

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:	VIC Offshore Windfarm Pty Ltd
Authorised person for proponent:	John Haese (authorised by VIC Offshore Windfarm Pty Ltd)
Position:	Project Director
Postal address:	Sky Park, One Melbourne Quarter, 699 Collins Street, Docklands VIC 3008 Australia
Email address:	John.haese@arup.com
Phone number:	(08) 8413 6516
Facsimile number:	N/A
Person who prepared Referral:	Arup, on behalf of VIC Offshore Windfarm Pty Ltd Key contacts: Damon Sunderland / Leah Howell
Position:	Project Manager / Approvals Manager
Organisation:	Arup
Postal address:	Sky Park, One Melbourne Quarter, 699 Collins Street, Docklands VIC 3008 Australia
Email address:	damon.sunderland@arup.com / leah.howell@arup.com
Phone number:	(08) 9327 8309 / (07) 3023 6143
Facsimile number:	N/A
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	<p>The Project is being developed by VIC Offshore Windfarm Pty Ltd, which is a wholly owned subsidiary of Australis Energy Ltd (Australis).</p> <p>Australis is an offshore windfarm developer / origination company, its team having project delivery experience in the UK. The company is focused on opportunities in Australia where three projects are being pursued offshore in Victoria, South Australia and Western Australia, with the goal to have its first windfarm operational by 2026.</p> <p>Australis is led by Chairman Mark Petterson who played major roles in the liberalisation of the UK energy markets before becoming a leading pioneer in the offshore wind in the UK sector. At Warwick Energy he led the development of three successful offshore wind projects, totalling around 10% (c. 800 MW) of the UK's capacity, including the Thanet project, the world's largest offshore windfarm when it was commissioned in 2010.</p>

	<p>This referral has been prepared by Arup. Arup has extensive experience in the environmental approvals space, including undertaking environmental impact assessments, conducting specialist impact studies, obtaining approvals for complex major energy and infrastructure developments and current Victorian EES experience.</p> <p>BMT were engaged to complete a preliminary marine environmental risk assessment. BMT have over 35 years of experience and a rich heritage of marine research. BMT is highly experienced in environmental impact assessments of complex marine infrastructure projects in sensitive Australian environments. The assessment was completed and reviewed by consultants with appropriate qualifications in marine ecology and environmental science, with over 20 years of experience.</p>
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2. Project – brief outline

<p>Project title: VIC Offshore Windfarm project ('the Project')</p>
<p>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)</p>
<p>The VIC Offshore Windfarm project ('the Project') will comprise up to 62 offshore wind turbine generators (WTGs) with supporting offshore and onshore electrical assets to transfer energy generated by the windfarm to the existing electricity network.</p> <p>Offshore assets will be located approximately 5.5 km off the coast of Portland, within Victorian state waters, as defined in the <i>Seas and Submerged Lands Act 1973</i> (Cth) and the <i>Coastal Waters (State Powers) Act 1980</i>.</p> <p>Site selection for the landfall site and onshore infrastructure is ongoing, with the existing 550 kV network substation at Heywood Terminal Station being investigated as one possible connection point to the National Electricity Market (NEM). The landfall site and onshore infrastructure will be within the Project area shown in Figure 1.</p> <p>The Project will be located within the Glenelg local government area (LGA) and Project infrastructure would be located on Gunditjmara land and in Gunditjmara waters. Project infrastructure may also need to be located within the Discovery Bay State Marine Park.</p> <p>Existing port facilities will be used where possible to support the transport and marshalling of equipment and Project components from globally distributed supply chains, as well as construction and maintenance vessels and activities.</p> <p>Terminology</p> <p>The Project area is depicted as a black dotted-line in Figure 1. It is a broad Project area for the purposes of investigating and defining the extents of the Project and to identify environmental risks and potential impacts. As the Project progresses, the Project area will be refined and rationalised to show a more precise design envelop and Project footprint.</p> <p>The Project area is shown in Figure 1 below.</p>

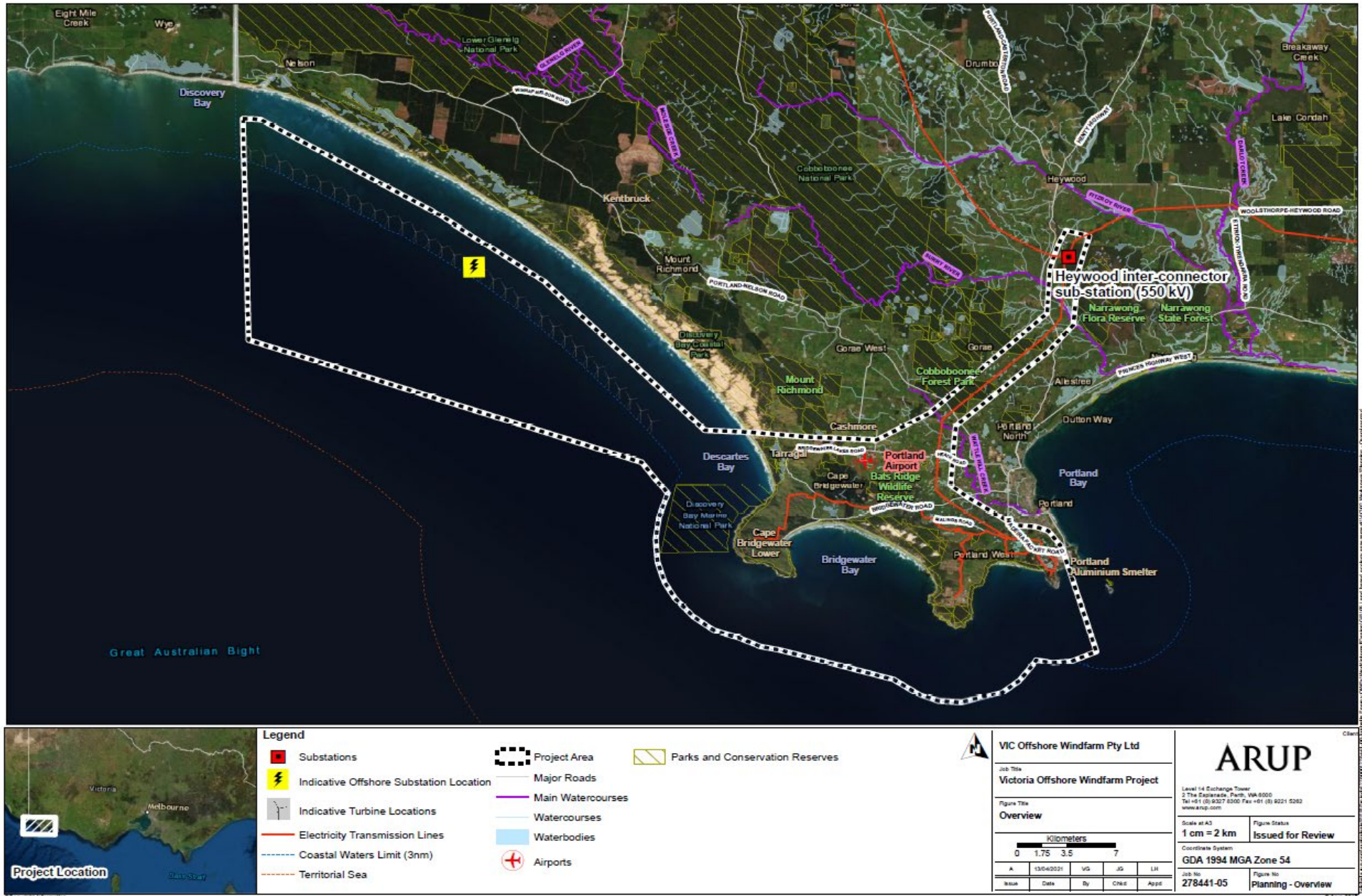


Figure 1 Project Overview

Version 7: March 2020

Further details about the Project area are provided in Section 7.

For some environmental aspects, broader study areas have been created to understand wider environmental features and impacts – these are generally referred to as ‘study areas’.

The Preliminary Marine Environment Assessment is based on a 5 km buffer around the offshore component of the Project area, up to the Highest Astronomical Tide – this is referred to as ‘offshore Study area’.

The Ecology (Terrestrial) desktop study has assessed a 10 km buffer around the onshore component of Project area – this is referred to as ‘onshore Study area’.

Short project description (few sentences):

VIC Offshore Windfarm Pty Ltd (VIC Offshore Windfarm) is proposing the construction, operation and decommissioning of a 495 MW capacity offshore windfarm project within Victorian State waters. The Project will transfer energy generated to the NEM through offshore and onshore electrical assets, as listed below. Key offshore project infrastructure assets (e.g. WTGs/cables) would be in Victorian coastal waters only. However, the Project area extends into Commonwealth waters. This is to account for (a) navigational aids that may be installed in Commonwealth waters, (b) ancillary construction equipment and vessels that may traverse into Commonwealth waters on occasion and (c) to identify broader environmental values of the area to inform impact assessments. As the Project progresses, the siting of key infrastructure and ancillary equipment will be refined within the Project area.

Offshore components:

- Up to 62 offshore wind turbines supported by monopile foundations
- A network of buried or mechanically protected subsea cables along the seabed connecting the WTGs together and connecting the strings of WTGs to the offshore substation
- Offshore substation supported by monopile foundations to collect and transform the output to a higher voltage
- Subsea cables buried or mechanically protected transmitting electricity generated from the windfarm to the onshore substation.

Coastal and onshore components:

- A landfall site with a transition joint pit connecting the marine cables from the offshore substation to the onshore cables that will run to the onshore substation
- An onshore substation, which may include further transformers
- A new overhead transmission line supplying energy generated from windfarm to the NEM, with additional equipment as required, which may include battery storage for fast frequency response to provide stability to the grid.

Construction and operation:

The Project will require pre-construction activities offshore including preparation of seabed and installation of ancillary components, including navigational aids and establishment of temporary 500m exclusion zones around WTG locations. Onshore, pre-construction activities will include upgrades to roads, removal of non-native vegetation, establishment of onshore construction sites including substation building area. An overview of the construction activity is provided below.

Offshore:

- Transport of WTGs and offshore substation monopiles and foundation components to marshalling site(s)
- Installation of the turbine blades
- Construction of the offshore substation platform and installation of substation components and equipment
- Pre-trenching and simultaneous lay and burial of the array cables
- Installation of the offshore export cable.

Onshore:

- Construction of foundations for the substation, installation of substation switch-room
- Excavation and preparation of the landfall site
- Installation of underground cables from offshore and overhead transmission line
- Electrical connection of cables.

Subject to planning and environmental approvals, construction will likely commence in early 2025 to be generating electricity by the Summer 2026/27 peak period.

The design life of offshore wind turbines is approximately 30 years and the lease proposed with the State of Victoria would be for 60 years, with a break clause at 30 years, to provide an option to refurbish the project.

A schematic of the Project is shown below.

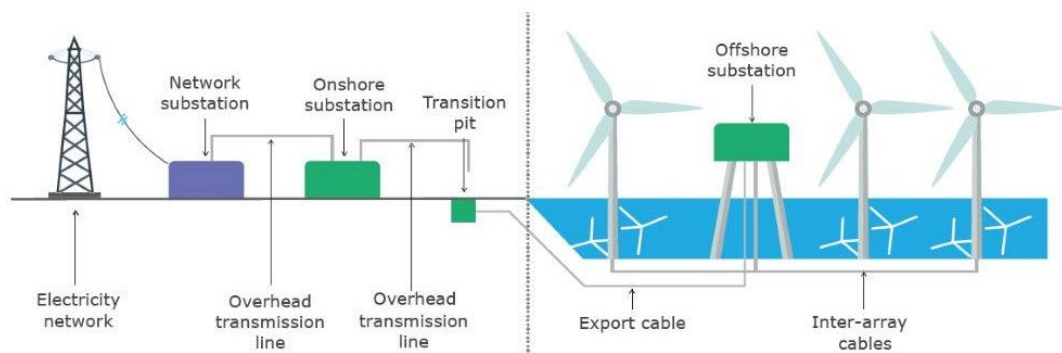


Figure 2 Project schematic

Section 3 describes the Project in further detail.

3. Project description

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

The ultimate aim of the Project is to supply renewable electricity to the NEM to supplement Victorian and Australian energy supply.

More specifically, the Project would:

- Develop an offshore windfarm that supports the Australian and Victorian governments' strategic goals and targets around increasing renewable energy supply by:
 - Supporting the Victorian Government's target of 50% renewables by 2030
 - Contributing to Victoria's Net Zero by 2050 emissions reduction target
 - Offering long term renewable (green) energy supply to reduce Victoria's carbon footprint
- Have a generation capacity of up to 495 MW, enough to power 330,000 Victorian homes
- Contribute to protecting against power blackouts – Victoria experiences power outages, particularly on hot days
- Investigate design solutions that maximise energy generation and supply to the NEM during peak periods
- Drive a downward pressure on energy prices through increased competition
- Select a site that will maintain social and environmental values during construction, operation and decommissioning
- Determine opportunities to provide local and regional social and environmental benefits during construction and operation

- Provide direct economic expenditure and benefit to the local and State economies during construction and operational phases
- Provide indirect economic benefits associated with the flow on effect on both the local community and wider economy during construction and operation.

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

There is widespread agreement that energy systems need to be decarbonised as quickly as possible as part of the international effort to fight global warming.

There are several factors encouraging the development of offshore wind energy industries around the world. The wind resource offshore is extremely large and more stable than onshore, the costs are falling fast, and the technologies are proven.

The offshore wind energy industry in Australia is still in its formative stages but has the potential to play a key role in the energy transition, supporting renewable energy targets and the development of clean tech industries. Australia is in a position, particularly in the southern half of the country, to create a significant new offshore industry. Conventional energy generation companies are already diversifying their operations into renewable energy sectors and the offshore oil and gas industry is in a unique position to exploit its highly skilled offshore workforce.

Offshore windfarms are currently being built in areas of favourable wind conditions and shallow water where construction costs are lower. The density of wind energy offshore in southern Australia represents an attractive location for offshore windfarms, and when combined with the relatively shallow waters, and small tidal range, the proposed State waters location represents an ideal location for an initial offshore windfarm construction to kickstart the industry.

Some of the advantages of construction of offshore windfarms include:

1. Offshore wind speeds tend to be higher than on land. Small increases in wind speed yield large increases in energy production: a turbine in a 6.7 m/s wind can generate twice as much energy as a turbine in a 5.4 m/s wind. Higher wind speeds offshore mean much more energy can be generated.
2. Offshore wind speeds tend to be steadier than on land as there is nothing around to produce turbulence unlike onshore where hills, trees and buildings can interfere with wind flow. A steadier supply of wind means a more reliable source of energy.
3. Many coastal areas have very high energy needs. Over 90% of Australia's population lives in coastal areas, with concentrations in major coastal cities. Building offshore windfarms in these areas can help to meet those energy needs from nearby sources, reduce losses in electrical transmission systems.
4. Offshore windfarms have many of the same advantages as land-based windfarms – they provide renewable energy; they do not consume water; they provide a domestic energy source; they create jobs; and they do not emit environmental pollutants or greenhouse gases. They are also generally much larger than onshore farms, with improved economies of scale.
5. Turbines used offshore are generally much taller than those onshore which pushes them up into the naturally higher wind flows at higher altitude.

The offshore environment in Victoria offers an opportunity to tap into a more powerful and consistent wind resource, with the potential to generate more electricity at a steadier rate than most other renewable energy sources. The consistent, strong wind patterns along the coastline in the south-western part of the State, in proximity to Australian Energy Market Operator's (AEMO) 2020 ISP South West Victoria Renewable Energy Zone (REZ), provides tremendous opportunity to develop high capacity (and high-capacity factor) offshore wind in close proximity to critical transmission nodes.

Key factors contributing to the suitability of the Project location include:

- Consistent strong wind patterns with mean wind speeds greater than 9.0m/s at 150m elevation
- Water depths < 50m along most of the coastline
- Low marine traffic volumes
- Low population density within the surrounding area
- Existing transport and port infrastructure
- Access to the NEM at Heywood Terminal Station (550kV).

Further detail on site selection for the Project is provided in Section 4.

Design of the Project is ongoing and the Project footprint, construction methodologies and operational parameters will be further developed in parallel with the results of environmental and technical studies, and stakeholder consultation.

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

Main components of the Project include:

- Up to 62 offshore wind turbines ranging between 8MW and 15 MW supported by monopile (or similar) foundations. Proposed Project specifications (refer to Attachment 1 for full specifications) include:
 - Maximum proposed tip height of 264m for 15MW turbines
 - Minimum height of rotor swept area likely to be in the order of 40-50m above sea level
 - Maximum rotor diameter of 220m.
- A network of buried or mechanically protected subsea cables along the seabed connecting the WTGs together and connecting the strings of WTGs to the offshore substation (known as inter-array cables)
- An offshore substation and substructure supported by monopile (or similar) foundations to collect and transform the output to a higher voltage
- Subsea cables buried or mechanically protected transmitting electricity generated from the windfarm to the onshore substation (known as the offshore export cable).

These would be located within State waters.

Coastal and onshore assets:

- A landfall site with a transition joint pit connecting the marine cables from the offshore substation to the onshore cables that will run to the onshore substation
- An onshore substation which may include further transformers
- A new transmission line supplying energy generated from windfarm to the NEM, with additional equipment as required, which may include battery storage for fast frequency response to provide stability to the grid. Site investigations and feasibility assessments will be carried out to understand the impacts and opportunities of both underground and overhead transmission cables to develop best solutions.

The preliminary technical specifications of the Project are detailed in Attachment 1.

The landfall site will be located landward of the mean high-water mark (MHWM) on land suitable to accommodate an underground joint pit. The transmission infrastructure is anticipated to be predominately above ground.

The existing 550 kV network substation at Heywood Terminal Station is being investigated as one possible connection point within the Project area to the NEM. The Heywood Terminal Station is located approximately 30 km from the coastline. The preference is to utilise existing electricity easements and other infrastructure corridors as much as practicable to minimise impacts.

Construction vessels are likely to be used for both turbine and foundation installation. Different specialist vessels would be used for export and array cable installation. However, the same vessel may be used for both operation on this Project. Different methods may be employed subject to seabed conditions, equipment available to the contractor and presence of any benthic communities and habitat. These include:

- Burial of cables in the range of 1-3 m below seabed, subject to detailed assessment
- Pre-trenching and simultaneous lay and burial using a cable plough where the soil is suitable. Cable ploughs can bury the cable down to 3-4 m below seabed level. A trenching remotely operated vehicle (ROV) may be used close to the turbine or substation
- If seabed conditions are not suitable, a two-stage process will be used where the cable is laid on the seabed, after which a vessel with trenching capacity undertakes the burial

Further details relating to the ancillary components of the Project is provided below.

Existing port and harbour modifications:

The Project would use existing major port facilities to support construction and O&M activities.

Suitable port and harbour facilities are currently being investigated based on the following criteria:

- Proximity to the Project, to allow for efficient vessel movement and transportation during construction and maintenance
- Water depths and tidal conditions for the proposed Project vessels and activities
- Dedicated or shared berthing facilities
- Portside facilities and land availability for construction and maintenance activities (including laydown, storage and assembly of components)
- Provide potential opportunities with local employment benefits.

At this stage specific port(s) have not been identified. Further investigations during future stages of the Project will identify if any modifications and/or upgrades are required.

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

Ancillary components may be required during pre-construction, construction and operation to support the Project.

The likely offshore ancillary components include:

- Navigational aids
- Meteorological and oceanographic monitoring devices.
- Temporary 500m exclusion zones around WTGs locations
- There may be a 50m exclusion zone around offshore assets during operation.

The type, number and positions of ancillary components will be confirmed during development of the Project, and in consultation with the relevant authorities.

Onshore ancillary infrastructure associated with the Project includes construction and operation and maintenance facilities, comprising:

- Temporary construction laydown areas and site and personnel facilities
- Operational control room, site offices and storage facilities
- Crew transfer vessels (CTVs).

This will be further determined in future design stages.

- In addition, the Project will use existing public roads to accommodate construction vehicles. However, the Project will seek to create minimal disruptions to the local road network.

Key construction activities:**Offshore components**

Pre-construction:

- Preparation of the seabed (including dredging as necessary)
- Installation of ancillary components, including navigational aids and establishment of temporary 500m exclusion zones around WTGs location.

Construction:

- Transport of WTGs and offshore substation monopiles and foundation components to marshalling site or sites
- Sequential driving of monopiles into seabed followed by fixing of transition pieces to the monopiles
- Installation of scour protection, as required
- Erection of WTG towers and nacelles, either pre-erected or erected individually at the site
- Installation of the turbine blades
- Construction of the offshore substation platform and installation of substation components and equipment
- Pre-trenching and simultaneous lay and burial of the array cables using a cable plough or trenching ROV
- Installation of the offshore export cable using a cable plough or trenching ROV.

Monopiles may be installed from a jack-up vessel or a floating vessel. The transition piece is usually lifted and grouted or bolted in place from the same vessel.

Monopiles (up to 10m diameter) are generally moved into position using the main crane and upending tool and held in position by a gripper tool. They are then driven into the seabed before mounting and grouting transition pieces.

Transition pieces are usually carried and installed by the same vessel, although a two-vessel strategy in which transition pieces are installed by a separate vessel has been used on several occasions. An approximate timetable for installation once at the windfarm site is:

- Transport and positioning: 2 hours for floating vessels; 4 hours for jack-ups
- Preparations: 1 hour
- Lifting and pile positioning: 1 hour
- Driving: 6 hours, and
- Grouting: 2 hours.

Under some ground conditions, monopiles are grouted into a pre-drilled rock socket. Under conditions with boulders, a combination of drilling and driving may be required.

Cable installation activities will be preceded with a survey to define the route. This will be followed by a pre-lay grapnel run (or alternative method) to clear any debris from the cable route.

Burial will provide protection to the cables, however additional protection (rock dumping, or grout bags, etc) may be required at key locations (e.g. where cables enter the WTG or offshore substation platform or when ground conditions or crossings result in the cable being laid near to or on the seabed surface). Burial of cables will also assist in avoiding impacts to marine species (sharks, rays, bony fish, turtles and crustaceans) from electromagnetic fields (EMF). Burial depths for the offshore export cable will be subject to detailed assessment but is likely to be in the range of 1-3m below seabed.

Pre-trenching and simultaneous lay and burial using a cable plough is preferred if the soil is suitable, as immediate burial and protection is obtained in a single pass which reduces costs and seabed disturbance. If seabed conditions are not suitable then a two-stage process will be used

where the cable is laid on the seabed, after which a vessel with trenching vertical injector or jetting sled, undertakes the burial.

Cable ploughs can bury the cable down to 3-4 m below seabed level. The plough requires a tow force to pull the plough through the soil depending on the soil conditions and the required burial depth. Using a barge (for shallow water operations), this force is supplied by an anchor or a tow tug. For a dynamically positioned vessel, a specialist vessel with an appropriate bollard pull will be required. It is often not possible to plough close to the turbine or substation. In that case, a trenching ROV may be used.

ROVs can have either a jetting system or a mechanical cutter. A high-pressure jetting system is used to fluidise the seabed and allow the cable to sink to the required depth (only in sandy sediments and softer clays). For rocky or hard clay seabed conditions, a mechanical cutter will be used.

Shore crossing is typically undertaken via trenching at shallow relief beach sites. In hard (non-sand) coastal beach lithologies, and or steeper or cliff related coastal settings horizontal directional drilling is undertaken to create the cable shore crossing conduit.

Onshore components:

Pre-construction:

- Upgrades to, or construction of, site access site roads (clearing and levelling)
- Removal of areas of non-native vegetation
- Clearing and levelling of the onshore substation building area
- Establishment of onshore construction sites (offices, laydown areas, etc)
- Delivery of equipment.

Construction:

- Construction of foundations for the substation
- Excavation and preparation of the landfall site
- Installation of underground cables from offshore
- Installation of overhead transmission line
- Installation of substation switch-room and electrical equipment
- Electrical connection of cables
- Remove construction facilities and site tidy up.

Key operational activities:

The design life of the offshore wind turbines is approximately 30 years and the lease proposed with the Victorian State would be for 60 years, with a break clause at 30 years, to provide an option to refurbish the Project. Operation would include activities contributing to the high-level management of the Project, such as:

- Remote monitoring
- Environmental monitoring
- Electricity sales
- Administration tasks.

Maintenance would include the up-keep and repair of the physical assets and systems, which can be divided into preventative maintenance and corrective maintenance. Preventative maintenance will include the proactive repair and replacement of known wearing components based on routine inspections or information from condition monitoring systems, and corrective maintenance will include the reactive repair or replacement of failed or damaged components. Typical maintenance activities include:

- Onshore and offshore logistics

<ul style="list-style-type: none"> • Turbine and blade maintenance, inspection and service • Foundation inspection and repair • Cable inspection and repair • Scour monitoring and management • Substation maintenance and service.
<p>Key decommissioning activities (if applicable):</p> <p>During decommissioning, it is expected that offshore structures (such as the WTGs) will be removed to just below the seabed as part of the decommissioning process, with cables and onshore infrastructure most likely to remain. Decommissioning activities would involve similar types of methods such as those in the construction phase of the Project, including similar vessels, equipment and management measures. Requirements for decommissioning will be established through the planning approvals for the Project and a decommissioning management plan will be developed prior to the commencement of decommissioning, in consultation with the relevant authorities. The decommissioning plan will include:</p> <ul style="list-style-type: none"> • Rehabilitation strategies and objectives • Timeframes for rehabilitation • Infrastructure (if any) agreed to remain in place • Monitoring and mitigation measures. <p>Given that offshore wind development is in its infancy in Australia, there is no applicable decommissioning framework. Countries such as the UK have developed a robust framework.</p> <p>The preliminary Environmental Risk Review (ERR) identifies possible mitigation measures for the decommissioning of the Project. A Decommissioning Environmental Management Plan as well as an Environmental Management Framework will assist in implementing any environmental requirements and reducing potential risks.</p> <p>The ERR is provided as Attachment 2.</p>
<p>Is the project an element or stage in a larger project?</p> <p><input checked="" type="checkbox"/> No <input type="checkbox"/> 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).</p>
<p>Is the project related to any other past, current or mooted proposals in the region?</p> <p><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please identify related proposals.</p>
<p>What is the estimated capital expenditure for development of the project?</p> <p>The project has an estimated capital investment value of approximately \$1.5 billion ±30%.</p>

4. Project alternatives

<p>Brief description of key alternatives considered to date (eg. locational, scale or design alternatives. If relevant, attach A4/A3 plans):</p> <p>The Project development process has considered the following options:</p> <ul style="list-style-type: none"> • A 'do nothing' option • Different technology options • Alternative sites • Different generating capacities.

Do nothing

The ‘do nothing’ option would not help achieve the strategic goals and targets set by the Australian and Victorian governments around renewable energy, climate change and net zero emissions, as outlined in the sections above.

Different technology options

WTGs between 8 MW and 15 MW are being considered for the Project, with the final turbine technology to be determined prior to construction and based on the Project approval and commercial and supply chain considerations. Stakeholder consultation may also inform turbine selection, dependant on whether a fewer number of larger turbines are preferred over more, slightly smaller turbines. For the purpose of this referral, and a future EES, the Rochdale envelope approach has been applied, to allow for the consideration and evaluation of a range of options and ‘worst-case’ scenarios.

The offshore environment in Victoria offers an opportunity to tap into a more powerful and consistent wind resource, with the potential to generate more electricity at a steadier rate than most other renewable energy sources. Offshore wind, combined with additional equipment as required, such a battery storage, is the preferred development for this reason, and would provide the NEM with a consistent, dispatchable renewable energy resource while providing grid stability.

Some of the advantages of construction of offshore windfarms are presented in Section 3 and shown in Figure 3.

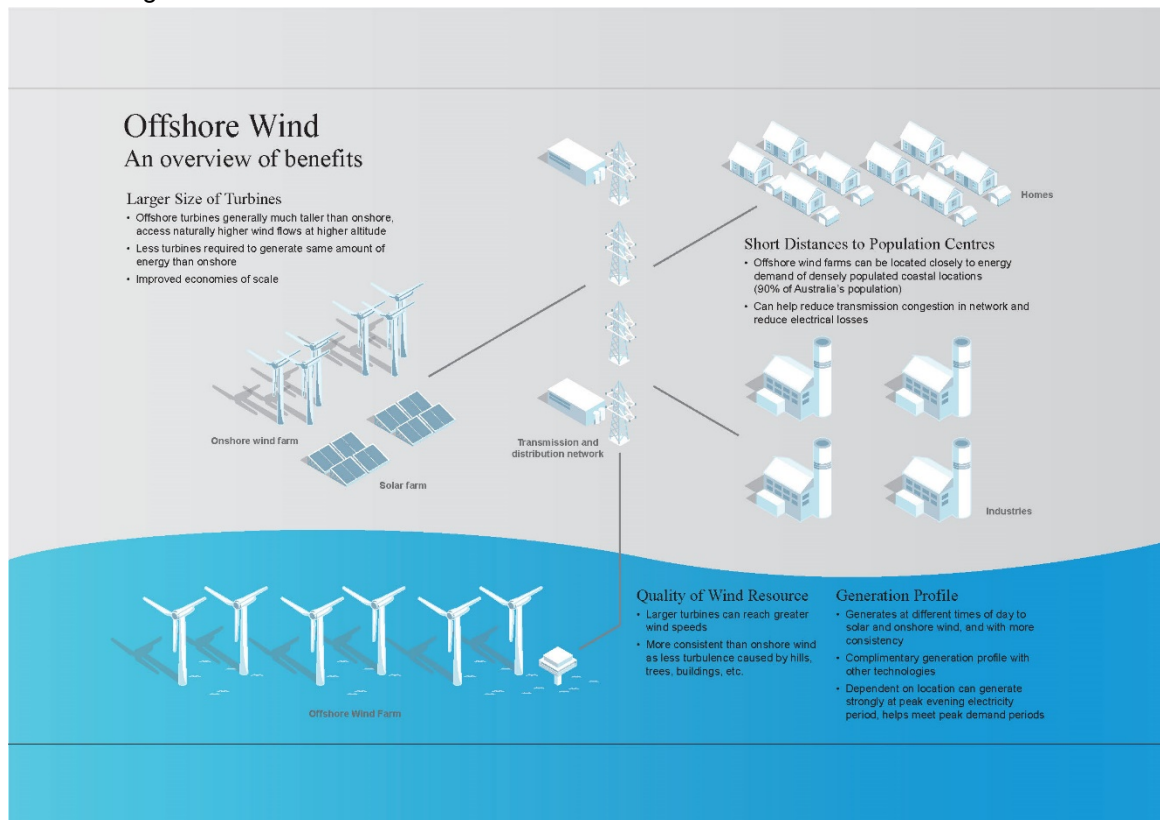


Figure 3 An overview of the benefits of offshore wind

Alternative sites

Offshore

A multi-criteria assessment (MCA) was adopted as the methodology to delineate potential sites for offshore wind development in Victorian coastal waters. The criteria were spatially represented via a Geographic Information System (GIS) database, thus allowing a “heat map” to be developed for visual assessment of suitable sites along the coastline. Several categories were assessed to

determine the most appropriate sites for the offshore windfarms which included legislative boundaries (State vs Commonwealth), distance to major port facilities, marine traffic, wind resource, water depth, environmentally sensitive sites and receptors, proximity to built-up areas and proximity to onshore electricity networks.

Each of the evaluation criteria were then weighted to reflect their relative importance in influencing the site selection. For example, Proximity to Built-Up Areas was assigned a weighting of 20% whereas Legislative Boundaries was assigned a weighting of 10%. The site characteristics were also assigned a suitability score ranging from zero to three with zero indicating an unsuitable site and three a suitable site. The scoring was then combined for each category in order to generate the “heat map” to allow a visual assessment of suitable sites.

When all MCA layers are weighted, scored and combined the Wilsons Promontory area, between Port Albert and Paradise Beach, received a high scoring. However, this offshore area is already earmarked for the Star of the South project which is currently under development. Therefore, this area was discounted from further evaluation.

The second area that scored highly was the waters in the vicinity of Portland. Within this area, the most suitable location for an offshore windfarm was deemed to be west of Portland near Discovery Bay. This was the site that has therefore selected and has the following notable characteristics:

- Good wind resources associated with mean wind speeds greater than 9.0m/s at 150m elevation
- Water depths <50m along most of the coastline
- Low marine traffic volumes
- Access to the NEM at Heywood Terminal Station (550kV)
- Low population density within the surrounding area to mitigate the visual impact.

Other areas in the vicinity of Portland that scored highly in the MCA but were deemed unsuitable include:

- State waters adjacent to the headlands to the south and west of Portland. Although this area scores highly, the water depth is unattractive for an offshore windfarm development because fixed foundation systems are not possible and are economically unviable in these deeper water depths. Additional to this is the visual impact from the higher cliff tops and likely onerous foundations conditions associated with offshore headlands. For these reasons this area is not considered suitable.
- The offshore area to the east of Portland. Although this area also scores highly, it is deemed less suitable given the marine traffic accessing the port in Portland and the associated navigational hazards. Additionally, the visual impact that an OWF would bring to this area makes this a less attractive site.

Onshore

Currently a wide corridor is being investigated for the landfall site and onshore transmission infrastructure, with final locations to be determined during design development, and subject to further technical and environmental studies, and discussions with Project stakeholders. The landfall site would be located landward of the mean high-water mark (MHW) on land suitable to accommodate an underground joint pit. The transmission infrastructure is anticipated to be predominately above ground.

It is anticipated the cable will be trenched/ buried from the shallow reaches of the subtidal/intertidal habitat on shore where a connection will transfer the power to above ground cables.

The existing 550 kV network substation at Heywood Terminal Station is being investigated as one possible connection point within the Project area to the NEM. The Heywood Terminal Station is located approximately 30 km from the coastline. A number of options are being investigated and

discussed with key stakeholders. For all options, the preference is to utilise existing electricity easements and other infrastructure corridors as much as practicable to minimise impacts.

Different generating capacities

Various generating capacities have been considered and guided by ongoing feasibility assessments, technology options, and early discussions with Ausnet. A generation capacity of up to 495 MW is proposed and will be further tested as the Project progresses and more detailed technical and market assessments are carried out with key stakeholders.

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

As discussed above, transmission lines and grid connection options are currently being assessed. The Project area encompasses the locations for those options, whose potential impacts are considered in this referral. Similarly, port options will be further considered during the EES process.

As the Project's detailed design progresses, micro-siting options will be explored to provide the best environmental, social and visual outcomes.

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:

Licences and permits may be required to undertake marine and environmental surveys and geotechnical studies to support preparation of the EES and engineering and design development. These will be sought separately.

6. Project implementation

Implementing organisation (ultimately responsible for project, ie. not contractor):

VIC Offshore Windfarm Pty Ltd and Australis Energy Ltd

Implementation timeframe:

Vic Offshore Windfarm Pty Ltd has commissioned desktop investigations for the potential development of offshore wind in Victoria, and particularly in the Portland region.

The Project indicative timeline includes:

- 2021 (Q 1 & 2) – Initial scoping and conceptualisation
- 2021 (Q 3 & 4) – Commencement of marine and environmental surveys
- 2022-2023 – Environmental assessment, stakeholder engagement and community consultation in parallel to design development
- 2023-2024 – All planning and environmental approvals, secondary approvals, permits and licences secured
- 2025-2026 – Detailed design, construction, grid connection and commissioning
- Summer 2026/2027 – Operation and maintenance, asset management.

Proposed staging (if applicable):

N/A

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?
<input type="checkbox"/> No <input checked="" type="checkbox"/> 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):
<p>Offshore site description:</p> <p>The Project will be located approximately 5.5 km off the coast of Portland within Victorian coastal waters. The Project area is adjacent to the South Australian border to the west and is in proximity of the South Australian Lower South East Marine Park.</p> <p>The offshore Study area is considered part of the Sea Country of the Gunditjamara which establishes the spiritual connection of the Gunditjamara Deen Maar Island, the sea and the afterlife (State of Victoria, 2007).</p> <p>There are six listed shipwrecks within the Project area including in Discovery Bay, Cape Bridgewater and Portland areas. Although there are no Commonwealth listed heritage places or sites within the study areas or surrounds. A review of the Department of Agriculture, Water and the Environment (DAWE) historical shipwrecks register, determined that there two underwater heritage items within the Study area. However, given the age of each item, it is considered unlikely that any artefacts remain.</p> <p>The offshore Project area has a shallow bathymetry with water depths <50 m. It is in as area of low marine traffic volumes. The Project is located 10km and 20km away from significantly busier marine traffic routes to the south of the Project area.</p> <p>The Project area is within the Otway coast. The shallow inshore areas of Otway continental margin predominantly include limestone substrates that support a variety of assemblages (molluscs, sponges and algae). Deeper areas are dominated by mega-rippled bryozoan sands while deep areas of the shelf have bioturbated, fine bioclastic sands.</p> <p>A large portion of the Victorian coastline, including the Project area, falls within the Bonney Coast Upwelling. Broad-scale benthic habitat mapping habitats within and adjacent to the marine Study area include seagrass (mixed reef) and undifferentiated algae / invertebrates. Some reef is also identified along the shoreline adjacent to the Project area. These are classed as basalt reefs (dominated by kelp including large brown kelp (<i>Ecklonia radiata</i>)) and calcarenite reefs (including sponges, ascidians, bryozoans and gorgonians). Unique biotopes within this region include the following:</p> <ul style="list-style-type: none"> • Benthic vegetation: brown algae, bull kelp and common kelp • Sessile invertebrates: high diversity of sponge and seawhip assemblages. <p>The available mapping for the Project Area appears to be incomplete (only extending a short distance from the shoreline), therefore more accurate mapping of benthic habitat will be required to confirm the extent and quality of habitat types.</p> <p>A map showing the existing site constraints is shown at Figure 4.</p>

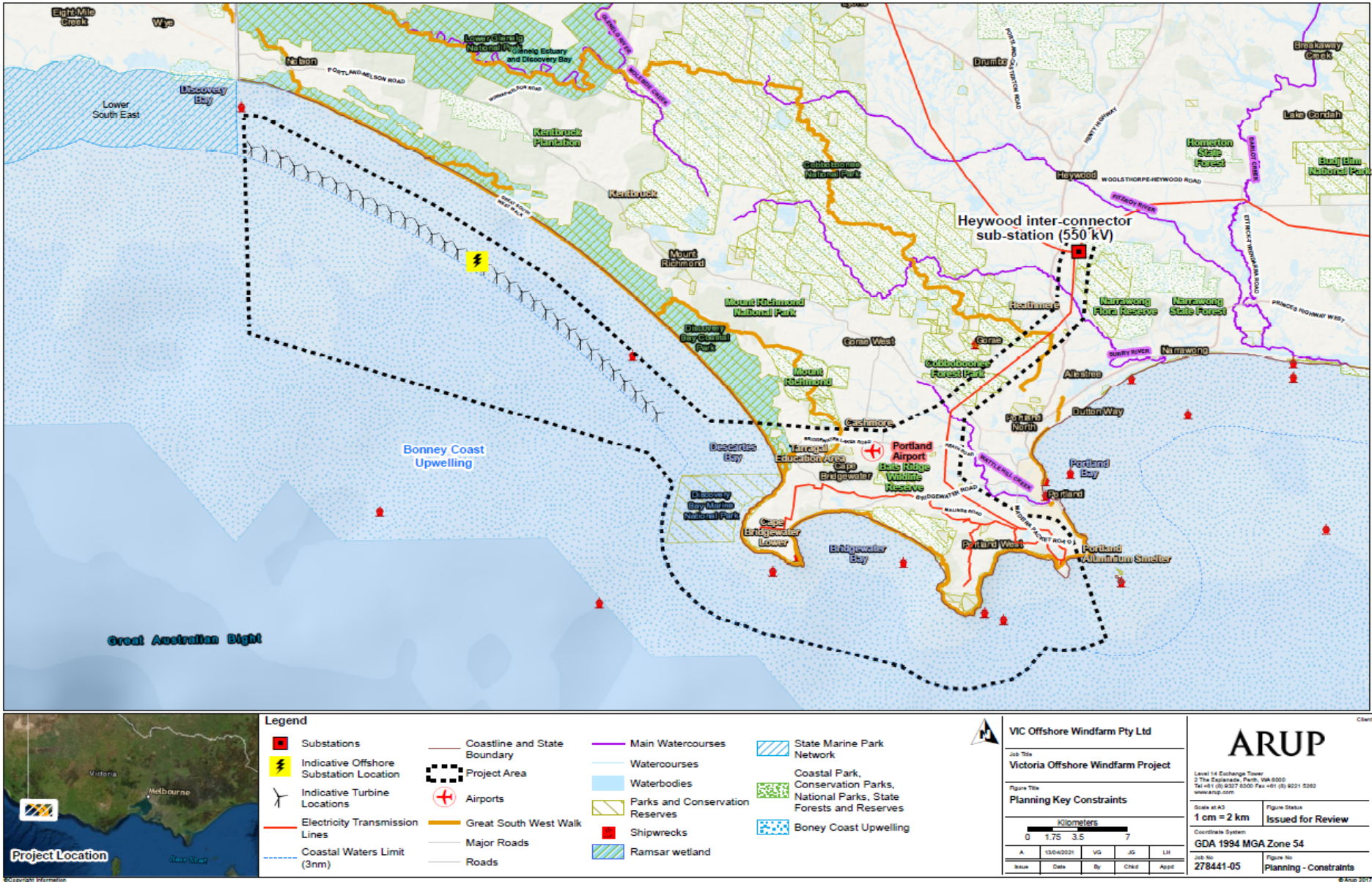


Figure 4 Site constraints

Onshore site description

The Project area contains a network of main and local roads (Refer to Figure 1 above).

Aboriginal cultural and historic heritage

The Project area covers areas of cultural heritage sensitivity, areas of high archaeological potential and known Aboriginal cultural heritage places, with several landform-systems that are likely to contain Aboriginal cultural heritage.

Heritage places within the Project area include buildings listed in the Glenelg Planning Scheme that would not be impacted by the Project. The Project also contains multiple heritage values listed under the Victorian Heritage Register and Victorian Heritage Inventory. Sites include, but are not limited to, White's House, Emerson House, Cottage Peacocks Road around Cape Bridgewater, as well as Kittson House and cemetery near Tarragal. Transmission infrastructure would avoid these heritage sites.

Land tenure

Land tenure within the Project area comprises a mix of private and public properties and Crown Land designated as reserved land (i.e. land set aside for specific public purposes), as well as Native Title. The Project area intersects with the Gunditjamarra – Part A Native Title determination and the Gunditjamarra Indigenous Land Use Agreement (ILUA). The Native Title determination covers land onshore and extends to the coastal waters, 100m from the low mean water mark.

The onshore transmission assets will likely intersect with reserved land notably Discovery Bay Coastal Park, Bridgewater Lakes, Tarragal Education Area, Discovery Bay Coastal Park, Bats Ridge Wildlife Reserve, Bolwarra H44 Bushland Reserve, Cobboboonee Forest Park and Narrawong Flora Reserve. However, placement of onshore infrastructure and transmission route options would look to avoid, as far as reasonably practicable, Crown land and Native Title.

Topography

Most of the onshore project area comprises flat to rolling topography ranging in elevations generally in the order of 50m AHD and no higher than 100m AHD. It is envisaged that the onshore assets (e.g. transmission line) would avoid the steeper gradients or higher elevations.

Drainage and Hydrology

The hydrology of the Project area is dominated by a number of water features including:

- Wattle Hill Creek and tributaries which runs in north-west to south-east direction into Fawthrop Lagoon which is located in the city of Portland
- Surrey River and tributaries which runs in a north-south direction between Narrawong Flora reserve and Cobboboonee Forest Park
- Lakes and ponds across the Study area
- The Project intersects with Glenelg Estuary and Discovery Bay Ramsar Wetlands.

The presence of the above water features and the proximity to the coast would suggest a relatively shallow groundwater table. It is anticipated that the final transmission line route could intersect with some watercourses. This will be a consideration for future Project design and construction stages.

Further investigation is required to determine the local drainage conditions in the vicinity of the onshore assets.

Geology and soil

The surface geology within the Project area consists of Quaternary deposits. A review of geological dataset (DELWP) indicated that the Project will be underlain by the Bridgewater Group unconformably overlying the Heystesbury Group limestones. A review of the Atlas of Australian Acid Sulfate Soils mapping indicates that there is an extremely low probability (with very low confidence) of Acid Sulfate Soils.

Native vegetation

<p>The Project area features a large extent of native vegetation. It is likely that some clearing of native vegetation will be required for the onshore assets, however the extent is unknown at this early stage. The placement of onshore infrastructure and transmission route options would look to avoid, as far as reasonably practicable, native vegetation clearing. A detailed assessment will be undertaken to determine the extent of the impact. Refer to Table 3 for Ecological Vegetation Classes potentially present within Project area.</p>
<p>Site area (if known): 87,459 hectares</p>
<p>The overall site area comprises the offshore site area of 67,504 hectares and the onshore site area of 19,953 hectares.</p>
<p>Route length (for linear infrastructure) (km) and width (m)</p>
<p>The transmission line route options currently being developed are all approximately 33 km from Heywood Terminal Station. The approximate width of the construction corridor would be about 100 m. Further feasibility studies will determine a precise route length and width for the final easement.</p>
<p>Current land use and development:</p>
<p>The current land uses and development within the Project area are described below.</p> <p>The Project area intersects with the Gunditjamarra – Part A Native Title determination and the Gunditjamarra Indigenous Land Use Agreement (ILUA). The Native Title determination covers land onshore and extends to the coastal waters, 100m from the low mean water mark.</p> <p>Offshore uses:</p> <p>The offshore component of the Project is located within a marine environment that is 5.5 km off the coast of Portland, within state waters that include commercial fishing, recreational fishing, tourism, and shipping activities. These are further described below.</p> <p><u>Commercial fishing</u></p> <ul style="list-style-type: none"> The Project area supports habitat that is important to the reproduction lifestyle of several commercial fishing species. The adjacent Discovery Bay biounit contains the most productive habitat in Victoria. There are licences to take western rock lobster, abalone and pipis. <p><u>Recreational fishing</u></p> <ul style="list-style-type: none"> The Project area is within the Glenelg River Basin which offers opportunity for recreational fishing. The Glenelg estuary and Lake Mombeong, located north-west of the offshore component, are the key fishing locations. A range of fishing activities including individual fishing and fishing tournaments occur along the coast of Portland. <p><u>Tourism</u></p> <ul style="list-style-type: none"> Scuba diving, nature and whale watching, charter fishing and yacht racing occur within the Project area. The scenic Cape Bridgewater is located within the Project area and is a popular location for whale-sighting. In addition, Discovery Bay Marine National Park, which is used for a range of activity including remote camping, walks and canoeing, is also within the Project area. <p><u>Shipping</u></p> <p>Shipping associated activities occur within the offshore marine Study area. However, the Project is located between 10km and 20km away from significantly busier marine traffic routes to the south of the OWF site.</p> <p>Onshore land uses:</p> <p><u>Land use</u></p> <p>The key land uses within the Project area consist of farmland, forests and parks (including Cobboboonee Forest Park and Discovery Bay Coastal Park), listed Ramsar wetlands and public conservation uses (including Bats Ridge Wildlife Reserve and Narrawong Flora Reserve).</p>

It is envisaged that further refinement of the proposed Project area (and future routing of transmission infrastructure) will focus on avoiding or limiting the route's encroachment on more sensitive areas such as forests, wetlands, seascapes and urban/residential areas.

Electricity network

- Proximity to onshore electricity network with access to the NEM at Heywood Terminal Station (550kV), which is located approximately 30 km from the coastline.
- An existing electricity easement is currently used by Alcoa, which runs from the Portland Aluminium Smelter to Heywood Terminal Station
- Existing electricity transmission lines within the Project area, running from Cape Bridgewater to the Heywood substation.

Final locations of the landfall site and onshore transmission infrastructure will be determined following further technical and environmental studies, and discussions with Project stakeholders.

Recreational uses

- The Project intersects with the Discovery Bay Coastal Park and the Great South West Walk which forms a loop that begins and ends at Portland through the coastline
- The Cobboonee State Park offers a range of recreational activities including horse trailing, bushwalking and camping.

Tourism

- The touristic rural town of Heywood is located in the northern end of the Project area.

Other uses

- Portland airport is located within the Project area
- Nelson aerodrome is located north-west of the Project area.

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

As described above the Project contains and is surrounded by varied land uses including airport, electricity network, road network, agricultural land, rural dwellings and conservation areas. The eastern most portion of the Project area is located approximately 2 km from Portland and the Port of Portland area.

Refer to the Project Overview map at Figure 1.

Planning context (eg. strategic planning, zoning & overlays, management plans):

Onshore components:

The Project is located within the Glenelg Shire Council and therefore subject to the provisions of the Glenelg Planning Scheme (the Planning Scheme). The Planning Scheme sets out the relevant planning policies that a responsible authority must consider when administering the use and development of land. The onshore component of the Project must consider the Victorian Planning Provisions (VPPs).

At the State level, Plan Melbourne sets out the long-term planning vision for Melbourne and regional Victoria and the strategies to deliver that vision. Plan Melbourne provides the strategy for supporting jobs and growth, while building on Melbourne's legacy of distinctiveness, liveability and sustainability.

It recognises and supports renewable energy sources such as wind within green wedges and peri-urban areas. To respond to the challenge of climate change and ensure Melbourne becomes more sustainable as it grows, a green economy needs to emerge—built around renewable energy, environmentally sustainable development and resource recovery.

Direction 6.1 states to 'Transition to a low-carbon city to enable Victoria to achieve its target of net zero greenhouse gas emissions by 2050'. Plan Melbourne recognises that in order to meet the relevant targets, the state needs to facilitate the uptake of renewable energy technologies. This

Project will provide a significant input in providing renewable electricity supply to the NEM to supplement Victorian and Australian energy supply.

State and Local Planning Policy Framework

The State Planning Policy Framework (SPPF) forms part of every planning scheme in Victoria. It outlines the relevant State Planning Policies which will be taken into consideration as part of the planning approval process.

Clauses of the State Planning Policy that are relevant to the Project are set out below in Table 1.

Table 1 State Planning Policy

State Planning Policy Clause	
11.01-1R	Settlement – Great South Coast
11.03-4S	Coastal settlement
11.03-5S	Distinctive areas and landscapes
11.03-6S	Regional and local places
12	Environmental and landscape values
12.01-1S	Protection of biodiversity
12.01-2S	Native vegetation management
12.02-1S	Protection of coastal areas
12.02-2S	Coastal Crown land
12.03	Water bodies and wetlands
12.03-1S	River corridors, waterways, lakes and wetlands
12.05-1S	Environmentally sensitive areas
12.05-2S	Landscapes
13.04-2S	Erosion and landslip
13.04-3S	Salinity
13.05-1S	Noise abatement
13.07-1S	Land use compatibility
14.01-1S	Protection of agricultural land
14.01-3S	Forestry and timber production
14.02-1S	Catchment planning and management
15.03-1S	Heritage conservation
15.03-2S	Aboriginal cultural heritage
19.01-2S	Renewable energy
19.01-2R	Renewable energy – Great South Coast

Local Planning Policy Framework

The Local Planning Policy outlines the Municipal Strategic Statement (MSS) and specific Local Planning Policy (LPP) for each local government area. The Relevant clauses of the Glenelg Shire MSS and LPPF are set out below in Table 2.

Table 2 Local Planning Policy

Local Planning Policy Clause	
MSS	
21.02-17	Environmental and Landscape Values
21.02-22	Coastal Management
21.02-26	Significant Landscapes

21.02-30	Environmental Risks
21.02-39	Floodplains
21.02-43	Soil degradation
21.02-47	Noise and air
21.02-51	Natural Resources Management
21.02-56	Water
21.02-65	Heritage
21.02-90	Transport
LPP	
22.02	Heritage

The applicable zones and overlays under the Planning Scheme are shown in Figure 5 and Figure 6 respectively.

Planning Permit Requirements for the onshore component of Project

The onshore assets may trigger planning permit approvals under the relevant zones, overlays and particular provisions. The Project footprint will be developed to avoid and minimise adverse land use impacts including removal of native vegetation and land acquisition.

As part of the planning approvals pathway (refer to Approvals Strategy – Attachment 3) the onshore component of the Project will be assessed against the VPPs.

Local government area(s):

The Project area is located within the Glenelg Shire Council.

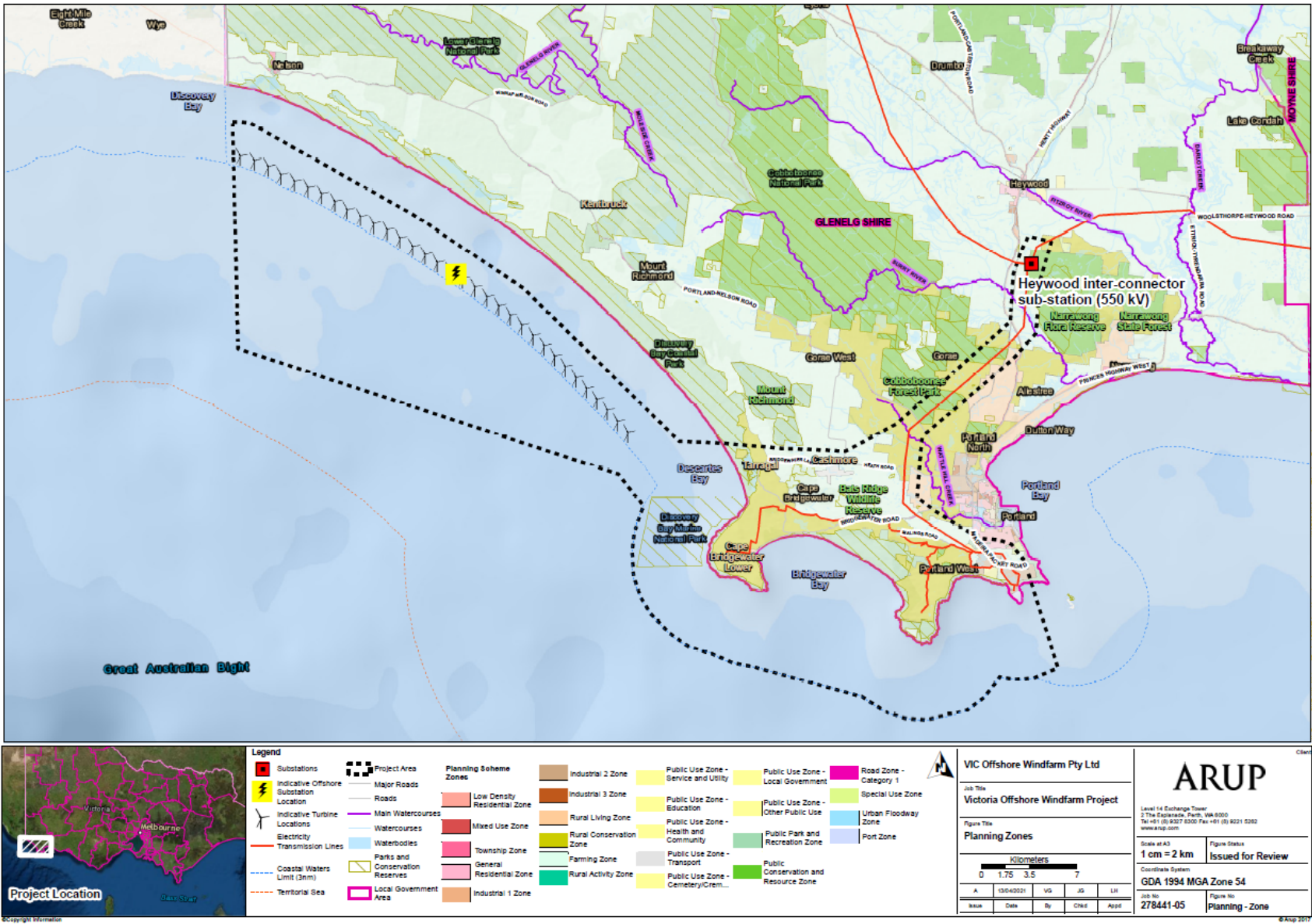


Figure 5 Planning Zones Map

Version 7: March 2020

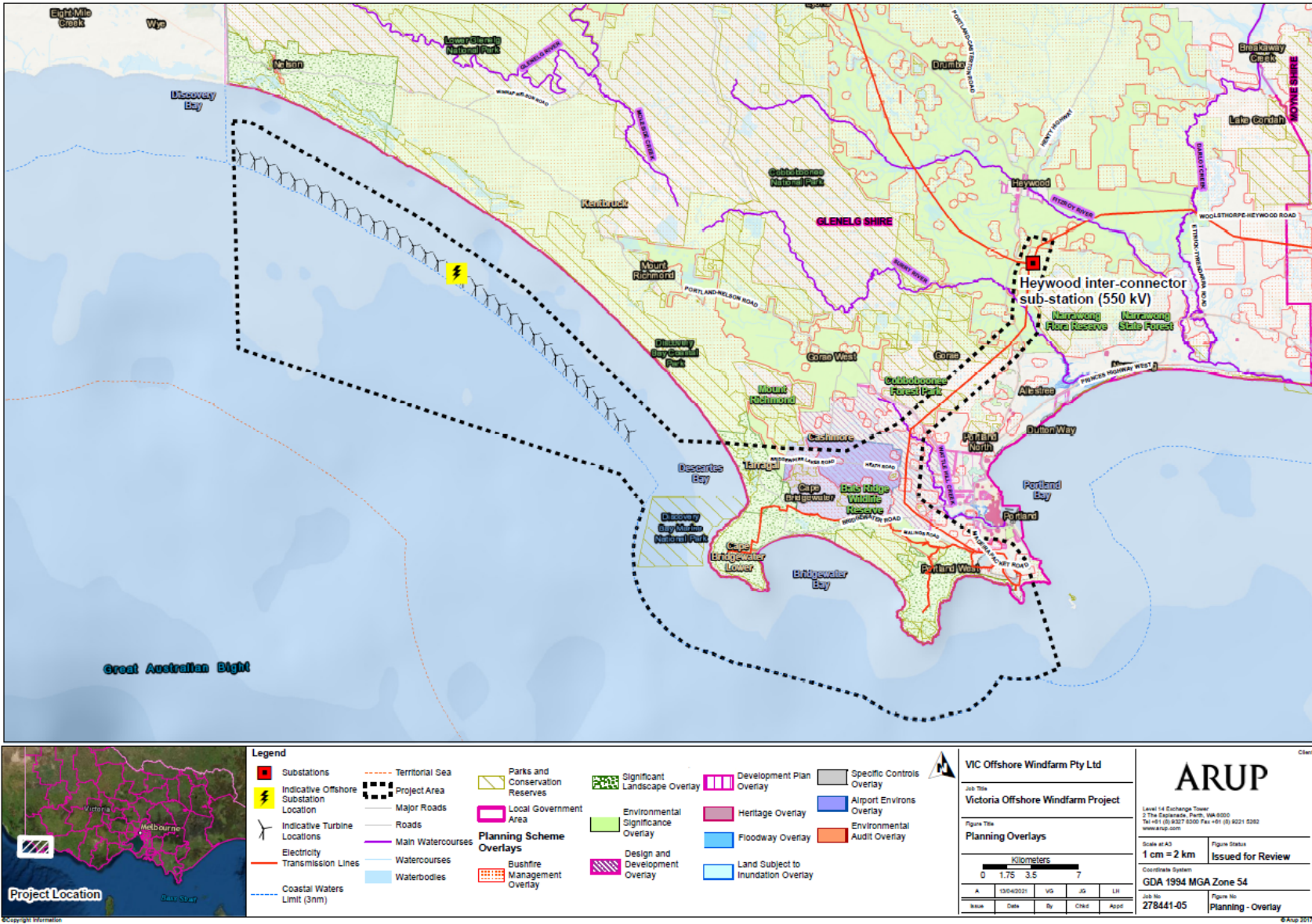


Figure 6 Planning Overlays Map

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):

Desktop reviews including Preliminary Marine Environment Assessment (Attachment 4) and Ecology (Terrestrial) Desktop Study (Attachment 5) have been undertaken to understand environmental assets and sensitivities within the Project area and study areas. The ERR (Attachment 2) identifies and outlines potential impacts from the Project.

Offshore environment:

Marine protected areas

The offshore Study area contains a number of significant environmental assets and sensitivities including Marine protected areas (Discovery Bay Marine National Park, sanctuary within the South Australian South East Marine Park), Ramsar wetlands (Glenelg Estuary and Discovery Bay), biologically important areas, and a diverse benthic environment and habitat that includes a variety of fish, marine reptiles, marine mammals, marine invertebrates and bird species.

Fisheries values

The offshore Study area is located within the Otway Marine Bioregion, one of the five Victorian marine bioregions. It is characterised by its nutrient-rich waters known as the Bonney Coast Upwelling, a Key Ecological Feature, which attracts diverse marine fauna but also seabirds.

Important fisheries habitat is found in the offshore Study area, notably seagrass provide important finfish and shellfish habitat. Reefs also provide habitat for important commercial fisheries species (e.g. rock lobster, abalone) as well as threatened freshwater fish species.

Benthic fauna

A review of existing mapping identified basalt reefs (dominated by kelp including large brown kelp) and calcarenite reefs (including sponges, ascidians, bryozoans and gorgonians). Unique biotopes within this region include the Bull Kelp found in shallower rocky reefs and endangered Giant Kelp Marine Forests of South East *Australia* which may occur within the eastern and western section of the nearshore environment, around Cape Bridgewater and Nelson.

The available mapping appears to be incomplete (appears to only extend a short distance from the shoreline), therefore more accurate mapping of benthic habitat will be required to confirm the extent and quality of habitat types.

Biologically Important Area (BIA)

The offshore study area is nominated to be a BIA for Whales (pygmy blue whale, southern right whale), seabirds (shy albatross, wandering albatross, antipodean albatross, Campbell albatross, black-bowed albatross, Indian yellow-nosed albatross, common diving petrel and Australasian gannet) and Sharks(white shark).

Further investigations are required to determine whether the offshore Study area would support breeding habitat, resting or migrating and foraging habitat that would be critical for these species.

Onshore environments

Aboriginal heritage

The Project is within the Gunditjamarra – Part A Native Title determination ('Gunditjamarra'). The Gunditj Mirring Traditional Owners Aboriginal Corporation is the relevant Registered Aboriginal Party (RAP) for the Project.

A desktop assessment indicates the presence of areas of Aboriginal cultural heritage sensitivities and known Aboriginal places. Therefore, a detailed assessment including a site walkover of the proposed footprint will be required to determine, avoid and minimise impact.

Coastal values

The Project area intersects with areas and that can be referred to as 'coastal landscape' (Coastal Spaces Landscape Assessment, DSE, 2006). This part of the Glenelg shire comprises the scenic

landscape features of the Discovery Bay coast including the Glenelg River. The coast edge along which trails the Great South West Walk is dominated by wide sandy beaches and vegetated sand dunes. The absence of settlement reinforces the scenic views from Mount Richmond, which is located immediately adjacent to the Project area.

Historic heritage

There are no Commonwealth listed heritage places or sites within the study areas or surrounds. The closest national heritage place is the Budj Bim National Heritage Landscape located approximately 10km from the project area.

In the onshore area, there are multiple State heritage places and local culture heritage assets mapped in the area; these are namely buildings.

Historical shipwrecks are discussed in Section 7.

State Forest and Reserve

The Project area also intersects Point Danger Coastal Reserve, Narrawong Coastal Reserve, Nelson Bay Coastal Reserve, Tarragal Education Area, Portland Bushland Reserve (H46 and H47), Cobboboonee Forest Park, Mount Clay Stat Forest, Narrawong Flora Reserve, Heathmere Flora and Fauna Reserve and Bats Ridge Wildlife Reserve.

The Discovery Bay Marine National Park is within the Project area.

Flora, fauna and native vegetation

Threatened flora:

The offshore Study area is located in the Glenelg Hopkins Catchment Management area. A review of the threatened flora in the onshore Study area identified:

- 11 threatened flora species listed under Commonwealth legislation including River Swamp Wallaby-grass, Eastern Spider Orchid, Ornate Pink, Fingers, Wrinkled Cassinia, Clover Glycine, Square Rasport, Coast Ixodia, Green-striped Greenhood, Swamp Firewood, Cost Dandelion and Swamp Everlasting.
- 32 State-significant flora species have been recorded (refer to Attachment 5).

A detailed review is provided in Attachment 5.

Threatened fauna:

- There is one nationally and State significant amphibian within the onshore Project area (Growling Grass Frog)
- Three Advisory-listed fauna amphibians have been recorded within the onshore Project area (Green and Golden Bell Frog, Growling Grass Frog and Southern Toadlet)
- Four nationally-significant bird species have been recorded within the onshore Project area included Malleefowl Leipoa, Red-tailed Black Cockatoo, Regent Honeyeater and White-throated Needle-tail
- 27 State-significant terrestrial bird species have been recorded within the onshore Study area (refer to Attachment 5)
- 11 nationally-significant wetland/coastal bird species have been recorded within the onshore Study area (refer to Attachment 5)
- 23 state-significant wetland/coastal bird species have previously been recorded in the onshore Project area (refer to Attachment 5)
- Two nationally-significant freshwater/diadromous fish that have been previously recorded in the onshore Study area included the Variegated Pygmy Perch and Yarra Pygmy Perch. However, there are no record of those species in the Victoria Biodiversity Atlas (VBA)
- There are three State-significant freshwater/diadromous fish that have been previously recorded in the onshore Study area included the Little Galaxias, Variegated Pygmy Perch and Yarra Pygmy Perch
- One nationally-significant freshwater invertebrate specie (Glenelg Spiny Crayfish) has been recorded. However, it has not been previously found within the Project area

- Three State-significant invertebrate species have been previously recorded (Glenelg Spiny Crayfish, Large Bronze Azure Butterfly and Squeak Beetle).
- 7 nationally-significant terrestrial mammal species have been recorded in the onshore Study area (refer to Attachment 5)
10 State-significant terrestrial mammal species have been recorded within the onshore Study area (refer to Attachment 5)
- One nationally-significant terrestrial reptile has been previously recorded within the onshore Study area (Striped Legless Lizard)
- Two state-significant terrestrial reptiles have been recorded within the onshore Study area including the Striped Legless Lizard and Striped Work Lizard.

Migratory species:

The search identified 32 species nationally significant migratory species listed as migratory under Commonwealth legislation within the onshore Study area. An additional nine migratory-listed species were raised by the PMST as potentially occurring within the onshore Study area, but had not been identified via the VBA search.

The migratory species are detailed in Attachment 5.

Threatened ecological communities:

The onshore Study area is located within the Glenelg Plain, Bridgewater and Victorian Volcanic Plain (VPP) bioregions. The Protected Matters Search Tools identified 6 Threatened Ecological Communities (TEC) as potentially occurring within the onshore Study area. The following TEC are listed below:

- Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community
- Giant Kelp Marine Forests of South East Australia
- Grassy Eucalypt Woodland of the VPP
- Karst springs and associated alkaline fens of the Naracoorte Coastal Plain bioregion
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Subtropical and temperate Coastal Saltmarsh.

Native vegetation:

The Project area is mapped to contain 16,434.10 ha of EVC's including 298.53 ha of Endangered EVC. However, the Portland coast area has been extensively cleared to facilitate a range of uses, with indigenous vegetation remaining in roadside reserves.

9. Land availability and control

<p>Is the proposal on, or partly on, Crown land?</p> <p><input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please provide details.</p> <p>Because a large part of the Project is located in the State waters, the offshore component is exclusively on Crown land. The onshore component of the Project comprises several areas of Crown reserved land such as the Discovery Bay Coastal Park, Bridgewater Lakes, Cobboboonee Forest Park, Bats Ridge Wildlife Reserve, Portland West State Forest, Tarragal Education Area, Narrawong Flora Reserve and bushland reserves in Bolwarra. However, placement of onshore infrastructure and transmission route options would look to avoid, as far as reasonably practicable, Crown land and Native Title.</p> <p>VIC Offshore Windfarm Pty Ltd will look to continue engagement with the Victorian government around tenure.</p>
<p>Current land tenure (provide plan, if practicable):</p> <p>Land tenure within the Project area comprises a mix of private and public properties and Crown Land designated as reserved land, as well as Native Title.</p>
<p>Intended land tenure (tenure over or access to project land):</p> <p>A key element of the next stage of work is to resolve identified tenure matters with both the State (for Crown lands), Traditional Owners and local communities and landholders. Potential areas have been identified and will be investigated in detail. Further stages will include seeking to define, negotiate and secure tenure in an appropriate manner.</p>
<p>Other interests in affected land (eg. easements, native title claims):</p> <p>As identified in Section 7, The Project area intersects with the Gunditjamarra – Part A Native Title determination and the Gunditjamarra Indigenous Land Use Agreement (ILUA). The Native Title determination covers land onshore and extends to the coastal waters.</p>

10. Required approvals

<p>State and Commonwealth approvals required for project components (if known):</p> <p>The entire Project is subject to the following assessments and approvals:</p> <ul style="list-style-type: none"> • Commonwealth: The Project is being referred under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) ('EPBC Act') for a decision as to whether it is a 'controlled action' on Matters of National Environmental Significant (MNES) requiring approval under the EPBC Act • State: Environment Effects Statement (EES) Referral to determine whether an EES is required under the <i>Environment Effects Act 1978</i>. <p><u>Onshore component</u></p> <p>The onshore component of the Project will require the following primary approvals:</p> <ul style="list-style-type: none"> • Consent under the <i>Marine and Coastal Act 2018</i> (Vic) for works on marine and coastal Crown land • Planning permit approval in the form of a Planning Permit or a Planning Scheme Amendment for use and development of land and native vegetation removal pursuant to the <i>Planning and Environment Act 1987</i> (Vic) • Approval of a Cultural Heritage Management Plan (CHMP) pursuant to the <i>Aboriginal Heritage Act 2006</i> (Vic). <p>The Project may also require the following secondary approvals:</p>

- Licence pursuant to the *Crown (Land Reserves) Act 1978*
- Permit or consent under the *Heritage Act 2017 (Vic)* for management of impacts to historic heritage
- Leases and licences pursuant to the *Land Act 1958*
- Local laws permit pursuant to *Local Government Act 1989*
- Consent pursuant to the *Road Management Act 2004 (Vic)* for works within a road reserve
- Consent pursuant to the *Electricity Safety Act 1998*
- A Works Approval and Licence pursuant to the *Environment Protection Act 1970 (Vic)* (Amended 6 April 2020) for disturbance / removal of contaminated material and soil
- Permit pursuant to the *Flora and Fauna Guarantee Act 1988 (Vic)* for taking of wildlife and removal of flora species
- Consent pursuant to the *Wildlife Act 1972*
- Consent pursuant to the *National Parks Act 1975 (Vic)*
- Permit pursuant to the *Water Act 1989 (Vic)* for works affecting waterways
- Licence pursuant to the *Catchment and Land Protection Act 1994 (Vic)* for removal of soil that is likely to contain any part of noxious weed.

In addition, the Project is required to comply with the following legislation:

- *Traditional Owner Settlement Act 2010*
- *Airports (Protection of Airspace) Regulations 1996.*

Offshore component

The offshore component of the Project may require the following secondary approvals:

- Consent pursuant to the *National Parks Act 1975 (Vic)*
- Permit pursuant to the *Water Act 1989*
- Consent pursuant to the *Wildlife Act 1972.*

In addition, the Project is required to comply with the following legislation:

- *Fisheries Act 1995 (Vic)*
- *Historic Shipwrecks Act 1976 (Cth)*
- *Marine Safety Act 2010 (Vic)*
- *Underwater Cultural Heritage Act 2018 (Cth).*

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):

The following State and Commonwealth agencies, regulators and groups have been consulted:

Department of Agriculture, Water and the Environment (DAWE)

- A pre-referral meeting was held on the 9 of March 2021. This session provided an opportunity to discuss the scope of the EPBC Act referral and the likely approvals pathway

DELWP

- A meeting to introduce the Project was held with the DELWP Impact Assessment Unit (IAU) on the 20 October 2020. This session provided an opportunity to confirm the likely approvals pathway
- A pre-EES referral meeting was held on the 22 February 2021.

<p><u>DELWP Barwon South West Region</u></p> <ul style="list-style-type: none"> • A meeting to introduce the Project was held with DELWP Barwon South West Region held on 12 March 2021 <p><u>Gunditj Mirring Traditional Owner Aboriginal Corporation (GMTOAC)</u></p> <ul style="list-style-type: none"> • Early engagement has commenced with the GMTOAC. Further details are provided in Section 20.
<p>Other agencies consulted:</p> <p>Letters were issued to some other key stakeholders on 18 March 2021 to introduce the Project, benefits, timeline and next steps. This included:</p> <ul style="list-style-type: none"> • Glenelg Shire Council • Aboriginal Victoria • Victorian Fisheries Authority • EPA.

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

<p>Overview of potentially significant environmental effects (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):</p> <p>A Preliminary Environmental Risk Review (Attachment 2) was undertaken to identify potential risks during construction, operation and decommissioning of the Project. Attachment 2 forms the basis of the following overview of potentially significant environmental effects and provides risk ratings in regard to significance and likelihood of impact occurring. In undertaking the risk assessment and assigning significance and likelihood ratings, a risk framework was developed to consistently assess potential effects against a set of criteria. The Risk Framework is provided at Attachment 2.</p> <p>A precautionary approach was adopted while assessing potential effects and their significance and likelihood. Further assessments during future design phases is required to gain a more comprehensive understanding of the existing environment as well as the extent of likely impacts. In absence of these detailed assessments, and where environmental factors are less understood or highly sensitive, a precautionary significance rating was warranted.</p> <p>As a result, key potential effects were found to be impact on:</p> <ul style="list-style-type: none"> • Marine ecology • Terrestrial ecology • Aboriginal culture and heritage • Landscape and visual • Socio-economic factors. <p>These risks are further discussed below.</p> <p>Other aspects were deemed to have a lower risk, because impacts for these factors are better understood and are considered to be manageable with standard mitigation and in line with EPA guidance and objectives. These include historic heritage, air quality, traffic and transport, hydrology and flooding, aviation and radar, ports and navigation and others. Further detail on these risks is provided in Attachment 2.</p> <p><u>Offshore ecology:</u></p> <p>A preliminary assessment was undertaken of the potential impacts on offshore (marine) ecology and this is provided in the Preliminary Marine Ecology Assessment report in Attachment 4.</p>
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The key potential effects to offshore ecology and their significance and likelihood of occurrence are summarised below. For further discussion refer to Attachment 2 and Attachment 4. Key potential effects to offshore ecology include:

- Pile driving - may generate intense pulses of noise that have the potential to impact marine fauna including threatened and listed migratory species (whales/dolphins, pinnipeds, turtles, sharks), and species of high fisheries significance (finfish, rock lobster etc.). Impacts can be permanent (death/injury), long-term (e.g. permanent hearing loss) or short-term (behavioural, including avoidance), depending on exposure and sensitivity of species. The degree of noise exposure depends on the nature of works (i.e. depth of piles, duration/timing of works, application of mitigation strategies) and local environmental conditions (i.e. bathymetry, physical properties of the water column). Mitigation measures to reduce impacts include seasonal construction windows (vary depending on species), safety zones/lookout and pingers etc. (e.g. SA DPTI 2012). With these mitigation measures, although the significance is high the likelihood is reduced to unlikely, resulting in a medium risk rating.
- Habitat loss – construction of the Project will potentially permanently remove seabed, kelp, seagrass, and reef habitat within the Study area. However, as cabling will be buried, benthic habitat may recover slowly from disturbance. Although disturbance during construction may fragment habitat and impact ecosystem connectivity, the area of habitat loss is relatively small and major flow-on impacts to benthic communities is unlikely to occur. Future design and assessment will allow for avoidance of key or sensitive habitat areas where possible. With this mitigation, the significance is minor and the likelihood is almost certain, resulting in a medium risk rating.

- Introduction of marine pests - from construction and maintenance vessels, as well as turbines (as they provide a surface for fouling pest species). Mitigation measures include hull inspections and local sourcing of vessels. With these mitigation measures, although the significance is high (depending on pest species and potential to affect sensitive habitats such as seagrass and kelp TEC) the likelihood is unlikely, resulting in a medium risk rating.
- Noise and vibration levels generated by turbines – noise levels during operation would be lower than pile driving and is unlikely to cause acute impacts to marine fauna. The degree of impact is dependent on cumulative noise and vibration levels generated by the windfarm array (varies depending on foundation type), background noise levels, and the sensitivity of fauna. Noise and vibration levels may cause behavioural changes in Marina fauna. Further work will be required to characterise background and Project generated noise, and whether design measures can mitigate impacts for certain species. Given that the marine Study area is important for many noise sensitive species, the significance is high and the likelihood is likely, resulting in a high risk rating.
- Hydrodynamic processes – the offshore infrastructure has the potential to alter local hydrodynamic processes. This may result in localised changes to sedimentary processing. Modelling is required to assess hydrodynamic impacts to seafloor habitats. Future design and assessment will allow for structures to be located aware from key or sensitive habitat areas, to help local impacts. With these mitigation measures, the significance is high and the likelihood is unlikely, resulting in a medium risk rating.
 Bird strike – The offshore infrastructure may also increase risk of birds colliding with rotor blades resulting in injury or mortality. Birds may also avoid areas, resulting in displacement and alter movement patterns. Further assessment is required to determine birds flight paths and frequency of migration so that design measures can be put in place to reduce risk, including turbine tower height, location of WTGs to important breeding and habitat areas. With these mitigation measures, although the significance is major, the likelihood is unlikely, resulting in a medium risk rating.

Onshore ecology

An Ecology (Terrestrial) desktop study has been undertaken and is provided as Attachment 5.

The assessment included a desktop review that included assessment of available State mapping

and datasets and a PMST search. Without field assessment and detail data, occurrence and abundance of native vegetation, habitat and fauna species remain a key uncertainty.

The key potential effects to terrestrial ecology and their significance and likelihood of occurrence are summarised below. For further discussion refer to Attachment 2 and Attachment 5. Key potential effects to terrestrial ecology include:

- The impact on native vegetation will be due to the clearing required to enable the construction of the onshore landfall site and transmission assets. It is expected that the construction footprint will be less than 100 m wide and existing cleared corridors will be used as far as possible to minimise clearing requirements. Native vegetation losses will be offset in accordance with DELWP requirements. Field assessments will map native vegetation communities to allow for future design and engineering to avoid areas of native vegetation and supporting habitat. Clearing impacts will be further mitigated by utilising existing easements and infrastructure corridors as much as possible.
- Bird strike – Although the WTGs will be located offshore, rotor strike is still a relevant risk to terrestrial bird species that may rely on the nearby Ramsar wetland. Further assessment is required to determine birds flight paths and frequency of migration so that design measures can be put in place to reduce risk, including turbine tower height, location of WTGs to important breeding and habitat areas.

With these mitigation measures, the significance is moderate and likelihood is possible, resulting in a medium risk rating for terrestrial ecology.

Aboriginal cultural heritage

The Project area is located within the Gunditjamarra Native Title determination. It is possible that known or previously unrecorded Aboriginal cultural heritage sites could be encountered within the construction footprint. While Project infrastructure would be located to avoid impacts as much as practicable (by utilising previously disturbed land and existing infrastructure easements and corridors where possible), some disturbance to Aboriginal cultural heritage sites could be required. This will be further examined and determined as the Project progresses, with the avoid, minimise, mitigate, offset hierarchy applied during design development.

Engagement and site walkovers with the Gunditjamarra and RAP will be carried out to confirm cultural heritage values within the construction footprint and Project areas. A CHMP will be prepared to outline measures for the management and protection of Aboriginal heritage sites through all stages of the Project, and would include an unexpected finds procedure. With these mitigation measures, the significance is moderate and the likelihood is possible, resulting in a medium risk rating.

Landscape and visual

There may be effects on the landscape and visual amenity within the coastal and marine environment, during construction and operation of the Project. Although located 5.5 km off the coast, the WTGs and construction equipment may form a noticeable feature on the seascape. Further assessment is required to understand the natural seascape of the Portland area and how the proposed changes to this seascape will be assessed by the local, regional and state community. However, it should be noted that onshore windfarms already exist in and around Portland, with the Portland Wind Energy Project operating four sites within close proximity. The Visual amenity may be mitigated depending on the size of the array. Due to the unknown impacts, a precautionary approach has been applied and the significance is high and the likelihood is almost certain, resulting in a high risk rating.

Socioeconomic

Impacts to socioeconomic aspects of the Project area are largely unknown, especially given that offshore wind is a new technology in Australia, community perception of impacts and attitudes towards the development remains a key uncertainty. Without detailed assessments and a greater understanding of the potential impacts, a precautionary significance rating is justified. During construction, access to some areas may be restricted, causing impacts to the community in regard to how they live and move around the Portland area. This may include restricted access to

recreational activities such as camping, bushwalking, swimming, surfing, boating and fishing. However, once the Project is operational and access to recreational activities is restored, impacts to the community's way of life is expected to be minimal. Amenity impacts from noise, dust and odour are expected to be managed appropriately and therefore not expected to impact on amenity.

It should be noted that there will be wide-ranging socio-economic benefits to the community. During construction, hundreds of temporary roles will be required for a period of up to around 24 months. Each project will then employ up to 100 full-time, permanent staff in technical and administrative roles to manage and maintain the site.

In addition to the directly employed workforce, the operation of the wind farm will likely provide opportunities for indirect local employment via support-service contracts and other local expenditure.

Further desktop studies, assessments and community consultation is required to understand potential economic risks and impacts associated with the Project. Although there is a risk that some businesses could be affected for short periods during construction, due to possible temporary and localised lack of access or reduced tourism, the residual risk of impact to the local economy is not considered significant. Once the Project is operational, any temporary impacts will cease.

Due to the unknown impacts, a precautionary approach has been applied and the significance is moderate and the likelihood is likely, resulting in a medium risk rating for socioeconomic.

Given the Project's proximity of several windfarms, including the proposed Kentbruck Green Power Hub, the potential for cumulative impacts will be considered through further assessments including pressure on the energy grid and transmission infrastructure and construction workforce. Further assessments will also consider all approved developments, including projects outside of the energy industry.

12. Native vegetation, flora and fauna

Native vegetation

<p>Is any native vegetation likely to be cleared or otherwise affected by the project?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, answer the following questions and attach details.</p>																									
<p>Some clearing of native vegetation is likely to enable the construction of the onshore landfall site and transmission assets. However, clearing impacts will be minimised as much as practicable by utilising existing easements and infrastructure corridors as much as possible.</p>																									
<p>What investigation of native vegetation in the project area has been done? (briefly describe)</p>																									
<p>An Ecology (Terrestrial) Desktop Study has been undertaken and is attached as Attachment 5. The results of the desk study characterise the vegetation communities within the Project Area to inform the likelihood and assessment and impact for threatened flora, fauna and ecological communities.</p>																									
<p>What is the maximum area of native vegetation that may need to be cleared?</p> <p><input checked="" type="checkbox"/> NYD Estimated area(hectares)</p>																									
<p>Due to the absence of field surveys it is unknown what native vegetation is present within the potential transmission corridors and therefore maximum clearing areas are not yet determined. Early calculations show that the total onshore transmission line length is approximately 34 km long for both onshore options, and the construction corridor will be approximately 100 m wide. Future stages of the Project will include field investigations and ground truthing to determine the maximum area of native vegetation that may need to be cleared.</p>																									
<p>How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?</p> <p><input checked="" type="checkbox"/> N/A approx. percent (if applicable)</p>																									
<p>To be determined if applicable.</p>																									
<p>Which Ecological Vegetation Classes may be affected? (if not authorised as above)</p> <p><input type="checkbox"/> NYD <input checked="" type="checkbox"/> Preliminary/detailed assessment completed. If assessed, please list.</p>																									
<p>Based on the initial desktop review, there are a number of EVCs which may be within the Project area as shown in Table 3. The Project will avoid, minimise, manage the removal of native vegetation where applicable.</p>																									
<p>Table 3 Ecological Vegetation Classes potentially present within Project area</p> <table border="1"> <thead> <tr> <th>BCS</th> <th>EVC</th> <th>Bioregion</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Endangered</td> <td>Swamp Scrub (EVC 53)</td> <td>Bridgewater</td> </tr> <tr> <td>Coastal Mallee Scrub (EVC 665)</td> <td>Glenelg Plain</td> </tr> <tr> <td>Spray-zone Coastal Shrubland (EVC 876)</td> <td>Glenelg Plain</td> </tr> <tr> <td>Coastal Alkaline Scrub (EVC 858)</td> <td>Glenelg Plain</td> </tr> <tr> <td>Coastal Headland Scrub (EVC 161)</td> <td>Glenelg Plain</td> </tr> <tr> <td>Shallow Freshwater Marsh (EVC 200)</td> <td>Glenelg Plain, Victorian Volcanic Plain</td> </tr> <tr> <td rowspan="3">Vulnerable</td> <td>Damp Sands Herb-rich Woodland (EVC 3)</td> <td>Bridgewater, Glenelg Plain, Victorian Volcanic Plain</td> </tr> <tr> <td>Damp Sands Herb-rich Woodland/Damp Heathland/Damp Heathy Woodland (EVC 713)</td> <td>Glenelg Plain, Victorian Volcanic Plain</td> </tr> <tr> <td>Deep Freshwater Marsh</td> <td>Bridgewater, Glenelg</td> </tr> </tbody> </table>			BCS	EVC	Bioregion	Endangered	Swamp Scrub (EVC 53)	Bridgewater	Coastal Mallee Scrub (EVC 665)	Glenelg Plain	Spray-zone Coastal Shrubland (EVC 876)	Glenelg Plain	Coastal Alkaline Scrub (EVC 858)	Glenelg Plain	Coastal Headland Scrub (EVC 161)	Glenelg Plain	Shallow Freshwater Marsh (EVC 200)	Glenelg Plain, Victorian Volcanic Plain	Vulnerable	Damp Sands Herb-rich Woodland (EVC 3)	Bridgewater, Glenelg Plain, Victorian Volcanic Plain	Damp Sands Herb-rich Woodland/Damp Heathland/Damp Heathy Woodland (EVC 713)	Glenelg Plain, Victorian Volcanic Plain	Deep Freshwater Marsh	Bridgewater, Glenelg
BCS	EVC	Bioregion																							
Endangered	Swamp Scrub (EVC 53)	Bridgewater																							
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Vulnerable	Damp Sands Herb-rich Woodland (EVC 3)	Bridgewater, Glenelg Plain, Victorian Volcanic Plain																							
	Damp Sands Herb-rich Woodland/Damp Heathland/Damp Heathy Woodland (EVC 713)	Glenelg Plain, Victorian Volcanic Plain																							
	Deep Freshwater Marsh	Bridgewater, Glenelg																							

Restricted	Heathy Woodland/Damp Heathy Woodland/Damp Heathland Mosaic (EVC 650)	Bridgewater, Glenelg Plain, Victorian Volcanic Plain
	Herb-rich Foothill Forest (EVC 23)	Glenelg Plain, Victorian Volcanic Plain
	Swamp Scrub (EVC 53)	Glenelg Plain
	Coastal Sand Heathland (EVC 5)	Glenelg Plain, Victorian Volcanic Plain
Depleted	Spray-zone Coastal Shrubland (EVC 876)	Bridgewater, Victorian Volcanic Plain
	Damp Heathland/Damp Heathy Woodland Mosaic (EVC 746)	Glenelg Plain
Least Concern	Damp Heathland/Sand Heathland Mosaic (EVC 762)	Glenelg Plain
	Coastal Alkaline Scrub (EVC 858)	Bridgewater
	Coastal Dune Scrub (EVC160)	Bridgewater
	Lowland Forest (EVC 16)	Glenelg Plain, Victorian Volcanic Plain
	Heathy Woodland (EVC 48)	Glenelg Plain
Have potential vegetation offsets been identified as yet?		
<input checked="" type="checkbox"/> NYD <input type="checkbox"/> Yes If yes, please briefly describe.		
A detailed flora and fauna assessment is yet to be undertaken.		
Other information/comments? (eg. accuracy of information)		
Refer to Attachment 5.		

Flora and fauna

<p>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)</p> <p><u>Offshore ecology:</u> A Preliminary Marine Environment Assessment report includes a desktop review of literature and information sources relevant to the Project area. Publicly available information relating to the marine environmental features and values for each study area was collated and reviewed, specifically:</p> <ul style="list-style-type: none"> • Matters of National Environmental Significance (MNES), as defined under the EPBC Act • Threatened and other conservation-dependent species (e.g. rare, protected etc.) listed under relevant state legislation. <p>Primary data sources were as follows:</p> <ul style="list-style-type: none"> • EPBC Act Protected Matters Search Tool, undertaken for the offshore Study area on the 10 February 2021. • Species sightings records and/or benthic habitat mapping: <ul style="list-style-type: none"> ○ Victorian Biodiversity Atlas ○ Atlas of Living Australia • Marine Park, Ramsar Wetland and National Park listing criteria and/or Management Plans, which include descriptions of the values of these areas

- Species Profile and Threats Database (SPRAT) for mapping of the distribution and occurrence of species and/or their habitats, together with life-history information
- Species Recovery Plans for various threatened species
- Previous environmental studies within or in proximity to the offshore Study area.
- An assessment was made of the likelihood of occurrence of listed species in the offshore Study area. Where known, important life-history functions supported by the offshore Study area and other notable values supported were described based on mapping of Biologically Important Areas for regionally significant marine species (BIAS) and Important Bird Area (IBA's).
- Further assessment was made to determine whether an impact had the potential to be significant in accordance with the criteria within the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance and the Ministerial Guidelines for assessment of Environmental Effects under the *Environment Effects Act 1978*.

Onshore ecology:

A preliminary terrestrial desktop ecology assessment was undertaken. The assessment involved a review of the following databases and information sources:

- EPBC Act Protected Matters Search Tool, undertaken for the Study area (Project area with a 5 km buffer) on the 23rd of March 2021.
- Victorian Biodiversity Atlas for records of threatened flora and fauna, and migratory species within the Study area (DEWLP, 2020a)
- Naturekit Map (DELWP, 2020b) and Ecological Vegetation Class (EVC) mapping (DELWP, 2020d) for modelled location of native vegetation, Location Category of native vegetation, and 'current wetlands' within the Project area.

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.

Offshore ecology

The Preliminary Marine Assessment report has identified a number of listed threatened and migratory species that have been identified to potentially occur within the Project area. These are discussed in Section 5 of Attachment 4.

Onshore ecology

The Ecology (Terrestrial) Desktop Study has identified a number of listed threatened flora and fauna species that have been identified to potentially occur within the Project Area. These are discussed in Section 8 of Attachment 5.

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.

Offshore ecology

The following listed matters under the FFG Act are relevant to the offshore ecology:

- Habitat fragmentation as a threatening process for flora and fauna in Victoria
- Input of petroleum and related products into Victorian marine and estuarine environments.

As discussed in Attachment 4, the following threatening processes have also been identified as potentially occurring as a result of the Project.

- Pile driving causing underwater noise and vibrations impacting threatened/migratory species

- Habitat loss resulting in impacts to TECs and high value habitats
- Turbidity generated by construction impacts to sensitive receptors
- Disturbance of acidic or contaminated material
- Vessel strike causing injury/death to species
- Marine pest introductions from construction and maintenance vessels
- Potential spills from vessel collisions, could impact the marine environment
- Noise impacts from operation of turbines
- Electromagnetic field (EMF) impacting species ability to navigate, orientate and prey detection
- Hydrodynamic impacts to TEC or important habitats
- Bird strike from the WTGs.

Onshore ecology

The following threatening processes listed under FFG Act are relevant to the onshore ecology in relation to the Project:

- Habitat fragmentation as a threatening process for flora and fauna in Victoria:
- Invasion of native vegetation by ‘environmental weeds’
- Alteration to natural flow of rivers and streams:
- 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
- Degradation of native riparian vegetation along Victorian rivers and streams
- Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing.

As discussed in Attachment 5, the removal of native vegetation for the transmission assets, may cause fragmentation of habitats to threatened flora and fauna species that rely on vegetation within the area. The potential of habitat fragmentation won’t be determined until the transmission line is confirmed.

The Project also has potential to introduce environmental weeds during construction. Management measures can be put in place during construction to mitigate this risk.

The Project area contains the Surrey River and Wattle Hill Creek. While the transmission line corridor is yet to be confirmed, the Project may cross these waterways. Potential impacts could include sedimentation, reduced water quality and disturbance of water flows.

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.

It is not yet known whether there are additional species of conservation significance or listed communities other than those already described above. A high-level desktop study has been the only assessment done to date, and as a result, ground truthing and field assessments have not

<p>been completed. Accordingly, detailed data and likelihood of occurrence assessments remain a key uncertainty. Future field studies in later stages of the Project will resolve this uncertainty.</p>
<p>Is mitigation of potential effects on indigenous flora and fauna proposed?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe.</p>
<p>Mitigation measures may include:</p> <ul style="list-style-type: none"> • Detailed fauna and habitat suitability surveys, including targeted surveys for all marine and terrestrial fauna groups. Outcomes of surveys will inform design as well as input into the Construction Environmental Management Plan (CEMP). • Bird surveys for marine, migratory wetland and shorebird species to assess if a significant proportion of a population of a species, or a suitable diversity of species occur in the Project area. Collision Risk Modelling to understand the potential impacts associated with blade strike during the operational phase of the proposal. • Future design and engineering will avoid areas of threatened fauna habitats or to minimise direct and indirect impacts as much as practical. This will also include consideration of appropriate buffers from areas of known habitat for threatened species and wetlands. <p>Refer to Attachment 4 and Attachment 5 for detailed discussion on potential mitigation measures.</p>
<p>Other information/comments? (eg. accuracy of information)</p>
<p>N/A</p>

13. Water environments

<p>Will the project require significant volumes of fresh water (eg. > 1 GI/yr)?</p> <p><input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, indicate approximate volume and likely source.</p>
<p>Will the project discharge waste water or runoff to water environments?</p> <p><input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, specify types of discharges and which environments.</p>
<p>Are any waterways, wetlands, estuaries or marine environments likely to be affected?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, specify which water environments, answer the following questions and attach any relevant details.</p>
<p><u>Offshore Environment</u></p> <p>The installation of cables and structures may cause habitat loss, create turbidity, disturb acidic or contaminated material and increase the risk of chemical spills. These aspects will create impacts to the marine environment by potentially affecting marine water and sediment quality, alter the habitat of benthic communities, and affect fauna behaviours such as breeding, foraging, resting or migrating. Modelling and soils sampling is required to assess expected turbidity and contamination effects.</p> <p><u>Onshore environment:</u></p> <p>Within the Project area there are several waterway and wetland environments. Discovery Bay Wetlands (Ramsar wetland) (specifically the southern portion of the Bridgewater Lakes) is mapped within the Project area. Even though the Project area does include the Discovery Bay Marine Park, no infrastructure is planned within the park boundaries. Indirect impacts may include reduced localised water quality from runoff and increased nutrients entering the waterways.</p> <p>The Project area also contains the Surrey River and Wattle Hill Creek. While the transmission line corridor is yet to be confirmed, the Project may likely cross these waterways. Potential impacts could include sedimentation, reduced water quality and disturbance of water flows</p> <p>The onshore Study area contains a number of water environments. The Lower Glenelg National Park which includes the Glenelg Estuary (Ramsar wetland), is within the onshore Study area but approximately 10 km outside of the Project area. The Knights Swamp and Sandy Waterhole is based just outside the Project area, near Bridgewater lakes. Similar indirect water quality impacts are anticipated for these water environments, however the significance and likelihood of environmental impact is likely to be lower, due to distance from construction works.</p> <p>Further assessment is required to understand if any threatened fauna or flora species rely on these environments for habitat.</p>
<p>Are any of these water environments likely to support threatened or migratory species?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, specify which water environments.</p>
<p>The following EPBC Act-listed threatened and migratory species may potentially occur in the offshore Study area:</p> <ul style="list-style-type: none"> • The endangered southern right whale, blue whale, pygmy blue whale, humpback whale, fin, brydes and sei whales • The southern elephant seal, Australian sea lions, subantarctic fur seals may also be present • The offshore Study area is a BIA for white sharks • Number of sightings of threatened turtle species along the shoreline, including the leatherback and loggerhead Turtles • BIA for the black-browed albatross, butlers albatross, Campbell albatross, Indian yellow-nose albatross, shy albatross, wandering albatross and the antipodean albatross.

<p>Further information about threatened and migratory species supported by the offshore environment is provided in Attachment 4.</p> <p>The following state significant species associated with wetland/costal environments have been recorded in the onshore Study area:</p> <ul style="list-style-type: none"> • 23 FFG Act-listed bird species <p>The following nationally significant species associated with wetland/coastal environments have been recorded in the onshore Study area:</p> <ul style="list-style-type: none"> • 11 EPBC Act-listed bird species • 32 EPBC Act listed migratory species. <p>Further information about threatened and migratory species supported by the onshore environment is provided in Attachment 5.</p>
<p>Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify.</p>
<p>Two Ramsar wetlands occur within proximity to the Project. Discovery Bay Wetlands (Ramsar wetland) (specifically the southern portion of the Bridgewater Lakes) is mapped within the Project area. The Lower Glenelg National Park which includes the Glenelg Estuary (Ramsar wetland), is within the onshore Study area but approximately 10 km outside of the Project area.</p> <p>Indirect impacts may include reduced localised water quality from runoff and increased nutrients entering the waterways. Mitigation measures may include further investigations to determine value of surface water environments, design development to avoid and minimise impacts through siting of infrastructure, early installation of drainage controls and erosion and sedimentation monitoring dur construction and operation.</p>
<p>Could the project affect streamflows?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe implications for streamflows.</p>
<p>The Project is not expected to affect streamflows or generate significant amounts of run off. However, a hydrology assessment will be undertaken as part of the environmental investigations scope to determine the potential impact of the Project and mitigation measures.</p>
<p>Could regional groundwater resources be affected by the project?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, describe in what way.</p>
<p>Further investigation is required to understand existing groundwater reserves and aquifers within the Project area, and whether groundwater quality would be impacted. Potential impacts include contamination, erosion and sedimentation of groundwater from potential trenching required for the installation of underground cables at the shore crossing, transmission line poles and construction of the landfall site. In addition, it is anticipated that watercourse crossings for the onshore asset infrastructure will be required and will be investigated in future project stages. These potential impacts to groundwater will be consideration for future project design and construction stages but is not considered a significant impact. Design development would look to avoid areas where the water table is above the surface, as far as practicable. Early installation of drainage controls and erosion and sedimentation monitoring during pre-construction and construction would assist in managing and mitigating impacts. Establishing appropriate procedures for handling, transporting and using potentially contaminating substances including diesel, petrol, oils, greases, cement and other construction chemicals would be included in the CEMP.</p>
<p>Could environmental values (beneficial uses) of water environments be affected?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)</p>
<p>Further assessment is required to determine whether the Project will affect beneficial uses.</p>
<p>Could aquatic, estuarine or marine ecosystems be affected by the project?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, describe in what way.</p>

There are a number of surface water environments (including creek and wetlands) as well as marine environments within the Project area. Impacts include direct impacts to habitat loss and turbidity, as well as indirect impacts to water quality. This has been discussed in detail in the above sections.
<p>Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?</p> <p><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.</p>
<p>Is mitigation of potential effects on water environments proposed?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe.</p>
<p>Other information/comments? (eg. accuracy of information)</p>
In the absence of detailed data and field assessments, a precautionary approach in identifying potential impacts and effects was taken. Future stages of the Project will include field assessments and studies to better understand the existing environment and significance of the Project's expected impacts.

14. Landscape and soils

Landscape

<p>Has a preliminary landscape assessment been prepared?</p> <p><input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please attach.</p> <p>A detailed landscape and visual assessment will be undertaken to determine the potential to affect landscape values.</p>
<p>Is the project to be located either within or near an area that is:</p> <p>• Subject to a Landscape Significance Overlay or Environmental Significance Overlay?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, provide plan showing footprint relative to overlay.</p>
<p>The onshore components of the Project which include the transmission infrastructure and landfill site intersect with areas subject to both Environmental Significance Overlays and Significant Landscape Overlays. The exact location of the onshore component of the Project is yet to be determined.</p> <p>The following Environmental Significant Overlays occur in the Project area:</p> <ul style="list-style-type: none"> • Environmental Significance Overlay Schedule 1 (ESO1) recognises the Glenelg Shire's coastline as a significant environmental resource and long-term public asset • Significant Landscape Overlay Schedule 3 (SLO3) recognises the regional significant landscape and aims to protect the unique views and landscape character • Environmental Significance Overlay Schedule 2 (ESO2) aims to protect the waterways, wetland and estuaries as they are assets of major significance to the long-term vibrancy of the municipality • Environmental Significance Overlay (ESO3) aims to protect and conserve the critical habitat of the endangered South-eastern red-tailed black cockatoo species.
<p>• Identified as of regional or State significance in a reputable study of landscape values?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify.</p>
<p>The Coastal Spaces Landscape Assessment (DSE, 2006) identifies Cape Bridgewater and Cape Nelson, and Discovery Bay Coast as state significant and the coast of Portland as of local significance. Therefore, the Project area is within an area of visual landscape significance.</p> <p>The assessment described Discovery Bay Coast as:</p>

<ul style="list-style-type: none"> • Visually significant for the dramatic sweep of its long dune backed bay with its rugged open beaches and sense of remoteness • Characterised by a vast mobile dune system and featuring some of Victoria's highest cliffs kilometres inland • Valued by the community for its geological features including offshore rock formations. <p>The assessment considers Cape Bridgewater and Cape Nelson as:</p> <ul style="list-style-type: none"> • Visually significant for spectacular high cliffs, pristine bays and dramatic coastal scenery • Characterised by towering coastal forms, separated by largely untouched wilderness • Valued by the community for geological features such as blowholes, shore platforms, petrified forests and sea caves and for the Blue, Hump and Southern Right whales that frequent the area. <p>The Project would consider the objectives and values set out for these areas during the design and development process. A landscape and visual assessment will be undertaken to assess whether significant impacts to visual amenity and landscape values are anticipated and inform the detailed design of the Project.</p>
<p>• Within or adjoining land reserved under the <i>National Parks Act 1975</i> ?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify.</p>
<p>The Project area is located adjacent to Mount Richmond National Park and Cobboboonee National Park. The Discovery Bay Marine National Park is located within the Project area.</p>
<p>• Within or adjoining other public land used for conservation or recreational purposes ?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please specify.</p>
<p>The Project area comprises public land for conservation and recreational purposes. These are described in Section 7.</p>
<p>Is any clearing vegetation or alteration of landforms likely to affect landscape values?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe.</p>
<p>As the Project is in the early stages, the extent of vegetation clearing is yet to be confirmed. However, offshore infrastructure is expected to be similar to the existing environment, and will not alter any landforms it is unlikely to affect landscape values.</p> <p>The offshore infrastructure, particular the WTGs, may create changes to the seascape. Although the turbines will be located 5.5 km off the coast of Portland, further visual impact investigations are required to understand whether they would still be visible to onshore sensitive receivers. However, it should be noted that onshore windfarms already exist in and around Portland, with the Portland Wind Energy Project operating four sites within close proximity.</p>
<p>Is there a potential for effects on landscape values of regional or State importance?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes Please briefly explain response.</p>
<p>Key areas which contribute to the landscape character may be impacted by the Project due to the presence of WTGs along the coastline. These areas include the Discovery Bay Coast and Cape Bridgewater and Cape Nelson which have been identified as areas of State significance.</p> <p>A detailed landscape and visual assessment will be undertaken to determine any significant landscape values and ensure the Project is appropriately sited in order to minimise impact on the landscape character.</p>
<p>Is mitigation of potential landscape effects proposed?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe.</p>

The Project will be design to mitigate visual amenity impacts as much as possible, including height, placement and array size of the WTG structures themselves. A full landscape and visual assessment will include assessment of landscape character change and visual assessments from key vantage points in the area to assess whether the WTGs will cause impacts to views.
Other information/comments? (eg. accuracy of information)
In addition to the undetermined visual impact from the Project, the community value for landscape and visual amenity in and around Portland is also unknown. Further investigations and consultation is required to understand community perceptions of offshore wind to better understand the sensitivity of the community and the significance of impact. As stated above, onshore windfarms already exist in and around Portland, and this may have an effect on how the community perceives the Project.

Note: A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;
- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;
- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils? <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe.
As the Project is still in preliminary stages, detailed investigations into highly erodible soils, acid sulphate soils are yet to be undertaken. There is no soil mapping available of either acidic or contaminated soils within the Victorian marine environment. Acid material may be present in the Project area, however geotechnical surveys will be required to determine if they are present in the Project area, and if so, the level of acidity. Given there is no major industrial or urban sources of contamination near to the offshore Study area, it is unlikely that the marine environment would contain contaminants that exceed acceptable limits.
Are there geotechnical hazards that may either affect the project or be affected by it? <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe.
There are no known geotechnical hazards, however further environmental investigations are required to assess any risk that may affect the Project.
Other information/comments? (eg. accuracy of information)
N/A

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation? <input checked="" type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, provide estimate of traffic volume(s) if practicable.
The Project has potential to generate increased traffic conditions including heavy vehicles during construction and decommissioning. However, it is not considered this would be significant as these impacts would occur over a limited duration.

<p>An assessment of the existing road network and potential changes required during construction, operation and decommissioning will be undertaken. Further, a traffic management plan will be developed in consultation with the relevant road authorities to mitigate impacts to the road transport network.</p> <p>During operation, traffic will be limited to vehicles conducting maintenance activities and is unlikely to be significant.</p>
<p>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?</p> <p><input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.</p>
<p>Construction, operation and decommissioning activities are likely to generate minimal dust emissions, however these would be managed by CEMP and Decommissioning Environmental Management Plan (DEMP) and are unlikely to have significant effects on the amenity of residents.</p> <p>Project related noise is yet to be assessed and will be undertaken as part of the environmental investigations scope; however, it is not anticipated that noise would cause significant effects on the amenity of residents and can be mitigated.</p> <p>The construction and operation of onshore infrastructure is not anticipated to alter or impact traffic conditions. Existing roads and easements will be utilised and as a result, traffic impacts and associated amenity impacts for residents is not expected. Investigations into offshore vessel traffic is required, however the preliminary risk assessment did not identify any significant impact to ports and navigation.</p> <p>In relation to visual amenity, further investigations are required to identify existing landscape and visual amenity values in and around Portland, and assess whether the WTGs will form a noticeable feature on the landscape for onshore sensitive receivers. However, it should be noted that onshore windfarms already exist in and around Portland, with the Portland Wind Energy Project operating four sites within close proximity. The potential for cumulative impacts of the Project with existing windfarms and any other planned windfarms in the planning system will be considered through further assessments. In addition, consultation and investigation is required to understand community attitudes towards offshore wind to better anticipate significance of impact.</p>
<p>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?</p> <p><input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe the hazards and possible implications.</p>
<p>As described above, the potential for emissions, dust and noise will be management through the relevant environmental management plans and no impact to the health of the community is anticipated.</p>
<p>Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?</p> <p><input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe potential effects.</p>
<p>There will be no residential displacement of residences or residential access to community resources during construction.</p> <p>There may be temporary access disruptions during construction and decommissioning, however this would not cause severance of access to community resources. Access arrangements will be assessed, and alternative arrangements would be determined where access routes are impeded.</p>
<p>Are non-residential land use activities likely to be displaced as a result of the project?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe the likely effects.</p>
<p>The Project is located in the vicinity of commercial fisheries, farming, forestry, recreation and conservation activities. There will be no displacement of these activities during operation of the Project, however there may be discrete and temporary restrictions to certain activities during</p>

construction and decommissioning. Further assessment is required to determine the potential for any significant impacts.
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? <input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe the potential effects.
Further assessment is required to determine the potential for any significant impacts.
Is mitigation of potential social effects proposed? <input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe.
Community and stakeholder engagement will be undertaken in future stages of the Project to develop relevant mitigation measures. Measures will be implemented through environmental management plans throughout the life cycle of the Project.
Other information/comments? (eg. accuracy of information)
N/A

16. Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area? <input checked="" type="checkbox"/> No If no, list any organisations that it is proposed to consult. <input type="checkbox"/> Yes If yes, list the organisations so far consulted.
The Gunditj Mirring Traditional Owner Aboriginal Corporation (GMTOAC – a RAP under the <i>Aboriginal Heritage Act 2006</i>) are recognised as a key stakeholder for the Project. The GMTOAC were contacted on the 4 March 2021 to begin consultation and discuss opportunities. A follow up correspondence was sent on 9 April 2021. Future consultation will be undertaken with the RAP during the EES referral process and future Project stages.
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 high-level desktop assessment was undertaken to identify any recorded Aboriginal places within and around the referral area. The assessment involved a search of publicly available data using VicPlan (DELWP). VicPlan only provides high-level mapping relating to sensitive areas and aboriginal places but does not provide detailed information on the nature or extent of the known Aboriginal heritage places. The Aboriginal Cultural Heritage Register and Information System (ACHRIS) provides detailed information but is not publicly available. A search of ACHRIS will be undertaken during future stages of the Project by obtaining access in accordance with section 146 of the <i>Aboriginal Heritage Act 2006</i> . In addition, engagement and site walkovers with the Gunditjamara and RAP will be carried out to confirm cultural heritage values within the construction footprint and Project areas. A CHMP will be prepared to outline measures for the management and protection of Aboriginal heritage sites through all stages of the Project, and would include an unexpected finds procedure.
Is any Aboriginal cultural heritage known from the project area? <input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, briefly describe: <ul style="list-style-type: none"> • 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
The majority of the Project intersects with areas of Aboriginal Cultural Heritage Sensitivity and contains a number of known Aboriginal heritage places. As stated above, VicPlan does not provide further information but shows known Aboriginal heritage places along the coastline from the Bridgewater Lakes around to Descartes Bay, Cape Bridgewater, Bridgewater Bay and Cape Nelson, with a number of Aboriginal heritage places located inland near Mount Dryden and Portland West State Forest.

<p>Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the <i>Heritage Act 1995</i> within the project area?</p> <p><input checked="" type="checkbox"/> NYD <input type="checkbox"/> No <input type="checkbox"/> Yes If yes, please list.</p>
<p>A search of ACHRIS will be undertaken during future stages of the Project by obtaining access in accordance with section 146 of the <i>Aboriginal Heritage Act 2006</i>. Further detailed consultation and investigations are required, which would inform a Cultural Heritage Management Plan (CHMP) if required.</p>
<p>Is mitigation of potential cultural heritage effects proposed?</p> <p><input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe.</p>
<p>During design development, Project infrastructure would be located to avoid impacts as much as practicable (by utilising previously disturbed land and existing infrastructure easements and corridors where possible).</p> <p>A mandatory CHMP will be prepared under the <i>Aboriginal Heritage Act 2006</i> if any of the onshore activities listed as high impact under the <i>Aboriginal Heritage Regulations 2018</i> cannot avoid areas of cultural heritage sensitivity.</p> <p>The CHMP would include measures to manage and mitigate potential impacts to both known and unknown sites of Aboriginal cultural heritage.</p>
<p>Other information/comments? (eg. accuracy of information)</p>
<p>N/A</p>

17. Energy, wastes & greenhouse gas emissions

<p>What are the main sources of energy that the project facility would consume/generate?</p>
<p><input checked="" type="checkbox"/> Electricity network. If possible, estimate power requirement/output</p>
<p><input type="checkbox"/> Natural gas network. If possible, estimate gas requirement/output</p>
<p><input checked="" type="checkbox"/> Generated on-site. If possible, estimate power capacity/output</p>
<p><input type="checkbox"/> Other. Please describe.</p>
<p>Please add any relevant additional information.</p>
<p>The Project has a generation capacity of up to 495 MW with the potential to power over 330,000 Victorian homes. The Project would support the Victorian Government's target of 50% renewables by 2030.</p> <p>In relation to consumption, the Project will likely require electricity and petrol during construction, for powering of equipment and vessels. This energy required to construct the Project is relatively minimal in comparison to the renewable energy generated by the Project.</p>
<p>What are the main forms of waste that would be generated by the project facility?</p>
<p><input type="checkbox"/> Wastewater. Describe briefly.</p>
<p><input type="checkbox"/> Solid chemical wastes. Describe briefly.</p>
<p><input checked="" type="checkbox"/> Excavated material. Describe briefly.</p>
<p><input type="checkbox"/> Other. Describe briefly.</p>
<p>Please provide relevant further information, including proposed management of wastes.</p>
<p>Most of the waste generated by the Project will occur during the construction phase due to excavation activity. Where possible the material excavated will be reuse on site or transfer to a licensed landfill facility. Any excess material from the seabed installation including soil and drilling muds would be either removed or disposed as required.</p> <p>There will be no generation of waste during the operation of the Project.</p>
<p>What level of greenhouse gas emissions is expected to result directly from operation of the project facility?</p>

<input checked="" type="checkbox"/> Less than 50,000 tonnes of CO ₂ equivalent per annum <input type="checkbox"/> Between 50,000 and 100,000 tonnes of CO ₂ equivalent per annum <input type="checkbox"/> Between 100,000 and 200,000 tonnes of CO ₂ equivalent per annum <input type="checkbox"/> More than 200,000 tonnes of CO ₂ equivalent per annum
Please add any relevant additional information, including any identified mitigation options.
<p>Total life-cycle GHG emissions are low compared to other forms of electricity generation. Emissions that are generated from the Project will occur during manufacturing, construction, shipping and decommissioning phases. Emissions will be generated from offshore infrastructure (turbines, substations and cables), and the onshore connection to the grid (cables, transmission towers, substations). Lifetime Scope 1, 2 & 3 emissions for offshore wind are estimated to be in the range of 9 -13 gCO₂eq/kWh (UK Parliamentary Office of Science and Technology, 2011) and this is largely from construction and installation of the turbines. Accordingly, the carbon footprint is expected to reduce over time with the installation of larger and more efficient turbines and would emit far less than 50,000 tonnes of CO₂ equivalent for annum.</p>

18. Other environmental issues

<p>Are there any other environmental issues arising from the proposed project?</p> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, briefly describe.
<p>Attachment 2 provides discussion on a number of additional environmental aspects considered including ports and harbours, shipping and navigation, aviation and radar, historical heritage and others. The risk assessment did not identify any other high risk environmental effects that are not already discussed within this referral. All additional environmental aspects and associated risks can be managed with standard mitigation measures.</p>

19. Environmental management

<p>What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)</p>
<input checked="" type="checkbox"/> Siting: Please describe briefly
<input checked="" type="checkbox"/> Design: Please describe briefly
<input checked="" type="checkbox"/> Environmental management: Please describe briefly.
<input type="checkbox"/> Other: Please describe briefly
<p>Add any relevant additional information.</p>
<p><u>Siting</u></p> <p>The site selection process found that the Portland area was the most suitable location off the coast of Victoria because of its low nearby population density and proximity to the NEM, meaning less transmission infrastructure is required to connect to the grid, which ultimately allows for reduced amenity impacts for sensitive receivers.</p> <p>As the Project is in the early stages of development, further investigations are required to inform design and avoid adverse impacts on the environment. Field assessments and consultation with RAPs will identify areas within the onshore and offshore Project areas that contain threatened fauna species or habitat, as well as sensitive Aboriginal heritage places. Siting of infrastructure</p>

will avoid these areas, and use previously disturbed corridors and easements for onshore and offshore assets where possible.

Design

Although the Project is in early stages of design, some design decisions have been made to avoid, minimise and manage potential environmental effects. For example, offshore cabling will be buried in order to reduce potential EMF impacts and allow benthic habitat to slowly recover. In addition, consideration will be given to construction staging and timing, in order to reduce noise and disturbance impacts on marine ecology.

Environmental management

An Environmental Management Framework (EMF) will be prepared for the Project to manage and mitigate impacts on the environment. The EMF will include a framework for site and work specific measures to reduce and manage environmental and amenity impacts during construction, operation and decommissioning. The EMF will also include a summary of performance monitoring and reporting processes, including auditing, to ensure environmental and amenity impacts are reduced and managed throughout all stages of the project.

The EMF will include the process and timing for the preparation of a CEMP to manage the potential construction impacts of the Project, an Operational Environment Management Plan (OEMP) to manage any potential impacts during operation and maintenance project and a DEMP to manage the potential impacts during decommissioning.

20. 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.

The proposed Kentbruck Green Power Hub (Neoen Australia Pty Ltd is the proponent) will comprise a 900 MW windfarm and battery storage facility 3km east of the township of Nelson and 30 km northwest of Portland. In relation to the Project area, the Kentbruck Green Power Hub is proposed along the coast of Nelson, adjacent to the indicative location of the offshore WTGs (approximately 3 km outside the Project area).

There are four onshore windfarms in operation as part of the Portland Wind Energy Project. Sites include, Yambuk (50 km from Project area) Cape Bridgewater (within Project area), Cape Nelson (within Project area) and Cape Nelson North / Cape Sir William Grant (within Project area).

A review of other proposed activities in the vicinity of the Project with the potential for cumulative effects will be carried out during the environmental assessment. Stakeholder engagement will be undertaken to understand grid capacity and any necessary network changes.

21. 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.

A program of future technical and environmental studies is currently under development. The scope of these studies will include (but is not limited to) detailed marine and terrestrial ecology surveys, Aboriginal cultural heritage, aviation and radar, groundwater, historical heritage, hydrology, land contamination, land use and planning, social and business, noise and vibration,

traffic and transport, and a detailed landscape assessments. Future studies will be developed in conjunction with State and Commonwealth government stakeholders in line with Project assessment guidelines and scoping requirements.

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.

VIC Offshore Windfarm has commenced consultation activities (i.e. meetings) with regulatory stakeholders at State and Commonwealth levels. Pre-referral meetings were held on the 22nd of February and the 9th of March 2021 with DEWLP and DAWE to discuss environmental issues and Project programme. Following this, meetings have been held with DEWLP in relation to tenure and marine approvals on the 12th of March 2021.

Initial correspondence to inform relevant stakeholders of the Project was sent to the Glenelg Shire Council, local Members of Parliament, Aboriginal Victoria, Environment Protection Authority and local fisheries on the 18th March 2021.

VIC Offshore Windfarm has also reached out to the GMTOAC on the 4th March 2021 to begin consultation and discuss opportunities.

Has a program for future consultation been developed?

NYD No Yes If yes, briefly describe.

A Stakeholder Engagement Plan was developed to inform various stakeholders about the Project. The plan identifies various government, community and Aboriginal stakeholders and outlines the approach to inform and consult with each party. Communication tools include letters to inform, briefing meetings, informal discussions and frequently asked questions made available of the Project website - <https://vicoffshorewindfarm.com.au/>

VIC Offshore Windfarm is committed to continuing meaningful and early engagement, on the basis that available information at the time of writing is indicative only. The proponent will endeavour to keep stakeholders informed as the Project progresses.

Authorised person for proponent:

I, John Haese, Associate Principal, Arup Project Director, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 24/05/2021

Person who prepared this referral:

I, Leah Howell, Associate and Environmental Approvals Lead (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 24/05/2021