes	Caladenia orientalis	Eastern Spider Orchid
Yes	Yes	Caladenia tessellata	Thick-lipped Spider-orchid, Daddy Long-legs
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris canutus	Red Knot, Knot
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Calidris tenuirostris	Great Knot
Yes	Yes	Callocephalon fimbriatum	Gang-gang Cockatoo
Yes	Yes	Calyptorhynchus lathami lathami	South-eastern Glossy Black-Cockatoo
Yes	Yes	Carcharodon carcharias	White Shark, Great White Shark
Yes	Yes	Caretta caretta	Loggerhead Turtle
Yes	Yes	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
Yes	Yes	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Chelonia mydas	Green Turtle
Yes	Yes	Climacteris picumnus victoriae	Brown Treecreeper (south-eastern)
Yes	Yes	Commersonia prostrata	Dwarf Kerrawang
Yes	Yes	Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)
Yes	Yes	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
Yes	Yes	Dianella amoena	Matted Flax-lily
Yes	Yes	Diomedea antipodensis	Antipodean Albatross
Yes	Yes	Diomedea antipodensis gibsoni	Gibson's Albatross
Yes	Yes	Diomedea epomophora	Southern Royal Albatross
Yes	Yes	Diomedea exulans	Wandering Albatross
Yes	Yes	Diomedea sanfordi	Northern Royal Albatross
Yes	Yes	Dodonaea procumbens	Trailing Hop-bush
Yes	Yes	Eubalaena australis	Southern Right Whale
Yes	Yes	Falco hypoleucos	Grey Falcon
Yes	Yes	Fregetta grallaria grallaria	White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)
Yes	Yes	Galaxiella pusilla	Eastern Dwarf Galaxias, Dwarf Galaxias
Yes	Yes	Galeorhinus galeus	School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark
Yes	Yes	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
Yes	Yes	Glycine latrobeana	Clover Glycine, Purple Clover
Yes	Yes	Grantiella picta	Painted Honeyeater
Yes	Yes	Halobaena caerulea	Blue Petrel
Yes	Yes	Heleioporus australiacus flavopunctatus	Southern Owl Frog, Southern Giant Burrowing Frog
Yes	Yes	Hirundapus caudacutus	White-throated Needletail
Yes	Yes	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern)

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Lathamus discolor	Swift Parrot
Yes	Yes	Lepidium hyssopifolium	Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed
Yes	Yes	Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit
Yes	Yes	Limosa limosa	Black-tailed Godwit
Yes	Yes	Lissolepis coventryi	Swamp Skink, Eastern Mourning Skink
Yes	Yes	Litoria aurea	Green and Golden Bell Frog
Yes	Yes	Litoria raniformis	Southern Bell Frog, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog
Yes	Yes	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
Yes	Yes	Macronectes halli	Northern Giant Petrel
Yes	Yes	Mastacomys fuscus mordicus	Broad-toothed Rat (mainland), Tooarrana
Yes	Yes	Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)
Yes	Yes	Neophema chrysogaster	Orange-bellied Parrot
Yes	Yes	Neophema chrysostoma	Blue-winged Parrot
Yes	Yes	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
Yes	Yes	Pachyptila turtur subantarctica	Fairy Prion (southern)
Yes	Yes	Petauroides volans	Greater Glider (southern and central)
Yes	Yes	Petaurus australis australis	Yellow-bellied Glider (south-eastern)
Yes	Yes	Phoebetria fusca	Sooty Albatross
Yes	Yes	Pluvialis squatarola	Grey Plover
Yes	Yes	Potorous tridactylus trisulcatus	Long-nosed Potoroo (southern mainland)
Yes	Yes	Prasophyllum frenchii	Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid
Yes	Yes	Prasophyllum spicatum	Dense Leek-orchid

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Prostanthera galbraithiae	Wellington Mintbush
Yes	Yes	Prototroctes maraena	Australian Grayling
Yes	Yes	Pseudomys novaehollandiae	New Holland Mouse, Pookila
Yes	Yes	Pterodroma leucoptera leucoptera	Gould's Petrel, Australian Gould's Petrel
Yes	Yes	Pteropus poliocephalus	Grey-headed Flying-fox
Yes	Yes	Pterostylis chlorogramma	Green-striped Greenhood
Yes	Yes	Pycnoptilus floccosus	Pilotbird
Yes	Yes	Rhincodon typus	Whale Shark
Yes	Yes	Rostratula australis	Australian Painted Snipe
Yes	Yes	Senecio psilocarpus	Swamp Fireweed, Smooth-fruited Groundsel
Yes	Yes	Seriolella brama	Blue Warehou
Yes	Yes	Stagonopleura guttata	Diamond Firetail
Yes	Yes	Sternula albifrons	Little Tern
Yes	Yes	Sternula nereis nereis	Australian Fairy Tern
Yes	Yes	Thalassarche bulleri	Buller's Albatross, Pacific Albatross
Yes	Yes	Thalassarche bulleri platei	Northern Buller's Albatross, Pacific Albatross
Yes	Yes	Thalassarche carteri	Indian Yellow-nosed Albatross
Yes	Yes	Thalassarche cauta	Shy Albatross
Yes	Yes	Thalassarche chrysostoma	Grey-headed Albatross
Yes	Yes	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
Yes	Yes	Thalassarche melanophris	Black-browed Albatross
Yes	Yes	Thalassarche salvini	Salvin's Albatross
Yes	Yes	Thalassarche steadi	White-capped Albatross
Yes	Yes	Thelymitra epipactoides	Metallic Sun-orchid
Yes	Yes	Thelymitra matthewsii	Spiral Sun-orchid

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Thesium australe	Austral Toadflax, Toadflax
Yes	Yes	Thinornis cucullatus cucullatus	Eastern Hooded Plover, Eastern Hooded Plover
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank
Yes	Yes	Uperoleia martini	Martin's Toadlet
Yes	Yes	Xenus cinereus	Terek Sandpiper
Yes	Yes	Xerochrysum palustre	Swamp Everlasting, Swamp Paper Daisy

Ecological communities

Direct impact	Indirect impact	Ecological community
Yes	Yes	Natural Damp Grassland of the Victorian Coastal Plains
Yes	Yes	Subtropical and Temperate Coastal Saltmarsh

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. *

A summary of the potential impacts is provided below. Impacts would be assessed through the impact assessment process and the mitigation hierarchy applied for best practice mitigation and management measures to be identified and applied to ensure that if a significant impact is identified, measures are put in place to reduce significance to an acceptable level.

Offshore and nearshore

There are no TECs in any of the marine component of the referral area, therefore marine TECs are not expected to be directly impacted.

Potential sources of direct impacts to listed threatened species associated with activities in the nearshore and offshore sections of the referral area include:

- Underwater noise and vibration generated during construction, operation and decommissioning may cause physical injury or behavioural disturbance to marine fauna, with piling during construction expected to be the most significant source (dependent on the construction methodology). Additional noise may arise from turbine and substation installation, vessel dynamic positioning, and other construction and operational activities, with intensity influenced by foundation type, rotor size, seabed conditions and vessel requirements.
- There is a risk of turbine collisions with threatened and/or migratory bird species in the vicinity of protected areas, including the Kent Island Group. It is possible that seabirds might fly at heights that put them within the rotor swept area of the turbines which poses risk of injury or mortality from collision. Preliminary results from current field programs provide some evidence to suggest that birds utilising the offshore portion of the referral area are generally flying at heights below 15 metres, providing some buffer between the lowest point of the expected rotor extent and flight heights, however, this needs to be further investigated.
- Vessel interactions with marine fauna, including whales and dolphins may occur during construction, maintenance and decommissioning phases of the project. Vessels would be required for construction, likely including heavy lift or jack up vessels, floating heavy lift barges, specialised installation vessels, cable laying vessels, and service and crew transfer vessels. The number of vessels and frequency of movements between construction ports and construction locations is dependent upon the detailed construction program; the vessel types and detail of the infrastructure being installed. However, crew transfer vessels are usually around 30 metres in length and are utilised solely for construction staff transfer to site, however actual construction and installation vessels are often much larger (over 150 metres in length).
- Cable installation in nearshore and offshore environments may cause temporary disturbance to benthic habitats used by threatened and migratory species, in addition to direct and permanent removal of existing benthic habitats, temporary impacts on water quality from sediment disturbance, and direct impacts from the creation of new habitats resulting from scour protection and rock armouring, as well as smothering of existing benthic habitats and infauna.
- Electromagnetic fields (EMF) from subsea cables may affect movement, orientation or behaviour of sensitive species such as sharks, rays and migratory fish.
- Increased human activity and vessel presence may result in temporary disturbance and displacement of threatened and migratory species from preferred habitats.
- Lighting from vessels and offshore infrastructure may affect behaviour of seabirds, turtles and marine mammals, particularly at night.
- Unplanned fuel or chemical spills from vessels and/or substations may result in direct injury or mortality of threatened marine fauna.

Potential sources of indirect impacts to listed threatened species associated with activities in the nearshore and offshore sections of the referral area include:

- Physical presence of wind turbine infrastructure may result in changes to hydrodynamic and sediment transport processes, which may indirectly alter the availability of nutrients and food sources

for marine species.
- Risk of introduction of invasive marine species as a result of the transference from equipment or vessels that carry pest species on their hull surfaces, or through ballast water. It is likely that international vessels may be required for construction and decommissioning of the Project.
- Altered prey availability and food web dynamics due to noise, habitat disturbance, or electromagnetic fields, which may influence foraging success.
- Modification of habitats through the creation of artificial reef structures around turbine foundations and scour protection, potentially changing local species assemblages.
- Cumulative pressures when combined with other offshore wind or marine developments, including vessel traffic, noise, and habitat modification, which may influence population-scale responses.
- Reduced water quality from turbidity and sediment plumes during seabed disturbance (e.g. cable installation), indirectly affecting species that rely on sight for foraging.
- Barrier effects from turbine arrays and associated infrastructure that may alter migratory pathways, increase energy expenditure or lead to avoidance of suitable habitat.

Terrestrial

Potential sources of direct impacts to listed TECs and threatened species associated with activities in the onshore transmission referral area include:

- Clearing, levelling and excavation of sites, as well as general construction activities, resulting in direct loss of habitat or species and fragmentation of habitats and ecological communities.
- Construction works within the transmission corridor may directly impact native vegetation, potentially including areas corresponding to the two identified TECs: Natural Damp Grassland of the Victorian Coastal Plains, and Subtropical and Temperate Coastal Saltmarsh (though these will be avoided to the extent practicable).
- Potential direct impacts to threatened flora species that may inhabit the referral area, including Matted Flax-lily (*Dianella amoena*), Dense Leek-orchid (*Prasophyllum spicatum*), Swamp Everlasting (*Xerochrysum palustre*) and River Swamp Wallaby-grass (*Amphibromus fluitans*). Targeted surveys would confirm presence and inform the extent of potential impacts.
- Habitat degradation resulting from vegetation clearance, soil disturbance, noise, vibration or night lighting may directly impact threatened terrestrial fauna associated with onshore Ecological Vegetation Classes (EVCs), including Gang-gang Cockatoo (*Callocephalon fimbriatum*), Diamond Firetail (*Stagonopleura guttata*) and Swift Parrot (*Lathamus discolor*).
- Maintenance activities during operations, such as access track vegetation clearance, which may result in accidental or direct loss of habitat.

Potential sources of indirect impacts to listed TECs and threatened species associated with activities in the onshore transmission referral area include:

- Soil disturbance and altered surface water flows, erosion, sedimentation, and dust pollution from construction activities, which may reduce soil and water quality and lead to long-term decline in species numbers and native vegetation extent.
- Increased vulnerability to weed invasion, pest species or pathogen spread due to vehicular movement and construction activities, affecting native vegetation and threatened species habitats.
- Indirect effects on threatened terrestrial fauna through habitat modification or displacement caused by construction activities, human presence, noise, vibration, and night lighting.

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. *

Although there remains uncertainty about impacts, their extent and the effectiveness of mitigation, there is the potential for significant impacts in the absence of mitigation, to threatened species.

Further feasibility investigations would continue to occur to inform the turbine heights, offshore cable alignment, preferred cable corridor design, and avoidance measures necessary. Detailed field surveys would enable the species affected, areas of disturbance and associated impacts to be understood and the principles of 'avoid and minimise' to be applied. Where impacts cannot be avoided, mitigation and management measures would be applied to the Project to reduce significant impacts.

Marine

The assessment of potential significant impacts to threatened species and threatened ecological communities are provided in detail in **Attachment 3 - Preliminary Marine Environment Assessment.**

The following EPBC Act listed threatened species may occur within the marine parts of the referral area:

Endangered seabird species

- Northern Royal Albatross
- Southern Giant Petrel
- Gould's Petrel
- Shy Albatross
- Grey-headed Albatross.

Endangered reptile species

- Loggerhead Turtle
- Leatherback Turtle, Leathery Turtle, Luth.

Endangered marine mammal species

- Blue Whale (Pygmy)
- Southern Right Whale.

Vulnerable seabird species

- Antipodean Albatross
- Australian Fairy Tern
- Black-browed Albatross
- Blue Petrel
- Buller's Albatross, Pacific Albatross
- Campbell Albatross, Campbell Black-browed Albatross
- Fairy Prion (Southern)
- Gibson's Albatross
- Indian Yellow-nosed Albatross
- Little Tern
- Northern Buller's Albatross, Pacific Albatross
- Northern Giant Petrel
- Salvin's Albatross
- Sooty Albatross
- Sooty Shearwater
- Southern Royal Albatross
- Wandering Albatross
- White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian)
- White-capped Albatross.

Vulnerable fish species

- Australian Grayling.

Vulnerable mammal species

- Sei Whale
- Fin Whale.

Vulnerable reptile species

- Green Turtle.

Vulnerable shark species

- White Shark, Great White Shark
- Whale Shark.

Conservation dependent species

- Blue Warehou
- School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark.

Where scientific uncertainty exists and impacts could be serious or irreversible, they are conservatively considered to be potentially significant. The significant impact criteria relevant to the endangered and vulnerable marine species are presented in **Attachment 3 - Preliminary Marine Environment Assessment**. The environmental impact assessment that would be carried out would further inform the extent and significance of impacts and the necessary mitigation measures.

The potential significant impacts include:

- For endangered bird species
  - Lead to a long-term decrease in the size of a population
  - Fragment an existing population into two or more populations
  - Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
  - Interfere with the recovery of the species
- For endangered mammal species
  - Reduce the area of occupancy of the species
  - Fragment an existing population into two or more populations
  - Adversely affect habitat critical to the survival of a species
  - Disrupt the breeding cycle of a population
  - Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
  - Interfere with the recovery of the species
- For endangered fish species
  - Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- Vulnerable fish species
  - Lead to a long-term decrease in the size of an important population of a species
  - Reduce the area of occupancy of an important population
  - Adversely affect habitat critical to the survival of a species
- Vulnerable bird species
  - Lead to a long-term decrease in the size of an important population of a species
  - Reduce the area of occupancy of an important population
  - Fragment an existing important population into two or more populations
  - Disrupt the breeding cycle of an important population
- All vulnerable species

- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- Interfere substantially with the recovery of the species.

Terrestrial

The assessment for potential significant impacts to threatened species and threatened ecological communities are provided in detail in **Attachment 4 - Preliminary Terrestrial Ecology Assessment.**

The following EPBC Act listed threatened species and communities may occur within the terrestrial parts of the referral area:

Critically Endangered EPBC Act listed species:

- Fauna (birds) – Curlew Sandpiper, Swift Parrot, Orange-bellied Parrot and Eastern Curlew.

Endangered EPBC Act listed species:

- Flora - Dwarf Kerrawang, Matted Flax-lily, Basalt Pepper-cress, Spiral Sun-orchid and Metallic Sun-orchid.
- Fauna (mammal) – Spot-tailed Quoll and Southern Brown Bandicoot (eastern).
- Fauna (bird) – Australasian Bittern, Gang-gang Cockatoo, Lesser Sand Plover, Bar-tailed Godwit, Black-tailed Godwit, Australian Painted-snipe, South-eastern Hooded Robin and Common Greenshank.
- Fauna (frog) – Martin's Toadlet.
- Fauna (reptile) – Swamp Skink.
- Fauna (fish) Eastern Dwarf Galaxias, Dwarf Galaxias.

Vulnerable EPBC Act listed species:

- Flora – River Swamp Wallaby-grass, Thick-lip Spider-orchid, Trailing Hop-bush, Dense Leek-orchid, Green-striped Greenhood, Austral Toad-flax, Swamp Fireweed, Clover Glycine and Swamp Everlasting.
- Fauna (mammals) – Swamp Antechinus (mainland), Yellow-bellied Glider (south-eastern), New Holland Mouse, Long-nosed Potoroo (southern mainland) and Grey-headed Flying-fox.
- Fauna (birds) – Ruddy Turnstone, Sharp-tailed Sandpiper, Red Knot, Great Knot, Greater Sand Plover, Latham's Snipe, White-throated Needletail, Blue-winged Parrot, Grey Plover, Pilotbird, Diamond Firetail, Eastern Hooded Plover, Brown Treecreeper (south-eastern), Grey Falcon, Painted Honeyeater, South-eastern Glossy Black-Cockatoo and Terek Sandpiper.
- Fauna (frog) – Southern Bell Frog and Green and Golden Bell Frog.

TECs:

- Natural Damp Grassland of the Victorian Coastal Plains (CR).
- Subtropical and Temperate Coastal Saltmarsh (VU).

Flexibility in the design at this early stage means there is opportunity to refine the alignment to avoid key sensitive values that are identified. The corridor would be designed to avoid native vegetation and sensitive areas, and favour agricultural land, to the extent practicable. However, the near-continuous distribution of sensitive habitats along the coastline, particularly coastal saltmarsh, estuarine wetlands, and dunes, means that complete avoidance will not be possible. Thus, the potential significant impacts to these species and communities would primarily be caused by the loss of native vegetation and habitat associated with construction activities. Although the construction footprint would be minimised, the loss of native vegetation could lead to residual impacts on MNES and potentially constitute as a significant impact. It is anticipated that where effects cannot be avoided, best practice environmental management and mitigation measures would be implemented in the Project.

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

Yes

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

The Project has identified potential direct and indirect significant impacts to Threatened Species and Ecological Communities. These require further assessment through the impact assessment process and best practice mitigation and management measures identified and applied to minimise impacts. While the potential number of species affected are expected to be reduced once the cable route is selected and through micro siting to avoid sensitive areas, the potential for significant impacts to occur remains. Therefore, the proposed action is considered a ‘controlled action’ and subject to further assessment of impacts to threatened species and ecological communities.

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. *

The Project would seek to avoid impacts to threatened species and ecological communities through the detailed design, construction and operations of the project. Principles of avoidance and minimise to mitigate the potential of adverse environmental impacts would be implemented throughout all phases of the Project.

Marine

Mitigation measures for the marine environment and ecological species have been proposed to minimise various potential impacts which include:

- Design and micro-siting of infrastructure to avoid significant reef or other benthic habitats.
- For underwater noise and vibration effects, adherence to EPBC Act guidelines would be employed alongside implementing marine fauna observation zones and the use of piling methodology and noise suppression techniques.
- Turbine interactions with seabirds would be further assessed following collision risk modelling to inform turbine and wind farm design.
- Vessel interactions would follow strict speed limits and cetacean caution zones to prevent marine mammal disturbance.
- Burial of the cable beneath the seabed where possible to minimise the effects of EMF.
- Measures against invasive marine species include adherence to biosecurity regulations and vessel cleaning protocols.
- Marine pollution risks would be mitigation through compliance with Australian and international maritime legislation (e.g Marine Orders, International Convention for the Prevention of Pollution from Ships [MARPOL]) standards and staff training in spill response.
- Complete avoidance of sensitive habitats including Ninety Mile Beach Marine Park and Beagle Marine Park.

Terrestrial

Mitigation measures for the terrestrial environment and ecological species, as well as the TECs have been proposed to minimise various potential impacts, which include:

- During the design development, the Project footprint would be minimised to reduce impacts on MNES, native vegetation and threatened species' habitat and instead prioritise land previously cleared of native vegetation where possible.
- Use of a trenchless shore crossing construction technique beneath the primary dune would support the avoidance of intact areas of vulnerable native vegetation mapped to occur within the coastal woodlands.
- The transmission corridor would be designed to avoid native vegetation and sensitive areas to the extent practicable.
- Selective or staged clearing, retention of habitat trees where feasible and a corridor design that would avoid large intact forest patches would minimise impacts to potential habitats for terrestrial fauna.
- Measures to reduce impacts to terrestrial fauna including relocation under ecological supervision, habitat salvage, installation of buffer zones and timing works to avoid breeding zones.
- Complete avoidance of Ramsar wetlands including Gippsland Lakes and Corner Inlet.
- Refinement of the alignment to avoid high-value areas, and adoption of low-impact construction in sensitive zones would reduce direct impacts to flora and vegetation. Further mitigation measures that are typically outlined in the CEMP would include topsoil retention and reuse, hygiene protocols, erosion and sediment control, vehicle access restrictions and progressive rehabilitation with suitable native species.

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

Not applicable - No offsets are proposed at this stage.

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
Yes	Yes	Actitis hypoleucos	Common Sandpiper
Yes	Yes	Apus pacificus	Fork-tailed Swift
Yes	Yes	Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater
Yes	Yes	Ardenna grisea	Sooty Shearwater
Yes	Yes	Ardenna tenuirostris	Short-tailed Shearwater
Yes	Yes	Arenaria interpres	Ruddy Turnstone
Yes	Yes	Balaena glacialis australis	Southern Right Whale
Yes	Yes	Balaenoptera borealis	Sei Whale
Yes	Yes	Balaenoptera musculus	Blue Whale
Yes	Yes	Balaenoptera physalus	Fin Whale
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris alba	Sanderling
Yes	Yes	Calidris canutus	Red Knot, Knot
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Calidris melanotos	Pectoral Sandpiper
Yes	Yes	Calidris ruficollis	Red-necked Stint
Yes	Yes	Calidris tenuirostris	Great Knot
Yes	Yes	Caperea marginata	Pygmy Right Whale
Yes	Yes	Carcharias taurus	Grey Nurse Shark
Yes	Yes	Carcharodon carcharias	White Shark, Great White Shark
Yes	Yes	Caretta caretta	Loggerhead Turtle
Yes	Yes	Charadrius bicinctus	Double-banded Plover

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
Yes	Yes	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover
Yes	Yes	Charadrius veredus	Oriental Plover, Oriental Dotterel
Yes	Yes	Chelonia mydas	Green Turtle
Yes	Yes	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
Yes	Yes	Diomedea antipodensis	Antipodean Albatross
Yes	Yes	Diomedea epomophora	Southern Royal Albatross
Yes	Yes	Diomedea exulans	Wandering Albatross
Yes	Yes	Diomedea sanfordi	Northern Royal Albatross
Yes	Yes	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
Yes	Yes	Gallinago megala	Swinhoe's Snipe
Yes	Yes	Gallinago stenura	Pin-tailed Snipe
Yes	Yes	Hirundapus caudacutus	White-throated Needletail
Yes	Yes	Isurus oxyrinchus	Shortfin Mako, Mako Shark
Yes	Yes	Lagenorhynchus obscurus	Dusky Dolphin
Yes	Yes	Lamna nasus	Porbeagle, Mackerel Shark
Yes	Yes	Limosa lapponica	Bar-tailed Godwit
Yes	Yes	Limosa limosa	Black-tailed Godwit
Yes	Yes	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
Yes	Yes	Macronectes halli	Northern Giant Petrel
Yes	Yes	Megaptera novaeangliae	Humpback Whale
Yes	Yes	Motacilla flava	Yellow Wagtail
Yes	Yes	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
Yes	Yes	Numenius minutus	Little Curlew, Little Whimbrel
Yes	Yes	Numenius phaeopus	Whimbrel
Yes	Yes	Orcinus orca	Killer Whale, Orca

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Pandion haliaetus	Osprey
Yes	Yes	Philomachus pugnax	Ruff (Reeve)
Yes	Yes	Phoebetria fusca	Sooty Albatross
Yes	Yes	Pluvialis fulva	Pacific Golden Plover
Yes	Yes	Pluvialis squatarola	Grey Plover
Yes	Yes	Rhincodon typus	Whale Shark
Yes	Yes	Sternula albifrons	Little Tern
Yes	Yes	Thalassarche bulleri	Buller's Albatross, Pacific Albatross
Yes	Yes	Thalassarche carteri	Indian Yellow-nosed Albatross
Yes	Yes	Thalassarche cauta	Shy Albatross
Yes	Yes	Thalassarche chrysostoma	Grey-headed Albatross
Yes	Yes	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
Yes	Yes	Thalassarche melanophris	Black-browed Albatross
Yes	Yes	Thalassarche salvini	Salvin's Albatross
Yes	Yes	Thalassarche steadi	White-capped Albatross
Yes	Yes	Thalasseus bergii	Greater Crested Tern
Yes	Yes	Tringa brevipes	Grey-tailed Tattler
Yes	Yes	Tringa glareola	Wood Sandpiper
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank
Yes	Yes	Tringa stagnatilis	Marsh Sandpiper, Little Greenshank
Yes	Yes	Xenus cinereus	Terek Sandpiper

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. *

Potential sources of direct impacts to the listed migratory marine species associated with project activities include:

- Turbine collision with migratory bird species may result in the risk of injury or mortality, as there is a possibility that migratory bird species may pass through the turbine radius of the wind farm. As migratory bird species are known to accommodate the Kent Island groups in proximity to the offshore portion of the referral area, and travel between Tasmania and Victoria over the Bass Strait (or from the islands in the Bass strait), potential direct impacts to migratory species may occur.
- Migration pathways for migratory birds may be directly impacted and by turbines, preventing birds from utilising usual migratory pathways or stop them from migrating at all. Turbine infrastructure may also prevent some seabird species from accessing foraging areas surrounding the wind farm infrastructure. Migratory marine species, such as the southern right whale, may also experience fragmentation should the wind farm form a migration barrier.
- Underwater noise and vibration generated during construction, operation and decommissioning may cause physical injury or behavioural disturbance to migratory marine fauna, with piling during construction expected to be the most significant source (dependent on the construction methodology). Additional noise may arise from turbine and substation installation, vessel dynamic positioning, and other construction and operational activities, with intensity influenced by foundation type, rotor size, seabed conditions and vessel requirements.
- Vessel interactions with migratory marine fauna, including whales may occur during construction, maintenance and decommissioning phases of the project.
- Cable installation in nearshore and offshore environments may cause temporary disturbance to benthic habitats used by migratory species.
- EMF from subsea cables may affect movement, orientation or behaviour of sensitive migratory species.
- Increased human activity and vessel presence may result in temporary disturbance and displacement of migratory species from preferred habitats.
- Lighting from vessels and offshore infrastructure may affect behaviour of migratory species, particularly at night.
- Unplanned fuel or chemical spills from project vessels may result in injury or mortality of migratory marine fauna.

Potential sources of indirect impacts to the listed migratory marine species associated with project activities include:

- Light emissions during the construction and decommissioning phase, and from navigational lighting present on the turbines during the operational phase may potentially disorientate migratory birds during flight, and due to the site’s position within BIAs for seabirds.
- Potential impacts to marine water quality may impact migratory marine species, although water quality changes are not expected to be significant and widespread.
- Physical presence of wind turbine infrastructure may result in changes to hydrodynamic and sediment transport processes, which may indirectly alter the availability of nutrients and food sources for migratory marine species.
- Altered prey availability and food web dynamics due to noise, habitat disturbance, or electromagnetic fields, which may influence foraging success.
- Modification of habitats through the creation of artificial reef structures around turbine foundations and scour protection, potentially changing local species assemblages.
- Cumulative pressures when combined with other offshore wind or marine developments, including vessel traffic, noise, and habitat modification, which may influence population-scale responses.
- Reduced water quality from turbidity and sediment plumes during seabed disturbance (e.g. cable installation), indirectly affecting migratory species that rely on sight for foraging.
- Barrier effects from turbine arrays and associated infrastructure that may alter migratory pathways, increase energy expenditure or lead to avoidance of suitable habitat.

Potential sources of direct and indirect impacts to the listed migratory terrestrial species include:

- The loss or disturbance of key habitat for migratory terrestrial species may result from project activities, specifically for migratory parrots that use resources across the landscape. Furthermore, several migratory wetland bird species utilise EVCs within the low-lying or seasonally inundated areas and provide critical foraging and roosting habitat that could be impacted by project works.
- Increase noise as a result of construction activity may cause the displacement of migratory shorebirds.

The loss or disturbance of habitat from project-related activities may impact migratory shorebirds, including saltmarsh and dune systems, specifically where construction intersects coastal or estuarine areas.

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

Yes

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

A significant impact assessment was undertaken to evaluate the potential impacts of the proposed action on migratory species. The assessment identified that the action has the potential to have a significant impact for migratory species, as it meets two significant impact criteria under the *Matters of National Environmental Significance Significant impact guidelines 1.1* for listed migratory species. Refer to **Attachment 3 - Preliminary Marine Environment Assessment for** the detailed significant impact assessment for migratory species. The significant impact assessment identified that the proposed action may have the potential to have a significant impact on migratory species, specifically migratory seabirds, mammals and sharks which meet two criteria under the significant impact guidelines. The criteria include the potential to substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species and the potential to seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Threatened migratory seabirds have the potential to be impacted by turbine strike, displacement or lighting associated with the proposed action. Migratory mammals, specifically the pygmy right whale and southern right whale have known important habitat within the marine environment and may be impacted by underwater noise and vibration during construction, operation and decommissioning. The white shark, the only migratory shark species known to have important breeding BIA within the marine environment may be impacted by cable infrastructure and associated EMF impacts as well.

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

Yes

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

The Project has identified potential direct and indirect significant impacts to Migratory Species. These require further assessment through the impact assessment process and best practice mitigation and management measures identified and applied to minimise impacts. While the potential number of species/individuals affected are expected to be reduced once the cable route is selected and through micro siting to avoid sensitive areas, the potential for significant impacts to occur remains. Therefore, the proposed action is considered a ‘controlled action’ and subject to further assessment of impacts to migratory species.

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 Project would seek to avoid impacts to migratory species through the detailed design, construction and operations of the Project. Principles of avoidance and mitigation to minimise the potential of adverse environmental impacts would be implemented throughout all phases of the Project.

Marine

Mitigation measures for the migratory species have been proposed to minimise various potential impacts within the marine environment which include:

- Design and micro-siting of infrastructure to avoid significant reef or other benthic habitats.
- For underwater noise and vibration effects, adherence to EPBC Act guidelines will be employed alongside implementing marine fauna observation zones and the use of piling methodology and noise suppression techniques.
- Turbine interactions with seabirds will be further assessed following collision risk modelling to inform turbine and wind farm design.
- Vessel interactions would follow strict speed limits and cetacean caution zones to prevent marine mammal disturbance.
- Burial of the cable beneath the seabed where possible to minimise the effects of EMF.
- Measures against invasive marine species include adherence to biosecurity regulations and vessel cleaning protocols.
- Marine pollution risks would be mitigation through compliance with Australian and international maritime legislation (e.g Marine Orders, International Convention for the Prevention of Pollution from Ships [MARPOL]) standards and staff training in spill response.
- Complete avoidance of sensitive habitats including Ninety Mile Beach Marine Park and Beagle Marine Park.

Terrestrial

Mitigation measures for migratory species have been proposed to minimise various potential impacts within the terrestrial environment, which include:

- During the design development, the Project footprint will be minimised to reduce impacts on MNES, native vegetation and threatened species' habitat and instead prioritise land previously cleared of native vegetation where possible.
- Employment of a trenchless shore crossing construction technique beneath the primary dune will support the avoidance of intact areas of vulnerable native vegetation mapped to occur within the coastal woodlands.
- The transmission corridor will be designed to avoid native vegetation and sensitive areas to the extent practicable.
- Selective or staged clearing, retention of habitat trees where feasible and a corridor design that will avoid large intact forest patches would minimise impacts to potential habitats for terrestrial fauna.
- Measures to reduce impacts to terrestrial fauna including relocation under ecological supervision, habitat salvage, installation of buffer zones and timing works to avoid breeding zones.
- Complete avoidance of Ramsar wetlands including Gippsland Lakes and Corner Inlet.

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

Not applicable - No offsets are proposed at this stage.

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 proposed action is not a nuclear action.

4.1.7 Commonwealth Marine Area

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

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

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

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

Yes

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

The offshore cable referral area and the OWF site are located in the Commonwealth Marine Area and sit within an area of cool nutrient rich waters between Victoria and Tasmania.

The proposed action is likely to result in direct and indirect impacts to the Commonwealth Marine Area through a range of construction, operation and decommissioning activities. Refer to **Attachment 3 - Preliminary Marine Environment Assessment** for details on the potential direct and indirect impacts from the proposed action on the Commonwealth Marine Area relevant to the referral area.

Impacts on key threatened and migratory species that inhabit the Commonwealth Marine Area are covered in sections 4.1.4 and 4.1.5 respectively and are not detailed here. Potentially significant impacts to the Commonwealth Marine Area includes the impacts on key species listed as 'Marine' under the EPBC Act as well as species that may not have previously been assessed as a listed Threatened or Migratory species.

Potential sources of direct impacts to the Commonwealth Marine Area associated with activities in the offshore portion of the referral area include:

- Underwater Noise and Vibration associated with the construction, operation and decommissioning phases would contribute to underwater noise that may cause physical harm, or behavioural changes to marine fauna. During the construction phase, it is expected that underwater noise emissions would be the loudest due to turbine and substation construction and anchoring, and during decommissioning through the dismantling of infrastructure. Vessels would likely utilise dynamic positioning which can produce continuous low frequency noise over long periods. Depending on the construction methodology, piling activities during construction is considered most likely to cause potential noise disturbance to surrounding fauna. Noise levels may be attributed to different construction and operational methods including the foundation construction method, size of the foundation and size of rotors, substrate and vessel sizing and dynamic requirements.
- Turbine Interactions with migratory bird species in the vicinity of protected areas, including the Kent Island groups. It is a possible that seabirds might pass through the rotor swept area of the wind turbines which poses risk of injury or mortality from collision. However, preliminary results from current field programs provide some evidence to suggest that birds utilising the offshore portion of the referral area are generally flying at heights below 15 metres, providing some buffer between the expected rotor extent and flight paths.
- Seabed disturbance from the preparation of the seabed for construction of wind turbines, substations and inter-array cables installation is likely to result in impacts such as smothering and permanent loss of benthic habitat. The installation method of inter-array cables or foundation design is yet to be decided; therefore, the disturbance area is not yet able to be estimated. Additionally, a total width of 300 m of seabed disturbance is expected to be required for export cables (six cables requiring 50 m width of disturbance each), which would be spread over a width of 2.4 km for the full 2.8GW project.
- Vessel interactions with marine fauna, including whales may occur during construction, maintenance and decommissioning phases of the project. The risk of collision will be assessed and based on the frequency, size and speed of the vessels. For context, the size of crew transfer vessels (CTV) that may be utilised to transport crew to and from the OWF site are approximately 30 m in length, however construction and installation vessels will likely be much larger depending on the construction methodology.
- Risk of collision as a result of increased vessels accessing the shipping channel where cable infrastructure would be constructed. This increases the risk of collisions between commercial and project vessels.
- During the construction and decommissioning phase, seabed disturbance in the location of turbine and cable infrastructure and vessel noise may temporarily displace marine fauna.

Potential sources of indirect impacts to the Commonwealth Marine Area associated with activities in the offshore portion of the referral area include:

- EMF from the carrying of electricity from the offshore portion of the referral area through cables may cause disturbance to the benthic fauna and pelagic species and potential impacts to species sensitive to EMF through their electromagnetic-receptive sensory systems.
- Physical presence of wind turbine infrastructure may result in changes to hydrodynamic and sediment transport processes, which may indirectly alter the availability of nutrients and food sources, however the impacts are considered to be localised at this stage.
- Noise and vibrations from operational infrastructure may cause disturbance to species sensitive to noise and indirectly lead to behaviour impacts or avoidance of these areas.
- Vessel light emissions during construction and decommissioning phases and from navigational lighting on turbines in the operational phase would occur and may indirectly impact bird (including migratory birds) behaviour, which given the existence of BIAs for a number of seabirds, may lead to an impact such as avoidance or displacement.
- Unplanned introduction of invasive marine species as a result of the transference from equipment or vessels that carry pest species on their hull surfaces, or through ballast water. It is likely that international vessels may be required for construction and decommissioning of the Project.

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

Yes

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

A Significant Impact Assessment was undertaken to evaluate the potential impacts of the proposed action on the environment in the Commonwealth Marine Area. The assessment identified that the action has the potential to have a significant impact, as it meets two criteria under the *Matters of National Environmental Significance Significant impact guidelines 1.1*. Refer to **Attachment 3 - Preliminary Marine Environment Assessment** for the detailed significant impact assessment.

The proposed action has the potential to have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution. As a number of BIAs for listed species overlap with the offshore referral area and the Commonwealth Marine area, any significant impact to marine species would also constitute a significant impact to the environment of the Commonwealth Marine area.

The proposed action also has the potential to result in a substantial change in air quality or water quality (including temperature) which may adversely impact on biodiversity, ecological integrity, social amenity or human health. Whilst the proposed action is not anticipated to have a substantial effect on air quality, the sediment disturbance that would occur during construction and decommissioning of the turbine infrastructure and cables may result in significant impacts to water quality within the area. Sediment quality analysis would confirm the likelihood and duration of turbid plumes and potential release of contaminants in sediment to surrounding waters during re-suspension.

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

Yes

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

The proposed action is a controlled action under the EPBC Act as it is likely to have a significant impact on the Commonwealth Marine Area, which includes the offshore portion of the referral area. A Significant Impact Assessment was undertaken, in accordance with the *Matters of National Environmental Significance: Significant Impact Guidelines 1.1.*

The assessment concluded that the proposed action meets three criteria relevant to the Commonwealth Marine Environment, constituting potential significant impacts. This includes the potential to have a substantial adverse effect on a population of a marine species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution. In addition, the potential to result in a substantial change in air quality or water quality (including temperature) which may adversely impact on biodiversity, ecological integrity, social amenity or human health.

Therefore, the proposed action is considered a ‘controlled action’ and subject to further assessment of impacts to the environment of the Commonwealth Marine Area.

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

The Project would seek to avoid impacts to the environment of the Commonwealth Marine Area where possible throughout construction, operation and decommissioning phases of the Project. Where avoidance is not possible, mitigation measures would also be implemented to reduce impacts to MNES, including the Commonwealth Marine Area. Refer to **Attachment 3 - Preliminary Marine Environment Assessment** for the detailed descriptions of potential mitigation and avoidance measures**.**

Background underwater noise levels in the environment of the Commonwealth Marine Area are currently being monitored and recorded. Modelling would then be undertaken using the likely turbine design, piling method and site characteristics to determine the noise likely to be generated through the construction, operation and decommissioning phases of the Project and thus zone of impact for marine fauna. The mitigation measures would be developed based on the modelling, but are likely to include:

- Use of a piling and cabling methodology and noise suppression techniques (such as bubble curtains) that minimise construction noise and vibration.
- Use of marine fauna observation zones and monitoring as per the results of the underwater noise modelling as well as further discussions with the regulator. Any underwater noise policy guidelines that are applicable would also be taken into account.

To inform collision risk, bird surveys are being undertaken to inform a collision risk model that will be used to complete an impact assessment to determine the significance of impacts to bird population. Pending the outcome, decisions will be made as to how the wind farm can be designed to minimise the significance of identified impacts.

Further surveys are also planned to occur to more accurately estimate benthic habitat disturbance from infrastructure and thus identify further mitigation or avoidance measures. The results of the benthic surveys would help inform placement of structures to avoid sensitive habitats and construction methodologies that could be used to reduce direct and indirect impacts. Assessments that consider hydrodynamic and sediment transport processes, barrier effects and the displacement of marine fauna will be undertaken and would inform management mitigation measure during the design and operation phases of the project and reduce impacts. Consultation with port authorities would ensure navigational safety is addressed, and provided turbines would be appropriately lit, reducing navigational hazard impacts in the waters of the Commonwealth Marine Area.

The design of the cable insulation, voltage strength, depth of the cable and substrate would identify the degree of potential impacts from EMF. As the cable is anticipated to be buried below the seafloor in most areas, it is anticipated that impacts from EMF on marine fauna or disturbance of the benthic habitat would be manageable. Calculations of EMF emissions would be required to determine the extent of EMF that may be present and inform potential mitigation measures where practicable.

Mitigation measures and best practice controls applicable to prevent significant impacts from occurring to the environment of the Commonwealth Marine Area include:

- To mitigate vessel interaction with whales and other marine fauna, all vessels utilised throughout the Project's activities would adhere to conditioned speed limits, AMSA and international requirements for watchkeeping as well as the implementation of the Australian Nationals Guidelines for Whale and Dolphin Watching (2017), to minimise the likelihood of vessel strike. In addition, the Project's activities will adhere to EPBC Regulations 8.04 and 8.05 regarding caution zones around cetaceans. The need for marine mammal observers or other mitigation measures will be informed through an impact assessment process and in line with the relevant regulatory guidance to minimise the likelihood of impacts to marine mammals.
- The alteration of vessel lighting away from the water to minimise light spill and reduce impacts to birds. As marine and aviation regulations require lighting on the turbines for safety, the lighting would be designed to prevent spill into the marine environment. Intermittent light would be utilised as a mitigation measure, as in accordance with the National Light Pollution Guidelines for Wildlife to minimise artificial light impacts to seabirds and reduce likelihood seabird attraction.

- Where vessels are to be utilised, they would be subject to requirements of The Australian Department of Agriculture, Fisheries and Forestry (DAFF) as legislated in the *Biosecurity Act 2015*, which includes measures such as the management of ballast water and biofouling treatment to further mitigate impacts.
- Standard mitigation and management measures in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL), would be implemented to minimise the risk of marine pollution occurring from vessels, such as the appropriate storage and bunding of fuels and other chemicals, onboard treatment of wastewater prior to release at least three nautical miles from land. All vessel staff would also be trained in marine spill response. As such, the risk of impact to water quality from vessels fuel spills is considered low.

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

Not applicable - No offsets are proposed at this stage.

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 proposed action is not within or near the Great Barrier Reef.

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

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

No

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

The proposed action is not related to a water resource in relation to large coal mining development or coal seam gas.

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 proposed action is not on or near Commonwealth land.

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 proposed action would not involve nor affect 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)
- Migratory Species (S20)
- Commonwealth Marine Area (S23)

Conclusion on the likelihood of unlikely significant impacts

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

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Nuclear (S21)
- 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. *

Ørsted undertook a comprehensive site selection and due diligence process prior to the Feasibility Licence application process. This assessment considered multiple factors including environmental sensitivities, existing marine uses, and technical feasibility. The site was selected to minimise impacts on nearshore and coastal environments, avoid significant commercial and recreational fishing areas where possible, and take advantage of optimal wind resources to maximise energy generation efficiency. The process drew on available regional environmental data, stakeholder input, and lessons learned from previous offshore wind projects around the world to ensure the proposed development balanced ecological protection, commercial viability, and benefits to energy consumers.

Feasibility Licence (FL-004) under the OEI Act was granted by the Commonwealth government for Ørsted's Gippsland 1 project on 29 April 2024. The actual OWF site is governed by this Feasibility Licence. This licence defines the permissible area within which the offshore energy generation infrastructure can ultimately be developed, therefore alternative locations for the wind farm have not been considered.

The location of the project transmission connection to the electricity grid is determined by the location of VicGrid's proposed connection hub at Giffard and therefore alternative locations for the grid connection have not been considered.

The referral area covers a broad extent to allow for flexibility for the location of transmission infrastructure to respond to the findings of environmental assessments and other design considerations. The referral area allows for the consideration of a number of alternatives for the offshore export cable corridor, shore crossing and the onshore transmission cable corridor and provides opportunities to minimise impacts.

For the length of coast within the referral area, shore crossing alternatives that intersect known sensitive areas such as the Jack Smith Lake, the Ninety Mile Beach Marine National Park and the Seaspray township have been eliminated, leaving several other less constrained locations for further investigation as the project development is progressed.

The location of the wind farm's connection point to the electricity grid have been defined by the location of VicGrid's proposed connection hub. The alignment of the transmission corridor between these two points is being further investigated and would be designed based on technical feasibility and in response to environmental constraints (identified through the environmental impact assessment) and stakeholder feedback while balancing the need to provide the best value for energy consumers.

In defining the onshore transmission referral area, we have excluded the northern parts of the VicGrid REZ, where potential impacts to native vegetation were considered significant. In the vicinity of Seaspray and the northern portions of the REZ, modelled native vegetation is extensive compared with the southern and central portion of the REZ. As a result, the area from Seaspray to Giffard Rifle Range Flora Reserve has been excluded from the referral area. This approach reflects a broader strategy to minimise social and environmental impacts by avoiding township interfaces, reducing disturbance to native vegetation, and protecting sensitive coastal environments, while remaining consistent with the strategic intent of the VicGrid REZ.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - Figures and Maps.pdf This attachment contains the figures and maps, relevant to this referral.	16/12/2025	No	High

1.2.5 Information about the staged development

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	03/12/2025	No	High

1.2.7 Public consultation regarding the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 7 - Ørsted Gippsland Stakeholder Engagement Strategy.pdf This attachment contains the Orsted Gippsland Stakeholder Engagement Strategy relevant to this referral	07/12/2025	No	High
#2.	Document	Attachment 8 - Ørsted GIP01 Pre Referral Consultation Report CONFIDENTIAL.pdf This attachment contains the Orsted GIP01 Pre Referral Consultation Report relevant to this referral	07/12/2025	Yes	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	Sensitivity	Confidence
#1.	Document	Attachment 2 - Ørsted global QHSE policy.pdf This attachment contains the Osted global QHSE policy relevant to this referral	07/12/2025	No	High

2.2.5 Tenure of the action area relevant to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - Figures and Maps.pdf This attachment contains the figures and maps, relevant to this referral.	15/12/2025	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - Figures and Maps.pdf This attachment contains the figures and maps, relevant to this referral.	15/12/2025	No	High
#2.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High
#3.	Document	Attachment 6 - Preliminary Seascape, Landscape and Visual Assessment.pdf This attachment contains the Preliminary Seascape, Landscape and Visual Assessment relevant to this referral	15/09/2025	No	High

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

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 1 - Figures and Maps.pdf This attachment contains the figures and maps, relevant to this referral.	15/12/2025	No	High
#2.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High
#3.	Document	Attachment 4 - Preliminary Terrestrial Ecology Assessment.pdf This is the preliminary terrestrial ecology assessment that supports the referral.	02/02/2026	No	High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High
#2.	Document	Attachment 4 - Preliminary Terrestrial Ecology Assessment.pdf This is the preliminary terrestrial ecology assessment that supports the referral.	01/02/2026	No	High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 4 - Preliminary Terrestrial Ecology Assessment.pdf This is the preliminary terrestrial ecology assessment that supports the referral.	01/02/2026	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	Attachment 1 - Figures and Maps.pdf This attachment contains the figures and maps, relevant to this referral.	15/12/2025	No	High

3.3.2 Indigenous heritage values that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 5 - Preliminary Cultural Heritage Assessment.pdf This attachment contains the Preliminary Cultural Heritage Assessment relevant to this referral	03/12/2025	Yes	High

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

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High
#2.	Document	Attachment 4 - Preliminary Terrestrial Ecology Assessment.pdf This is the preliminary terrestrial ecology assessment that supports the referral.	01/02/2026	No	High

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

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the	02/12/2025	No	High

preliminary marine environment assessment relevant to this referral

4.1.7.2 (Commonwealth Marine Area) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High

4.1.7.5 (Commonwealth Marine Area) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High

4.1.7.10 (Commonwealth Marine Area) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 3 - Preliminary Marine Environment Assessment.pdf This attachment contains the preliminary marine environment assessment relevant to this referral	02/12/2025	No	High

5.2 Declarations

Completed Referring party's declaration

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

ABN/ACN	20093846925
Organisation name	AECOM AUSTRALIA PTY LTD
Organisation address	Wurundjeri and Bunurong Country, Tower 2, Level 10, 727 Collins Street, Melbourne VIC 3008
Representative's name	Nav De Silva
Representative's job title	Senior Environmental Engineer - Impact Assessment and Permitting
Phone	0422555215
Email	nav.desilva@aecom.com
Address	Wurundjeri and Bunurong Country Level 10, Tower Two 727 Collins Street Melbourne, Australia

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

☑ Check this box to confirm these are the correct identification details. *

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

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.

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	56663760209
Organisation name	ORSTED OFFSHORE AUSTRALIA 1 PTY LTD
Organisation address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

Representative's name	Sarah Wang
Representative's job title	Regional Consent Lead - APAC Environment and Permitting
Phone	+886 905529016
Email	SARWA@orsted.com
Address	Level 19, 180 Lonsdale Street, Melbourne, VIC 3000

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

☑ Check this box to confirm these are the correct identification details. *

☑ I, **Sarah Wang of ORSTED OFFSHORE AUSTRALIA 1 PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.

✔ 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. *

☑ Check this box to confirm these are the correct identification details. *

☑ I, **Sarah Wang of ORSTED OFFSHORE AUSTRALIA 1 PTY LTD**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.