

Gippsland Offshore Wind Transmission 2GW Project

Project Outline

Acknowledgements

We acknowledge the Gunaikurnai people, and in particular the Brataualung and Brayakaulung clans, as the original custodians of the land, water, sea and sky of much of Gippsland, including the areas in which this project will be undertaken. We acknowledge Gunaikurnai First Peoples' unique ability to care for Country and their deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of Gunaikurnai culture and lore. We are committed to genuinely partnering and meaningfully engaging with Victoria's First Peoples to support self-determination, the protection of Country, and the endurance of spiritual and cultural practices in the 21st century and beyond.

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1. Introduction

The Victorian Government has committed to emissions reduction through the *Climate Change Act 2017*, which establishes a long-term target of net-zero greenhouse gas emissions by 2045¹. This requires unprecedented amounts of renewable energy generation to meet the demand for electricity. Victoria’s legislated offshore wind energy generation targets are an initial target of at least 2 gigawatts (GW) of installed offshore windfarm capacity by 2032, and subsequent targets of 4 GW by 2035 and 9 GW by 2040².

In December 2022, the Australian Government (Minister for Climate Change and Energy) declared an area in Bass Strait off the coast of Gippsland, Victoria as suitable for offshore renewable energy generation³. In May 2024, the Australian Government awarded the first feasibility licences for offshore wind projects off the coast of Gippsland.

VicGrid has been established as an administrative office of the Department of Energy, Environment and Climate Action (DEECA). VicGrid’s responsibilities include coordinating and developing Victoria’s Renewable Energy Zones (REZs), changing the way we plan and develop electricity transmission infrastructure in Victoria to ensure it benefits all Victorians and coordinating the delivery of shared transmission infrastructure required to connect new offshore wind energy facilities, including off the coast of Gippsland, to the National Electricity Market (NEM).

To achieve the initial 2 GW target, VicGrid proposes the Gippsland offshore wind (OSW) Transmission 2GW Project (the project), a new overhead transmission line from a new onshore connection hub, in the area of Giffard, approximately six kilometres inland from the Gippsland coast, to a grid connection near Loy Yang Power Station in the Latrobe Valley.

This project outline provides the relevant information to the Minister for Planning (the Minister) for consideration of whether to declare works to construct and operate the first stage of the project as “public works” under Section 3 of the *Environment Effects Act 1978* (EE Act). The project will be undertaken by or on behalf of VicGrid as a Victorian Government body, therefore meeting the definition of “public works” in Section 2 of the EE Act.

It includes a preliminary evaluation of whether the construction and operation of the project will potentially result in significant environmental effects. The outcomes of this evaluation are provided in Section 5 and find that the project is capable of having a significant effect on the environment and as such, preparation of an Environment Effects Statement (EES) under the EE Act is warranted.

This project outline has been prepared by VicGrid. The authorised representative for the project is:

| | |
|---|--|
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¹ *The Climate Change Act 2017* sets a long-term target of net-zero greenhouse gas emissions by 2050. The Victorian Government has since brought forward this target from 2050 to 2045 (<https://www.climatechange.vic.gov.au/climate-action-targets>)

² <https://www.energy.vic.gov.au/renewable-energy/offshore-wind-energy>

³ <https://minister.dcceew.gov.au/bowen/media-releases/joint-media-release-unlocking-power-offshore-wind-gippsland>

2. Project background

2.1 Strategic context

Renewable energy targets

The Victorian Government has committed to emissions reduction through the *Climate Change Act 2017*, and has established a long-term target of net-zero greenhouse gas emissions by 2045. Meeting net-zero emissions will require unprecedented amounts of renewable energy generation to meet the demand for electricity. The *Renewable Energy (Jobs and Investment) Act 2017* sets Victoria's renewable energy targets, including a target of 95% electricity being from renewable energy by 2035.

A key pillar in achieving the necessary renewable energy transition, will be the generation of energy capacity from offshore wind by offshore wind developers. The Victorian Government has legislated a 2032 offshore wind energy generation target for Victoria of at least 2 GW.

To support this transition to renewable energy, modernisation and upgrades are needed to Victoria's transmission network or 'energy grid' to accommodate renewable energy and transmit it to homes and businesses across the state.

The Victorian Government has also set further targets to reach at least 4 GW of offshore wind capacity by 2035 and 9 GW by 2040⁴. Delivery of transmission infrastructure to support 4 GW and 9 GW of offshore wind capacity are not current projects and would be subject to separate funding commitments.

Declared offshore wind areas

In December 2022, the Australian Government (Minister for Climate Change and Energy) declared an area in Bass Strait off the coast of Gippsland, Victoria as suitable for offshore renewable energy generation⁵. The area spans approximately 15,000 square kilometres in Commonwealth waters, running from Lakes Entrance in the east, to south of Wilsons Promontory in the west. Private proponents will generate offshore wind energy under licences to be provided by the Australian Government. In May 2024, the Australian Government awarded the first feasibility licences for offshore wind projects off the coast of Gippsland.

The first set of feasibility licenses were provided to six companies, and another six more licences were provided in July. During the feasibility licence stage, licence holders will undertake detailed environmental assessments, including those required to inform potential approvals under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Construction can only begin after the feasibility stage is completed and developers have gained all environmental and management plan approvals.

While the industry is now moving through the approvals process, there is still uncertainty as to how many licence holders will progress to a commercial licence which will only be provided to those who have successfully gained all of the necessary approvals.

This uncertainty needs to be managed when planning the transmission requirements.

The Gippsland declared offshore wind area is shown on Figure 2-1.

⁴ <https://www.energy.vic.gov.au/renewable-energy/offshore-wind-energy>

⁵ <https://minister.dcceew.gov.au/bowen/media-releases/joint-media-release-unlocking-power-offshore-wind-gippsland>

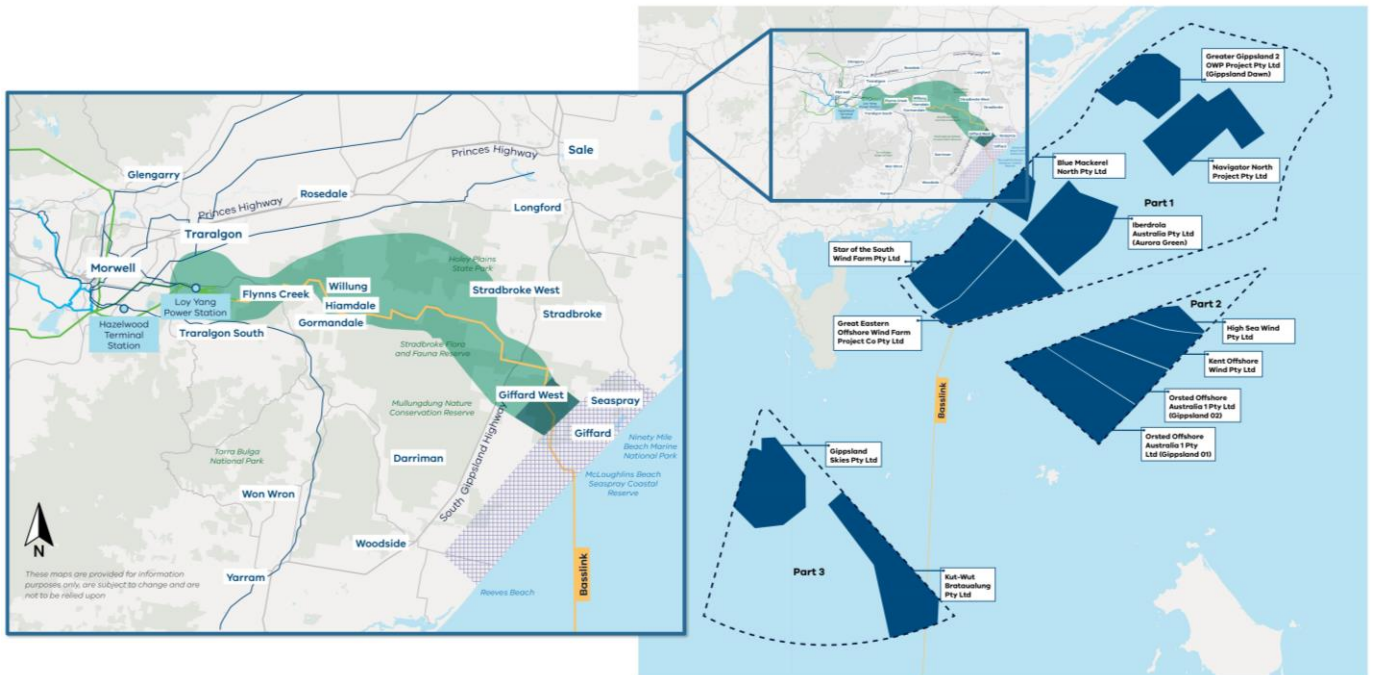


Figure 2-1. Gippsland declared offshore wind area

2.2 VicGrid's role

In 2021, the Victorian Government established VicGrid as an administrative office of the former Department of Environment, Land, Water and Planning (now DEECA).

While there is significant potential for offshore wind developments in the Gippsland region, the area does not currently have transmission infrastructure with sufficient capacity for the expected generation yields and the declared area is remote from significant transmission infrastructure.

VicGrid is responsible for coordinating the delivery of shared transmission infrastructure required to connect future offshore wind energy facilities off the coast of Gippsland to the existing energy grid.

In addition to the location specific offshore wind transmission project, VicGrid is leading the roll-out of the Victorian Transmission Investment Framework (VTIF) – a new integrated approach to planning and delivering transmission infrastructure in Victoria⁶. The VTIF introduces a strategic and proactive process to coordinate investment in transmission, generation and storage infrastructure across the Renewable Energy Zones being planned across Victoria.

VTIF sets the policy framework for the development of the Victorian Transmission Plan (VTP), a long-term strategic plan for Victoria's transmission and Renewable Energy Zone development that will support the energy transition over the next 15 years. This plan will prepare Victoria for a range of possible future scenarios to minimise the risk of under-investment (not being prepared) and over investment (building more than is necessary) in transmission infrastructure.

Through early engagement with landholders, local communities and First Peoples, VTIF will better integrate land use considerations, environmental impacts and community views into the planning process.

The VTP will plan the future transmission needs for the offshore wind connection.

⁶ <https://www.energy.vic.gov.au/renewable-energy/vicgrid/victorian-transmission-investment-framework>

2.3 Study area

VicGrid has identified a study area for the project's onshore transmission infrastructure using an assessment method that compared different options against a set of criteria which were informed by community feedback, as well as desktop analysis and technical advice from subject matter experts. The study area is shown in Figure 2-2. Further details of the assessment are provided in *Offshore Wind Energy Transmission Gippsland Options Assessment Report (March 2024)* (the Options Assessment Report)⁷.

The Options Assessment Report considers a wide range of potential transmission corridor and technical options including high voltage alternating current (HVAC) and high voltage direct current overhead and underground options, operating at different voltages. Preferred options were identified through the assessment method outlined in the Options Assessment Report. The broader study area was then selected around the preferred corridor and technical options. Selecting a broader study area helps retain flexibility to respond to new information that will be identified through the EES process. Key criteria used to determine the study area include opportunities for alignment with other infrastructure, developing an onshore connection hub area near the coast based on the declared offshore wind area, existing land uses, suitability for HVAC transmission lines and towers and utilising existing network assets by connecting to the grid near Loy Yang Power Station.

The study area covers an area of approximately 50 to 55 km length and varies in width from 3 to 12 km. It starts around 6 km from the coast in the area of Giffard, and extends north-west past Stradbroke West to Willung, across to Flynns Creek and terminates near the Loy Yang Power Station. The study area primarily consists of areas of farmland (used predominately for grazing animals), plantation (including native blue gum and exotic pine) and large intact tracts of remnant vegetation.

Further detailed technical studies, on-ground environmental assessments, and engagement with landholders, First Peoples, and local communities are planned to refine the study area to identify a study corridor, and then ultimately a preferred route for which a reference design will be developed.

As a more specific project area and disturbance footprint will not be determined until these further technical studies and on-ground environmental assessments are undertaken, the study area is nominated as the project area for this project outline. Based on indicative areas for construction and operational activities, it is anticipated that the disturbance footprint would be less than approximately 2% of the study area.

⁷ <https://engage.vic.gov.au/download/document/34683>



Figure 2-2. Study area and indicative connection hub

2.4 Project objectives

The project seeks to support the Victorian Government’s first offshore wind energy target of at least 2 GW by 2032 through development of new transmission infrastructure in a coordinated way with input from local communities, landholders, First Peoples and other key stakeholders. It would provide common connection points (at the connection hub and substation) for offshore wind developers to the existing energy grid. This will help minimise transmission duplication and avoid multiple proponents developing individual lines that create a ‘spaghetti effect’, which would impact more broadly on local communities and the environment and could drive up power bills. Figure 2-3 sets out VicGrid’s objectives for coordinated offshore transmission.

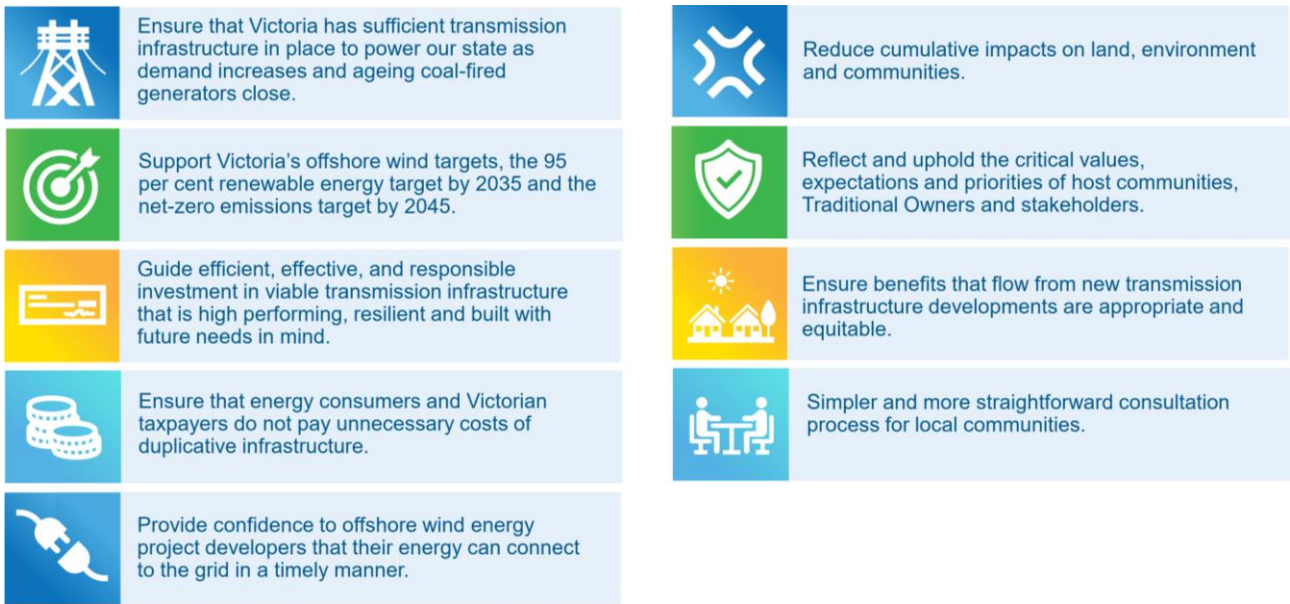


Figure 2-3. VicGrid's objectives for offshore wind transmission in Gippsland

3. Project description and schedule

3.1 Proposed works

The project works being considered in this project outline are the construction, operation and eventual decommissioning of a double-circuit, HVAC overhead transmission line from a proposed new onshore connection hub (in the area of Giffard) to a grid connection substation near the Loy Yang Power Station (in the Latrobe Valley).

The proposed works, discussed further below, are the outcome of the Options Assessment Report, which considered a wide range of alternative corridor and technical options for the project. Additional details on the alternatives assessment processes would be provided in the EES.

HVAC overhead transmission line

The new high voltage transmission line would be a double circuit HVAC overhead transmission line capable of transferring 2 GW of energy from offshore wind generators to the NEM.

The new transmission line would become part of Victoria's transmission network, the Declared Shared Network (DSN). The Australian Energy Market Operator (AEMO) manages the connection process to the DSN and coordinates the assessment of applications to connect to the DSN.

The transmission line would connect the proposed VicGrid connection hub in the area of Giffard with the inland grid connection point near the Loy Yang Power Station. The transmission line would be constructed within the study area, with the final route to be determined in accordance with the refinement method as described in Section 2.3.

The transmission line would be supported by a series of above-ground towers. The final location and design of each tower, including the foundation types and total footprint, would be dependent on the specific ground conditions, environmental constraints and distance between other towers. Proposed transmission tower locations will not be determined until a preferred route has been identified.

There may be further ground disturbance required, for example for the relocation of other services such as Basslink.

VicGrid onshore connection hub

The proposed VicGrid onshore connection hub in the area of Giffard would comprise a high-voltage substation plant and equipment, including transformers, synchronous condensers and switchgear. The connection hub would provide future offshore wind energy facilities a shared connection point that would form part of the DSN.

Grid connection substation

The grid connection substation may consist of new bays installed within the existing switchyard at the existing DSN at Loy Yang Power Station to allow connection of the new high voltage circuits. These works may form part of the excluded works due to low potential for significant environmental effects, existing land uses and the fact that the works can likely proceed without the need for any further environmental approvals to be obtained if they are within the Loy Yang switchyard. If so, this would form part of the Early Works described in Section 3.2.1 below.

3.2 Other works

There are a range of other works that are to be excluded from the declared "public works" either now or in the future. These are described in the following sections.

3.2.1 Early works

As with all major infrastructure projects, this project will require the carrying out of early technical investigatory works to assist in the understanding of site conditions such as geotechnical and environmental investigations, site surveys and locating existing utility services. These investigative works will be required to be undertaken early to inform the EES process and are considered to be minor and will not have the potential for significant impacts on the environment. These investigative works will form the extent of the excluded works outlined within the project's public works declaration.

The full scope, location and extent of other early works that will be required prior to the finalisation of the EES are yet to be finalised. These other early works are likely to consist of utility relocations, installations, protection works and undetected services, temporary construction facilities and establishment, minor road and track modifications and vegetation management. The scope, location and extent of these will be defined through the refinement of the project's design and location during the EES process. The extent of these works, that will be sought for exclusion, will not have a significant impact on the environment.

These other early works are expected to be required prior to the finalisation of the EES and once known, will require an amendment to the public works declaration.

To the extent required, any early works would be carried out in accordance with applicable legislation and any approvals required.

3.2.2 Renewable Energy Zone Curtailment Abatement Service

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

A RCAS has been excluded from the project outline because:

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

3.2.3 Future transmission needs for offshore wind energy

VicGrid has been tasked with developing and constructing the transmissions infrastructure required to support the Victorian Government's first offshore wind energy target of 2 GW by 2032. However, VicGrid has also been considering what infrastructure would be needed to support the longer-term targets of at least 4 GW by 2035 and 9 GW by 2040.

This ensures the new transmission is planned to cater for each target, enabling optimal staged development that avoids unnecessary or redundant infrastructure. A second connection hub and further transmission line may be needed in Gippsland to meet the longer-term offshore wind energy targets. The additional line may also need to be developed in a separate corridor to ensure energy system security and reliability, and to comply with applicable technical requirements.

While VicGrid has been considering these possible future infrastructure needs, baseline assumptions on future transmission requirements may be revised, and any potential future infrastructure will be the subject of further technical studies, extensive community engagement and government decision making processes.

They would also be planned under the VTIF reforms and VTP. There is still uncertainty as to how many offshore wind feasibility licence holders will progress to a commercial licence, which is only provided to those who have successfully gained all of the necessary approvals. Future transmission infrastructure need will depend on the generation capacity and timing for commencement of operations of offshore wind projects. There is also no committed funding towards additional infrastructure beyond that required to support the 2 GW target. Given these significant uncertainties and variables, transmission infrastructure related to the targets of 4 GW and 9 GW has been excluded from this project outline.

3.3 Project schedule and delivery

Indicative timings for the delivery of the project, assuming gazettal under s.3 of the EE Act, are outlined in Table 3-1 below.

Table 3-1. Estimated project schedule

| | |
|-------------|---|
| 2024 | <ul style="list-style-type: none"> • Business case preparation • Continued engagement with GLaWAC (ongoing throughout project development, including detailed consultation on study area) • Continued community and stakeholder engagement (ongoing throughout project development) • Public announcement of study area • Start field investigations • Preparation of EPBC Act Referral and submission to DCCEE • Preparation of project outline and submission to the Minister for Planning • 'Public works' declaration by the Minister for Planning • Draft scoping requirements on public exhibition |
| 2025 | <ul style="list-style-type: none"> • Final scoping requirements issued by the Minister for Planning • Field investigations in high-risk areas within the potential study corridors • Undertake Existing Conditions Assessments • Finalise and publish potential study corridor options • Identify and publish potential route options within the preferred study corridor • Development of project reference design • Preparation of EES and planning approval documentation |
| 2026 | <ul style="list-style-type: none"> • Update Existing Conditions Assessments and prepare Impact Assessments • Continued preparation of EES and planning approval documentation |
| 2027 | <ul style="list-style-type: none"> • EES exhibition and inquiry • Completion of Minister's assessment and approvals decisions |
| 2028 | <ul style="list-style-type: none"> • Construction commencement, subject to planning and environmental approvals |

4. Relevant legislation

4.1 Commonwealth legislation

A referral has been submitted to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act for a determination of whether the project is a 'controlled action' that requires assessment and approval under the EPBC Act.

Under the EPBC Act, the Australian and Victorian Governments have a bilateral assessment agreement to allow the Victorian Government to assess the environmental impacts of a project to inform the decision by the Federal Minister for the Environment on whether to approve the project. As such, if the project requires an EES and it is determined to be a 'controlled action' under the EPBC Act, the EES process can be used to assess the project impacts on EPBC Act Matters of National Environmental Significance (MNES).

4.2 State approvals

It is envisaged that a planning scheme amendment (PSA) would be sought to allow for the use and development of land for the project under the *Planning and Environment Act 1987* and the Latrobe and Wellington planning schemes. The PSA would comply with and address the requirements of relevant Ministerial Directions, including the *Ministerial Direction on the form and content of planning scheme amendments*.

4.3 Other approvals and consents

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

- *Aboriginal Heritage Act 2006*
- *Native Title Act 1993 (Cth)*
- *Traditional Owners Settlement Act 2010*
- *Flora and Fauna Guarantee Act 1988*
- *Heritage Act 2017*
- *Water Act 1989*
- *National Parks Act 1975*
- *Crown Land (Reserves) Act 1978*
- *Land Act 1958*
- *Forests Act 1958*
- *Road Management Act 2004*
- *Local Government Act 2020*

5. Preliminary issue identification and response

5.1 Issue identification

VicGrid has undertaken a Preliminary Environmental Assessment⁸. The assessment identifies existing land uses, features, values and areas of sensitivity and informs the potential impacts of the transmission infrastructure on the environment. The assessment was tailored to address the relevant approvals and additional assessment requirements that are likely to be required in accordance with Commonwealth and State legislation. Figure 5-1 shows the study area in the context of key points of interest.

The preliminary investigations of the existing conditions were based on desktop technical specialist reviews of publicly available data and supported by high-level in-field surveys for a broad study area. The investigations were also informed by feedback collected from early engagement with communities, First Peoples and other key stakeholders.

The preliminary investigations identified potential environmental values, including waterways and waterbodies, known or modelled high value native vegetation areas, areas of Aboriginal cultural heritage sensitivity, historic heritage places, as well as urban and rural land uses including farms, mining, energy generation, plantations, towns, settlements and other infrastructure.

The preliminary evaluation identifies potential environmental effects associated with the construction and operation of the project, as well as opportunities to avoid, minimise or mitigate potential impacts. The potential issues, effects and mitigation options are described in Section 5.2.

The assessment recommended further investigations be undertaken to inform the assessment and approvals phase. Table 5-1 sets out VicGrid's hierarchy for the prioritisation for further investigation of the identified issues and potential impacts during the EES investigation and assessment phase. The hierarchy has been applied to the issues described in Table 5-2 of Section 5.3.

Further investigations would follow a risk-based approach and the scope of the investigations would be proportional to the risk of the project on that environmental aspect to comply with the *Environment Protection Act 2017* and address the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*⁹. The priority level is a qualitative indication of the depth to which further investigations need to be undertaken to understand the potential impact on the environment. Issues that are potentially complex to characterise and assess or require tailored mitigation measures are higher priority investigations ('Priority 1') that are essential to the refinement of the project's design/location and to demonstrate the acceptable management of impacts. Issues that are generally of low complexity to characterise and assess or typically only require standard mitigation measures are low priority investigations ('Priority 2') that are needed to demonstrate achievable compliance with relevant regulations and standards, but are only likely to have a moderate influence on the refinement of the project's design/location.

⁸ Jacobs (2024) *Gippsland Corridor (study area) Preliminary Environmental Assessment Report*.

⁹ Department of Transport and Planning (2023) *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978, Eighth Edition, 2023*.

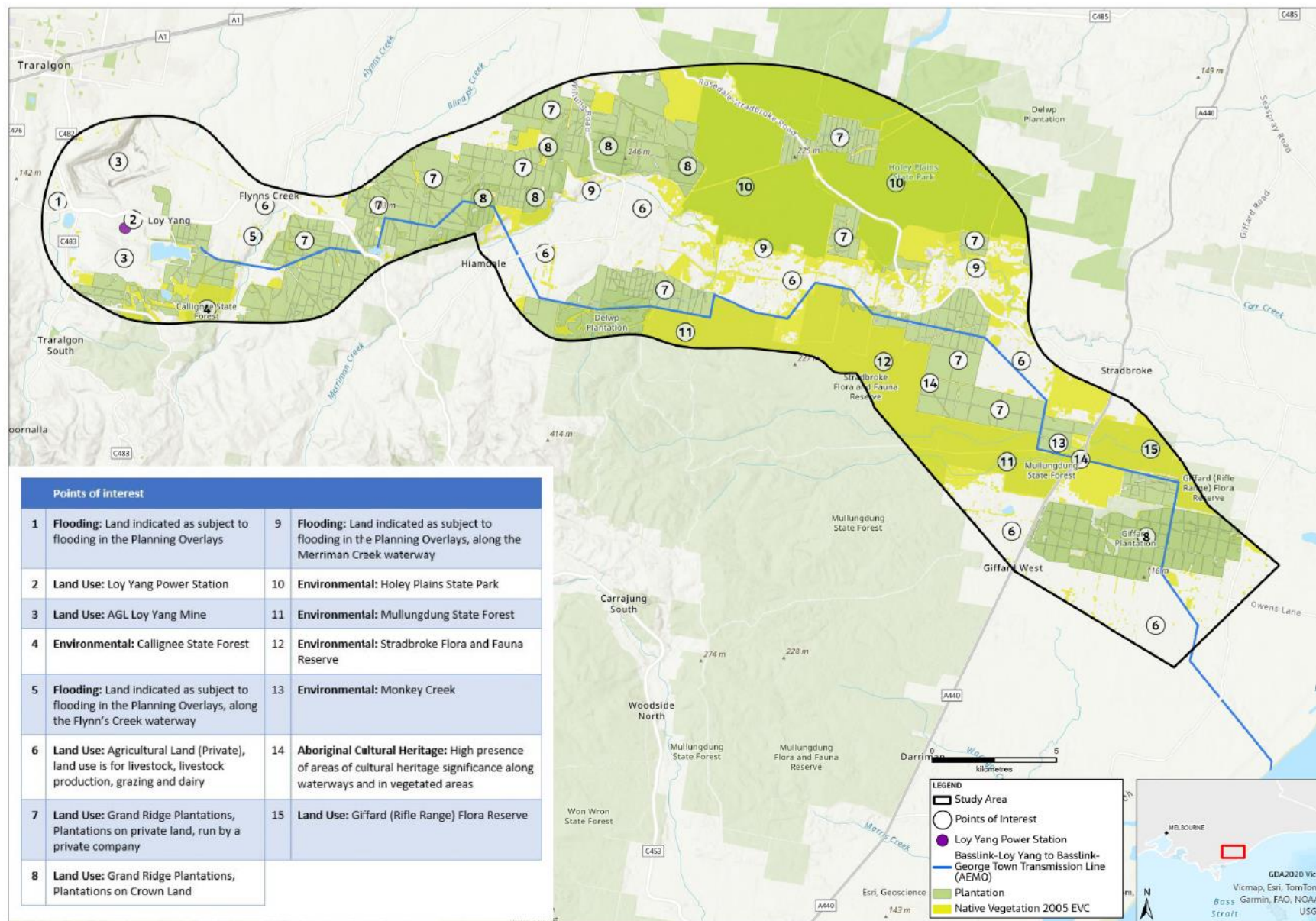


Figure 5-1. Points of interest in study area

Table 5-1. Hierarchy for prioritisation of issues for investigation

| Priority | Definition |
|------------|--|
| Priority 1 | <ul style="list-style-type: none"> • Based on the information obtained to date through the preliminary assessments of existing conditions, the project may (without the implementation of management measures): <ul style="list-style-type: none"> – impact a high value environmental asset/use, and/or – have potential significant environmental impact(s), and/or – have environmental impacts that are either permanent or long-term, and/or – have environmental impacts at a regional or wider extent. • Standard management measures may not be suitable or provide sufficient avoidance or minimisation and may require additional tailored measures to ensure adverse residual effects and achieve compliance with relevant policy and regulatory requirements. |
| Priority 2 | <ul style="list-style-type: none"> • Based on the information obtained to date through the preliminary assessments of existing conditions, the project may (without the implementation of management measures): <ul style="list-style-type: none"> – impact a lower value environmental asset/use, and/or – have environmental impact(s) of low or medium significance, and/or – have environmental impacts that are temporary, and/or – have environmental impacts at a local extent. • Standard management measures may be suitable to ensure adverse residual effects are acceptable and achieve compliance with relevant policy and regulatory requirements. |

5.2 Preliminary mitigation framework

Environmental Management Framework

VicGrid intends to avoid and minimise environmental impacts as part of the process to refine the study area into a preferred route. The refinement process is discussed in Section 2.3.

Where impacts cannot be avoided or sufficiently minimised through design, management controls will be developed to reduce the extent, magnitude and/or duration of an adverse effect during construction and operation.

The project’s Environmental Management Framework will comprise a framework to mitigate actual or potential impacts during construction and operation, and may include the following:

- Organisational responsibilities and accountabilities for managing environmental impacts and risks
- Environmental Performance Requirements (EPRs), committed to by the proponent through the assessment and approvals process, and consultation with stakeholders, outlining commitments to mitigate adverse effects so far as reasonably practicable and relevant to specific standards and to enhance environmental outcomes
- Compliance requirements associated with relevant environmental legislation and statutory approvals and consents
- Processes for the preparation, review, approval and implementation of environmental management plans and procedures for the management of environmental impacts and risks

- A program and processes for the independent monitoring, auditing and reporting of performance, including compliance with relevant statutory conditions and standards, and environmental management plans and procedures, as well as regular review and updating of these plans and procedures.

Environmental Performance Requirements

The EPRs contained within the Environmental Management Framework will set out the performance-based environmental outcomes and standards that must be achieved by the project to manage environmental risk and avoid, minimise, mitigate or offset potential impacts of the project. EPRs will be developed during the detailed assessment of the project, and will address the minimum environmental outcomes required for the design, construction and operation of the project.

Specialist assessments to inform the development of the EES will be undertaken (see Section 5.3) based on (and to progressively further inform) the staged refinement of the study area into a preferred route with the impacts being assessed against a reference design.

Input from these specialist assessments, as well as feedback from landholders, First Peoples, the community and other stakeholders, will in turn inform the development of the EPRs. The project's design would be further developed and refined during detailed design, with all refinements required to satisfy and implement the EPRs.

The EPRs will require the preparation of various key management plans, including:

- Environmental Strategy
- Construction Environmental Management Plan (CEMP)
- Operation Environmental Management Plan (OEMP)
- Transport Management Plan
- Community and Stakeholder Engagement Management Plan
- Sustainability Management Plan

The EPRs will also require the development of strategies, plans or protocols to address key issues such as, but not limited to:

- Biodiversity, including native vegetation and habitat, threatened species, tree protection and removal and offsets
- Cultural and historical heritage
- Bushfire mitigation and emergency response
- Landscaping
- Property access
- Construction noise and vibration
- Construction dust and air quality
- Surface water and groundwater
- Geology and soils, including contaminated land and potential acid sulfate soils
- Land use and planning.

5.3 Preliminary assessment

A preliminary evaluation of the potential effects associated with the construction and operation of the project, as identified in the Preliminary Environmental Assessment, are summarised in Table 5-2.

Table 5-2. Preliminary identification of key issues/effects

| Key issue/effect | Preliminary assessment response and mitigation methods | Investigation priority |
|---|--|------------------------|
| 1. Biodiversity | | |
| <p>The key issue(s) associated with biodiversity may include the disturbance and/or removal of native vegetation (including scattered trees), and threatened ecological communities and flora species, as well as the loss or modification of habitat for terrestrial and aquatic fauna and Groundwater Dependent Ecosystems due to vegetation disturbance for construction and operation footprints, powerline easements and vegetation management.</p> <p>Construction activities may also result in injury or death of fauna (e.g., vehicle collisions), disturb native fauna (e.g., from increased artificial light, noise or vibration), and introduce or spread weeds, feral/pest animals and pathogens. Overhead structures may increase collision risk for mobile and migratory fauna species, including terrestrial migratory birds, marine migratory birds, and bats.</p> | <p>Native vegetation in the study area comprises low-lying flat coastal dunes, fertile floodplains and swamps that have historically been cleared for grazing.</p> <p>Threatened ecological communities listed under the EPBC Act and <i>Flora and Fauna Guarantee Act 1988</i> (Vic) (FFG Act) have been identified as occurring or having the potential to occur within the study area. Following preliminary field investigations, 22 EPBC Act and/or FFG Act threatened flora species, and 21 EPBC Act and/or FFG Act threatened fauna species have been identified as having a high likelihood of occurrence, known to inhabit or have been confirmed present within the study area. The Stradbroke Flora and Fauna Reserve, Mullungdung State Forest and Holey Plains State Park support high value habitats for threatened fauna species.</p> <p>Aquatic habitats are primarily restricted to creeks and floodplains within the study area. No major rivers, lakes or reservoirs, or wetlands of national and international significance are located within the study area. The western and northern parts of the study area fall within the Latrobe River basin, which drains into the Ramsar-listed Gippsland Lakes (located approximately 8.75 km from the study area) via Lake Wellington. The study area intersects with several tributaries of the Latrobe River such as Flynn's Creek, Blind Joe Creek, Sheepwash Creek and Traralgon Creek. It is unlikely that the project will impact any Ramsar wetlands.</p> <p>The <i>Guidelines for the removal, destruction or lopping of native vegetation</i> (DELWP 2017) outline the three-step approach to ensure that there is no net loss to biodiversity: avoid, minimise and offset. VicGrid is committed to avoidance of native vegetation, so far as practicable, through the design process.</p> | Priority 1 |
| 2. Bushfire | | |
| <p>The key issue(s) and perceptions associated with bushfire risk may include fire ignition causing loss of life or property, permanent impediment to aerial or ground firefighting efforts, egress and/or fire management and/or fire damage to transmission infrastructure.</p> | <p>All of the study area is located within a Bushfire Prone Area, and the majority is within a Bushfire Management Overlay under the relevant planning schemes. Land use planning objectives seek to protect human life and property, and strengthen community resilience to bushfire.</p> <p>Although the infrastructure would be located in a bushfire prone area, the risk of fire ignition from high voltage transmission infrastructure is very low, and the provision of fire breaks and access tracks is likely to further support fire management and fire-fighting.</p> <p>Bushfire management would be mitigated through the project design, demonstrated through specialist assessments and implemented through strategies and plans, such as a Bushfire Management Plan.</p> | Priority 2 |

| Key issue/effect | Preliminary assessment response and mitigation methods | Investigation priority |
|---|--|------------------------|
| 3. Aboriginal cultural heritage | | |
| <p>The key issue(s) associated with Aboriginal cultural heritage may include the damage, disturbance or destruction of registered or unknown Aboriginal cultural heritage place(s)/site(s), and/or Aboriginal Ancestral Remains. There may also be ongoing visual impacts to unregistered intangible Aboriginal cultural values.</p> | <p>During construction, works may impact tangible Aboriginal cultural heritage through ground disturbance activities. There is also potential for these activities to uncover unidentified Aboriginal Places during construction, and infrastructure such as towers and access tracks may impact intangible cultural heritage values (e.g., by preventing access, or through visual impacts).</p> <p>There are minimal operational risks for tangible Aboriginal cultural heritage associated with the project. However, visual impacts created from the installation of infrastructure may comprise an ongoing impact to intangible Aboriginal cultural heritage values, such as landmark features, song lines, viewsheds, and Dreamtime stories.</p> <p>There are two relevant triggers for determining if a mandatory CHMP is required for the project in accordance with regulation 7 of the Aboriginal Heritage Regulations 2018: the presence of areas of cultural heritage sensitivity, and whether the proposed activities constitute a 'high impact' activity. The project would trigger both of these and a mandatory CHMP would therefore be required. It is also noted that if the project requires an EES, a mandatory CHMP would be required in accordance with sections 49 and 49A of the <i>Aboriginal Heritage Act 2006</i>.</p> <p>This CHMP will provide an understanding of the Aboriginal cultural heritage likely to be impacted by the proposed works, an understanding of potential harm to Aboriginal cultural heritage, and detailed management conditions and contingency plans developed in conjunction with the Registered Aboriginal Party (Gunaikurnai Land and Waters Aboriginal Corporation).</p> | Priority 1 |
| 4. Historical heritage | | |
| <p>The key issue(s) associated with historical heritage may include the damage, disturbance or destruction of registered or unknown heritage place(s)/site(s),</p> | <p>The study area intersects with five known historical heritage places, all of which are listed on the Victorian Heritage Inventory (VHI). Unidentified historical heritage places and archaeological sites may also be present within the study area.</p> <p>The project will be designed to avoid potential impacts to known historical heritage places. Should this be not possible, a heritage impact assessment will be undertaken to determine if Consents are required from Heritage Victoria for works within the VHI-listed places. The heritage impact assessment will also determine whether previously unidentified historical archaeological sites or built heritage items are likely to occur within the study area.</p> | Priority 2 |

| Key issue/effect | Preliminary assessment response and mitigation methods | Investigation priority |
|--|---|------------------------|
| 5. Electromagnetic interference and electromagnetic fields | | |
| <p>The key issue(s) associated with electromagnetic interference and electromagnetic fields may include exposure to electric and magnetic fields and/or electromagnetic interference due to new transmission infrastructure.</p> | <p>As the magnetic field induced by AC current proposed for the transmission line is substantially less than that of Direct Current, and the height of the transmission towers, the risk of impacts from electromagnetic interference would be substantially mitigated.</p> <p>Preliminary Investigations indicate that high sensitivity receivers to electromagnetic interference (such as medical facilities and scientific research labs) are not known to occur within the study area. Further assessment of potential sensitive receivers and potential impacts on those receivers would be undertaken through an Electromagnetic Interference Impact Assessment. This would include consideration of impacts on agricultural receivers (such as apiaries) and radio frequencies.</p> <p>Where possible, impacts would be avoided through the design process. Design and mitigation measures would be determined with regard to guidelines from the International Commission on Non-Ionising Radiation Protection (ICNIRP), as well as the following organisations that reference ICNIRP standards:</p> <ul style="list-style-type: none"> • Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) – just reference ICNIRP • State of Victoria Department of Health and Human Services • Energy Networks Australia (ENA) | Priority 2 |
| 6. Geology and soils | | |
| <p>The key issue(s) associated with geology and soils may include damage to sites of geological significance and/or erosion, loss of top soil and/or land instability due to construction works, disturbance of contaminated soil, Potential Acid Sulfate Soil (PASS) or acidic rock, and/or human health impacts from spills or leaks of hazardous substances.</p> | <p>The regional geology underlying the study area (coastal to inland) is of variable distribution, relatively complex and comprises a sequence of different fills, natural soils and rock types (weathered and unweathered) of assorted ages.</p> <p>Preliminary assessment indicates discrete areas of low landslide hazard in the study area (within the central zone between Hiamdale, Willung and Stradbroke and at the northern end by the Loy Yang Open Cut Mine). Regions outside these areas are assigned a very low landslide hazard occurrence. The Local Government Area landslide mapping classifies the study area as a low landslide hazard level.</p> <p>Most of the study area does not coincide with major industrial land use areas, except for the area within and surrounding the Loy Yang Power Station. The power station is likely to pose potentially contaminated land risks to the project. Large portions of the study area are zoned for agricultural and forestry land use, which represents a potential for contamination (e.g., from herbicide, pesticide and fertiliser use) across the study area.</p> <p>Preliminary assessment indicates that provisional classification of the study area ranges from “low probability/low confidence” to “extremely low probability/low confidence” for Acid Sulfate Soils. However, a portion of the study area located close to the connection hub along the coast is situated within proximity to soils classified as having “high probability/low confidence” for Acid Sulfate Soils. Further investigation would determine the contamination, acid sulfate soil and spoil management requirements for the project.</p> <p>The potential impact of local geotechnical conditions will vary depending on the nature of the construction activities (i.e., shallow excavations or deep groundworks processes) and the extent to which they will modify or disturb the existing soil/rock landform and underlying groundwater regime at both a micro-site and wider works area.</p> <p>Impacts to geology and soils would be managed through project design as well as through erosion and sediment control measures in the CEMP, which would be developed in accordance with relevant EPA guidelines, such as EPA Publication 1834.1 <i>Civil construction, building and demolition guide</i>.</p> | Priority 2 |

| Key issue/effect | Preliminary assessment response and mitigation methods | Investigation priority |
|---|---|------------------------|
| 7. Groundwater and surface water | | |
| <p>The key issue(s) associated with groundwater and surface water may include changes to groundwater and/or surface water quality / environmental values, groundwater levels or flow direction and recharge rates, and surface flow paths, and/or flood levels or frequencies.</p> | <p>Any excavation below the water table (e.g., for trenching, or launch and retrieval pits for micro-tunnelling) may require temporary dewatering, which could result in water table drawdown. This may impact nearby groundwater receptors including Groundwater Dependent Ecosystems (terrestrial and aquatic) and bores due to reduced baseflow impacting streamflow, water quality and water availability. Under routine operations, no significant impacts to groundwater are expected.</p> <p>Temporary modification / diversion or obstruction of surface water flow paths during construction may increase inundation and flooding impacts to surrounding property and infrastructure. Construction works within waterways may also affect surface water quality. Operation of the project may affect the frequency and depth of flooding in the study area.</p> <p>Impacts to groundwater during construction would be mitigated through the design process and CEMP. Potential flooding issues will be managed through appropriate design of infrastructure and water treatments. The project will avoid in-stream work and will assess waterway crossings.</p> | Priority 2 |
| 8. Land use and planning (including agriculture and forestry) | | |
| <p>The key issue(s) associated with land use may include temporary disruption to existing land uses and access during construction, and permanent displacement of, or restrictions on, incompatible land uses and/or activities once operational. This will include consideration of existing land uses within the study area, such as agriculture and forestry.</p> | <p>Land uses in and around the study area generally comprise agriculture including farming, forestry and plantation, extractive industry and energy generation, environmental conservation and public recreation. Land is also used for major arterial roads, local roads, utilities and dwellings associated with agriculture. The study area also encompasses several small rural residential communities.</p> <p>Project construction may alter access to and/or disrupt existing public or private land use (e.g., agriculture including timber plantations and extractive industry, conservation and public recreation). Engagement with affected stakeholders and the community will be undertaken to further understand how land is used and may be used in the future, and to discuss the potential effects of the project and mitigation measures. Consultation will also be undertaken with affected landholders, with the establishment of agreements for the occupation / access of land.</p> <p>The operation of the project will impact on existing land and its uses with the burden of future easements. Engagement with affected stakeholders and the community will be undertaken to further understand how the location of easements will impact on existing and future land uses.</p> <p>Impacts would be mitigated through project design, as well as strategies and plans such as the Stakeholder and Community Engagement Strategy, Land Access Agreements and Property Access Management Plans.</p> | Priority 1 |
| 9. Landscape and visual impact | | |
| <p>The key issue(s) associated with landscape and visual impacts may include temporary changes to visual amenity at sensitive receptors (dwellings and public spaces), permanent changes to visual amenity at sensitive receptors (dwellings and public spaces) and/or visual impacts to heritage values of places included on the Victorian Heritage Register and/or within a Heritage Overlay.</p> | <p>The study area consists of a variety of landscape character types, including agricultural land, plantations / forestry, extractive industries, State Parks, flora and fauna reserves, coastal reserves, roads, waterways and small communities/dwellings away from urban centres.</p> <p>The potential impacts of the project on these landscapes will be assessed, and is dependent on the location of the infrastructure as well as heights, visual screening and topography.</p> | Priority 1 |

| Key issue/effect | Preliminary assessment response and mitigation methods | Investigation priority |
|---|---|------------------------|
| 10. Social and economics | | |
| <p>The key social and economic issue(s) may include the loss of income and/or change to existing land use due to the acquisition of private land; temporary changes to function of public open space, community or recreation facilities; reduction in tourism visitation; permanent changes to function of public open space, community or recreation facilities; temporary changes to local access; temporary changes to amenity; permanent changes to amenity; temporary change to housing availability; change to employment access and opportunities and/or perceived concerns about the project (e.g., land values, community identity).</p> | <p>The project will support job growth due to an increased demand for skilled labour in the renewable energy sector. During construction, the project will provide direct and indirect economic benefits by delivering economic opportunities for local manufacturers and suppliers, as well as local businesses to provide services such as catering, cleaning, transport shuttles and workforce housing.</p> <p>Loss of income may occur due to permanent displacement or restrictions on current land use (e.g., extractive industry, forestry, commercial or industrial land) or reduced tourism visitation within the transmission line easement or adjacent areas. Construction activity utilising local labour and materials may result in labour or materials shortages for other businesses reliant on a similar workforce or materials. Relocation of non-local labour during construction may also impact affordability of rental properties due to housing shortages.</p> <p>VicGrid is committed to stakeholder consultation to reduce the effects of the project as much as possible, but further investigation and consultation is required to determine the nature and extent of potential impacts on social wellbeing and the economy, and the most effective ways to reduce those impacts.</p> <p>The project will be designed to minimise social and economic impacts so far as reasonably practicable, and stakeholder and community consultation will continue throughout the design process to ensure that their concerns are considered. The project will also seek to enable community and landholder benefits through a shared benefits framework.</p> | <p>Priority 1</p> |
| 11. Traffic and transport | | |
| <p>The key issue(s) associated with traffic and transport may include temporary increased traffic volumes and heavy vehicle movements, and temporary access changes.</p> | <p>Construction impacts would be local and managed through the development of detailed Traffic Management Plans.</p> | <p>Priority 2</p> |

5.4 Summary

The preliminary evaluation presented in this project outline demonstrates that the project's construction and operation are capable of having a significant effect on the environment. To avoid, minimise and/or mitigate these potential effects, specialist studies will be undertaken to inform the development of the reference design and management measures, and the refinement of the study area into a study corridor, and ultimately a preferred route.

These specialist studies will involve:

- **Existing conditions (baseline) studies** – to identify the current conditions of the environment in relation to the study area, as well as relevant policy context that may inform the project design and construction; and
- **Impact assessment studies** – to assess potential project construction and operational impacts, and identify mitigation and management measures.

The following specialist studies will be undertaken to further assess the potential environmental effects identified in the preliminary evaluation:

| Priority 1 | Priority 2 |
|--|---|
| <ul style="list-style-type: none">• Biodiversity• Cultural heritage• Landscape and visual impact• Social and economics• Land use and planning (including agriculture and forestry) | <ul style="list-style-type: none">• Bushfire• Electromagnetic interference and electromagnetic fields• Geology and soils (including soil contamination)• Groundwater and surface water• Traffic and transport |

6. Stakeholder identification and engagement

VicGrid commits to meaningful, principled and inclusive engagement, and understands the importance of early engagement. The term 'stakeholder' refers to any person, group or organisation with an interest in, or who is impacted by, a project.

It is important to note that stakeholders may change over time and different approaches may be required for effective engagement. As a Victorian Government agency, VicGrid applies the *Public Engagement Framework 2021-2025*¹⁰, which sets out public engagement principles and measures for engagement evaluation.

6.1 Key stakeholders

Stakeholder engagement will occur throughout the planning and delivery of the project. Stakeholder groups currently identified by VicGrid include:

- Government (local, State and Federal), including:
 - Elected representatives (Members of Parliament and Councillors)
 - Government authorities and departments
- Community and partners, including:
 - Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC)
 - Local townships and communities
 - Landowners and residents in and near the Gippsland study area
 - Special interest groups, e.g., Landcare
- Industry, including:
 - Offshore wind energy developers
 - Utilities
 - Agriculture industry associations, peak bodies and enterprises
 - Transmission developers (TNSPs)
 - Energy industry groups.

VicGrid recognises that transmission planning must involve genuine partnerships with First Peoples through separate and ongoing consultation on the approach to their participation in transmission and offshore wind infrastructure planning. This approach recognises Traditional Owners as rights holders to Land, Sky and Sea Country on which new transmission infrastructure may be built, and will be undertaken in accordance with DEECA's Traditional Owner and Aboriginal Community Engagement Framework.

6.2 Engagement to date

Over the course of 2023 and early 2024, VicGrid has used a variety of engagement tools and communication channels to share information and seek feedback on the early planning and development phase of the project, including through:

- VicGrid and Engage Victoria websites

¹⁰ <https://www.vic.gov.au/public-engagement-framework-2021-2025>

- Webinars and stakeholder meetings
- Community drop-in and landholder roundtable sessions
- Fact sheets and newsletters
- Online surveys and a 'Question and Answer' tool
- Industry Forums

Feedback received was used to inform the identified study area, connection hub and technology type.

Engagement summary reports are available on Engage Victoria (<https://engage.vic.gov.au/offshore-wind-transmission>).

6.3 Future engagement

Community and stakeholder engagement activities will continue to be timed to coincide with the planning delivery program and in line with feedback received. The key phases of engagement are associated with:

- EES and PSA preparation: 2024 to 2027
- EES exhibition and approval and construction: 2027 onwards (indicative only).

VicGrid will develop a comprehensive EES Consultation Plan, which will identify and analyse stakeholders and their interests and comprise strategies for engaging with stakeholders in the preparation of the EES, ensuring that their feedback is integrated into the decision-making process.

7. Conclusion

The Victorian Government has legislated an offshore wind energy generation target of 2 GW by 2032. The 2032 target is to be met through offshore wind energy generated in Australia's first declared offshore wind area off the Gippsland coast.

The project will provide common connection points for offshore wind projects and shared transmission line, delivering safe, reliable and affordable energy to homes and businesses across Victoria through the NEM.

This project outline presents a preliminary evaluation of potential environmental effects associated with the construction and operation of the project. The preliminary evaluation demonstrates that the project's construction and operation are capable of having a significant effect on the environment.

To avoid, minimise and/or mitigate these potential effects, specialist studies will be undertaken to inform the development of the reference design and management measures. Proactive engagement will also play a key role in avoiding, minimising, and/or mitigating potential effects.

VicGrid will continue its investigations and engagement activities to support a PSA to authorise and regulate the construction and operation of the project. Should the Minister for Planning declare the project "public works" in accordance with section 3(1) of the EE Act and require an EES for the project, the evaluation in this project outline and subsequent work undertaken by VicGrid could assist in the preparation of scoping requirements.

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