REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A USB copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 10MB as they will be published on the Department's website.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

Minister for Planning
PO Box 500
EAST MELBOURNE VIC 8002

Couriers

Minister for Planning
Level 16, 8 Nicholson Street
EAST MELBOURNE VIC 3002

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@delwp.vic.gov.au is required. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	The project is owned by Flotation Energy Pty Ltd (Australia), a subsidiary of Flotation Energy Plc (UK).
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Tim Sawyer Managing Director Flotation Energy Pty Ltd Accru Perth Level 2, 52 Kings Park Road West Perth WA 6005 timsawyer@flotationenergy.com +61 (0)488 400 811 N/A
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Matthew Smith Renewables and Environment Manager APAC Xodus Group 1 William Street, Perth, 6000 Matthew.smith@xodusgroup.com +61 (0)418 524 641 N/A
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	Flotation Energy is a leading developer and owner of offshore wind projects with a project pipeline of 17 GW in the UK, Ireland, Taiwan, Japan and Australia. Flotation Energy has engaged the following consultants, who combined have the skills and experience to support Flotation Energy's offshore wind development in Gippsland, to assist with preparation of this referral: • Xodus brings the combined expertise of 100 renewables and environmental consultants with a global track record. Xodus has a comprehensive integrated renewables and environmental offering with a deep knowledge in offshore wind and cables supported by a portfolio of 15 GW in floating offshore wind and 8.5 GW in fixed offshore wind projects. • ERIAS environmental consultants specialise in environmental and social impact assessment and management and have an extensive history delivering project permitting and life-of-project

	environmental and social performance services to the energy, resource and infrastructure sectors. ERIAS also provides marine and freshwater specialist expertise. • Biosis are leaders in ecology and cultural heritage consulting and provide an integrated approach to projects based on their knowledge of natural systems and cultural landscapes. Biosis has been engaged to undertake preliminary terrestrial ecology and cultural and historic heritage assessments.

2. Project – brief outline

Project title: Seadragon Offshore Windfarm (the Project)

Project location: (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

The Project comprises offshore and onshore components, with the offshore components located generally between Seaspray and Golden Beach/Paradise Beach off the Ninety Mile Beach on the Victorian coastline (Figure 2.1, Attachment 1). The wind turbines will be installed within an approximate area of 300km^2 within the offshore referral/exploration area. Two potential sites, called Central and Bream have been identified (Figure 2.3, Attachment 1). The landfall location has not been determined; however, three principal areas are under consideration: Golden Beach, Seaspray, and McGaurans Beach.

The onshore cables will follow one of several nominal corridors currently under investigation, following existing easements where practicable and accessible, through to a terminal connection at either the existing Loy Yang or Hazelwood terminal stations. Alternately a new terminal station within the Gippsland Renewable Energy Zone (GREZ) near Giffard may provide for a closer grid connection (Figure 2.2, in Attachment 1). The preferred cable landfall and onshore cable route will be selected following further consultation, environmental impact assessment and design / development activities.

Regional and local ports and marinas will be required to support construction and operation of the project, including Barry Beach Marine Terminal (BBMT), Port Anthony, Port Albert and Port of Hastings. At this stage it is not expected that Project Seadragon will necessitate any port upgrades and as such this referral area does not include ports.

Figure 2.3 (Attachment 1) shows the components of the Project that are in Victorian waters, compared with Commonwealth waters.

Short project description (few sentences)**:**

Flotation Energy is bringing its UK experience and expertise to Australia for the development of the Project. The Project concept is a nominal 1.5-GW offshore wind development in the Bass Strait. The Project comprises an offshore wind farm with an offshore and onshore electricity transmission network to connect into Victoria's electricity network in the Latrobe Valley or within the GREZ. The key Project components are (Figure 2.3, Attachment 1):

- Up to 150 wind turbine generators (WTG) arranged in an optimal array layout and installed on foundations secured into the seabed, likely to be fixed jacket or monopile. Floating foundations will also be considered.
- Network of submarine array cables connecting each WTG to offshore substation platforms (OSP).
- Offshore substation platforms: Up to 4 OSPs with fixed-bottom foundations may be required either as new builds and/or on existing oil and gas infrastructure assets.
- Offshore export cables: Up to 4 x 220 to 275kV AC three-phase export cables (including fibre optics), directly laid and protected via burial or mechanical means where required.
- Shore crossing near Golden Beach, Seaspray or McGaurans Beach.

- Up to two onshore substations, incorporating switching gear and reactive power where required.
- Onshore transmission cables: The base case is for cable trench lay and burial, whilst overhead transmission cables may be required in certain circumstances. Onshore transmission will be installed to connect from the shore crossing location to the onshore project substation(s). Additionally onshore transmission will connect the onshore substation(s) to the onshore terminal station connection. Several nominal corridors are being considered including reuse of existing easements to reduce impacts. After further studies and stakeholder consultation a preferred corridor(s) will be defined.
- Onshore Terminal Station Connection: A connection to an existing onshore terminal station, at either Loy Yang, Hazelwood or an alternative location near Giffard as part of the Gippsland Renewable Energy Zone (GREZ). The terminal station could be developed by Flotation Energy or under agreement by a third party.
- Ports and harbours: use of existing local and regional ports and harbours to support project construction, operation and maintenance.

Part of the project will include the assessment of the possible reuse of legacy petroleum assets including jackets, concrete gravity structures, shore crossings and pipeline easements, if found to be technically, environmentally, and commercially feasible.

3. Project description

Aim/objectives of the project (what is its purpose / intended to achieve?):

The objectives of the Project are:

- Design, construct and operate a commercial offshore windfarm exporting power to the National Electricity Market at the Latrobe Valley or within the Gippsland Renewable Energy Zone (GREZ).
- As part of the development phase (FEED), investigate the potential to reuse legacy petroleum assets including jackets, concrete gravity structures, shore crossings and pipeline easements, if found to be technically, environmentally, and commercially feasible.
- Contribute to a rapid decarbonisation of Australia's energy market and the slowing of global temperature increases.
- Achieve an accelerated offshore wind project schedule, de-risk the technical design and help realise renewable energy and economic benefits through sharing of data and Bass Strait expertise with current industrial users of the region.
- Bring Flotation Energy's UK expertise in offshore wind farm development to Australia.
- Leverage a capable offshore workforce, creating local jobs.
- Build an Australian supply chain for offshore wind to meet the Victorian Government's renewable energy targets.

The Project will contribute to the broader objectives of the Victorian Government with the following beneficial outcomes:

- The Project will provide a substantial contribution towards Victoria's net-zero emissions by 2050 target, contributing circa 10% of Victoria's renewable energy generation target.
- The Project is expected to generate significant direct and indirect economic benefits at the State and regional levels, and opportunities for local employment, the quantum of which will be determined as part of proposed socioeconomic studies to support project approval applications.
- The presence of more than one offshore wind project in Gippsland will accelerate the development of local supply chains, for the mutual benefit of the offshore wind industry including new projects, and the economic prosperity of the Gippsland region.

Background/rationale of project (describe the context / basis for the proposal, e.g. for siting):

The Victorian Government has legislated a renewable energy target of 50% by 2030 and net-zero emissions target by 2050. To achieve these targets, the Victorian Government has committed to development of Renewable Energy Zones (REZs), including Gippsland, to bring in 10 GW of new renewable energy capacity to Victoria and take the total renewable energy generated to 16 GW.

Compared to onshore wind energy generation, offshore wind projects benefit from having higher and more consistent wind speeds leading to more stable electricity generation capacity from more efficient WTGs which extract the most out of the wind resources. At such levels, offshore wind can match efficient gas-fired generation, exceed those of onshore wind and double those of solar photovoltaics.

The chosen location for the Project is subject to favourable metocean conditions with the average windspeeds approximately 8.5m/s with moderate waves. Further the location is adjacent to existing oil and gas facilities (See Figure 4.10 in Attachment 2). Some producing oil and gas fields in Bass Strait will cease production over the next decade. The existence of legacy infrastructure presents a unique opportunity, and Flotation Energy plans to assess the technical and commercial feasibility of reusing assets including steel pile jackets, a concrete gravity structure, easements, and shore crossings, e.g., the reuse and repurposing of GBJV assets. Further, Flotation Energy can leverage 50 years of environmental, geophysical and geotechnical data to accelerate the development phase of the project, de-risk the technical design at an earlier stage, thus helping realise renewable energy and economic benefits earlier. Also, the windfarm will be developed in a “brownfield” area of Bass Strait used for oil and gas extraction for the last ~50 years.

If assessed as feasible, the reuse of existing assets for a wind farm could have significant benefits to the environment:

- Saving energy costs, embedded carbon, and seabed disturbance of building and installing new jackets for wind farm substations.
- Avoiding shoreline disturbance for cable crossings if redundant pipelines can be used as conduits.
- Reusing existing pipeline easements for cable routes, and minimise environmental impacts caused by creating new easements or during asset removal.
- In the event that the reuse of existing assets is not considered feasible, the design of alternatives will be undertaken through a process of site selection, considering site sensitivities (environmental, cultural heritage and social) as well as constructability and costs and existing assets will remain the responsibility of the asset owner.

Main components of the project (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

The main components of a wind farm are the WTGs, OSPs, IA cables, onshore and offshore substation(s) and offshore and onshore transmission cables, noting that the WTGs, OSPs and some sections of the offshore cables are located in Commonwealth waters. The project proposes to utilise existing ports and harbours within the region.

Offshore Wind Turbine Generators

The Project will consist of up to 150 WTG with nominal capacity up to approximately 1.5GW. These would be installed within the marine part of referral/exploration area. The initial base case design of the WTGs is based on the latest Siemens Gamesa SG-222DD WTG, rated to 14 MW. Each WTG will have three blades with a maximum blade tip height of about 345 m above the highest astronomical tide. Based on the Siemens Gamesa SG-222DD, approximately 110 WTGs would be installed in the wind farm array. Blade diameter is 222 m and this directly drives generation for transmission to the offshore substation platform(s) via inter-array cables. Other WTG options will be explored in the detailed design stage and as technology develops, depending on availability, constructability and suitability to the site. The final number of WTGs required for the Project will depend on several factors including, but not limited to, the quality of the wind resource and the efficiency of the WTGs. Larger turbines with greater total height and blade diameter will be considered if commercially available, which would reduce the total number of WTGs required. The project specifications will be determined following further commercial, constructability, environmental and social considerations.

WTG Foundation types across both sites shall be assessed based on soil type, clustering, forecast fabrication/logistics constraints (particularly for large diameter monopiles and floating foundations) and offshore installation constraints (e.g., vessel crane limitations for deeper water monopile installation, and heavier suction bucket jackets).

WTGs located in water depth between 10 m and 40 m are more likely to use monopile or jacket foundations. In water depths between 40 m and 60 m, monopiles are less likely as a WTG substructure type due to water depth, soil type and limited availability of suitable installation vessels., Jackets are the most likely WTG foundation option at the Bream Site, which may consist of suction buckets or pin-piles, depending on further soil analysis and environmental constraints. Floating foundations shall also be considered for the Bream Site.

Inter-array Cables
Each WTG shall require inter array cables connecting either directly to an OSP, or to adjacent WTGs forming a loop from the OSP. Intra-array cables are likely to be 66kV to 132kV. They are laid by dedicated cable lay vessels. Cable protection requirements will depend on a risk assessment, site layout and seabed conditions. The cable installation methods that will be assessed are jetting, trenching, cutting, and ploughing. If trenching, both pre-trenching and post-trenching of the cable, and subsequent post-lay burial or natural backfilling will be analysed. Such analyses shall also feed into the requirements for the cable protection system at the WTG foundation.

Offshore Substations
The windfarm will require up to 4 offshore substations platforms (OSP). These shall be supported by monopile, jacket or gravity-based foundations, dependent on fabrication and installation constraints. The Bream site may also provide the opportunity for re-purposing of existing oil and gas assets to support OSP(s). Repurposing is subject to these assets' condition, engineering requirements, regulatory approval (including from NOPSEMA) as well as planning and environmental approvals.

The OSPs include transformers, batteries, generators, switchgear, fire systems and modular facilities for operational and maintenance activities. The typical footprint of a large offshore substation platform can be in the region of 80m x 60m.

The OSPs provide a collection point for the WTG inter-array cables and the required voltage conversion transformers to enable export of electricity through offshore export cables connecting to Onshore Transmission Infrastructure. The design specification of the offshore substations will be determined during the detailed design phase of the Project. Offshore substations in this project will not typically be manned facilities.

The Australian Energy Market Operator (AEMO) generally allows single connections of up to 750MW in the Gippsland area to avoid grid instability in the event of a generation failure. Considering this limitation, Flotation Energy proposes a maximum of four OSPs, each of approximately 400 MW high voltage alternating current (HVAC) capacity. While this capacity is substantially lower than the AEMO limit, it allows the use of Offshore Transmission Modules (OTMs) in place of large custom designed substation(s) which require the use of specialist installation vessels.

Offshore (HV Export) Cables
Up to 4 x 220kV export cables are considered to be the base case, and potentially up to 275kV, three phase AC export cables (including fibre optics), directly laid and protected via burial or mechanical means where required. The assessment of possible post lay burial/protection will be undertaken following a review of site conditions, vessel and fishing operations and navigational safety. It is possible that the cables will need to cross existing operating or redundant oil and gas pipelines in the area, or the Basslink cable. Crossings will be avoided where possible, and fully engineered to satisfy minimum clearance and free-span requirements between assets. Formal agreements will be sought by Flotation Energy if crossings are unavoidable.

To provide security during installation, cables are usually separated by a distance that is a function of water depth. In the water depths envisaged along the export route from the windfarm area to shore, the expected separation distance is expected to be a minimum of 250 m, with export cables converging locally at the shore crossing or landfall point. The layout will aim to route cables through areas where there is sufficient sediment to allow for burial, whilst avoiding side slopes and variable seabed conditions.

Shore Crossing (Landfall)

The landfall location has not been determined; however, three principal areas are under consideration: Golden Beach, Seaspray, and McGaurans Beach. It is expected that horizontal directional drilling (HDD) will be the preferred installation method, taking the cable from the jointing pit onshore to a location approximately 200-500 m offshore. Open trenching will only be used if HDD cannot be used due to technical or engineering constraints, such as cable pull length limitations or unsuitable geotechnical or environmental conditions for drilling.

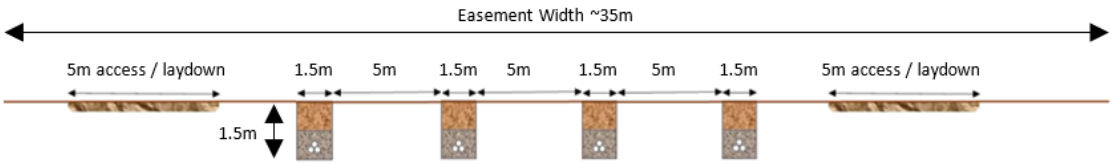
Jointing pits will be used to provide the connection point between the offshore export cable and onshore export cable. Phase compensation reactor(s) may be permanently installed above the jointing pit. The size of the jointing pit site(s) will be approximately 10 m by 10 m.

Onshore substation
Up to two onshore substations, incorporating switching gear and reactive power where required will be installed each within an estimated footprint of 6 hectares. Additional jointing pits may be required onshore depending on the proximity of the onshore substation to the shore crossing.

Onshore Cables
Onshore transmission cables will be installed to connect from the shore crossing location to the onshore project substation(s). Additionally onshore transmission cables will connect the onshore substation(s) to the onshore terminal station connection. The onshore export cables will typically be installed in 300m to 1,000m lengths and connected within sub-surface jointing bays. The referral area includes several nominal corridors between the coast and the Latrobe Valley that are being considered, including potential reuse of existing easements (Figure 2.2, Attachment 1). The preferred option is to use the existing onshore easements to minimise disruption and environmental impacts associated with transmission infrastructure. Following further assessment and stakeholder consultation it is expected that nominal corridors will be rationalised and a preferred corridor(s) nominated for environmental impact assessment.

Onshore transmission cables from the shore crossing to the terminal station connection will predominantly be installed through open-cut trench-lay and burial. Where the proposed transmission route crosses an area of significant environmental or cultural sensitivity or existing infrastructure, consideration of other alternatives such as HDD or overhead cables will be undertaken. The decision on the crossing method for sensitive areas will be made on a case-by-case basis, with respect to technical and engineering feasibility, regulatory requirements as well as environmental, social and cultural sensitivities and potential impacts.

The indicative easement arrangement is illustrated below assuming 4 circuits to the Latrobe Valley or GREZ. Single phase cables laid in trefoil or 3 phase bundled and buried to 1.5m with 5m separation between trenches and suitable temporary access / laydown areas created alongside.



The onshore transmission cables will typically be installed in 300m to 1,000m lengths and connected within jointing bays. Jointing bays will be used to pull the cables into pre-installed ducts, or simply to join the cable lengths to each other where ducting is not used. Link boxes are used for earthing cables and will be installed inside a protective concrete chamber and each jointing bay. The jointing bays are subsurface structures, while the link boxes will require access (for inspections) from the surface during operations and will therefore be located at or above ground level.

Onshore Terminal Station Connection
At the onshore terminal station, the power would be transformed to the appropriate voltage and fed into to the grid, at either 220 kV or 500 kV depending on the final design. Other grid voltages can be accommodated. The Project is considering options for the cable connection at an existing terminal station at Loy Yang or Hazelwood. A new 500 kV terminal station within the Gippsland Renewable Energy Zone (GREZ) may also present connection options for the Project. The terminal station could be developed by Flotation Energy or under agreement by a third party.

Ports and Harbours
A range of ports and harbours will be considered and may be suitable to support construction and then future operation of the Seadragon project. These include Barry Beach Marine Terminal (BBMT), Port Anthony, Port Albert, Port of Hastings, Port of Melbourne, Port of Geelong and Port of Wollongong. The port (or ports) utilised for construction will require capacity to conduct staging activities such as the storage and loading of offshore wind farm components onto vessels for delivery to the offshore location for installation. Flotation Energy will be undertaking a Ports and Harbour Assessment during 2022 to assess the ports' current suitability to service the project and further understand the existing infrastructure's capability and capacity. The ports' future capability and capacity will also be considered (i.e – by 2027). However, in lieu of this further assessment and at this stage, Flotation Energy's view is that major upgrades to ports or harbours are unlikely for the following reasons:

- The ports under consideration include several major port facilities that have serviced the provision of Victoria's major infrastructure delivery over decades and the State's recent surge in large-scale major infrastructure delivery. A number of these ports have serviced the delivery and on-shore storage and staging and marshalling needs of Victoria's existing large utility scale wind farm projects. These ports (including Melbourne, Hastings, Portland and Geelong) include large areas within the existing Port facilities and/or immediately adjoin large areas of developed and industrial land that may also be suitable for on-shore staging, storage and assembly activities.
- Flotation Energy's confidence that Victoria's commercial ports will provide the necessary capability and capacity to service Project Seadragon is further underpinned by the Victorian Commercial Ports Strategy which is under development and scheduled for finalisation and release in August 2022. This Strategy includes at Direction 2: *Trade demand: the Strategy will explore trade and industry trends impacting the sector and what infrastructure and policy responses may facilitate sector growth and resilience. This will particularly focus on the role of ports in enabling future energy security via such tasks as import of critical components for clean energy technology and providing access to offshore energy options*.
- An upgrade of BBMT is proposed which is independent of project Seadragon (Refer to EPBC Referral 2020/8667 – Gippsland Regional Port Project). If progressed, the BBMT upgrade will provide additional capability and capacity to service larger vessels than currently exists.
- No upgrade to ports or shipping channels is foreseen within the scope of Project Seadragon.
- An operations and maintenance base is proposed to be located at a local port such as Barry Beach Marine Terminal, Port Anthony or Port Albert to maximise the use of existing facilities and provide continuing long-term local/regional employment.

Ancillary components of the project (e.g. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

Subject to detailed design and construction methodology there may be a need for temporary site offices, equipment laydown areas, upgraded road access and temporary and permanent offshore installations (e.g., buoys, impact monitoring devices). Where possible, the Project will seek to utilise existing infrastructure, upgraded as required, in preference to establishing new infrastructure that requires land disturbance and vegetation clearing. Similarly, the project will aim to source construction materials locally. The project will utilise existing port facilities, no upgrade to ports or shipping channels is foreseen within the scope of Project Seadragon.

Key construction activities:

Offshore Components
The indicative construction timeframe is over a 3 to 5-year period. Construction of offshore components will typically be performed on a 24-hour basis. The construction process for the offshore components will include assessment and preparation of the seabed (including trenching as necessary) for the WTGs, OSPs and cable routes. Prior to installation there will be surveying

activities, as well as temporary installation of monitoring and other equipment to assess the wind resource and inform detailed design of the Project.

Fabrication of the WTG foundations and OSP foundation and topside shall depend on the expansion of local fabrication capabilities. Utilising local fabrication expertise where track record and capabilities are present will be preferred where possible.

The construction process will include vessel-based transport of WTGs, OSP topsides, and foundation components to and from a staging port(s) and then to the project site for installation. The typical WTG installation sequence is to:

- Prepare OWF Site for installation of the WTG foundation (drilled/piled monopile or jacket; floating structure anchored to seafloor moorings; or concrete gravity on the seafloor).
- Install transition pieces to create a fitting for the WTGs (in the case of monopiles).
- Install scour protection as required.
- Erect the WTG tower.
- Install the turbine nacelle (i.e., drive train and enclosure), hub and blades.

Heavy-lift vessels with appropriate storage and lifting capabilities will be used to lift and install the WTG and OSP foundations. This may include jack-up or moored vessels. Either type of vessel will be supported by crew transport vessels (CTV) and supply vessels for bunkering and supply of consumables such as grout.

The choice of WTG foundation shall depend on further geotechnical analysis, environmental constraints (particularly for noise mitigation and seabed sediment disturbance), and fabrication constraints. Monopiles may be driven (by conventional hammer or vibro-hammer) or pre-drilled, whereas jackets may have suction buckets, or pre / post-installed piles. Following the WTG foundation installation campaign, installation of each WTG is expected to take less than 24 hrs subject to the installation technique and prevailing weather conditions.

Floating and concrete gravity structures, if used, would be towed, and positioned at site by an array of towing tugs and either anchored to the seabed or submerged to rest on the seafloor, respectively. For floating foundations, the WTGs would then be lifted by a moored heavy lift vessel and mated to their respective floating foundation. Subject to design and port facilities it may be feasible that some WTGs (including tower, nacelle, hub, and blades, etc) are fixed to floating foundations onshore and towed to site for installation.

For the OSPs, jacket structures are the most likely option. These would be towed to site and fixed to a drilled/piled substructure.

If repurposing existing infrastructure for OSPs, the current assumption is that existing topsides will be decommissioned and removed, remedial works undertaken (if any), and then the OSP topsides installed.

The typical sequence for installation of the OSPs is:

- Onshore commissioning and loadout of topside and jacket onto barges
- Transport to site
- Install OSP Foundation (if not repurposing an existing asset).
- Lift and install the OSS topside
- Offshore commissioning of the OSP, including inter array cables and HV export cable pull-in.

Offshore cable installation methods will be defined during detailed design however the typical sequence will involve:

- Debris removal (e.g., removal of boulders or rocks from the route)
- Optional pre-trenching of cable routes
- Lay and burial of the HV export cables
- Lay and pull-in of the inter array cables, followed by trenching and burial
- Cable commissioning, including reflectometry and conductivity tests.

The assessment of possible post lay burial/protection of cables will be undertaken following a review of site conditions, vessel and fishing operations and navigational safety. It is likely offshore Export Cable burial will use a cable plough or trenching Remote Operated Vehicle (ROV), whereas inter array cables are likely to be buried using a tracked trencher or ROV dredger. The inter-array cables may be buried in the seabed, typically to a depth of 1m, but may range from 1-3m, noting that the burial depth will be determined by a burial assessment study and a cable burial risk assessment. Cables can be buried via a few techniques depending on the seabed conditions along the route. These techniques include ploughing, jetting, trenching or post-lay burial. There is a possibility of grout bagging or rock placement to protect junctions or transition points, as necessary. For harder seabed features, a mechanical cutter may be used. To provide security during installation, cables are usually separated by a distance that is a function of water depth. In the water depths envisaged along the export route from the windfarm area to shore, the expected separation distance is expected to be a minimum of 250 m, with export cables converging locally at the onshore landing point. Single phase cables may be laid in bundles of three in close proximity. Flotation Energy will aim to route cables through areas where there is sufficient sediment to allow for burial, whilst avoiding side slopes and variable seabed conditions. Internal cable arrays will be designed in collection groups that each feed to a common OSP.

A shore crossing will connect the offshore export cables to the onshore transmission cable. The shore crossing will utilise HDD or trenching. However, trenching will only be used if HDD cannot be used due to technical or engineering constraints. The project is also considering the feasibility of using redundant pipelines as conduits for cables.

Onshore Components

The onshore construction components of the Project potentially include:

- Upgrades to, or construction of, site access roads (clearing and levelling).
- Removal of areas of vegetation (to be minimised wherever possible).
- Establishment of up to two (2) onshore substation compounds, jointing pit sites and associated temporary construction areas
- Onshore Terminal Station Connection: A connection to an existing onshore terminal station, at either Loy Yang, Hazelwood or an alternative location near Giffard as part of the Gippsland Renewable Energy Zone (GREZ). The terminal station could be developed by Flotation Energy or under agreement by a third party.
- Onshore transmission cables will be installed to connect from the shore crossing location to the onshore project substation(s). Additionally onshore transmission cables will connect the onshore substation(s) to the onshore terminal station connection. Several nominal corridors are being considered including reuse of existing easements to reduce impacts. After further studies and stakeholder consultation a preferred corridor(s) will be defined.
- In areas of high environmental or cultural sensitivity or existing infrastructure these may also be crossed using HDD, open-cut or overhead line. The crossing method will be evaluated on a case-by-case basis at each of the sites and assigned based on suitability based on the assessment of technical, engineering, environmental, social, cultural heritage and costs.
- For the landfall location: An HDD pad and spread site within the selected cable route alignment but expanded to include sufficient space to accommodate the slant drill rig, drill pipe, cable reel winch for pulling the cable through the drill hole from offshore to onshore, water storage and drilling fluid recycling unit, vehicle and equipment storage. These sites are estimated to be 100m x 200m in area. The HDD pad location is ideally located with some setback from the high-water mark (i.e., to avoid public conservation areas, environmental constraints) but needs to be in reasonable proximity to enable / maximise the directional drilling's reach to sufficient water depths of >10m.
- In the case that HDD is not used at the landfall crossing, despite it being the preferred method, temporary construction areas would be established set back from the shore crossing to stockpile material and manage trench water and a cable route would be established where trenching and backfill would be undertaken. Access to the shore crossing location would also need to be established in the case there was not already an existing access track.
- Establishment of temporary onshore construction sites (offices, laydown areas, etc).

Further to these activities it is possible that the construction of foundations for the offshore substations occurs onshore. Other onshore activities may include excavation and preparation of

the landfall site(s), installation of underground cables from offshore, installation of or adding to existing transmission lines, installation of up to two onshore substations, and connection of onshore cables.

Additional workspaces, laydown and fabrication or staging areas will be used during the construction phase of the project. Existing facilities will be used where available. If these temporary facilities are required to be established, previously disturbed sites will be preferred wherever possible and these will be rehabilitated to a condition consistent with existing conditions, and considering landholder and regulatory requirements.

Key operational activities:

The operation and maintenance (O&M) strategy will be established based on the final design, technical specifications of key components, final layout and location of suitable port / harbours that offers suitable access to O&M vessels.

The operational life of the Project is estimated to be 60 years, during which time typical operational activities could include the:

- Ongoing monitoring and operation of the WTGs throughout the year according to the prevailing weather and electricity demand.
- Routine and ad-hoc offshore maintenance activities (either offshore or at the operations and maintenance port as required). Activities may include major maintenance activities such as blade repair/replacement).
- Use and maintenance of onshore infrastructure and property (including onshore easement vegetation management).
- Ongoing infrastructure performance and environmental monitoring.
- Repowering (subject to any required regulatory approvals) at the end of WTGs' design life, involving replacement with new WTGs on existing foundations, thereby extending design life further.

Key decommissioning activities (if applicable):
The preference is to reuse infrastructure and existing easements as much as possible. Future use opportunities (beyond the Seadragon project) will be determined during operations.

At the end of the Project is it intended that unburied infrastructure brought into any Project area would be fully removed. The WTG foundations and any unburied cables will be designed to allow for structures above the seabed to be removed regardless of the installation method selected. Buried cables and subsea foundations below the mudline will likely remain in situ to avoid the environmental disturbance caused by removal. Decommissioning activities will be similar in type and scale to the construction methods and will involve similar vessels and equipment.

Onshore, underground transmission cables will typically be securely buried after use. Onshore overhead infrastructure will be repurposed if possible or alternatively dismantled and removed otherwise.

A decommissioning plan will be prepared during detailed design and refined during the projects operational life and in accordance with relevant legislation, guidance and policy.

Is the project an element or stage in a larger project?

☒ No ☐ Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

The Project is not an element or stage in a larger project noting the scope of this referral and the simultaneous referral for the components of the project in Commonwealth jurisdiction.

Is the project related to any other past, current or mooted proposals in the region?

☐ No ☒ Yes If yes, please identify related proposals.

The Project will examine the potential for reuse and repurposing of existing infrastructure, such as pipelines at the shore crossing and petroleum platforms as foundations, that are subject to past Commonwealth approvals and ongoing regulatory oversight from various Commonwealth bodies

as they relate to the offshore component parts of the Project. Flotation Energy is aware of prospective hydrogen projects in the region that may require referral in the future.

The project is aware of several other large scale renewable energy and transmission infrastructure projects in the region and will explore the potential for cooperation with these projects on development of transmission infrastructure.

The Project may result in commercial relationships with these other projects however, it is an independent project and not dependent on other projects proceeding. Synergies will continue to be investigated where they offer mutual benefit and/or improved environmental and social outcomes.

What is the estimated capital expenditure for development of the project?

The estimated capital expenditure for the project is approximately AUD$6.5 billion

4. Project alternatives

Brief description of key alternatives considered to date (e.g. locational, scale or design alternatives. If relevant, attach A4/A3 plans):
See below.

Brief description of key alternatives to be further investigated (if known)**:**

The Project is carrying the following alternatives that will be refined through the detailed design stage:

- The Project proposes to install up to 1.5 GW of offshore WTGs in an approximate 300 km^2 area within the offshore referral area. Two indicative sites (Central and Bream) have been shown in Figure 3, Attachment 1. The final location and layout of the WTGs within the referral areas shall be determined by environmental, technical, and land and marine use factors.
- The physical size and generation capacity of the WTGs remains to be confirmed considering technology development over time, constructability, environmental impact, and cost efficiencies.
- There are several technologies being considered for the foundation substructures at the Bream location, e.g., monopile, jacket, gravity or floating substructures. The preferred solution will depend on a variety of factors including the cost, environmental considerations, technical feasibility and local / regional fabrication capabilities for these technologies.
- The project electrical design will consider use of single phase or three phase offshore transmission cables, depending on the design of the offshore substations and onshore cables. This will determine the need for an onshore substation(s) close to the shore crossing.
- The onshore terminal station connection is expected to be at the existing Loy Yang or Hazelwood power stations or a new terminal station established as part of the GREZ.
- The preferred construction method for the shore crossing is HDD, but other methods such as open-cut trenching (in the case HDD is not feasible) or use of existing pipelines are being considered.
- There are several shore crossing areas and nominal onshore cable route corridors being considered, some of which follow existing easements and/or infrastructure for much of their extent. Future investigations may identify other corridor options or minor variations thereof within the referral area considering stakeholder, engineering, commercial, environmental and other social factors, and onshore substation location.
- Onshore cables are expected to be installed via trench lay and burial, with options for overhead transmission lines depending on the social, environmental, cultural heritage, regulatory and constructability considerations along the preferred onshore cable corridor. HDD may be utilised in specific locations to avoid or minimise impacts to areas of environmental or cultural sensitivity and/or existing infrastructure assets.

The port(s) selected to support construction of the Project will depend on the Project design and especially the foundation substructures used and could be any one of the existing ports within southeast Australia, however the Barry Beach Marine Terminal/Port Anthony, Port of Melbourne

and Port of Hastings are considered most likely at this stage. No upgrade to ports or shipping channels is foreseen within the scope of Project Seadragon.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

The Project is located in both Commonwealth and Victorian State Waters (see Figure 2.1, Attachment 1). Direct impacts of the WTG and offshore cables that are located within the Commonwealth jurisdiction are excluded from this referral and will be subject to separate assessment under the *Environment Protection Biodiversity and Conservation Act 1999*. Indirect impacts experienced within Victoria, that are associated with Project components that are located in Commonwealth waters are addressed in this referral under the *Environment Effects Act 1978* (e.g., visual amenity impacts, water quality impacts and underwater noise impacts).

6. Project implementation

Implementing organisation (ultimately responsible for project, i.e.. not contractor)**:**
Flotation Energy Pty Ltd
Accru Perth
Level 2, 52 Kings Park Road
West Perth WA 6005

Implementation timeframe:
The key phases of the Project are:

- Site selection and feasibility: 2019 to 2021
- Preliminary design and scoping: 2021 to 2022
- Pre-FEED and approvals processes: 2022 to 2025
- Refinement (including FEED and FID): 2025 to 2027
- Execution (including detailed design and onshore and offshore construction): 2027 to 2030
- Operation: 2030 – 2090 (including a re-powering phase, subject to any associated regulatory approvals)
- Decommissioning phase (assuming 60-year operating life): 2090 – 2093.

Proposed staging (if applicable):
No. The Project is not an element or stage in a larger project. .

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

☐ No ☒ Yes If no, please describe area for investigation.
If yes, please describe the preferred site in the next items (if practicable).

General description of preferred site, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):

There are several options being assessed for key Project locations (see Section 4). While the preferred sites for some Project components are yet to be selected, the general Project location is known and for the purposes of the referral, an area has been identified within which Project infrastructure will be sited (excluding the location of the existing port that will be used during construction) and which was the investigation area used for the preliminary assessments (see Figures 2.2 and 2.3, Attachment 1).

The Victorian referral area (hereafter referred to as the 'referral area') relates to the onshore area and the offshore area up to 3 nautical miles (NM), i.e., the extent of Victorian State Waters, and the existing Victorian port(s) that are likely to be used to support Project construction and operations. Note, indirect impacts of activities beyond 3 NM are considered in this referral (see Section 5).

Onshore
The onshore referral area extends from the coastline at McGaurans Beach, near Seaspray, to Golden Beach/Paradise Beach at its northern-most extent. It narrows as it extends westwards towards Hazelwood. It will contain the onshore substation(s) (if required), onshore cables, jointing pits, onshore terminal station connection and supporting infrastructure and laydown areas.

The referral area is within the Gippsland Plains bioregion, which extends from Melbourne to Lakes Entrance. The Gippsland Plains bioregion is generally under 200 m above sea level and so consists of low elevation, slightly undulating coastal and alluvial plains dominated by floodplains and swampy flats. The coastline is lined by sandy beaches backed by barrier dunes and cliffs with mud and sand flats at the inlets. The Gippsland Basin is comprised of a series of tectonic depressions filled with sediment.

Approximately half of the referral area has been cleared of native vegetation, primarily for agriculture (dairying, beef, lamb, wool and vegetable production), plantations (hardwood and softwood), residential development and linear infrastructure such as roads, pipelines and transmission lines, and major coal-fired power generation assets and associated mining. There is also a large portion of public land vested with Gippsland Water which is used for sewerage treatment operations. Most of the native vegetation that remains is within public land (e.g., Holey Plain State Park, and Gippsland Lakes Coastal Park) and is of significant biodiversity conservation value.

Over 1,000 wetlands occur within the referral area based on DELWP's Victorian Wetland Inventory dataset. One wetland within the referral area, the Gippsland Lakes, is a Ramsar wetland which includes Lake Reeve, Lake Coleman and Lake Wellington (Figure 2.3, Attachment 1). Lake Wellington Wetlands is also listed in the Directory of Important Wetlands in Australia as a nationally important wetland.

Offshore
The offshore referral area extends from the 3 NM limit of Victorian State Waters up to the high-water mark at potential shore crossing sites. Beyond 3 NM is Commonwealth Waters as is described in Section 5 will be assessed under the *Environment Protection and Biodiversity Conservation Act 1999*. Water depth increases rapidly from the high-water mark to 10 m within a few hundred metres of the coast. The nearshore environment features fine to very coarse sand, with finer sands found in the southern nearshore environment, grading to coarser sands to the north. The area experiences a moderate tidal range of about 2 m and variable wave energy. Tidal variation for the region is 0.9 m for spring tides and 0.6 m for neap tides.

The offshore project exploration and referral area in State waters includes the Ninety Mile Beach Marine National Park, which contains important intertidal and subtidal soft sediment habitat for a range of species, including sessile invertebrates, algae, fish, and migratory whales. The project development footprint itself, however, will not directly impact the National Park as it will be considered a no-go zone.

Marine habitats in the offshore referral area are characteristic of the broader region and include expansive sediment beds, subtidal low- and high-profile reefs and the water column.

Port
The BBMT (adjacent to Port Anthony) is managed by ExxonMobil and provides offshore support vessels and supply vessels engaged in the construction, maintenance and servicing of the Bass Strait Oil and Gas Industry. The BBMT may be used for Project operations and maintenance activities, or another local port. The terminal area comprises port facilities and infrastructure and some areas of remnant native vegetation. The port to be used for construction is yet to be determined and will depend on a range of factors, and in particular, the design and therefore method of tower installation. BBMT may also be suitable for use during construction noting its proposed upgrade (Refer to EPBC Referral 2020/8667 – Gippsland Regional Port Project). Other

ports for the construction phase include Port of Hastings, Port of Melbourne, Port of Wollongong or Port Anthony. No upgrade to ports or shipping channels is foreseen within the scope of the project.

Site area (if known):

The current onshore cable corridor options range between 50 to 90 km to Loy Yang and further if the export cable proceeds to tie-in at Hazelwood. Whilst connection to a new terminal station within GREZ would allow a significantly shorter cable corridor. The width of the construction corridor will depend on whether onshore transmission cables will be via trench lay and burial or overhead transmission. Where practicable the onshore power cable route will utilise existing cleared easements. For the purpose of estimating the site area a highly conservative approach has been taken based on the longest potential corridor option and a nominal easement width of 55 m, with no allowance subtracted to account for existing clearance of easements or utilisation of existing pylons. Based on these conservative assumptions, the estimated total onshore area is approximately 555 ha.

Current land use and development:

GIS mapping shows that much of the onshore referral area is being used for agricultural purposes consisting of a mix of grazing and some cropping. A similar proportion or area is used for forestry plantations, national/state parks and reserves. Together agricultural land use alongside forestry and public reserves comprise the significant majority of land use. Other land uses include developed townships, rural and coastal settlements, and industrial areas including coal-fired power generation and associated mining.

Developed areas include Hazelwood North, south of Rosedale, south of Sale, Longford, Giffard, and the coastal settlements of Seaspray, The Honeysuckles and Golden Beach/Paradise Beach. Industrial areas include Loy Yang Power Station, Hazelwood Terminal Power Station, Dutson Downs sewerage facilities, and areas used by Gippsland Water and the BBMT.

Existing linear infrastructure in the region includes (see Figure 4.10, Attachment 2)):

- The Basslink Interconnector which runs from Loy Yang, crosses the shore at McGaurans Beach and runs offshore across Bass Strait to Bell Bay in Northern Tasmania.
- The Tasmanian Gas Pipeline, which supplies natural gas from Longford, Victoria to Bell Bay in Northern Tasmania. The pipeline crosses the shore at Seaspray and approximately 3.7 km of the nearshore section of the pipeline intersects the referral area.
- The Gippsland Water regional outfall sewer, an ocean outfall outlet pipe, which discharges treated effluent approximately 1.3 km offshore in approximately 15 m water depth and is located within the referral area.
- A number of other oil and gas pipelines and power transmission infrastructure is located within the referral area (see Figure 2.2, Attachment 1).

There are several forestry plantations, most notable including the Giffard Plantation, Ballas Plantation, DELWP Plantation and School Plantation. State parks and reserves include Holey Plains State Park, Sale Common Nature Conservation Reserve, Rosedale Racecourse and Recreation Reserve, Gormandale Nature Conservation Reserve Stradbroke Flora and Fauna Reserve, Giffard (Rifle Range) Flora Reserve and the Gippsland Lakes Coastal Park. The Ninety Mile Beach Marine National Park extends 5 km along the coastline and 5 km offshore and is located within the referral area but will not be directly impacted by the project footprint as it will be a no-go zone.

Offshore, Victorian managed fisheries include:

- Central Abalone Fishery.
- Rock Lobster and Giant Grab Fishery (eastern zone).
- Victorian Bass Strait Scallop Fishery.
- Wrasse (Ocean) Fishery (eastern zone).

Recreational fishing along the east Gippsland coast primarily targets snapper, whiting, flathead, bream, sharks, tuna and salmon. Ninety Mile Beach, Woodside Beach, Seaspray and Golden Beach are popular night-time fishing spots during winter. The Gippsland Lakes are a popular

recreational fishing location, and the sandy beaches along Ninety Mile Beach serve as important recreational fishing spots both nearshore at reefs and further out to sea in open water.

The region offers a variety of marine-based tourism opportunities including diving, charter boat cruises, whale and wildlife watching, sailing, snorkelling, surfing and kayaking. The Ninety Mile Beach area is however not one of the major tourist destination areas in the region. The Gippsland Lakes and Lakes Entrance are the closest key tourist destination and the closest hub for marine-based tourism activities. Holiday accommodation is provided in coastal settlements, and there are a number of camping areas along the coast within the Gippsland Lakes Coastal Park, managed by Parks Victoria.

Bass Strait is one of Australia's busiest shipping routes along with east to west and west to east international trading routes. In the east of Victoria, Western Port is the major port, with minor ports including BBMT/Port Anthony, Port Albert and Lakes Entrance servicing the petroleum activities. There is a key shipping route that runs parallel to the coast, located approximately 10 to 20 km south of the referral area. In addition, commercial shipping movements are focussed on the various offshore petroleum assets. Shipping routes and traffic in the region is set out in Figure 4.10, Attachment 2.

Description of local setting (e.g. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

The onshore coastal portion of the referral area (from the point of landfall) between McGaurans Beach and Golden / Paradise Beach consists of rural residential properties, farmland, Crown land, road corridors and land vested with Gippsland Water. The referral area generally has a low population density, with the coastal area, town areas with access to the sea, being largely undeveloped. Seaspray, The Honeysuckles, Golden Beach and Paradise Beach are small coastal settlements and Longford is the only larger town located in the referral area with a population of about 1,000 people. The larger regional cities of Sale and Traralgon are outside of the referral area. The referral area includes small portions of the southern edges of Sale and Rosedale. Inland, there are large areas designated for forestry operations managed by DELWP, and several state parks and reserves, the largest being Holey State Park. These State parks and reserves are used for recreational activities and nature conservation and are managed by Parks Victoria.

At the western extent of the referral area are the Loy Yang and Hazelwood Terminal power stations.

Major roads in the referral area include the South Gippsland Highway and the Hyland Highway. Seaspray Road, Longford-Loch Sport Road and Shoreline Drive connect the coastal towns with Longford.

The referral area includes State waters which extend from the high tide mark to approximately 20 m water depth. The sandflats off Ninety Mile Beach are the most extensive area of such habitat in Victoria and support a diverse benthic infauna assemblage. The Ninety Mile Beach biounit features infralittoral reefs which run generally parallel to the shoreline and are predominantly low profile but with some area of higher complexity and vertical reef. Infralittoral rocky reefs occur within the referral area primarily along the 10 m depth contour offshore from Lake Reeve, with a notably large area offshore from Golden Beach in 5 to 10 m of water. The offshore area is predominately used for recreational and local fishing activities and by tourism in the spring and summer months between November to March when its heavily visited by holidaymakers.

Planning context (e.g. strategic planning, zoning & overlays, management plans):
The Project will need to consider and respond to the State Planning Policy Framework, Renewable Energy Policy and relevant Local Planning Policy Frameworks, which outline state and local strategic policy relating to how land should be used and developed. In particular, clauses relating to environmental and landscape values, infrastructure, natural resource management, built environment and heritage environmental risks and amenity will be particularly relevant.

Coastal planning and management are collaborative activities between state and local governments. Coastal planning documents that are relevant to the Project include:

- The Victorian Marine and Coastal Policy provides an overarching framework and sets out policies for planning and managing the marine and coastal environments in Victoria.

- The Victorian Coastal Strategy 2014, established under the *Coastal Management Act 1995*, sets a long-term vision for planning and managing the Victorian coastline and provides a framework for regional coastal plans. The Strategy is referenced in the State Planning Policy Framework of all Victorian planning schemes and informs the development and implementation of other locally and regionally specific strategies and plans.

- The Gippsland Regional Coastal Plan (2015 – 2020) provides a regional framework for protecting Gippsland's coastal values.

The referral area is within the Wellington and the Latrobe Planning Schemes.

Land use (planning) zones intersected by the nominal onshore corridors being investigated in the referral area are shown in Figure 7.1 (Attachment 1), and predominantly comprise Farming and Public Conservation and Resource zones, with areas of Special Use around the Loy Yang Power Station and Public Use in land vested in Gippsland Water. Smaller areas of Rural Living Zone occur at the southern extents of Rosedale and Sale, east of Hazelwood and around Longford. The BBMT is zoned Industrial 1.

The land use zones that are intersected by the existing onshore infrastructure corridors being investigated are listed below:

Wellington Planning Scheme:
- Farming Zone (FZ).
- Public Park and Recreation Zone (PPRZ).
- Public Conservation and Resource Zone (PCRZ).
- Rural Conservation Zone – Schedule 1 (RCZ1).
- Rural Conservation Zone – Schedule 2 (RCZ2).
- Public Use Zone – Service and Utility (PUZ1).
- Public Use Zone – Transport (PUZ4).
- Public Use Zone – Cemetery/Crematorium (PUZ5).
- Public Use Zone – Education (PUZE).
- Public Use Zone – Other Public Use (PUZ7).
- Public Use Zone – Local Government (PUZ6).
- Industrial 1 Zone (IN1Z).
- Rural Living Zone – Schedule 1 (RLZ1).
- Rural Living Zone – Schedule 3 (RLZ3).
- Rural Living Zone – Schedule 5 (RLZ5).
- Neighbourhood Residential Zone – Schedule 1 (NRZ1).
- Residential Growth Zone – Schedule 1 (RGZ1).
- General Residential Zone – Schedule 1 (GRZ1).
- Low Density Residential Zone (LDRZ).
- Road Zone – Category 1 (RDZ1).
- Road Zone – Category 2 (RDZ2).
- Township Zone (TZ).
- Commercial 1 Zone (C1Z).
- Commercial 2 Zone (C2Z).

Latrobe Planning Scheme:
- Farming Zone – Schedule 1 (FZ1).
- Rural Living Zone – Schedule 1 (RLZ1).
- Road Zone – Category 1 (RDZ1).
- Special Use Zone – Schedule 1 (SUZ1).
- Public Use Zone – Service and Utility (PUZ1).
- Rural Living Zone – Schedule 1 (RLZ1).

- Rural Living Zone – Schedule 2 (RLZ2).
- Public Park and Recreation Zone (PPRZ).

Figure 7.2 (Attachment 1) outlines the planning overlays under the Wellington and Latrobe Planning Schemes relevant to the existing onshore infrastructure corridors being investigated. Overlays that intersect with the proposed route options are:

Wellington Planning Scheme:

- Bushfire Management Overlay (BMO).
- Bushfire Management Overlay – Schedule 2 (Langsborough, The Honeysuckles, Golden Beach, Paradise Beach, Loch Sport BAL-29 Areas(BMO2).
- Design and Development Overlay – Schedule 1 (Industrial Areas) (DDO1).
- Design and Development Overlay – Schedule 2 (Business/Industry Display Area (DDO2).
- Design and Development Overlay – Schedule 6 (RAAF – Building Height Above 15 Metres) (DDO6).
- Design and Development Overlay – Schedule 7 (Ninety Mile Beach, Low Density Area) (DDO7).
- Design and Development Overlay – Schedule 13 (Golden Beach/Paradise Beach) (DDO13).
- Design and Development Overlay – Schedule 15 (Seaspray) (DDO15).
- Design and Development Overlay – Schedule 22 Residential Development South of Stevens Street, Sale (DDO22).
- Development Plan Overlay – Schedule 1 (DPO1).
- Development Plan Overlay – Schedule 6 (69 Andrews Road, Longford) (DPO6).
- Development Plan Overlay – Schedule 8 (Rural Living Area Bound by Williams Road, Willung Road, Hoopers Road and Friends Road, Rosedale (DPO8).
- Development Plan Overlay – Schedule 9 (Warruk Growth Area) (DPO9).
- Development Plan Overlay – Schedule 10 (Longford Development Plan Area) (DPO10).
- Environmental Audit Overlay (EAO).
- Environmental Significance Overlay – Schedule 1 (Coastal and Gippsland Lakes Environs) (ESO1).
- Environmental Significance Overlay – Schedule 2 (Wetlands) (ESO2).
- Environmental Significance Overlay – Schedule 3 (Urban and Construction Buffer) (ESO3).
- Environmental Significance Overlay – Schedule 4 (Lake Guthridge and Environs (ESO4).
- Environmental Significance Overlay – Schedule 6 (Consolidation Areas) (ESO6).
- Environmental Significance Overlay – Schedule 7 (Landfill Buffer) (ESO7).
- Floodway Overlay (FO).
- Heritage Overlays (HO218), (HO216), (HO141), (HO142), (HO90), (HO134), (HO98), (HO68), (HO143), (HO131), (HO136), (HO138), (HO137), (HO144), (HO123), (HO139), (HO133), (HO95), (HO140), (HO132).
- Land Subject to Inundation Overlay (LSIO).
- Restructure Overlay (RO).
- Significant Landscape Overlay – Schedule 1 (Ninety Mile Beach) (SLO1).
- Specific Controls Overlay – Schedule 2 (Basslink – Land Use and Development Controls) (SCO2).
- State Resource Overlay 1 (Gippsland Brown Coalfields) (SRO1).

Latrobe Planning Scheme:

- Bushfire Management Overlay (BMO).
- Design and Development Overlay – Schedule 1 (Major Pipeline Infrastructure) (DDO1).
- Design and Development Overlay – Schedule 10 (Latrobe Regional Airport – Obstacle Height Area No. 3) (DDO10).
- Design and Development Overlay – Schedule 11 (Latrobe Regional Airport – Obstacle Height Area No. 4, 5 and 6) (DDO11).
- Environmental Significance Overlay – Schedule 1 (Urban Buffer) (ESO1).
- Floodway Overlay (FO).
- Land Subject to Inundation Overlay (LSIO).
- Specific Controls Overlay – Schedule 4 (Loy Yang Power Station & Coal Mine) (SCO4).
- State Resource Overlay 1 (SRO1).

-

Local government area(s):

The onshore referral area is mostly located within the Wellington Shire Council, with the approach of the onshore cable corridors to Loy Yang, through to Hazelwood, located within the Latrobe City Council.

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity
(cf. general description of project site/study area under section 7)**:**

Onshore Environment
The referral area is within the Gippsland Plains bioregion, which extends from Melbourne to Lakes Entrance. The Gippsland Plains bioregion is generally under 200 m above sea level and so consists of low elevation, slightly undulating coastal and alluvial plains dominated by floodplains and swampy flats. The coastline is lined by sandy beaches backed by barrier dunes and cliffs with mud and sand flats at the inlets.

As about half of the referral area is cleared freehold farmland, the public land is considered likely to be of significant ecological value including flora reserves, bushland reserves, wildlife reserves, flora and fauna reserves, natural features reserves, nature conservation reserves and state forests as it accommodates the vast majority of remnant native vegetation. Three of these are included within the *National Parks Act 1975*:

- Gippsland Lakes Coastal Park.
- Holey Plains State Park.
- Ninety Mile Beach Coastal Park.

A total of 25 Ecological Vegetation Classes (EVCs) across the Gippsland Plain bioregion are modelled to occur within the referral area, and include a range of forest, scrub, woodland, grassland, wetland, heathland and saltmarsh communities. Almost a third of modelled native vegetation within the study area is EVC 48 – Heathy Woodland (28.1%), followed by EVC 16 – Lowland Forest (17.2%), EVC 03 – Damp Sands Herb-rich Woodland (11.2%) and EVC 53 – Swamp Scrub (10.9%). The modelled area of these four EVCs combined represents approximately 67% of modelled native vegetation extent within the study area. Ten EVCs modelled within the referral area have a Bioregional Conservation Status (BCS) of 'Endangered', nine modelled EVCs have a BCS of 'Vulnerable' and one EVC, (EVC – 06 Sand Heathland), is considered 'Rare'.

The Gippsland Lakes wetland complex, the southern portion of which is within the referral area and extends south as a linear strip along the coast for about 70% of the coastal area within the referral area, is also designated Ramsar wetland which includes Lake Reeve, Lake Coleman and Lake Wellington. Lake Wellington Wetlands is also listed in the Directory of Important Wetlands in Australia as a nationally important wetland. Other major natural hydrological features within the referral area include:

- Merriman Creek and associated tributaries.
- La Trobe River and associated tributaries.
- Carr Creek and associated tributaries.
- Jack Smith Lake.
- Lake Dennison.

Refer Attachment 3 Preliminary Desktop Biodiversity Assessment.

The referral area is on land and waters of the Gunaikurnai first nations people. Most of the recorded Aboriginal places within the search area consist of artefact scatters found within proximity to waterways and areas of elevation. Shell middens were commonly found along coastal landforms. Other Aboriginal place components previously recorded in the search area included Low Density Artefact Distributions (LDADs), scarred trees, earth features (soil deposits and a

hearth) and Aboriginal ancestral remains (Burials). It is expected that the coastal dunes, waterways and remnant old growth forest areas will likely have high potential likelihood for as yet recorded Aboriginal places. Refer Attachment 4 Preliminary Desktop Assessment (Aboriginal Heritage).

There are a number of historic heritage places in the onshore referral area listed on the Victorian Heritage Register (VHR) and the Victorian Heritage Inventory (VHI). These comprise a bridge, jetty, kilns and historic buildings. Refer Attachment 5, Preliminary Desktop Assessment (Historic Heritage).

Offshore Environment
The Ninety Mile Beach Marine National Park is overlapped by the referral area, however, the project development footprint will avoid direct impacts to the Park. The Ninety Mile Beach Marine National Park contains important intertidal and subtidal soft sediment habitat for a range of species, including sessile invertebrates, algae, fish and migratory whales (refer Attachment 2, Preliminary Marine Ecology Assessment).

The next closest marine asset is the Nooramunga Marine and Coastal Park (approximately 22 km away) (See Figure 2.3, Attachment 1) outside of the windfarm referral area but in the general location of the existing BBMT port facility. Nooramunga Marine and Coastal Park falls within the Corner Inlet Ramsar site, due to the globally important populations of migratory birds which feed on the invertebrates in the mud flats, while the seagrass beds support diverse fish communities.

The referral area includes Biologically Important Areas (BIAs) for the following species:

- Great white shark (breeding and nursery area), Figure 4.7, Attachment 2.
- Pygmy blue whale (possible foraging area and known distribution), Figure 4.8, Attachment 2.
- Southern right whale (known core range and migration and resting on migration), Figure 4.9, Attachment 2.

Marine habitats in the referral area and the region include expansive sediment beds (including isolated seagrass beds), subtidal low- and high-profile reefs and the water column.

A preliminary desktop assessment of marine heritage sites identified seven historic shipwrecks in the referral area (two offshore and four onshore).

Further information on key marine ecology sensitivities is provided in Attachment 2 (Preliminary Marine Ecology Assessment) and marine heritage (e.g., shipwrecks), in Attachment 5 (Preliminary Desktop Assessment (Historic Heritage)).

Port
The BBMT is largely developed with some remnant vegetation and communities typical of the coastal complex along the shoreline. The terminal is surrounded by agricultural land with scattered remnants of native vegetation. No upgrade to the port or channel is planned within Project Seadragon. However, the existing environment surrounding the port has been included to provide context.

9. Land availability and control

Is the proposal on, or partly on, Crown land?

☐ No ☒ Yes If yes, please provide details.

Approximately 28,587 ha (or 22.6%) of the onshore referral area is located on Crown land. Please note that the onshore referral area does not represent the project's footprint as there are several cable route options being assessed; and final onshore footprint will be much smaller. The breakdown of Crown land uses is provided in Table 9.1.

Table 9.1 – Crown Land Use within the Referral Area

Crown Land Use	Area (within the Referral area) ha (~%)
Agricultural, including unused road licences, water frontage licences and grazing licences	1,425 (1.1%)
Lease, including commercial type leases	3,490 (2.8%)
General licences including miscellaneous community use licences, permits and consents	206 (0.2%)
Pipe, including water supply pipelines	3 (<0.1)
Reserve, including land gazetted as a reserve in Government gazettes	23,420 (18.5%)
Reserve status	43 (<0.1)
Total	**28,587**

Confirmation of which Crown land parcels will be directly affected will be confirmed during route selection and detailed design, and once confirmed, the relevant agreements, leases or licenses will be sought with the State.

Current land tenure (provide plan, if practicable):

Current land tenure within the onshore referral area is a mixture of Crown land and freehold title. Freehold title makes up approximately 97,779 ha (or 78%). With the remainder comprised of Crown land described above.

Intended land tenure (tenure over or access to project land):

Freehold title areas required for the Project will be accessed via easements or purchased or leased with commercial agreements negotiated with the relevant landowners.

After confirmation of planning approvals, relevant lease or license arrangements would be made with the State to secure tenure for the relevant onshore Crown Land components of the Project. Additionally, a lease will be established with the State to allow occupation of areas of the seabed within Victorian coastal waters.

The land or facilities required for port operations will be leased or licensed directly from port operators during the relevant phases of the Project.

Other interests in affected land (eg. Easements, native title claims):

A number of easements exist in the referral area, consisting mainly of oil and gas pipelines and transmission lines. Existing easements or corridors will be used as much as practicable to minimise impacts, in agreement with the relevant operator. The exact easements to be utilised will be determined during the detailed route selection study.

The Gunaikurnai people hold native title rights over much of the Gippsland region, including certain land parcels within the onshore referral area (Title register VCD2010/001). Indigenous Land Use Agreements (ILUA) have previously been established in the Gippsland region between Traditional Owners and proponents for activities on Crown land where Traditional Owner settlements have been reached. The Project may enter an ILUA or other agreement under the

Traditional Owner Settlement Act 2010 following further engagement with the Gunaikurnai Land and Waters Aboriginal Corporation.

10. Required approvals

State and Commonwealth approvals required for project components (if known):

While a comprehensive review of all Project approvals has yet to be undertaken, the following approvals and consents will, or are likely to be required, pending finalisation of the Project design and route selection:

Commonwealth

- Referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for a decision whether the Project is a controlled action requiring approval under the EPBC Act.
- *Offshore Electricity Infrastructure Bill 2021* (and future legislation).

State

- Referral under the *Environment Effects Act 1978* for a determination whether an Environment Effects Statement (EES) is required.
- Planning permit approval under the *Planning and Environment Act 1987*.
- Consents for works on marine and coastal Crown land under the *Marine and Coastal Act 2018.*
- Approval of Cultural Heritage Management Plans under the *Aboriginal Heritage Act 2006.*
- Permit to take (disturb) wildlife under the *Wildlife Act 1975*.
- Permit to take protected flora under the *Flora and Fauna Guarantee Act 1988* (FFG Act).
- Consents for works within a road reserve under the *Road Management Act 2004*.
- Consents for works undertaken during total fire ban under the *Country Fire Authority Act 1958*.
- Permit for works on waterways under the *Water Act 1989*.
- Permit relating to registered object or place under the *Heritage Act* 2017.
- Compliance with the *Catchment and Land Protection Act 1994* as applicable depending on the location of project infrastructure.

Have any applications for approval been lodged?

☒ No ☒ Yes If yes, please provide details.

Approval agency consultation (agencies with whom the proposal has been discussed):

- Department of Agriculture, Water and the Environment (DAWE).
- Department of Land, Water and Planning (DELWP).
- Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC).

Other agencies consulted:

- Department of Jobs, Precincts and Regions (DJPR).
- Department of Industry, Science, Energy and Resources (DISER).
- National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).
- Department of Treasury and Finance (DTF) – Invest Victoria.
- Commonwealth Scientific and Industrial Research Organisation (CSIRO).
- National Offshore Petroleum Titles Administrator (NOPTA).
- Regional Development Victoria (RDV).
- Major Projects Facilitation Agency.

Flotation Energy has undertaken initial consultation with key agencies, commercial entities and the Gunaikurnai Aboriginal community to introduce the proponent and provide project briefings. Flotation Energy will engage further with stakeholders including catchment management authorities (CMA's), local councils and other stakeholders, throughout the project scoping and concept development phase over coming months to inform the impact assessment studies.

Consultation will continue with stakeholders throughout the design, development and operation of the Project.

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

Overview of potentially significant environmental effects (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

A preliminary impact assessment screening (Attachment 6) has been completed for the Project to inform the referral process and feasibility studies, as well as the design of subsequent detailed impact assessment investigations. On this basis Flotation Energy has undertaken a series of preliminary baseline characterisation studies to support the identification of key environmental and socio-cultural sensitivities relevant to the referral area (excluding the existing BBMT).

These are referenced throughout this form as:

1. Attachment 1 – EES Referral Supporting Figures.
2. Attachment 2 – Preliminary Marine Ecology Assessment.
3. Attachment 3 – Preliminary Desktop Biodiversity Assessment.
4. Attachment 4 – Preliminary Desktop Assessment (Aboriginal Heritage).
5. Attachment 5 – Preliminary Desktop Assessment (Historic Heritage).
6. Attachment 6 – Preliminary Impact Assessment Summary.
7. Attachment 7 – Stakeholder Engagement Plan.
8. Attachment 8 – Flotation Energy HSEQ Policy

The following section summarises the potentially significant environmental effects from the Project, based on the desktop assessments and review of existing publicly available literature that have been completed. Further detailed assessments, including field work of potential impacts will be completed to support the detailed siting and design of project infrastructure and subsequent impact assessment to support project permitting and approval applications. Key areas of uncertainty at this early stage of planning include the presence of acid sulfate soils, traffic (marine and land based), impact to watercourses and existing infrastructure at potential crossings and cumulative impact of the project and other projects occurring in the same area or timeframe.

Terrestrial Flora and Fauna
Attachment 3 (Preliminary Desktop Biodiversity Assessment) describes the key terrestrial ecological values identified within the referral area.

As set out in the executive summary of the Preliminary Desktop Biodiversity Assessment (Attachment 3) the study area contains 25 EVCs including:

- Ten EVCs with a Bioregional Conservation Status (BCS) of Endangered.
- Nine EVCs with a BCS of Vulnerable.
- One EVC with a BCS of Rare.

Endangered, Vulnerable and Rare EVCs can all qualify as being of high conservation significance, if the vegetation condition is high enough which much of the remnant vegetation within the referral area is likely to be based on it residing within state parks and reserves.

Approximately half of the onshore referral area has been cleared of native vegetation, and as previously noted the vast majority of remaining native vegetation is within public land, most notably:

- Holey Plains State Park.
- Stradbroke Flora and Fauna Reserve.
- Giffard (Rifle Range) Flora Reserve.
- Gippsland Lakes Coastal Park.

A total of 62 FFG Act-listed flora species are considered to have a medium or higher likelihood of occurring within the referral area (Section 4.7.1, Attachment 3). Seventy-seven species of fauna listed under the FFG Act occur or have a medium or higher likelihood of occurring within the onshore referral area (Section 4.7.2, Attachment 3). The threatened fauna species considered

likely to occur within the referral area occupy a variety of habitats ranging from wetlands, saltmarshes and coastal dunes, to forests, woodlands and heathlands.

Due primarily to the scale of disturbance throughout the landscape, the native vegetation retained within these remaining parcels of public land is of significant biodiversity conservation value.

Potential impacts to flora and fauna from the Project will primarily relate to land and waterway disturbance (i.e., vegetation clearing, trenching across waterways) and other secondary impacts such as the introduction of weeds and pests, erosion and sedimentation during the construction phase of the Project. For the purpose of estimating the area of native vegetation clearance, a highly conservative approach has been taken based on an existing corridor option with the highest amount of intersections with native EVCs, and a nominal easement width of 55 m which essentially reflects a total greenfield cable route corridor. Using these assumptions, the estimated maximum native vegetation clearance required is 159.12 ha.

Cable route corridors being investigated include shore crossings in the vicinity of the Gippsland Lakes Coastal Park which includes the Ramsar listed Lake Reeve and presents significant wetland habitat for FFG-listed species. Existing underground infrastructure corridors traverse the lake system, including Lake Reeve, which are being investigated as potential cable route and shore crossing options. Past projects in the area have identified a preference for buried cables at the coast and while all options are under consideration until the baseline and impact assessment has been completed, the cables may be installed by either trenching or HDD across these wetland areas. Overhead options are generally less favourable in these locations, with greater potential to result in impacts to:

- FFG-listed terrestrial and aquatic flora and fauna habitat and species, particularly bird species (Section 4.7, Attachment 3).
- Significant migratory and shorebird habitat and refuge areas (Section 4.8, Attachment 3).
- Wetland hydrological regimes and water quality (Section 4.3, Attachment 3).

There is high potential to mitigate impacts to wetland areas from underground installation, particularly noting the ephemeral nature of parts of the southern reaches of the Gippsland Lakes complex, including the Ramsar listed Lake Reeve, and potential for construction during periods when the lake is dry, and the potential to follow in part the existing infrastructure corridors. Specialised construction methods would be employed to mitigate potential impacts, including investigation of the feasibility of HDD beneath the wetlands, however this is dependent upon the absence of geotechnical hazards (e.g., unconsolidated sub-strata).

A variety of management and mitigation measures will be adopted to minimise the extent of native vegetation to be cleared. These measures are likely to include avoiding or minimising unnecessary duplication of infrastructure (e.g., utilising existing easements to connect to existing transmission network and/or co-locating project components with other infrastructure); utilising previously cleared land including agricultural land and plantations where practicable; investigating potential use of HDD or overhead cables and the development of a project specific environmental management plans for the construction and operations phases (Section 6, Attachment 3).

Marine Ecology

A preliminary marine ecology assessment was undertaken by ERIAS' marine scientists to provide an initial characterisation of the existing marine ecological values in the referral area (refer Attachment 2).

The desktop marine biodiversity assessment (Attachment 2) identified threatened marine species considered to have potential to occur within the referral area (See Table 12.7 below) which may be potentially affected by the Project, including:

- 5 FFG-listed fish (including sharks).
- 12 FFG-listed invertebrates.
- 5 FFG-listed marine mammals.
- 1 FFG-listed marine reptile.
- 16 EPBC marine migratory species.

The preliminary marine assessment determined the potential for significant impacts on the Victorian marine environment and three FFG Act listed species:

- Great white shark (*Carcharodon carcharias*).
- Southern right whale (*Eubalaena australis*).
- Sea slug (*Platydoris galbana*).

A preliminary assessment has been undertaken of potential impacts to the three listed species and the Victorian marine environment. This assessment is provided in Section 5.7 of Attachment 2 and found that significant impacts are unlikely assuming effective implementation of mitigation measures; however, this will need be confirmed in the subsequent environmental impact assessment phase when full project design and execution are understood. Further, the impact assessment will consider cumulative impacts.

Potential environmental effects within Victorian waters
Potential impacts to the Victorian marine environment will be primarily related to construction activities, specifically, cable installation by HDD (or by trenched method) at the shore crossing and ship-based cable laying and burial on the seafloor out to the windfarm in Commonwealth marine waters. Impacts during operations are significantly reduced and are generally limited to transit of maintenance and operations support vessels through Victorian waters out to the windfarm in Commonwealth waters and potential localised emission of electromagnetic fields (EMFs) from subsea cables. Impacts during decommissioning are expected to be of a similar order of magnitude as those of the construction phase, due to the disturbance that would occur during removal of infrastructure and boat and shipping movements to support this work. A decommissioning plan will be prepared and implemented prior to any decommissioning activities taking place and will comply with the requirements at that time.

Potential resulting effects in the Victorian marine environment from construction, operations and decommissioning include:

- Temporary and localised changes to water quality from increased turbidity and suspended sediment impacting marine fauna and habitat.
- Temporary disturbance and localised changes to marine benthic habitat and fauna.
- Disturbance to marine fauna from vessel interactions, underwater construction noise and EMF emissions during operation.
- Changes to water quality from planned discharges (e.g. vessel discharges) or unplanned events (e.g., accidental spills).
- Changes to local marine habitat and fauna from introduction of marine pest species by construction and operations maintenance vessels.
- Disruption to existing commercial activities including shipping and navigation, commercial fisheries, tourism and recreation.

Aboriginal Heritage
A Preliminary Desktop Assessment (Aboriginal Heritage) was undertaken by Biosis and is included as Attachment 4. Attachment 4 is provided to support this referral but is to be treated confidentially and not be published. A high-level summary is included below. The assessment was undertaken based on a project search area (referral area) and presents the existing and known conditions and Aboriginal cultural heritage places and a predictive model of archaeological Aboriginal cultural heritage probability within the search area.

The results of the desktop assessment identified that the most common Aboriginal place component type previously recorded within the search area were artefact scatters, low density artefact distributions and shell middens. Areas of elevation and areas of close proximity to waterways were identified as being areas of high sensitivity for Aboriginal cultural heritage

material. In particular, elevated landforms adjacent, overlooking or within close proximity to watercourses were found to be highly sensitive to larger artefact scatters of higher density.

Aboriginal Ancestral Remains (Burial) were previously registered within the search area. The location of Aboriginal Ancestral Remains (Burial) are highly sensitive and significant cultural and spiritual places for Aboriginal people. Scarred trees are present across the entire region, with a trend towards proximity to water or remnant native vegetation of suitable species (Red Gum or Box Gum).

A CHMP for the project is mandatory, as a high impact activity is proposed within areas of cultural heritage significance, in accordance with the *Aboriginal Heritage Act 2006* (Vic) and associated regulations. The preparation, approval and implementation of the conditions of a CHMP and compliance with contingency protocols outlined in the CHMP would provide sufficient mitigation for potential project impacts.

Historic Heritage
A Preliminary Desktop Assessment (Historic Heritage) was undertaken by Biosis and is included as Attachment 5. A high-level summary taken from the executive summary is included here below. The assessment was undertaken based on a project search area (referral area) and presents the historic themes and known historic places and values within the search area, and develops predictive statements of the potential for unknown historic places in the search area.

The results of the desktop assessment identified there are 30 terrestrial historic places and seven shipwrecks registered within the search area. The places are registered on the VHR, VHI and the remaining on the Latrobe City and Wellington Shire Heritage Overlays. Clusters of historic places were recorded around or within towns such as Sale, Rosedale and Longford. Of the seven shipwrecks recorded within the search area, only three are recorded within the offshore area. One of the shipwrecks recorded in the onshore search area is likely the result of a database error (H.M.S Sappho) and may be located outside the referral area.

Based on assessment of previously recorded historical heritage and previous heritage assessments within the search area, historic places most likely to occur within the search area are associated with early buildings, building foundations, bridge foundations, agricultural activities and enclosures, and rural infrastructure. Features like buildings may still exist or these places may be represented by a subsurface archaeological deposit, surface archaeological material or historic objects. There is a higher potential for subsurface historical deposits in proximity to buildings and extant foundations. The likelihood of any unknown historic places will increase with the proximity to towns and other settlements, particularly Sale, Rosedale and Longford. Shipwrecks may be found in the offshore search area or on the coastal beaches.

The desktop assessment and predictive statements demonstrated that there is potential to find historic places and archaeological sites across the entire search area. The background assessment also identified that known historic heritage values of the search area are currently relatively limited, largely due to only a small proportion of the entire search area that has undergone detailed archaeological investigation to date. Refinement of the investigation area and on-site surveys will allow for a better understanding of the nature of historic heritage likely to be impacted by the future potential project.

In the first instance, it is recommended that the project avoid physical impact to all known historic places. The undertaking of sensitive construction practices in the vicinity would likely avoid impact to these historic places. The potential mitigation strategy for each place is dependent on the final construction location and method, and the characteristics of that individual place. The mitigation measures (if required) must also be developed in consultation with the relevant authority (such as the local Council and/or Heritage Victoria). Identification of the preferred transmission route will seek to avoid or cause the least impact to known and unknown historic places and historic values. A historic survey will be undertaken to identify unknown historic places within the project area. Community engagement will be undertaken in regards to historic heritage values for the project area, including terrestrial and maritime sites.

There is potential for further shipwrecks to be located within the search area. Further assessment will be undertaken of the offshore area to determine the presence of unknown historic cultural

material and values. This may include further desktop assessment comprising an analysis of bathymetric maps and benthic data.

Potential environmental effects from activities in adjacent Commonwealth Waters

Indirect effects to the Victorian marine and terrestrial environment may occur from Project construction, operations or decommissioning activities in Commonwealth waters. Potential impacting activities include vessel movements and the installation, operation and decommissioning of project components in the Commonwealth waters.

Potential indirect effects to the Victorian marine and terrestrial environment from Project activities in Commonwealth waters may include:

- Changes to water quality from increased turbidity and suspended sediment.
- Disturbance and displacement of marine fauna from vessel interactions, underwater construction noise and EMF emissions during operation.
- Collision, barrier and displacement effects to FFG Act-listed bird species and other migratory marine fauna transiting across Victorian and Commonwealth areas.
- Changes to water quality from planned discharges (e.g. vessel discharges) or unplanned events (e.g., accidental spills).
- Modification of oceanographic conditions (wave and currents) due to marine infrastructure placement.
- Impacts on marine fauna from vessel and offshore infrastructure lighting.
- Changes to local marine habitat and fauna from introduction of marine pest species by construction and operations maintenance vessels.
- Disruption to existing commercial activities including shipping and navigation, commercial fisheries, tourism and recreation.
- Impacts to visual amenity (land and seascape) from Victorian coastal communities and viewing locations.

The aforementioned impacts are most likely to occur during construction and decommissioning. Assuming effective implementation of mitigation measures, significant effects to the Victorian marine environment is unlikely. Potentially significant (indirect) effects may occur to the terrestrial environment from the physical presence of the wind turbines, causing collisions, barrier and displacement effects to FFG Act-listed bird species and other migratory marine fauna. The likelihood and significance of these impacts will be assessed during the impact assessment phase.

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

☒ NYD ☒ No ☒ Yes If yes, answer the following questions and attach details.

Native vegetation clearing is likely to be required within the onshore referral area, in particular for the construction of the proposed onshore cables. The shore crossing, onshore substation and terminal connection may also require native vegetation clearing to a lesser extent.

However, the preferred project layout including the preferred onshore cables route is yet to be defined, with several onshore cable route corridors currently being investigated. Where practicable the onshore power cable route will utilise existing cleared easements. For the purpose of estimating the area of native vegetation clearance a highly conservative approach has been taken based on a nominal corridor option with the highest amount of intersections with native EVCs, and based on a nominal easement width of 55 m. Based on these assumptions, the estimated maximum vegetation clearance required is 159.12 ha.

The avoidance and minimisation of native vegetation clearing is a key consideration in the evaluation of the onshore cable route corridors and the selection of a preferred route. Clearing of native vegetation may also result in vegetation fragmentation and associated edge effects, such as opening areas up to new pests and weeds, erosion and reducing core habitat. .Preference is for routes that avoid native vegetation areas. Clearing will also be minimised where possible via the utilisation of existing easements within the referral area and through the avoidance of high value conservation areas In the case that an environmentally sensitive site cannot be avoided other transmission alternatives such as HDD or overhead cables will be evaluated to avoid or minimise impacts to native vegetation.

Further information on potential impacts to native vegetation is provided in Section 5 of Attachment 3.

What investigation of native vegetation in the project area has been done? (briefly describe)

The Preliminary Desktop Biodiversity Assessment (Attachment 3) was undertaken to assess potential high-level impacts the project may have on biodiversity within the referral area. The desktop study determined that approximately half of the native vegetation within the referral area has been previously cleared and identified 25 EVCs and extensive areas of native vegetation within public land (Section 4.2, Attachment 3).

Further field surveys and characterisation of native vegetation will be undertaken once the preferred project layout is identified as part of the impact assessment process.

What is the maximum area of native vegetation that may need to be cleared?

☒ NYD Estimated area 159.12(hectares)

For the purpose of estimating the area of native vegetation clearance a highly conservative approach has been taken based on the nominal corridor option with the highest amount of intersections with native EVCs, based on a nominal easement width of 55 m. Based on these assumptions, the estimated maximum vegetation clearance required is 159.12 ha.

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

☒ N/A …….. approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

☒ NYD ☒ Preliminary/detailed assessment completed. If assessed, please list.

Based on the preliminary desktop biodiversity assessment, there are 25 EVCs within the onshore referral area. Table 12.1 lists the EVCs present within the referral area along with their BCS and the modelled extent within the referral area. Although the extent of each EVC within the referral area has been modelled, the amount of potential vegetation loss for each EVC is yet to be determined and is dependent on finalisation of project design.

Table 12.1 – Modelled EVCs within the Referral Area (A derived dataset that delineates the Bioregional Conservation Status of EVCs)

EVC	BCS	Modelled extent within referral area (ha)
EVC 01 - Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Depleted	1,639
EVC 02 - Coast Banksia Woodland	Vulnerable	397

EVC 03 - Damp Sands Herb-rich Woodland	Vulnerable	6,933
EVC 06 - Sand Heathland	Rare	5,708
EVC 07 - Clay Heathland	Depleted	203
EVC 09 - Coastal Saltmarsh	Least Concern	213
EVC 10 - Estuarine Wetland	Least Concern	1,672
EVC 16 - Lowland Forest	Vulnerable	10,803
EVC 18 - Riparian Forest	Vulnerable	309
EVC 29 - Damp Forest	Endangered	226
EVC 48 - Heathy Woodland	Least Concern	18,247
EVC 53 - Swamp Scrub	Endangered	7,140
EVC 55 - Plains Grassy Woodland	Endangered	684
EVC 56 - Floodplain Riparian Woodland	Endangered	1,689
EVC 83 - Swampy Riparian Woodland	Endangered	84
EVC 125 - Plains Grassy Wetland	Endangered	14
EVC 132 - Plains Grassland	Endangered	237
EVC 136 - Sedge Wetland	Vulnerable	761
EVC 151 - Plains Grassy Forest	Vulnerable	20
EVC 191 - Riparian Scrub	Vulnerable	3,813
EVC 259 - Plains Grassy Woodland/Gilgai Wetland Mosaic	Endangered	35
EVC 334 - Billabong Wetland Aggregate	Endangered	18
EVC 681 - Deep Freshwater Marsh	Vulnerable	1,721
EVC 698 - Lowland Forest/Heathy Woodland Mosaic	Vulnerable	445
EVC 863 - Floodplain Reedbed	Endangered	49

Further information on EVCs present within the referral area is provided in Section 4.2 of Attachment 3.

Have potential vegetation offsets been identified as yet?

☒ NYD ☐ Yes If yes, please briefly describe.

Offsets for the removal of native vegetation will likely be required. As the preferred transmission corridor is yet to be determined, the amount of vegetation clearing (and offsets required) cannot be determined at this stage.

Other information/comments? (eg. accuracy of information)

Refer to Attachment 3 for further information regarding assessment approach for preliminary desktop biodiversity assessment.

NYD = not yet determined

Flora and fauna

What investigations of flora and fauna in the project area have been done?
(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

A preliminary marine ecology assessment was undertaken by ERIAS marine scientists to provide an initial characterisation of the existing marine ecological values in the vicinity of the referral area and to identify potentially sensitive marine ecological features, habitats, species and existing and proposed marine uses relevant to this area (Attachment 2).

A preliminary terrestrial ecology assessment (including seabirds and terrestrial avifauna) was undertaken by Biosis to provide an initial characterisation of the existing terrestrial and aquatic ecological values in the referral area (Attachment 3). The purpose of the assessment was to inform both the EPBC and EES referrals for the Project. The study was desktop only with field surveys to be planned as part of the further impact assessment process, once the Project footprint has been further defined. The desktop biodiversity assessment undertook biodiversity database searches and spatial dataset analysis of the referral area with a 500m buffer. The assessment identified potential ecological values within the referral area, including all avifauna (marine, migratory, shorebirds, terrestrial birds), and terrestrial and aquatic ecosystems and assessed the likelihood for threatened flora, fauna and ecological communities to occur. The approach included a background review of databases and literature, with databases including DELWP's Victorian Biodiversity Atlas (VBA) and DAWE's Protected Matters Search Tool for matters protected by the Commonwealth EPBC Act. Additional spatial datasets accessed and reviewed to inform the desktop assessment are detailed in Section 2.1.2, Attachment 3.

Full baseline surveys are planned for the next phase of the Project (see Section 20).

Have any threatened or migratory species or listed communities been recorded from the local area?

☐ NYD ☐ No ☒ Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

Onshore Ecology

This section identifies onshore flora and fauna, and ecological communities, that are listed under the Victorian FFG Act, and includes species that are also listed under the EPBC Act. While the preliminary desktop biodiversity assessment (Attachment 3) also identified species that are only listed under the EPBC Act, these have not been included in this section as those species are subject to the EPBC referral submitted for this project.

Threatened Flora

A total of 13 nationally listed and 62 state listed flora species are considered to have a medium or higher likelihood of occurring within the study area (refer to Appendix 1, Table A1.1 of Attachment 3). Under the FFG Act, threatened flora species are listed as extinct (X), critically endangered (CE), endangered (E), vulnerable (VU) or listed threatened (T).

Threatened flora species considered likely to occur within the study area occupy a range of habitats from wetlands, saltmarsh and coastal dunes through to forests, woodlands and heathlands. There are a number of range restricted flora species such as Wellington mint-bush (*Prostanthera galbraithiae*) (E), which is endemic to Victoria and restricted to the Holey Hill-Dutson area. The referral area also contains disjunct populations of several threatened flora species such as Rush lily (*Sowerbaea juncea*) (V) and Dusky violet (*Viola fuscoviolacea*) (E).

Areas of greatest value for threatened flora species within the referral area known to support populations of and/or suitable habitat for several FFG listed flora species:

- Giffard (Rifle Range) Flora Reserve.
- Holey Plains State Park.
- Dutson Downs public land areas.
- Stradbroke Flora and Fauna Reserve and surrounding reserves.
- Gippsland Lakes Coastal Park.
- Wetlands, lakes and waterways.

Flora species listed under the FFG Act that are considered to have a medium or higher likelihood of occurring within the referral area as provided in Table 12.2 below. Of the 62 FFG-listed flora species, 12 are listed as CE.

Table 12.2 – FFG-Listed Flora with Medium or Higher Likelihood of Occurrence

Common Name	Species Name	FFG Act Status*	Likelihood of Occurrence in Referral Area
Dwarf kerrawang	*Commersonia prostrata*	E	High
Matted flax-lily	*Dianella amoena*	CE	Medium
Strzelecki gum	*Eucalyptus strzeleckii*	CE	High
Maroon leek-orchid	*Prasophyllum frenchii*	E	High
Dense leek-orchid	*Prasophyllum spicatum*	CE	Medium
Wellington mint-bus	*Prostanthera galbraithiae*	E	High
Green-striped greenhood	*Pterostylis chlorogramma*	E	Medium
Metallic sun-orchid	*Thelymitra epipactoides*	E	High
Swamp everlasting	*Xerochrysum palustre*	CE	Medium
Stunted sheoak	*Allocasuarina nana*	E	Medium
Sea water-mat	*Althenia marina*	CE	Medium
Wavy swamp wallaby-grass	*Amphibromus sinuatus*	E	Medium
Small-leaf star-hair	*Astrotricha parvifolia* subsp. *1*	CE	High
Veined spear-grass	*Austrostipa rudis* subsp. *australis*	E	Medium
Velvet apple-berry	*Billardiera scandens s.s.*	E	Medium

Variable bossiaea	*Bossiaea heterophylla*	E	High
Elegant daisy	*Brachyscome salkiniae*	VU	Medium
Orange-tip finger-orchid	*Caladenia aurantiaca*	E	Medium
Slender pink-fingers	*Caladenia vulgaris*	VU	Medium
Naked beard-orchid	*Calochilus imberbis*	CE	Medium
Pale swamp everlasting	*Coronidium gunnianum*	CE	High
Spurred helmet-orchid	*Corybas aconitiflorus*	E	Medium
Fringed helmet-orchid	*Corybas fimbriatus*	E	High
Eastern water-ribbons	*Cycnogeton microtuberosum*	E	High
Bear's-ear	*Cymbonotus lawsonianus*	E	High
Japanese lady-fern	*Deparia petersenii* subsp. *congrua*	E	Medium
Purple diuris	*Diuris punctata* var. *punctata*	E	High
Common pipewort	*Eriocaulon scariosum*	E	Medium
Gippsland lakes peppermint	*Eucalyptus arenicola*	E	High
Coast grey-box	*Eucalyptus bosistoana*	E	High
Greescentbark	*Eucalyptus fulgens*	E	High
Yarra gum	*Eucalyptus yarraensis*	CE	High
Veiled fringe-sedge	*Fimbristylis velata*	E	High
Nerveless pocket-moss	*Fissidens dealbatus*	E	Medium
Goldegrevillea	*Grevillea chrysophaea*	VU	High
Salt blown-grass	*Lachnagrostis robusta*	E	Medium
Rough blown-grass	*Lachnagrostis rudis* subsp. *rudis*	E	Medium
Purple blown-grass	*Lachnagrostis semibarbata* var. *filifolia*	E	Medium
Salt lawrencia	*Lawrencia spicata*	E	High
Lanky buttons	*Leptorhynchos elongatus*	E	Medium
Coast mistletoe	*Muellerina celastroides*	CE	Medium
Dune wood-sorrel	*Oxalis rubens*	E	Medium
Heath platysace	*Platysace ericoides*	E	High
Coast fescue	*Poa billardierei*	E	Medium
Goldepomaderris	*Pomaderris aurea*	E	Medium
Striped pomaderris	*Pomaderris pilifera* subsp. *pilifera*	E	Medium
Fisch's greenhood	*Pterostylis fischii*	E	High
Cobra greenhood	*Pterostylis grandiflora*	E	Medium
Prawn greenhood	*Pterostylis pedoglossa*	E	Medium
Sharp greenhood	*Pterostylis X ingens*	VU	Medium
Mentone greenhood	*Pterostylis X toveyana*	E	High
Lacey river buttercup	*Ranunculus amplus*	CE	Medium
Beardless bog-sedge	*Schoenus imberbis*	VU	Medium
Shingle fireweed	*Senecio diaschides*	E	Medium
Annual fireweed	*Senecio glomeratus* subsp. *longifructus*	VU	Medium
Rush lily	*Sowerbaea juncea*	VU	High
Winter sun-orchid	*Thelymitra hiemalis*	CE	Medium
Ribbed thryptomene	*Thryptomene micrantha*	E	High
Prickly arrowgrass	*Triglochin mucronata*	E	Medium
Dusky violet	*Viola fuscoviolacea*	E	Medium
Parsley xanthosia	*Xanthosia leiophylla*	E	Medium
Pink zieria	*Zieria veronicea* subsp. *veronicea*	E	High

* FFG Act definitions: VU = Vulnerable, E = Endangered, CE = Critically Endangered.

Table 12.3 – EPBC Act-Listed Flora with Medium or Higher Likelihood of Occurrence

Common Name	Species Name	EPBC Act Status*	Likelihood of Occurrence in Referral Area
River Swamp Wallaby-grass	*Amphibromus fluitans*	VU	High
Thick-lip Spider-orchid	*Caladenia tessellata*	VU	High
Trailing Hop-bush	*Dodonaea procumbens*	VU	High

Swamp Fireweed	*Senecio psilocarpus*	VU	Medium

*EPBC Act definitions: VU = Vulnerable, EN Endangered

Threatened Fauna

The desktop assessment identified a total of 75 fauna species listed under the FFG Act that occur, or are predicted to occur, within the referral area. Of these, 34 species were FFG-listed only, with 41 fauna species also EPBC-listed. The threatened fauna species considered likely to occur within the referral area occupy a variety of habitats ranging from wetlands, saltmarshes and coastal dunes, to forests, woodlands and heathlands as well as open ocean environments. As such, threatened fauna are discussed under three sub-headings:

- Avifauna (which includes all relevant seabirds, shorebirds and terrestrial birds),
- Ichthyofauna (which includes all relevant freshwater fish species),
- Other fauna (which includes all relevant terrestrial and aquatic mammals, reptiles and amphibians).

Avifauna

Avifauna are discussed separately as seabirds (marine birds foraging and breeding offshore), shorebirds (marine and freshwaters waders, wetland birds and terns) and terrestrial birds (all species occupying terrestrial habitats).

Avifauna species listed under the FFG Act that are considered to have a medium or higher likelihood of occurring within the referral area are provided in Table 12.3.

Table 12.3 – FFG-Listed Avifauna Species with Medium or Higher Likelihood of Occurrence

Common Name	Species Name	FFG Act Status*	Likelihood of Occurrence Within the Referral Area
Seabirds			
Wandering albatross	*Diomedea exulans*	CE	Medium
Southern royal albatross	*Diomedea epomophora*	CE	Medium
Indian Yellow-nosed Albatross	*Thalassarche carteri*	E	Medium
Grey-headed albatross	*Thalassarche chrysostoma*	E	Medium
Shy albatross	*Thalassarche cauta*	E	High
Buller's albatross	*Thalassarche bulleri*	E	Medium
Sooty albatross	*Phoebetria fusca*	CE	Medium
Light-mantled sooty albatross	*Phoebetria palpebrata*	CE	Medium
Southern giant-petrel	*Macronectes giganteus*	E	Medium
Northern giant-petrel	*Macronectes halli*	E	High
Shorebirds			
Australian painted-snipe	*Rostratula australis*	CE	High
Australasian bittern	*Botaurus poiciloptilus*	CE	High
Fairy tern	*Sternula nereis*	CE	High
Greater sand plover	*Charadrius leschenaultii*	VU	High
Hooded plover	*Thinornis cucullatus*	VU	High
Eastern curlew	*Numenius madagascariensis*	CE	High
Bar-tailed godwit	*Limosa lapponica*	VU	High
Common Greenshank	*Tringa nebularia*	E	High
Curlew sandpiper	*Calidris ferruginea*	CE	High
Red knot	*Calidris canutus*	E	High
Great knot	*Calidris tenuirostris*	CE	High
Caspian tern	*Hydroprogne caspia*	VU	High
Little tern	*Sternula albifrons*	CE	High
Grey plover	*Pluvialis squatarola*	VU	Medium
Ruddy turnstone	*Arenaria interpres*	E	Medium
Pacific golden plover	*Pluvialis fulva*	VU	High
Common sandpiper	*Actitis hypoleucos*	VU	Medium
Marsh sandpiper	*Tringa stagnatilis*	E	High
Lewin's rail	*Lewinia pectoralis*	VU	High
Little egret	*Egretta garzetta*	E	High

Plumed egret	*Ardea intermedia plumifera*	CE	Medium
Eastern great egret	*Ardea alba modesta*	VU	High
Australian little bittern	*Ixobrychus dubius*	E	Medium
Magpie goose	*Anseranas semipalmata*	VU	High
Australasian shoveler	*Spatula rhynchotis*	VU	High
Freckled duck	*Stictonetta naevosa*	E	High
Hardhead	*Aythya australis*	VU	High
Blue-billed duck	*Oxyura australis*	VU	High
Musk duck	*Biziura lobata*	VU	High
Terrestrial Birds			
Orange-bellied parrot	*Neophema chrysogaster*	CE	Medium
Swift parrot	*Lathamus discolor*	CE	High
White-throated needletail	*Hirundapus caudacutus*	VU	High
Square-tailed kite	*Lophoictinia isura*	VU	Medium
Painted honeyeater	*Grantiella picta*	VU	Medium
Grey goshawk	*Accipiter novaehollandiae*	E	Medium
Little eagle	*Hieraaetus morphnoides*	VU	High
White-bellied sea-eagle	*Haliaeetus leucogaster*	E	High
Powerful owl	*Ninox strenua*	VU	High
Masked owl	*Tyto novaehollandia*	CE	Medium
Hooded robin	*Melanodryas cucullata*	VU	Hooded robin
Chestnut-rumped heathwren	*Calamanthus pyrrhopygius*	VU	High
Speckled warbler	*Pyrrholaemus sagittatus*	EN	Medium
Diamond firetail	*Stagonopleura guttata*	VU	Medium

* FFG Act definitions: VU = Vulnerable, E = Endangered, CE = Critically Endangered.

Ichthyofauna

A total of three FFG-listed freshwater fish species, two of which are also EPBC-listed (Australian grayling, *Prototroctes maraena,* and the Dwarf galaxias, *Galaxiella pusilla*), are considered to have a medium or higher likelihood of occurring within the referral area (Attachment 3). Of the three fish species, none are listed as critically endangered. Fish species listed under the FFG Act that are considered to have a medium or higher likelihood of occurring within the referral area are provided in Table 12.4 below.

Table 12.4 – FFG-Listed Fish Species with Medium or Higher Likelihood of Occurrence

Common Name	Species Name	FFG Act Status*	Likelihood of Occurrence Within the Referral Area
Australian grayling	*Prototroctes maraena*	E	High
Dwarf galaxias	*Galaxiella pusilla*	E	High
Flinders pygmy perch	*Nannoperca sp. 1*	VU	High

* FFG Act definitions: VU = Vulnerable, E = Endangered.

Other Terrestrial Fauna

The remaining fauna identified through database searches covers terrestrial and aquatic mammals, reptiles and amphibians. A total of seven FFG-listed mammals, three FFG-listed amphibians and one FFG-listed reptile are considered to have a medium or higher likelihood of occurrence within the referral area. Of these FFG-listed fauna species, one is listed as critically endangered (Martin's toadlet, *Uperoleia martini*). Mammal, amphibian and reptile species listed under the FFG Act that are considered to have a medium or higher likelihood of occurring within the referral area are provided in Table 12.5 below.

Table 12.5 – Other FFG-Listed Fauna with Medium or Higher Likelihood of Occurrence

Common Name	Species Name	FFG Act Status*	Likelihood of Occurrence Within the Referral Area
Mammals			
Southern greater glider	*Petauroides volans*	VU	Medium
New Holland mouse	*Pseudomys novaehollandiae*	E	High
Southern brown bandicoot	*Isoodon obesulus obesulus*	E	Medium

Grey-headed flying-fox	*Pteropus poliocephalus*	VU	Medium
White-footed dunnart	*Sminthopsis leucopus*	VU	High
Platypus	*Ornithorhynchus anatinus*	VU	Medium
Yellow-bellied sheathail rat	*Saccolaimus flaviventris*	VU	High
Amphibians			
Growling grass frog	*Litoria raniformis*	VU	High
Southern toadlet	*Pseudophryne semimarmorata*	E	High
Martin's toadlet	*Uperoleia martini*	CE	High
Reptiles			
Lace monitor	*Varanus varius*	E	High
Swamp skink	*Lissolepsis coventryi*	E	Medium
Glossy grass skink	*Pseudemoia rawlinsoni*	E	Medium

* FFG Act definitions: VU = Vulnerable, CE = Critically Endangered, E = Endangered.

Migratory Avifauna Species

A total of 68 migratory species listed under the EPBC Act are considered to have a medium or higher likelihood to occur within the referral area based on recent records and the Protected Matters Search Tool (PMST) (Attachment 3). Of these 68 migratory species, 53 are migratory avifauna, comprising 20 seabirds, 27 shorebirds and 6 terrestrial birds, and 16 are migratory marine species (which are covered separately in the migratory marine fauna section). The 53 migratory avifauna species includes the Short-tailed shearwater (*Ardenna tenuirostris*), the most numerically abundant seabird in south-eastern Australia which is known to breed in large numbers at colonies within 80 km of the study area (Attachment 3).

Table 12.6 – Migratory Avifauna Recorded or Predicted to Occur within 500 m of the Referral Area

Common Name	Species Name	Most Recent Record
Swinhoe's snipe	*Gallinago megala*	PMST
Pin-tailed snipe	*Gallinago stenura*	PMST
Latham's snipe	*Gallinago hardwickii*	2010
Glossy ibis	*Plegadis falcinellus*	2009
White-throated needletail	*Hirundapus caudacutus*	2019
Fork-tailed swift	*Apus pacificus*	PMST
Osprey	*Pandion haliaetus*	PMST
Sooty shearwater	*Ardenna grisea*	1972
Short-tailed shearwater	*Ardenna tenuirostris*	2008
Flesh-footed shearwater	*Ardenna carneipes*	PMST
Indian yellow-nosed albatross	*Thalassarche carteri*	PMST
Wandering albatross	*Diomedea exulans*	PMST
Black-browed albatross	*Thalassarche melanophris*	1978
Grey-headed albatross	*Thalassarche chrysostoma*	PMST
Shy albatross	*Thalassarche cauta*	2007
Sooty albatross	*Phoebetria fusca*	PMST
Light-mantled sooty albatross	*Phoebetria palpebrata*	1991
Southern giant-petrel	*Macronectes giganteus*	PMST
Buller's albatross	*Thalassarche bulleri*	PMST
Northern giant-petrel	*Macronectes halli*	PMST
Common tern	*Sterna hirundo*	1977
Southern royal albatross	*Diomedea epomophora*	PMST
Northern royal albatross	*Diomedea sanfordi*	PMST
New Zealand wandering albatross	*Diomedea antipodensis*	PMST
Salvin's albatross	*Thalassarche salvini*	PMST
White-capped albatross	*Thalassarche steadi*	PMST
Campbell albatross	*Thalassarche impavida*	PMST
White-winged black tern	*Chlidonias leucopterus*	1972
Caspian tern	*Hydroprogne caspia*	2019
Crested tern	*Thalasseus bergii*	2010
Little tern	*Sternula albifrons*	2017
Ruddy turnstone	*Arenaria interpres*	1977

Greater sand plover	*Charadrius leschenaultii*	PMST
Grey plover	*Pluvialis squatarola*	1981
Pacific golden plover	*Pluvialis fulva*	2017
Double-banded plover	*Charadrius bicinctus*	1980
Grey plover	*Pluvialis squatarola*	1981
Eastern curlew	*Numenius madagascariensis*	1977
Little curlew	*Numenius minutus*	PMST
Bar-tailed godwit	*Limosa lapponica*	1977
Common sandpiper	*Actitis hypoleucos*	PMST
Common greenshank	*Tringa nebularia*	2019
Marsh sandpiper	*Tringa stagnatilis*	2006
Curlew sandpiper	*Calidris ferruginea*	2017
Red-necked stint	*Calidris ruficollis*	1981
Sharp-tailed sandpiper	*Calidris acuminata*	2006
Red knot	*Calidris canutus*	1981
Great knot	*Calidris tenuirostris*	1986
Pectoral sandpiper	*Calidris melanotos*	PMST
Yellow wagtail	*Motacilla flava*	PMST
Rufous fantail	*Rhipidura rufifrons*	2000
Satin flycatcher	*Myiagra cyanoleuca*	1982
Black-faced monarch	*Monarcha melanopsis*	PMST

Threatened Ecological Communities

The desktop biodiversity assessment (Attachment 3), indicates six FFG-listed Threatened Ecological Communities (TECs) occur or are predicted to occur within the referral area. Based on the available desktop data, all six TECs are considered likely to occur within the referral area. These TECs include:

- Central Gippsland Plains Grassland Community: This community is dominated by Kangaroo Grass (*Themeda triandra*) and includes a range of native herbs and, rarely, trees such as Drooping She-oak *(Allocasuarina verticillata*), Burgan (*Kunzea ericoides*) and Forest Red Gum *(Eucalyptus tereticornis*). The community is extremely restricted in distribution; it is estimated that less than 20 to 30 ha remain.
- Coastal Moonah (*Melaleuca lanceolata* subsp. *lanceolata*) Woodland Community: This community is an open grassy woodland that is dominated by Moonah and found along parts of the Victorian coastline. Coastal Moonah Woodlands tend to occur on high-level dunes along the coast where soils are strongly alkaline and developed on moderately organic aeolian sands or on dune calcarenites.
- Forest Red Gum Grassy Woodland Community: This community is a type of woodland found at a number of sites in Gippsland. The community is characteristically dominated by Forest Red Gum, often with co-dominant Red Box (*E. polyanthemos*), Coast Grey Box (*E. bosistoana*) occurs towards the coast, while Apple Box (*E. bridgesiana*) is often co-dominant on sandy sites.
- Herb-rich Plains Grassy Wetland (West Gippsland) Community: This community typically occurs in shallow (less than 50 cm deep) seasonal wetlands that fill in winter and spring and are dry by summer. Some may retain water for longer periods, but typically only have surface water for up to six months. The community contains a rich plant association of grasses, sedges and aquatic herbs. It is estimated that less than 70 ha of this community still exists, including degraded areas.
- Plains Grassland (South Gippsland) Community: This community varies in structure from closed tussock grassland to open woodland. Its original vegetation structure is likely to have been an open woodland that included areas of very sparsely-treed tussock grassland with shrubby zones associated with drainage lines. This community type occurs in places on the Gippsland plains in the Yarram region between Seaspray and Welshpool.
- Sedge Rich *Eucalyptus camphora* Swamp Community: This community is characterised by Mountain Swamp Gum (*E. camphora*) over a shrub layer dominated by Woolly Tea-tree (*Leptospermum lanigerum*) and a ground cover of diverse sedges and rushes. The community varies in structure from an open woodland or open grassy woodland to a closed shrubland and, where it has been highly disturbed, a grassland dominated by the Common Reed (*Phragmites australis*).

Offshore Ecology

Marine Fauna

Threatened (FFG Act) or migratory (EPBC Act) species and their likelihood of occurrence in the referral area shown in Table 12.7. A total of 32 threatened marine or migratory species were identified as possibly occurring in the referral area including, 9 fish, 12 invertebrates, 11 mammals and three reptiles. Further detail on the likelihood assessment is provided in Attachment 2. Appendix 3 of Attachment 2 details the nearest recordings of threatened or migratory species identified in Table 12.7 to the referral area.

Table 12.7 – Marine Threatened or Migratory Species Likelihood of Occurrence

Common Name	Scientific Name	FFG Act Status*	EPBC Migratory Species?	Likelihood of Occurrence in Referral Area
Fish (including sharks)				
Blue warehou	*Seriolella brama*	CD	No	Moderate
Great white shark	*Carcharodon carcharias*	E	Yes	High
Grey nurse shark	*Carcharias taurus*	CE	No	Low
Oceanic whitetip shark	*Carcharhinus longimanus*	NL	Yes	Low
Porbeagle, mackerel shark	*Lamna nasus*	NL	Yes	Low
Scalloped hammerhead	*Sphyrna lewini*	CD	No	Known
Shortfin mako, mako Shark	*Isurus oxyrinchus*	NL	Yes	Moderate
Southern bluefin tuna	*Thunnus maccoyii*	CD	No	Moderate
Whale shark	*Rhincodon typus*	NL	Yes	Low
Invertebrates				
Brittle star species	*Clarkcoma australis*	CE	No	Low
Brittle star species	*Amphiura trisacantha*	E	No	Low
Chiton 5254	*Bassethullia glypta*	CE	No	Low
Ghost shrimp	*Pseudocalliax tooradin*	E	No	Low
Marine opisthobranch	*Rhodope rousei*	CE	No	Low
Sea cucumber 5251	*Apsolidium densum*	E	No	Low
Sea cucumber	*Apsolidium falconerae*	CE	No	Low
Sea cucumber 5052	*Apsolidium handrecki*	E	No	Low
Sea cucumber (species 5258)	*Pentocnus bursatus*	CE	No	Low
Sea cucumber	*Rowedota shepherdi*	CE	No	Low
Sea cucumber	*Thyone nigra*	E	No	Low
Sea slug	*Platydoris galbana*	E	No	High**
Mammals				
Pygmy blue whale	*Balaenoptera musculus brevicuda*	E	Yes	High
Bryde's whale	*Balaenoptera edeni*	NL	Yes	Low
Burrunan dolphin	*Tursiops australis*	CE	No	Low
Dusky dolphin	*Lagenorhynchus obscurus*	NL	Yes	Low
Fin whale	*Balaenoptera physalus*	NL	Yes	Low
Humpback whale	*Megaptera novaeangliae*	CE	Yes	Known
Killer whale, orca	*Orcinus Orca*	NL	Yes	Low

New Zealand fur seal, long-nosed fur seal	*Arctocephalus forsteri*†	VU	No	Known
Pygmy right whale	*Caperea marginata*	NL	Yes	Low
Sei whale	*Balaenoptera borealis*	NL	Yes	Low
Southern right whale	*Eubalaena australis*	E	Yes	Known
Reptiles				
Green turtle	*Chelonia mydas*	NL	Yes	Low
Leatherback turtle, leathery turtle	*Dermochelys coriacea*	CE	Yes	Low
Loggerhead turtle	*Caretta caretta*	NL	Yes	Low

* FFG Act definitions: CD = Conservation Dependant, VU = Vulnerable, E = Endangered, CE = Critically Endangered, NL = Not Listed
† The FFG Act lists the long-nosed fur seal's binomial name as *Arctophoca australis forsteri*, the split into the genus A*rctophoca* is still under consideration and for the purposes of this assessment, the species has been grouped with *Arctocephalus forsteri*.
** Based on O'Hara and Barmby (2000)[1] (See Attachment 2).

If known, what threatening processes affecting these species or communities may be exacerbated by the project? (eg. loss or fragmentation of habitats). Please describe briefly.

Onshore
A high-level assessment of FFG-listed threatening processes that the Project has potential to contribute to has been identified in Attachments 2 and 3. The preliminary desktop biodiversity assessment identified 31 FFG-listed threatening processes (Attachment 3).

The contribution of the Project to these threatening processes is primarily associated with:

- Potential impacts to terrestrial ecosystems from onshore works including:
  - Habitat degradation, loss and/or fragmentation.
  - The spread of viruses/diseases and impacts from introduced species.
- Potential impacts to aquatic, estuarine and marine ecosystems from onshore and offshore activities in and/or adjacent to these areas.

Habitat Degradation, Loss and/or Fragmentation
Potential impacts may occur as a result of construction works requiring the clearing of vegetation, and altering and degrading ecosystems, reducing the quantity or quality of flora and fauna habitats. FFG-listed threatening processes identified that are relevant to habitat degradation, loss or fragmentation with potential impacts to terrestrial ecosystems include, but are not limited to:

- Habitat fragmentation as a threatening process for fauna in Victoria.
- Loss of coarse woody debris from Victorian native forests and woodlands.
- Loss of hollow-bearing trees from Victorian native forests.

Spread and/or Introduction of Invasive Pests, Weeds and Pathogens
The Project may result in the spread of existing pests, weeds, diseases and viruses and may also cause the introduction of new pests, weeds and pathogens to the referral area. The movement and use of Project-related plant, equipment, vehicles, personnel materials may all contribute to threatening processes related to the spread and/or introduction of exotic species. The desktop assessment identities relevant FFG-listed threatening processes relevant to viruses/diseases and introduced species including, but not limited to:

- Introduction and spread of *Spartina* to Victorian estuarine environments.
- Invasion of native vegetation by Blackberry (*Rubus fruticosus* L. agg.).
- Invasion of native vegetation by 'environmental weeds'.
- Spread of *Pittosporum undulatum* in areas outside its natural distribution.
- The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.
- Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs.

1 O'Hara, T and Barmby, V. 2000. Victorian Marine Species of Conservation Concern: Molluscs, Echinoderms and Decapod Crustaceans. Department of Natural Resources and Environment, State of Victoria, Melbourne, Vic.

Impacts to Aquatic and Estuarine Ecosystems from Project Works
Potential impacts to aquatic, estuarine and marine ecosystems primarily as a result of the proposed onshore works for the construction of the onshore cable route and the onshore crossing. Potential impacts may occur as a result of construction works altering and degrading ecosystems and reducing the quantity or quality of aquatic, estuarine and marine ecosystems and the available habitat for flora and that occupy these habitats. FFG-listed threatening processes identified that have potential to contribute to threatening processes for aquatic and estuarine ecosystems include, but are not limited to:

- Alteration to the natural flow regimes of rivers and streams.
- Degradation of native riparian vegetation along Victorian rivers and streams.
- Wetland loss and degradation as a result of change in water regime, draining, filling and grazing.
- Increase in sediment input into Victorian rivers and streams due to human activities.
- Input of petroleum and related products into Victorian marine and estuarine environments.
- Input of toxic substances into Victorian rivers and streams.
- Prevention of passage of aquatic biota as a result of the presence of instream structures.
- Removal of wood debris from Victorian streams.

Once a preferred onshore cable route has been selected, these threatening processes will require field surveys and study programs to more accurately define and assess the likely impacts and required mitigations.

Offshore
Threatening processes (as identified in the *Flora and Fauna Guarantee Act 1988* Processes List 2016) relevant to the marine environment are discussed below.

Input of organotins to Victorian marine and estuarine waters
Tributyltins (a class of organotin) are commonly used as biocides and were historically used as marine anti-biofouling agents. However, these compounds have received a worldwide ban by the International Maritime Organisation and tributyltins will not be used by the Project as an anti-biofouling agent for the Project.

Input of petroleum and related products into Victorian marine and estuarine environments.
A large-scale spill of hydrocarbons (e.g., from a major vessel accident) has the potential to introduce large volumes of hydrocarbons to the marine environment. While these events can occur, they are highly unlikely, with no such events ever reported on the east coast of Australia and the most recent in Victoria being from 1990, near Portland. Embedded design controls and standard operating procedures have evolved over several decades to reduce the occurrences and severity of such events. The Project will also comply with legislative requirements relating to preparation of oil spill response and prevention plans.

The discharge of human-generated marine debris into Victorian marine or estuarine waters
Floating non-degradable debris (e.g., plastics) are often mistaken by turtles for prey species and ingested, or accidentally ingested by other marine species. Entanglement in debris most often relates to derelict fishing gear, but can also include marine wastes or construction materials. No planned discharge of human-generated debris will occur, and the Project will develop practices to prevent dropped objects, develop waste and equipment storage and handling procedures and procedures to recover dropped objects or wastes wherever practicable.

The introduction of exotic organisms into Victorian marine waters
There are many identified pest species currently present in Victorian State Waters (See Table 4.4, Attachment 2). However, none have been recorded in the referral area. Potential pest species could be introduced through ballast water and hull fouling. The risk of introduction or spread of these is expected to be minimal, assuming the implementation of industry standard mitigation measures (use of local vessels where practicable, ballast water management, adherence to legislative requirements for biofouling).

Habitat fragmentation as a threatening process for fauna in Victoria.
The installation of marine infrastructure has the potential to reduce marine habitats and possibly fragment and disturb marine animal communities and habitats.

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

☒ NYD ☒ No ☒ Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

Onshore

The desktop biodiversity assessment (Attachment 3) identified terrestrial species considered to have a medium or higher likelihood of occurrence within the referral area (See Tables 12.2-12.6 above) which may be potentially affected by the Project, including:

- 62 FFG-listed flora species.
- 7 FFG-listed terrestrial mammals.
- 3 FFG-listed fish.
- 3 FFG-listed amphibians.
- 3 FFG-listed reptile.
- 13 FFG-listed seabirds.
- 29 FFG-listed shorebirds.
- 14 FFG-listed terrestrial birds.
- 53 EPBC-listed migratory avifauna.
- 6 FFG-listed threatened ecological communities

An assessment of impacts against referral criteria under the EE Act is provided in Table 13 of Attachment 3. In summary, there is potential for significant impacts on listed species and ecological communities depending on the final alignment of the onshore referral area.

Offshore

The desktop marine biodiversity assessment (Attachment 2) identified threatened marine species considered to have potential to occur within the referral area (See Table 12.7 above) which may be potentially affected by the Project, including:

- 5 FFG-listed fish (including sharks).
- 12 FFG-listed invertebrates.
- 5 FFG-listed marine mammals.
- 1 FFG-listed marine reptile.
- 17 EPBC marine migratory species.

Potentially significant impacts have been identified for three marine species, A detailed assessment of the likelihood and significance of impacts (using EES criteria for determining if a referral is warranted) is provided in Tables 5.4, 5.6 and 5.8 of Attachment 2, and is summarised below.

:

- Great white shark (*Carcharodon carcharias*) (FFG endangered). There is a potential for significant impacts to the great white shark, as the referral area overlaps with approximately 23% of a known nursery and pupping ground. This nursery area may provide critical habitat for the survival of the species. While the referral area occupies a substantial portion of this nursery area, this is due to the multiple cable routes and development areas under consideration at this stage. The actual Project footprint will be much smaller. The Project infrastructure within State waters will be limited to the subsea cables, which will not act as a barrier to the species movement or result in habitat fragmentation as the shark occupies the water column. There is currently insufficient information about great white shark breeding to conclude whether the Project could disrupt the breeding cycle of the eastern population.

- Southern right whale (*Eubalaena australis*) (FFG endangered, EPBC migratory). Southern right whales may be displaced from the referral area during construction, primarily due to underwater noise and increased vessel movements; however, this is unlikely to result in injury or mortality of individuals with standard mitigation and management measures in place. The Project infrastructure within State waters will be limited to the subsea cables, which will not act as a barrier to the species movement or

result in habitat fragmentation. The referral area overlaps with biologically important areas; however, this habitat is unlikely to be critical to the survival of the species. No mother-calf pairs have been recorded on the east coast of Victoria, with sightings most often occurring west of Port Campbell in south-eastern Tasmania, Flinders Island and around Eden. Similarly, foraging behaviour is expected at higher quality foraging areas (e.g., the Upwelling of east Eden and the Bonney Upwelling) outside of the referral area , although noting that no dedicated foraging areas have been mapped for the southern right whale.

- Sea slug (*Platydoris galbana)* (FFG Endangered). The referral area may provide significant habitat for the FFG Act listed opisthobranch *Platydoris galbana*. O'Hara and Barmby (2000)[2] indicate that this species is restricted to the shallow waters off Delray and Woodside Beach). While little is known about its distribution it is likely that the range of this species is larger than that indicated by O'Hara and Barmby (2000). Direct habitat loss of the species is likely to occur during construction of the subsea cables. However, these impacts would be localised to the immediate footprint of the cables. Further habitat modification may occur from suspended sediment smothering changing sedimentation processes. These impacts would be confined to construction. While the referral area does represent a significant proportion of known habitat, long-term effects are unlikely.

Is mitigation of potential effects on indigenous flora and fauna proposed?

☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

Preliminary mitigation and management measures for terrestrial environments include:

- Avoiding/minimising alignment of onshore project components in areas of native vegetation.
- Avoiding/minimising alignment of project components in areas that contain land stability issues, acid sulphate soils and/or highly erodible soils, or provide habitat for migratory and threatened species and ecological communities (including Gippsland Lakes Ramsar site).
- Avoiding/minimising unnecessary duplication of impacts by utilising existing infrastructure for onshore project components e.g., utilise existing easements to connect to existing transmission network, co-locate project components with other infrastructure.
- Strategic implementation of HDD where feasible in specific locations to avoid/minimise impacts to land stability and areas that contain acid sulphate soils and/or highly erodible soils, and habitats for migratory and threatened species.
- Managing construction and operational activities through environmental management plans to minimise impacts on land stability, acid sulphate soils and/or highly erodible soils, and habitats for migratory and threatened species and ecological communities.

Proposed mitigation strategies and approaches for marine environments are described in Table 5.1 of Attachment 2 and include:

- Investigation of scour protection measures.
- Adherence to relevant water quality guidelines.
- Compliance with EPBC interactions with cetaceans' policy.
- Soft start procedures.
- Marine faunal observers on vessels for high-risk activities.
- Compliance with maritime legislation for discharges (e.g., MARPOL).
- Habitat mapping to identify sensitive habitat features.
- Cable route selection to avoid native vegetation and key habitat features where practicable.
- Micro-siting of infrastructure to avoid sensitive features where practicable.
- Use of local vessels, where practicable.
- Standard ballast water management measures.
- Adherence to legislative requirements for biofouling.
- Standard hazardous material management measures in accordance with maritime legislation and best practice.

[2] O'Hara, T and Barmby, V. 2000. Victorian Marine Species of Conservation Concern: Molluscs, Echinoderms and Decapod Crustaceans. Department of Natural Resources and Environment, State of Victoria, Melbourne, Vic.

- Consultation with other mariners to minimise risk of collisions.
- Use of vessel exclusion zone around operations.
- Develop spill response plans.
- Contractor practices to prevent dropped objects.
- Waste and equipment storage and handling procedures.
- Recovery of dropped objects/wastes wherever practicable.
- Burial or mechanical protection of subsea cables.
- Minimise lighting to that required for safe operations.
- Stakeholder consultation with potentially affected marine users.

Mitigation measures will be further defined following completion of the Project design and during the impact assessment process, including any findings of further biodiversity field surveys. Detailed and impact-specific mitigation measures will be developed and proposed to protect FFG-listed threatened species and ecological communities, and sites or values of ecological significance. Further information on the proposed environmental management of the Project is provided in Section 18.

Other information/comments? (eg. accuracy of information)
This information presented in this section is based on desktop assessment only. Field surveys will verify the species present and detailed assessment of potential Project impacts will be undertaken once the design is confirmed.

13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?
☐ NYD ☒ No ☐ Yes If yes, indicate approximate volume and likely source.

The project does not require use of significant volumes of fresh water, with main requirements expected to be for use during project construction, such as for dust suppression, HDD bentonite slurry and concrete production. .

Will the project discharge waste water or runoff to water environments?
☐ NYD ☒ No ☐ Yes If yes, specify types of discharges and which environments.

No point source waste water discharges are expected from the Project. Stormwater runoff from disturbed areas during Project construction will be managed using standard practices for erosion and sediment control on construction sites. Environmental management plans prepared for the project and implemented during construction and operations will include specific measures to minimise erosion and sedimentation.

Planned discharges (e.g., sewage) from vessels may occur in compliance with relevant legislation (e.g., MARPOL).

Are any waterways, wetlands, estuaries or marine environments likely to be affected?
☐ NYD ☐ No ☒ Yes If yes, specify which water environments, answer the following questions and attach any relevant details.

Attachment 3 describes the desktop terrestrial biodiversity assessment undertaken of the Project referral area. The preliminary marine ecology study is provided in Attachment 2.

Over 1,000 wetlands occur within the referral area based on DELWP's Victorian Wetland Inventory dataset (see Figure 3.1 to 3.11 of Attachment 3). The Gippsland Lakes is a Ramsar wetland with the Lake Reeve area of these lakes falling within the referral area, i.e., potential area for shore crossing and onshore transmission cable corridor. Lake Wellington Wetlands, which is also a part of the Gippsland Lakes, is listed in the Directory of Important Wetlands in Australia as a nationally important wetland, although lies outside the referral area. The Barry Beach/Port Anthony Marine Terminal is located within the Corner Inlet Ramsar site however n upgrades to the port or dredging is planned due to this Project. As such, impacts to Corner inlet would be limited to vessel interactions. The southeast region is one of Australia's busiest shipping hubs, with the port already servicing multiple existing petroleum facilities in the region (See Figure 4.10,

Attachment 2). Consequently, significant impacts to the Corner Inlet Ramsar site from the Project are not expected.

Other major natural hydrological features within the referral area include:

- Merriman Creek and associated tributaries.
- Latrobe River and associated tributaries.
- Carr Creek and associated tributaries.
- Jack Smith Lake.
  - Considered a site of regional significance as a remnant of the extensive lagoon and inlet complex that extended from Merriman Creek south-west to Woodside Beach with similarities to Lake Reeve (part of the Gippsland Lakes Ramsar wetland).
- Lake Dennison.
  - Considered a site of regional significance primarily because the lake, barrier, bluff and the lagoonal channels represent distinctive stages in the evolution of barrier and lagoon systems.

The Project aims to reduce overall impact by locating as much of the terrestrial footprint as possible within existing cleared land including plantations and by utilising existing transmission infrastructure. Further studies will be undertaken to identify and assess the specific water environments potentially affected by the preferred Project alignment, and for example, will include the assessment of indirect impacts on the ecology of wetlands, due to potential loss of migratory avifauna species (and their associated ecological function) resulting from WTG bird strike.

The referral area also includes approximately 45 kilometres of coastline along Ninety Mile Beach extending seaward out to the 3 Nm limit for Victorian State waters. This area includes State waters which extend from the high tide mark to approximately 20 m water depth. The sandflats off Ninety Mile Beach are the most extensive area of such habitat in Victoria and support a diverse benthic infauna assemblage. The Ninety Mile Beach biounit features infralittoral reefs which run generally parallel to the shoreline and are predominantly low profile but with some area of higher complexity and vertical reef. Infralittoral rocky reefs occur within the referral area primarily along the 10 m depth contour offshore from Lake Reeve and a notably large area offshore from Golden Beach in 5 to 10 m of water. These reefs support a diverse benthic assemblage.

Are any of these water environments likely to support threatened or migratory species?

☐ NYD ☐ No ☒ Yes If yes, specify which water environments.

Terrestrial Habitat

A search of the PMST and Victorian databases indicates 66 migratory species that occur or are predicted to occur, within the referral area (Attachment 3). In total, 28 of these species are also listed as threatened under national legislation, while a further eight are listed under state legislation (see Section 12). Fifty migratory avifauna occur or are considered to have a medium or higher likelihood of occurring within the study area, comprising 18 seabirds, 26 shorebirds and 6 terrestrial birds. The 16 remaining migratory fauna are all marine species, comprising various mammals, sharks and sea turtles.

State listed (and nationally listed) threatened species and ecological communities identified in searches of the PMST and Victorian databases and likelihood of occurrence are described in Attachment 3, with summary information presented in Section 12.

Several wetlands and waterways in the area are of high value to a range of shorebirds and other wetland birds. In particular, the Gippsland Lakes are listed as a Ramsar site and provide important habitat for several migratory shorebirds including the Double-banded Plover (*Charadrius bicinctus)*, Latham's Snipe (*Gallinago hardwickii)*, Red-necked Stint (*Calidris ruficollis)* and Sharp-tailed Sandpiper (*Calidris acuminata)*. In addition, Jack Smith Lake is an area of regional significance and provides important seasonal habitat for a number of migratory shorebirds, including the Double-banded Plover (*Charadrius bicinctus)* and Sharp-tailed Sandpiper (*Calidris acuminata)*.

Wetlands and surrounding waterways throughout the study area also provide habitat for a range of ichthyofauna (freshwater fish) including threatened species such as Dwarf Galaxias (*Galaxiella pusilla)* and Australian Grayling (*Prototroctes maraena)*.

Coastal Habitat
The coastal habitat at Ninety Mile Beach is a highly dynamic environment which may not be suitable to certain shorebird species. However, while it is unlikely that this area will support a high diversity and abundance of shorebirds, there are several migratory species which are known to utilise this area, including Red-necked Stint (*Calidris ruficollis)*, Double-banded Plover (*Charadrius bicinctus)* and Sanderling (*Calidris alba)*. In addition, the sandy beaches also provide habitat for resident Hooded Plover (*Thinornis cucullatus)* and Red-capped (Plovers *Charadrius ruficapillus).* The Short-tailed shearwater (*Ardenna tenuirostris*), the most numerically abundant seabird in south-eastern Australia, is known to breed in large numbers at colonies within 80 km of the study area.

Offshore Habitat
Bass Strait is considered to be an area of high importance for a large number of marine predators, particularly for a vast number of seabird species that breed and forage within this area (Attachment 3). The Bass Strait Islands around Wilsons Promontory provide breeding habitat for a range of seabird species including large numbers of the migratory Short-tailed Shearwater (*Ardenna tenuirostris)*. The offshore environment is also likely to provide foraging habitat for several threatened and/or migratory seabirds including various albatross and petrel species.

In addition, the offshore environment associated with the study area may also serve as a movement passage and foraging ground for several other marine megafauna, including whales, dolphins, seals, sea turtles and sharks.

Threatened and migratory marine species known to, or with potential to, occur within the referral area are described in Table 12.7.

The preliminary marine ecology study (Attachment 2) also identifies the following key sensitivities related to the referral area as:

- Ninety Mile Beach Marine National Park is located within the referral area (see Figure 4.4 of Attachment 2). While there will be no direct physical disturbance in the park, indirect impacts could occur due to the potential close proximity to Project activities and as such these will be assessed for potential offsite indirect impacts.
- Low- and high-profile reefs and non-reef associated epibenthos communities supporting diverse benthic assemblages.
- Migration and resting on migration area for the southern right whale.
- Foraging area for the pygmy blue whale.
- Breeding (nursery area) for the great white shark.
- Important habitat for endemic species (Brachyura crab, *Halicarcinus* sp. *MoV746*, the opistobranch sea slug *Platydoris galbana* and the soft coral *Pseudogorgia godeffroyi*). Unlike other sensitive species that may occur in the referral area, these species are less mobile or sessile and have highly limited distribution ranges and may be more susceptible to impacts from the Project.

Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?

☐ NYD ☐ No ☒ Yes If yes, please specify.

The Gippsland Lakes, which include Lake Reeve, Lake Coleman and Lake Wellington, is a Ramsar wetland. Lake Wellington Wetlands is also listed in the Directory of Important Wetlands in Australia as a nationally important wetland.

Of these areas, Lake Reeve falls within the referral area extending approximately 15 km northeast adjacent the coastline from near Seaspray. The Lake Wellington Wetlands are located several kilometres outside the referral area.

Potential direct impacts include the pollution of surface water due to sediment disturbance and/or accidental spills during construction, or interactions within streams and water tables that could

cause modifications to the natural drainage patterns onshore (e.g., from trenching). Indirect effects could include local groundwater drawdown from trenching.

Could the project affect streamflows?

☒ NYD ☐ No ☐ Yes If yes, briefly describe implications for streamflows.

The preferred cable / transmission route is not yet confirmed but it is expected that waterways will need to be crossed. Open trenching (if used) for crossing may disrupt streamflows temporarily during construction, however, it is not expected that the Project will permanently affect stream flow regimes as all open trenches will be filled and rehabilitated after cable-laying activities. Ongoing monitoring for trench subsidence will take place to ensure no long-term effects to streamflows. Such impacts would be avoided by use of trenchless construction methods (e.g., HDD or overhead transmission), where open trenching is not deemed appropriate.

Could regional groundwater resources be affected by the project?

☐ NYD ☒ No ☐ Yes If yes, describe in what way.

Regional groundwater resources are not expected to be affected since only shallow excavations (typically less than 2 m) are required for installation of transmission lines, so any potential impacts if groundwater is encountered will be highly localised and temporary. Procedures will be established to safeguard against accidental spills and determine appropriate remedial action to remediate any impacts to groundwater quality.

Onshore transmission from the shore crossing to the terminal station connection will predominantly be through open-cut trench-lay and burial. Where the proposed transmission route crosses an area of significant sensitivity, the consideration of other alternatives such as HDD or overhead cables will be undertaken. Studies of whether HDD would impact regional groundwater resources will also influence whether, HDD or open trench crossing or overhead transmission is preferred..

Could environmental values (beneficial uses) of water environments be affected?

☒ NYD ☐ No ☐ Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

The preferred cable / transmission route is not yet confirmed but it can be expected that waterways will be crossed. As such it is possible that the Project could affect the environmental values of aquatic environments. As previously noted, the Gippsland Lakes wetland complex extends along the coast for much of the referral area and as such will need to be traversed by cable routes should the shore crossing be located adjacent to these wetlands. Further studies will be undertaken in conjunction with Project design to identify potentially affected aquatic environments and relevant beneficial uses of these waters. Potential impacts from the project will be assessed and management measures will be developed to mitigate impacts.

Could aquatic, estuarine or marine ecosystems be affected by the project?

☐ NYD ☐ No ☒ Yes If yes, describe in what way.

Aquatic waterways along the preferred transmission corridor may be affected by temporary changes in drainage patterns due to trenching and associated vegetation clearing. Trenching and earthworks may also increase turbidity in aquatic waterways from dust generation. These impacts may also occur to estuarine ecosystems near the shore crossing. Exactly which waterways may be affected will be determined once the preferred transmission route has been selected.

Impacts to marine ecosystems may include planned and unplanned discharges from vessels causing decline in water and sediment quality, as well as increased turbidity during construction. The physical presence of subsea infrastructure may change sedimentation processes from scour. Marine ecosystems may also be affected by underwater noise from vessels and cable-laying activities.

In contrast, marine ecosystems may benefit from the presence of subsea infrastructure, by creating hard substrate for benthic fauna to colonise.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?

☒ No ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

Extensive and major effects on aquatic ecosystems are not expected over the long-term, with most significant impacts expected during the construction phase and being localised and short-term.

Potential impacts will be primarily related to construction of transmission lines, shore crossing activities, establishing turbine foundations and the laying of subsea cables during construction and impacts from the presence of vessels including activities at the operations and maintenance port (e.g., accidental spills or planned discharges, underwater noise, potential translocation of invasive marine species). Assuming effective implementation of mitigation measures, the Project is unlikely to have extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems and no major long-term effects are expected in Victorian State waters. The rationale for this conclusion is that these impacts will largely be confined to the construction and decommissioning phases of the Project. Additionally, these impacts are well documented in the offshore wind sector globally. As a result, embedded design controls and construction methodologies have been developed over many years to reduce the incidence and significance of these impacts.

Is mitigation of potential effects on water environments proposed?
☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

The primary measure proposed to mitigate impacts on water environments is to avoid areas of sensitive aquatic habitat in the Project design phase. Leading practice management measures will be implemented during project construction and operations phases to mitigate any potential impacts to environmental values of waterways identified in the environmental impact assessment.

Proposed mitigation and management measures for terrestrial aquatic environments include:

- Avoiding/minimising alignment of project components in areas that contain land stability issues, acid sulphate soils and/or highly erodible soils, or provide habitat for migratory and threatened species and ecological communities (including Gippsland Lakes Ramsar site).
- Avoiding/minimising unnecessary duplication of impacts by utilising existing infrastructure for onshore project components e.g., utilise existing easements to connect to existing transmission network, co-locate project components with other infrastructure.
- Strategic implementation of HDD where feasible in specific locations to avoid/minimise impacts to land stability and areas that contain acid sulphate soils and/or highly erodible soils, and habitats for migratory and threatened species.
- Managing construction and operational activities through environmental management plans to minimise impacts on land stability, acid sulphate soils and/or highly erodible soils, and habitats for migratory and threatened species and ecological communities.

Proposed mitigation strategies and approaches for marine aquatic environments include:

- Investigation of scour protection measures.
- Adherence to relevant water quality guidelines.
- Compliance with EPBC Act interactions with cetaceans' policy.
- Soft start procedures.
- Marine faunal observers on vessels for high-risk activities.
- Compliance with maritime legislation for discharges (e.g., MARPOL).
- Habitat mapping to identify sensitive habitat features.
- Cable route selection to avoid key habitat features where practicable.
- Micro-siting of infrastructure to avoid sensitive features where practicable.
- Use of local vessels, where practicable.
- Standard ballast water management measures.
- Adherence to legislative requirements for biofouling.
- Standard hazardous material management measures in accordance with maritime legislation and best practice.
- Consultation with other mariners to minimise risk of collisions.
- Use of vessel exclusion zones around operations.
- Spill response plans.
- Contractor practices to prevent dropped objects.
- Waste and equipment storage and handling procedures.
- Recovery of dropped objects/wastes wherever practicable.
- Burial or mechanical protection of subsea cables.
- Minimise lighting to that required for safe operations.

Other information/comments? (eg. accuracy of information)
This information presented in this section is based on desktop assessment only. A detailed assessment of potential Project impacts will be undertaken once the proposed Project layout is confirmed.

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

☒ No ☐ Yes If yes, please attach.

No preliminary landscape assessment has been undertaken, although preliminary GIS mapping of viewsheds have determined that the windfarm is likely to be visible from areas with landscape value of state significance in certain conditions, i.e., Ninety Mile Beach. The WTGs will be located between 10 and 50 km offshore, depending on where they are constructed. Preliminary assessments indicate that all, or part, of all WTGs would be visible from the Ninety-Mile Beach shoreline and the hinterland areas that have views out to sea. The greater distance at the Bream locations from shore may reduce potential environmental impacts, including landscape and seascape visual impacts

A detailed landscape and visual assessment will be undertaken to determine the potential to affect landscape values.

Is the project to be located either within or near an area that is:

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

  ☐ NYD ☐ No ☒ Yes If yes, provide plan showing footprint relative to overlay.

Figure 7.2 in Attachment 1 show the Wellington and Latrobe Planning Scheme landscape and environmental significance overlays that occur within the referral area. While the exact location of the onshore components of the Project are yet to be determined, the following occur within the Wellington Shire within the referral area:

- Environmental Significance Overlay Schedule 1 (Coastal and Gippsland Lakes Environs)– that aims to ensure that the development of land is compatible with the environmentally sensitive coastal area, including the Gippsland Lakes.
- Environmental Significance Overlay Schedule 2 (Wetlands) – that aims to protect and enhance the values of wetlands through the control of development and implement legal and other obligations to protect and enhance plant and animal species and habitats.
- Environmental Significance Overlay Schedule 3 (Urban and Construction Buffer) – that aims to ensure that development and land management in the Gippsland Coalfields provides mutual protection of urban amenity, land use and coal resource development.
- Environmental Significance Overlay Schedule 4 (Lake Guthridge and Environs) – that aims to maintain and enhance Lake Guthridge and its environs as an important public open space area providing a range of passive and active recreational pursuits catering for the needs of both the local and regional community.
- Environmental Significance Overlay Schedule 6 (Consolidation Areas) – that restricts development to protect the natural physical features or resources by ensuring lot sizes are sufficient for development taking into account environmental constraints.
- Environmental Significance Overlay Schedule 7 (Landfill Buffer) – that aims to limit any adverse impact on development from a nearby municipal landfill site of high local importance
- Significant Landscape Overlay Schedule 1 (Ninety Mile Beach) – that applies to Ninety Mile Beach and aims to protect coastal vegetation and cultural heritage values, significant views and vistas, and ensure that development does not impact landscape character and attributes.

Additional overlays associated with the referral area within the Latrobe planning schemes as follows:

<u>Latrobe</u>

- Environmental Significance Overlay Schedule 1 (Urban Buffer) – ensures that development in the Gippsland Coalfields Policy Area provides mutual protection of urban amenity, coal resource development, the continued social and economic productive use of land.

- **Identified as of regional or State significance in a reputable study of landscape values?**

  ☐ NYD ☐ No ☒ Yes If yes, please specify.

Project components will be located within, and parallel to, the Ninety Mile Beach, land that has been classified as landscape of state significance in the Coastal Spaces Landscape Assessment Study State Overview Report (Department of Sustainability and Environment, 2006[3]).

A landscape is considered of state significance when at least one of its visual qualities, including landform features, views, edges or contrasts, its natural or undeveloped character, is exceptional. The Ninety Mile Beach has outstanding ecological and scenic value and:

- Is the longest stretch of uninterrupted beach in Australia, and the second longest in the world.
- Comprises a range of geomorphic features, e.g., dunes, beaches, peninsulas and wetlands.
- Is characterised by a variety, and large areas, of native vegetation.
- Provides bird habitat of international importance.
- Is of historic and Aboriginal cultural heritage significance.

The project is not within an area declared distinctive area and landscape under Section 46AO of the *Planning and Environment Act 1987.*

- **Within or adjoining land reserved under the *National Parks Act 1975*?**
  ☒ NYD ☐ No ☐ Yes If yes, please specify.

The exact locations of the onshore components are yet to be determined, specifically the shore crossing and transmission corridor. The Gippsland Lakes Coastal Park extends across approximately two thirds of the referral area and the Holey Plains State Park is located approximately in the centre of the referral area (see Figure 2.3, Attachment 1). Transmission corridor selection will aim to avoid impacts to high-conservation areas reserved under the *National Parks Act 1975*.

- **Within or adjoining other public land used for conservation or recreational purposes ?**
  ☒ NYD ☐ No ☐ Yes If yes, please specify.

The exact locations of the onshore components are yet to be determined. Land used for conservation or recreational areas within the referral area includes:

- Callignee State Forest
- Giffard Rifle Range Nature Conservation Reserve.
- Giffard H30 Natural Features Reserve.
- Darriman H29 Bushland Reserve
- Gippsland Lakes Coastal Park (inc. proposed additions)
- Gormandale Flora Reserve
- Gormandale State Forest
- Holey Plains State Park
- Jack Smith Lake Wildlife Reserve
- Lake Denison Wildlife Reserve
- Longford Natural Features Reserve
- McLoughlins Beach - Seaspray Coastal Reserve
- Merriman Creek Flora Reserve
- Mullungdung State Forest
- Ninety Mile Beach Marine National Park
- Rosedale Bushland Reserve
- Sale Common Nature Conservation Reserve
- Seaspray Park and Recreation Reserve
- Seaspray Public Purposes Reserve
- Stradbroke Flora and Fauna Reserve
- Stradbroke Hall and Recreation Reserve
- The Waterhole Gippsland Lakes Reserve
- Willung Recreation Reserve

3 Department of Sustainability and Environment. 2006. Coastal Spaces Landscape Assessment Study. Protection and Management of Victoria's Coastal Landscapes. State Overview Report. September.

The transmission corridor selection and Project design will aim to avoid or minimise impacts to public land used for conservation and recreational purposes.

Is any clearing vegetation or alteration of landforms likely to affect landscape values?
☒ NYD ☐ No ☐ Yes If yes, please briefly describe.

The extent of any vegetation clearing required for the Project has not yet been determined; however, some vegetation clearing is likely for construction of the onshore transmission infrastructure. This has the potential to affect landscape values in surrounding areas. The Project is not expected to involve the alteration of landforms with consequential impacts to landscape values. A detailed landscape and visual assessment will be undertaken to determine the potential to affect landscape values.

Is there a potential for effects on landscape values of regional or State importance?
☐ NYD ☐ No ☒ Yes Please briefly explain response.

The WTGs will be located in Commonwealth waters, there is, however, the potential for indirect landscape impacts in Victoria. Preliminary GIS mapping of viewsheds have determined that the windfarm is likely to be visible from areas with landscape value of state significance in certain conditions, i.e., Ninety Mile Beach. Additionally, the shore crossing and the start of the onshore transmission infrastructure will be within the Ninety Mile Beach. The base case involves the WTGs being located 10 to 30 km offshore and/or 30 to 50 km offshore. Only the upper portions of the turbines are expected to be visible at these furthest distances. The shore crossing will likely employ HDD reducing any surface disturbance and visual impact.

A landscape and visual assessment will be undertaken to assess potential impacts to visual amenity and landscape values. The degree of impact cannot be determined until the Project design concept and preferred project layout is finalised and community engagement undertaken.

Is mitigation of potential landscape effects proposed?
☒ NYD ☐ No ☐ Yes If yes, please briefly describe.

HDD is the preferred crossing method for the landfall crossing if deemed technically feasible (see above). The need for mitigation of potential landscape effects will be determined as project planning advances and based on the results of the detailed landscape and visual assessment. The onshore cables will be buried, where practicable, but may be overhead in areas where underground cabling is not technically feasible or overhead transmission lines avoid impacts to environmentally sensitive locations. The visual impact of overhead cables is a key consideration in the route selection investigations to be undertaken.

Further detail regarding mitigation and management will be identified and developed during the Project's environmental imp[act assessment..

Other information/comments? (eg. accuracy of information)

A landscape and visual assessment will be undertaken once the preferred project layout is finalised and during the subsequent environmental impact statement to assess potential impacts to visual amenity and landscape values.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?
☒ NYD ☐ No ☐ Yes If yes, please briefly describe.

The National Classification of Acid Sulphate Soils databases indicates the majority of the onshore referral area has an extremely low (i.e., 1-5%) probability of Acid Sulphate Soils (ASS) occurrence (Figure 14.1, Attachment 1). At the shore crossing, there are sites classified as high (i.e., >70%) probability of occurrence (Figure 14.1, Attachment 1). Detailed mapping of potential or actual ASS is yet to be undertaken, this will be investigated during detailed route selection. Disturbance or exposure of ASS has the potential to generate acidic drainage, with potential damage to company

assets and the environment. If encountered, acid sulphate soils management procedures will be prepared and implemented for the Project.

The presence of unstable land or highly erodible soils will be confirmed after a detailed route selection study. Best practice erosion and sediment control will be implemented where practicable to minimise effects on land stability and highly erodible soils (if encountered). Soil reinstatement and rehabilitation measures will also be captured in a CEMP to ensure previous land use is restored post-construction.

Are there geotechnical hazards that may either affect the project or be affected by it?

☒ NYD ☐ No ☐ Yes If yes, please briefly describe.

Preliminary investigations using GIS (e.g., DELWP's Statewide Victorian Coastal Hazard Assessment) did not identify any major geohazards. Earthquake activity has been recorded in the Gippsland region, due to the presence of the Rosedale Fault System to the north. Geohazards posed from ground shaking events will be incorporated into the design of infrastructure to eliminate the potential for these events to impact the Project.

Other information/comments? (eg. accuracy of information)

The information presented in this section is based on desktop assessment only. A detailed geomorphic assessment will be undertaken once the Project design is confirmed.

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

☒ NYD ☐ No ☐ Yes If yes, provide estimate of traffic volume(s) if practicable.

The Project will require the transport of personnel, equipment and consumables during all phases of the Project. While road traffic type and volume during construction are yet to be determined, it is expected that it will include excavators, back hoes, cable winch and cable reel trucks, HDD rigs, light vehicles and traffic management vehicles. However, the increase in traffic volumes associated with the Project is not expected to be significant, as large equipment is likely to be transported via ship. Traffic during operations will be limited to maintenance and volumes are expected to be negligible.

An assessment of the existing road network’s capacity to support increased traffic associated with the project will be undertaken. The need for any road upgrades will be identified and a detailed Traffic Management Plan will be developed and implemented for ensure the Project's road impacts are appropriately managed throughout both construction and operation.

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

☒ NYD ☐ No ☐ Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

The siting of the onshore Project components will seek to maximise distance from sensitive receptors such as residential communities.

Dust emissions are expected during all phases of the Project; however, during the operations phase they would be minimal, if any. Dust emissions will be managed by implementation of environmental management plans commensurate with the project stage.

Project related noise is expected, especially during construction and potentially decommissioning, and will be managed through implementation of environmental management plans. It is not anticipated that noise will cause significant effects to the amenity of residents; however, this will be assessed during future environmental and social studies (see Section 20).

Potential effects on landscape and visual are discussed in Section 14. The degree of impact cannot be determined until the Project design concept is finalised and community engagement undertaken, it can be expected that visual impact will be medium to high based purely on visibility from the coast.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the hazards and possible implications.

As described above, there will be air and noise emissions, but these will be managed and are not expected to impact community health. No emissions to water are planned and the use of any hazardous material will be managed through implementation of environmental management plans commensurate with the project stage.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?

☐ NYD ☒ No ☐ Yes If yes, briefly describe potential effects.

It is not expected that the onshore components of the Project will displace residences. There may be temporary access disruptions during construction and decommissioning, but if these disruptions `occur they will be managed in consultation with affected residences, e.g., alternative access arrangements, traffic management.

Are non-residential land use activities likely to be displaced as a result of the project?

☒ NYD ☐ No ☐ Yes If yes, briefly describe the likely effects.

The referral area includes several non-residential land uses, e.g., agriculture, forestry, recreation, fishing, and conservation.

It is not expected that there will be displacement of these activities during operation of the Project; however, there may be isolated and temporary restrictions to some activities during construction and decommissioning. Further assessment will be undertaken to determine this once Project planning and design has progressed.

In the marine environment it is expected that safety exclusion zones will be established around the WTGs and substations (located in Commonwealth waters) during both construction and operations, although the exclusion zone is likely to be much smaller during operations. This may have an effect on marine users in Victorian waters, although it is anticipated to be minimal, as the referral area avoids areas of highest fishing intensity (Figures 4.15-4.18 in Attachment 2). Closer to the shore, there may be some restrictions to recreational activities during construction of the shore crossing and laying of the offshore cables. Assessment of impacts to access to marine-based activities will be assessed once project planning and design has progressed. Assessment of impacts to access to marine-based activities will be assessed during detailed impact assessments once the project's layout and footprint has been determined.

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?

☒ NYD ☐ No ☐ Yes If yes, briefly describe the potential effects.

See above.

Is mitigation of potential social effects proposed?

☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

Once a more complete understanding of potential social effects is gained through the impact assessment process, management procedures for social impacts will be developed to mitigate and manage any significant impacts.

Mitigation and management measures will be implemented to minimise effects due to air and noise emissions, project traffic and access to land and marine resources. Further detailed impact assessment and stakeholder consultation will inform the environmental management plans that will be implemented for the Project.

Other information/comments? (eg. Accuracy of information)

Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

☒ No If no, list any organisations that it is proposed to consult.

☒ Yes If yes, list the organisations so far consulted.

Flotation Energy has commenced consultation with the relevant Registered Aboriginal Party – the Gunaikurnai Land and Waters Aboriginal Corporation. Flotation Energy has presented a Project overview, including key cultural heritage and environmental sensitivities and Project alternatives under consideration.

Ongoing consultation will include a combination of face-to-face meetings, workshops, public information sessions and virtual meetings where necessary, in line with the Project's Stakeholder Engagement Plan (Attachment 7).

What investigations of cultural heritage in the project area have been done?
(attach details of method and results of any surveys for the project & describe their accuracy)

A preliminary desktop assessment analysing previously recorded Aboriginal heritage within the search area and the potential for Aboriginal cultural heritage material to be found within the search area has been completed (see Attachment 4). The preliminary aboriginal heritage assessment has been completed to inform this referral but it is confidential and provided to DELWP for their reference only.

The desktop assessment was undertaken with a search of the Victoria Aboriginal Heritage Register (VAHR) and the National Heritage List and Commonwealth Heritage List. Predictive modelling of potential cultural heritage sensitivity was also undertaken across the search area to inform future design considerations into route options and construction methodology. The Victorian Geomorphology Framework (VGF) tier 3 geomorphological units (GMUs) were used as a proxy to describe landforms, as type and extent of landforms can only be accurately determined through on-site survey. The assessment did not include a site visit.

A full description of the method, including limitations, can be found in Section 3 of Attachment 4.

Is any Aboriginal cultural heritage known from the project area?

☒ NYD ☒ No ☒ Yes If yes, briefly describe:

- Any sites listed on the AAV Site Register.
- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby.
- Sites or areas of sensitivity identified by representatives of Indigenous organisations.

Most of the recorded Aboriginal places within the referral area consist of artefact scatters found near waterways and areas of elevation. Other Aboriginal places recorded in the referral area

included LDADs, shell middens, scarred trees, earth features (soil deposits and a hearth) and Aboriginal Ancestral Remains (Burials).

Known sites in the referral area are summarised below:

- Artefact scatters comprise 36% of the previously registered Aboriginal places within the referral area. Most artefact scatters are recorded in higher level plains without dunes (GMU 7.3.1). Higher level plains with dunes (GMU 7.3.2) and Higher level dunefields (GMU 7.3.5) also comprise considerable number of previously registered artefact scatters.
- LDADs are most common on level plains and plains with dunes and are commonly found within 200 m of a waterway.
- Shell midden components are predominantly found within the coastal landforms, particularly Coastal barriers (GMU 8.4). Shell middens are also found in the wetlands and Higher level plains with dunes (GMU 7.3.2) landforms, likely because these GMUs are located close to the coastline. Overall, most shell middens are located on coastal landforms within proximity to the coastline.
- Scarred trees are most common on level and riverine plains and are commonly found within 200 m of a waterway. This may reflect the survival of trees of significant age within areas of remnant vegetation around waterways, in areas like creek reserves.
- Earth features are relatively rare Aboriginal place types within the referral area. Only three earth features were previously recorded within the search area, including two soil deposits and a hearth.
- Aboriginal Ancestral Remains (Burial) places have been previously recorded within the search area.

In the *Aboriginal Heritage Regulations 2018*, dune deposits (Qd2), coastal dune deposits (Qdl2) and Koo Wee Rup Plain (Qm1), all present within the referral area, are classified areas of cultural heritage sensitivity (CHS). Similarly, the Regulations defines areas of Aboriginal CHS as being all lands within 200 m of a named waterway and within 200 m of the coastline.

Waterways with high sensitivity for Aboriginal cultural heritage within the search area include Carr Creek, Bayliss Gully, Waterhole Creek, Plough Creek, Flynns Creek, Boggy Creek, Traralgon Creek, Sheepwash Creek, Latrobe River, Blind Joe Creek, Nambrok Creek, Boundary Creek, Monkey Creek, Little Monkey Creek, Flooding Creek, Bennetts Creek, Merriman Creek, Thomson River and Crooke Creek.

Preliminary predictive modelling identified that the highest potential to find previously unrecorded Aboriginal cultural heritage would be areas of elevation adjacent to waterways and coastal dunes.

Further assessment of areas likely to be of cultural significance, and the preparation of suitable management and mitigation measures will be undertaken as part of the development of CHMPs. The CHMPs will be developed in close consultation with the Registered Aboriginal Party (RAP), the Gunaikurnai Land and Waters Aboriginal Corporation, and ultimately subject to its approval.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?

☒ NYD ☒ No ☒ Yes If yes, please list.

A desktop assessment including searches of the VHR and the VHI found 12 historic places have been previously recorded in the terrestrial search area. These are listed below and further described in Attachment 5.

- Swing Bridge – H1438 (VHR).
- Broomfields Lane – H8221-0002 (VHI).
- Dunrobin – H8221-0003 (VHI).
- Thompson River Jetty – H8321-0004 (VHI).
- Boggy Creek Lime Kilns – H8321-0008 (VHI).
- Vales Lime Kilns – H8321-0010 (VHI).
- Dutson Irrigation System – H8321-0011 (VHI).
- Esso Ruin – H8321-0017 (VHI).

- Flynns Creek Upper School – H8221-0009 (VHI).
- Woodside/Longford Artefact Scatter – H8321-0018 (VHI).
- Swan Hotel – H8321- 0002 (VHI).
- Victoria Hotel – H8321-0003 (VHI).

A further 12 sites are recorded on the Wellington Shire Planning Scheme Heritage Overlay. There are no historic sites recorded within the City of Latrobe.

Seven shipwrecks are registered within the search area. Only three shipwrecks are underwater in the offshore search area (Colleen Bawn and Struan), while three shipwrecks (Trancoolah, Trinculo and PS Payneville) are ashore on Ninety Mile Beach, and H.M.S Sappho. HMS Sappho has been listed on the Victorian Heritage Database as never being discovered, and the data point on the Australian Underwater Cultural Heritage Database is located more than 30km inland, suggesting this data point may be due to database location error. All seven shipwrecks are registered on the VHR.
Figure 2.1 in Attachment 5 contains maps showing the locations of terrestrial and marine historic heritage sites.

Is mitigation of potential cultural heritage effects proposed?
☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

More detailed characterisation and analysis of onshore cultural heritage values and effects is proposed as the Project progresses. This will inform a route options study that will seek to make use of areas that have been previously disturbed, which will help minimise potential impacts to known and unknown Aboriginal and historical cultural heritage across the search area. Other mitigation and management measures will be developed to address potential significant impacts, in consultation with the Registered Aboriginal Party.

Offshore heritage effects will be addressed through further investigations to verify the absence of shipwrecks in the proposed offshore cable alignment once this has been defined. Where sites are identified, infrastructure would be realigned to avoid impacting any marine heritage sites.

The CHMP will contain specific procedures to be implemented in the event of encountering unexpected heritage during the Project (I.e., chance finds procedure).

Other information/comments? (eg. Accuracy of information)

The information presented in this section is based on desktop assessment only. A detailed assessment of potential Project impacts to cultural heritage values will be undertaken once the Project's layout and footprint is further progressed.

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

☒ Electricity network. If possible, estimate power requirement/output ……
☒ Natural gas network. If possible, estimate gas requirement/output ……
☒ Generated on-site. If possible, estimate power capacity/output
☒ Other. Please describe.
Please add any relevant additional information.

The Project will generate electricity for supply to the National Electricity Market (NEM) having the potential to provide power to approximately 1 million households. Onshore substations may consume a minimal amount of electricity (e.g., for lighting, security) which will be drawn from the NEM. Use of natural gas is not anticipated. During construction, some energy may need to be generated onsite (e.g., along the transmission line corridor) to power machinery/equipment. If required, this is likely to be in the form of temporary diesel generators.

What are the main forms of waste that would be generated by the project facility?

☒ Wastewater. Describe briefly.

- ☒ Solid chemical wastes. Describe briefly.
- ☒ Excavated material. Describe briefly.
- ☒ Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

Most waste associated with the Project will be generated during the construction phase and is likely to include drilling muds from offshore and general waste. In addition, some hazardous and chemical wastes may be generated during construction and maintenance activities associated with the Project (e.g., oily filters/rags, waste oil etc.)

Further, construction marine vessels will also generate a stream of wastewater including effluent and bilge pump sources.
A waste management plan will be developed and implemented for the Project. Waste will be disposed at a licenced facility. Quantities and management of waste will be determined during future Project planning.

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- ☒ Less than 50,000 tonnes of CO_2 equivalent per annum
- ☒ Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
- ☒ Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum
- ☒ More than 200,000 tonnes of CO_2 equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

Emissions are expected to be generated by the project during manufacturing, construction, transport and shipping, and decommissioning. Carbon emissions from offshore wind projects range from 7 to 23 g CO_2eq/kWh (Thomson, R. et. al., 2015[4]) compared with gas projects (~500 g CO_2eq/kWh) and coal projects (>1,000 500 g CO_2eq/kWh). A detailed assessment will be undertaken to quantify expected Scope 1, 2 and 3 emissions.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

☒ No ☒ Yes If yes, briefly describe.

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)

- ☒ Siting: Please describe briefly
- ☒ Design: Please describe briefly
- ☒ Environmental management: Please describe briefly.
- ☒ Other: Please describe briefly

Add any relevant additional information.

Flotation Energy is committed to respecting and supporting the environment and communities within which they operate. Flotation Energy believes in social responsibility and supports the protection and conservation of the physical environment.

4 Thomson, R. C, Harrison, P, H. Life Cycle Costs and Carbon Emissions of Offshore Wind Power. University of Edinburgh. June. 2015.

Initial project siting or layout decisions represent the greatest opportunity to minimise environmental and social impacts and is the first stage in the mitigation hierarchy of avoid, minimise, rehabilitate and offset. The Project is in a constant iterative process of refining the siting and design of Project components considering various environmental and social factors. Initial siting of proposed infrastructure was selected to avoid sensitive receptors (e.g., dwellings, national parks and areas of cultural heritage sensitivity). Initial considerations to minimise impacts include:

- Location of Project partially within an existing oil and gas precinct and investigation of the potential to re-use existing oil and gas infrastructure.
- Targetting of existing infrastructure easements to host the Project's onshore transmission route (or parts therefor)
- Priorisation of HDD for shore crossing activities if possible.
- Identification of shore crossing options that will avoid or minimise impacts to sensitive coastal environments including the Gippsland Lakes Gippsland Lakes
- Burying of subsea cables.

A detailed route selection study for the onshore components will be undertaken to further define how the project may avoid sensitive receptors and environmentally sensitive locations. This will enable identification of the preferred transmission route corridor(s) for subsequent environmental impact assessment.

Preliminary mitigation measures have been identified in the specialist reports (Attachments 2 to 5). Targeted (i.e., receptor specific) mitigations would be developed as part of the subsequent environmental impact assessment process once a more detailed understanding of the existing environment and Project activities is obtained.

Health, Safety, Environment and Quality (HSEQ) management is a key component of Flotation Energy's integrated management system (Attachment 8, Flotation Energy HSEQ Policy). Prior to construction, the Project will implement a series of environmental management plans (including a cultural heritage management plan) for construction and operations (including decommissioning), which will include specific measures to mitigate potential impacts along with monitoring requirements and criteria for measuring environmental performance.

If needed, offsets for native vegetation will be acquired, although securing offsets will be implemented following avoidance and mitigation. The need for offsets will be determined during the detailed Project assessment considering Victorian and Commonwealth requirements.

At this stage of the Project, further detail regarding mitigation and management cannot be provided until impacts are thoroughly assessed for the impact assessment.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

☒ NYD ☐ No ☐ Yes If yes, briefly describe.

There are a number of other proposed onshore and offshore projects within the project region: CarbonNet Project Pelican site, Golden Beach Gas Project, Star of the South Offshore Wind Farm, Marinus Link, Gippsland Energy Renewable Park, Gippsland Regional Port Project. Cumulative impacts have the potential to occur, and a detailed assessment will be undertaken for the Project that will identify all relevant projects and the potential for cumulative impacts.

20. Investigation program

Study program

Have any environmental studies not referred to above been conducted for the project?

☒ No ☐ Yes If yes, please list here and attach if relevant.

Has a program for future environmental studies been developed?

☒ No ☐ Yes If yes, briefly describe.

Future environmental and social studies will be required for the Project and the investigation program is being planned. A preliminary impact assessment screening has been completed and has identified the key environmental aspects and potential impacts that, along with further consultation with Regulatory agencies and stakeholders, will inform the scope of future investigations to support project approval applications (see Attachment 6).

Impact assessment studies will be informed by the results of this referral and the EPBC Act referral. Decisions made in respect of both referrals will inform the extent of scope of environmental impact assessment required for the project. The studies will collect the necessary baseline information to assess potential impacts and identify mitigation, management and monitoring measures. The studies will include, but not be limited to, detailed assessment of impacts to sensitive onshore and offshore ecological habitats and species, Aboriginal cultural and historic heritage values, landscape and amenity and socio-economic values. The assessments will consider Project resource requirements and emissions, e.g., EMF, water, greenhouse gas, noise, waste. Studies will be likely a combination of sampling and data collection (survey), modelling, quantitative and qualitative impact assessment.

Consultation program

Has a consultation program conducted to date for the project?

☐ No ☒ Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

Flotation Energy is committed to working with all relevant organisations, individuals and communities who may have an interest in, or are potentially affected by the Project. A Project Stakeholder Engagement Plan (SEP) has been developed (see Attachment 7, Stakeholder Engagement Plan), with the objectives of:

- Informing stakeholders about the proposed project.
- Facilitating stakeholder knowledge and understanding of the project.
- Identifying and addressing potential issues and impacts.
- Providing opportunities for stakeholders to provide information and express views which in turn influence the Project.

Flotation Energy will ensure that the principles of respectful, timely, accessible and responsive engagement with Traditional Owners and the community underpin all engagement activities.

Flotation Energy commenced informal engagement activities in late 2019 and have held discussions with regulatory authorities, Traditional Owners, industry, members of parliament, State and Commonwealth government agencies and local councils. Engagement has focused on introducing the project concept, understanding the appropriate regulatory pathways and legislative environment, technical aspects (e.g., grid connection), and preferences for future/ongoing engagement. Preliminary consultation has been in relation to understanding likely approval processes, and potential environmental and social impacts including: visual impacts; the protection of waterways and lakes; impacts to marine, aquatic and terrestrial species and their habitat; and the protection of cultural heritage values. Flotation Energy will engage with stakeholders throughout the project scoping and concept development phase across 2022 to inform the impact assessment studies and project design and will continue to consult with stakeholders throughout the development and operation of the Project.

Engagement to-date has primarily been through online/teleconference and face-to-face meetings and via emails or letters. COVID-19 has influenced the nature of engagement undertaken with only limited face-to-face consultation being possible. Alternative methods such as virtual meetings will continue to be utilised.

To date, additional to the regulatory consultation described in Section 10 above, Flotation Energy has commenced discussions with:

- Department of Agriculture, Water and the Environment (DAWE)
- Department of Land, Water and Planning (DELWP)
- Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC)
- Shire of Wellington
- Department of Jobs, Precincts and Regions (DJPR)
- Department of Industry, Science, Energy and Resources (DISER)
- National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)
- National Offshore Petroleum Titles Administrator (NOPTA)
- Department of Treasury and Finance (DTF) – Invest Victoria
- Regional Development Victoria (RDV)
- Major Projects Facilitation Agency
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Carbon Net
- Hon Angus Taylor MP, Minister for Energy and Emissions Reduction
- Hon Darren Chester MP, Member for Gippsland
- Lily D'Ambrosio, Minister for Energy, Environment and Climate Change (Victoria)
- Australian Energy Market Operator (AEMO)
- Esso
- BHP
- GB Energy
- Solis RE
- QUBE Holdings
- Keppel Prince Engineering
- Port of Portland
- Star of the South
- Latrobe Valley Authority (LVA)
- Food and Fibre Gippsland

Has a program for future consultation been developed?

☐ NYD ☐ No ☒ Yes If yes, briefly describe.

Flotation Energy has identified a large number of stakeholders relevant to the Project, and these will be updated/refined as the project progresses. A stakeholder engagement plan listing potential stakeholders for the Project has been provided as Attachment 7. Flotation Energy has commenced planning future engagement activities, which will be driven by an assessment of stakeholder interest and impact, and stakeholder engagement, including the methods used and timing. This assessment is carried out to determine the engagement purpose and goals, guiding the selection of relevant methods of engagement.

Consultation opportunities have been identified in an action plan within the SEP that aligns with key regulatory and project planning milestones to ensure engagement can influence decisions.

Engagement methods are likely to include:

- A project website.
- Regular briefings and newsletters.
- Emails and letters.
- Media updates.
- Community consultation events/public exhibitions (supported by material such as leaflets, posters, videos etc).
- Stakeholder meetings.
- Workshops with key stakeholders (e.g., fisheries, local councils etc).
- Virtual engagement activities due to COVID-19 restrictions.

Flotation Energy 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 Project design and management.

Authorised person for proponent:

I, Tim Sawyer, Flotation Energy Director, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date 02/03/2022

Person who prepared this referral:

I, Matthew Smith, Xodus Groups' Renewables and Environment Manger APAC, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date 01/03/2022

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Final Audit Report 2022-03-02

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