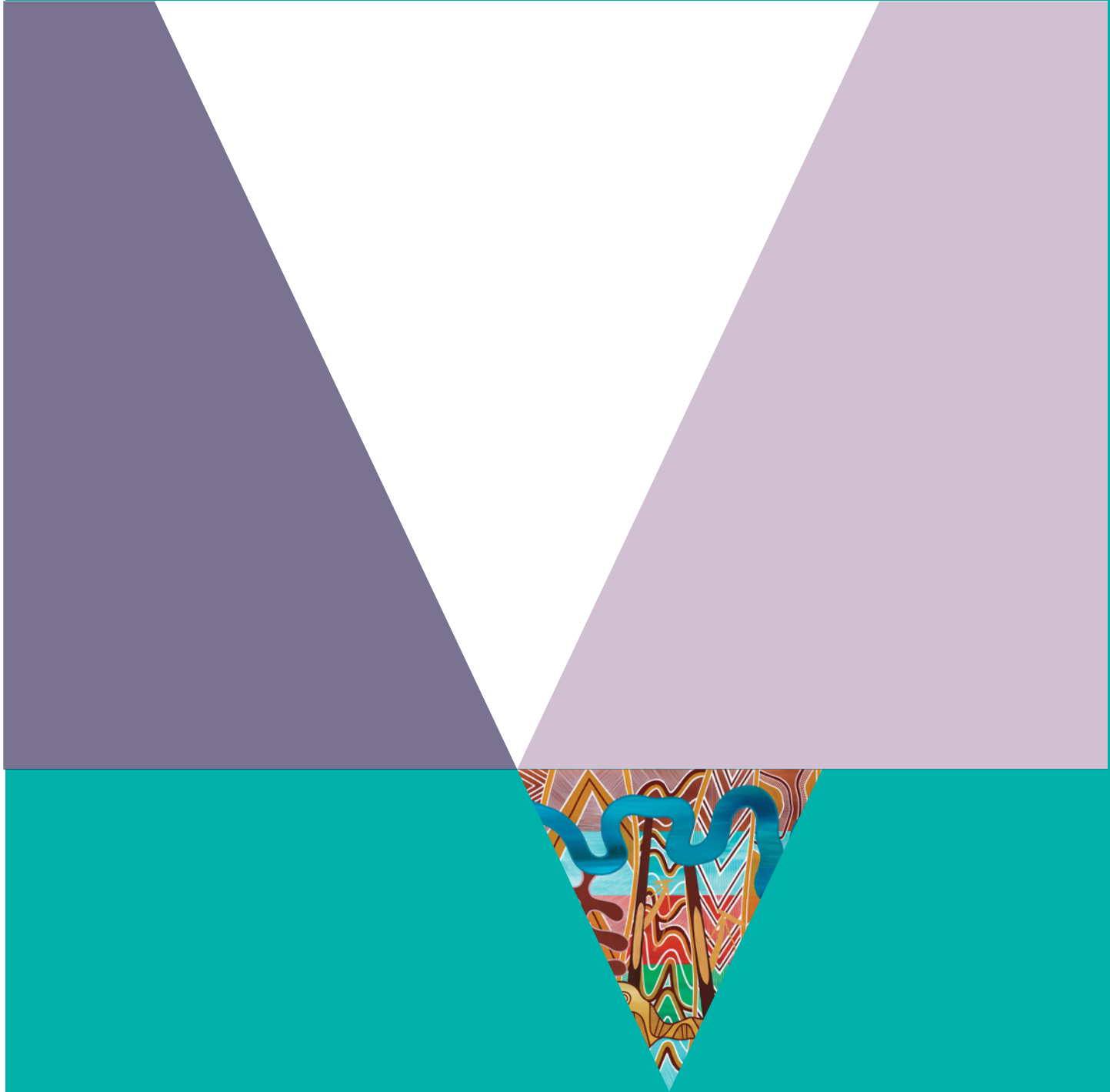


# Golden Beach Gas Project

Minister's Assessment under  
Environment Effects Act 1978



Minister for Planning  
April 2021



Environment,  
Land, Water  
and Planning

OFFICIAL



## Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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# Contents

<b>Glossary</b> .....	<b>4</b>
<b>Executive summary</b> .....	<b>5</b>
<b>1. Introduction</b> .....	<b>6</b>
1.1 Purpose of this document .....	6
1.2 Structure of the assessment .....	6
<b>2. Project description</b> .....	<b>7</b>
2.1 Project rationale and integration with Victorian energy and climate policy .....	7
<b>3. Statutory processes</b> .....	<b>9</b>
3.1 Environment Effects Act .....	9
3.2 Offshore Petroleum and Greenhouse Gas Storage Act .....	9
3.3 Pipelines Act .....	10
3.4 Environment Protection Act .....	10
3.5 Aboriginal Heritage Act .....	10
3.6 Other Victorian statutory approvals .....	10
3.7 Commonwealth statutory approval .....	11
<b>4. Environmental assessment and management framework</b> .....	<b>12</b>
4.1 Consideration of environmental effects .....	12
4.2 Assessment evaluation objectives .....	12
4.3 Management of environmental effects .....	12
4.4 Consideration of alternatives .....	14
<b>5. Assessment of environmental effects</b> .....	<b>16</b>
5.1 Onshore biodiversity .....	16
5.2 Marine environment .....	22
5.3 Aboriginal cultural heritage .....	26
5.4 Groundwater and surface water .....	27
5.5 Contamination and acid sulfate soil .....	30
5.6 Air quality and greenhouse gas emissions .....	32
5.7 Noise and vibration .....	35
5.8 Localised effects .....	36
<b>6. Conclusion</b> .....	<b>39</b>
<b>Appendix A Matters of national environmental significance</b> .....	<b>43</b>
<b>Appendix B Environment mitigation measures</b> .....	<b>55</b>



# Glossary

AEMO	Australian Energy Market Operator
AEP	Annual Exceedance Probability
AHD	Australian height datum
ASS	Acid sulfate soils
CEMP	Construction environment management plan
CHMP	Cultural heritage management plan
DAWE	Department of Agriculture, Water and the Environment
DELWP	Department of Environment, Land, Water and Planning
EES	Environment effects statement
EMBA	Environment that may be affected
EMF	Environmental management framework
EMM	Environmental mitigation measure
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EVC	Ecological vegetation class
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
Ha	Hectares
HDD	Horizontal directional drilling
MNES	Matters of national environmental significance
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
OEMP	Operational environment management plan
RAP	Registered Aboriginal Party
SEPP	State environment protection policy

## Executive summary

On 8 September 2019, following receipt of a referral from GB Energy (Vic) Pty Ltd under the *Environment Effects Act 1978*, I decided that an environment effects statement (EES) was required for the Golden Beach Gas Project. GB Energy (Vic) Pty Ltd prepared an EES which I authorised for public exhibition. The EES was exhibited for public comment from 26 October 2020 to the 7 December 2020.

On 29 November 2020, I appointed an inquiry to consider the project's EES and a works approval application. The inquiry was also appointed as a panel under the *Pipelines Act 2005* to consider the pipeline licence application and related submissions. Planning Panels Victoria received 13 submissions, which the inquiry considered prior to holding a submitter conference on 18 January 2021. The inquiry provided its report to me on 2 March 2021. The inquiry's report, EES documentation and other material including submissions and documents provided at the submitter conference have informed the preparation of my assessment of the environmental effects of the project, as set out within this document.

It is my assessment that the project can proceed with acceptable environmental effects, subject to project modifications discussed in this assessment and an environmental management regime that incorporates mitigation, management and monitoring measures consistent with those endorsed by the inquiry and refined as per the findings and recommendations of this assessment.

My assessment includes specific recommendations for the attention of the Minister for Resources, Department of Jobs, Precincts and Regions, Minister for Energy, Environment and Climate Change and the Environment Protection Authority as well as for the proponent. My assessment is provided to relevant statutory decision-makers responsible for the provision of approvals for the project under Victorian law. Decision-makers must consider this assessment before deciding whether and how the project should proceed.

The project is a controlled action under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to potential impacts on matters of national environmental significance (MNES). Accordingly, the Victorian EES process was undertaken as an accredited assessment process for EPBC Act purposes, pursuant to the bilateral (assessment) agreement between the Australian and Victorian governments. Therefore, the EES and my assessment examine impacts on relevant MNES and will be provided to the Australian Minister for the Environment to inform her decision about whether and under what conditions to approve the project under the EPBC Act.

It is my assessment that residual impacts on MNES are not significant and will be acceptable with successful implementation of the appropriate environmental management, as outlined in this assessment. I note that while there is a risk of significant impacts on marine and coastal MNES, that this is related to the unlikely occurrence of a large marine diesel spill, and that the proposed mitigation measures are appropriate to manage this risk.

# 1. Introduction

On 7 August 2019, GB Energy (Vic) Pty Ltd (GB Energy) referred the Golden Beach Gas Project to me under the *Environment Effects Act 1978*.

On 8 September 2019, I decided that an environment effects statement (EES) was required. My decision to require an EES included procedures and requirements for the EES, in accordance with section 8B(5) of the Environment Effects Act, including specifying that the EES must investigate and report on the effects of the project on:

- the offshore marine environment and ecology;
- Aboriginal cultural heritage values;
- biodiversity and ecological values within and close to the site footprint including the Gippsland Lakes Ramsar site, native vegetation, listed threatened ecological communities and flora and fauna species, and other habitats values;
- landscapes and soils;
- air quality (including greenhouse gas emissions), noise and visual amenity of nearby residents;
- socio-economic values and land-use; and
- surface water environments including local waterways and the broader catchment, as well as groundwater (hydrology, quality, uses and dependent ecosystems).

## 1.1 Purpose of this document

This document constitutes my assessment of the environmental effects of the project under the Environment Effect Act. It represents the final step in the EES process and provides authoritative advice to decision-makers on the likely environmental effects of the project, their acceptability and how they are to be addressed in relevant statutory decisions. My assessment is largely informed by the report of the inquiry that I appointed together with the EES and public submissions.

My assessment will inform the decisions required under Victorian law for the proposal to proceed, as well as the Commonwealth decision under the EPBC Act.

## 1.2 Structure of the assessment

My assessment follows the general structure:

- Section 2 provides a brief description of the project and considerations of the inquiry and my assessment;
- Section 3 outlines both the EES process and statutory approvals required for the project;
- Section 4 describes how I have undertaken my assessment and outlines the framework for managing the project's environmental effects;
- Section 5 assesses the environmental effects of the project based on the applicable legislative and policy framework and provides a summary of key project effects;
- Section 6 contains my conclusions, including responses to the recommendations of the inquiry;
- Appendix A contains a consolidated assessment of impacts on matters of national environmental significance; and
- Appendix B contains a consolidated response to the inquiry and my assessment's recommended changes to environmental mitigation measures.



## 2. Project description

The EES described the project as the construction, operation and decommissioning of two project components (Figure 1, overleaf).

1. Two offshore wells with installation of subsea production systems, Christmas trees (an assembly of valves, casing spools and fittings used to regulate the flow of pipes in a gas well) and wellheads.
2. High pressure gas pipeline(s) and associated infrastructure including:
  - subsea raw gas pipeline and umbilical from the offshore wellheads to a shore crossing facility;
  - shore crossing facility including an unmanned control room, termination unit for the umbilical, wellhead chemical storage and injection systems and a separator vessel to collect water from the pipeline;
  - buried onshore raw gas pipeline from the shore crossing facility to the gas compressor station;
  - gas compressor station to dry and compress raw gas from the offshore field;
  - buried onshore sales gas pipeline from the gas compressor station to the existing Victorian Transmission System and the Eastern Gas Pipeline at Longford;
  - metering facility adjacent to Jemena's Longford Compressor Station, for the commercial and operational metering of the flows of gas; and
  - connection to the east coast gas market in the vicinity of Longford.

The development would occur over a 40-year project life span including:

- the production of a portion (approximately 40 – 45 petajoules) of the natural gas currently within the reservoir; and
- the conversion of the field into a gas storage facility, providing an initial withdrawal capacity of up to 250 tetrajoules per day.

The project would be constructed within near-shore Victorian waters<sup>1</sup>; beach and coastal dunes of Ninety Mile Beach; coastal lakes, including seasonal wetlands, which form part of the Gippsland Lakes system; native forest, woodland and grasslands; and agricultural land used for cropping, grazing and plantation forestry. The project traverses marine fisheries, farming and industrial property and public land, including roadside reserves, public utilities, conservation areas and agricultural land. Sensitive environmental areas within the project extent and surrounds are the Gippsland Lakes Coastal Park and the Gippsland Lakes Ramsar Site, specifically Lake Reeve. The project is described in more detail in Chapter 4 of the EES.

### 2.1 Project rationale and integration with Victorian energy and climate policy

The EES describes the benefit of the project to the Victorian energy market as new gas supply and gas storage infrastructure. The EES asserts that the project has a role to play in providing additional gas at a time where AEMO has forecast a potential for gas supply shortfalls. The EES describes the project's planned transition from gas production to gas storage, which is intended to support the energy market during peak demand in the Winter months, or when renewable electricity generation is low. The project rationale is described in further detail in Chapter 2 of the EES.

The inquiry raised concerns around the approval of a fossil fuel-based project with a 40-year design life at a time when Victorian energy policy is focused on a transition to renewable energy. In doing so, the inquiry highlighted a gap in statutory decision making for fossil fuel-based projects without explicit consideration of interim and long-term greenhouse gas targets. I concur with the inquiry and therefore ask the Minister for

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<sup>1</sup> The project is located entirely within Victorian State waters (3 nautical miles from the coastline).

Energy, Environment and Climate Change to consider the inquiry's findings and recommendations on this matter.

The requirement for an EES for the Golden Beach Gas project was due to my understanding of the potentially significant environmental effects of the project. Regardless of the contribution that the project might make towards energy security or potentially supporting the transition to renewable energy, this assessment is an objective appraisal of the environmental effects of the proposed project and is to be taken into account by decision-makers in that light.

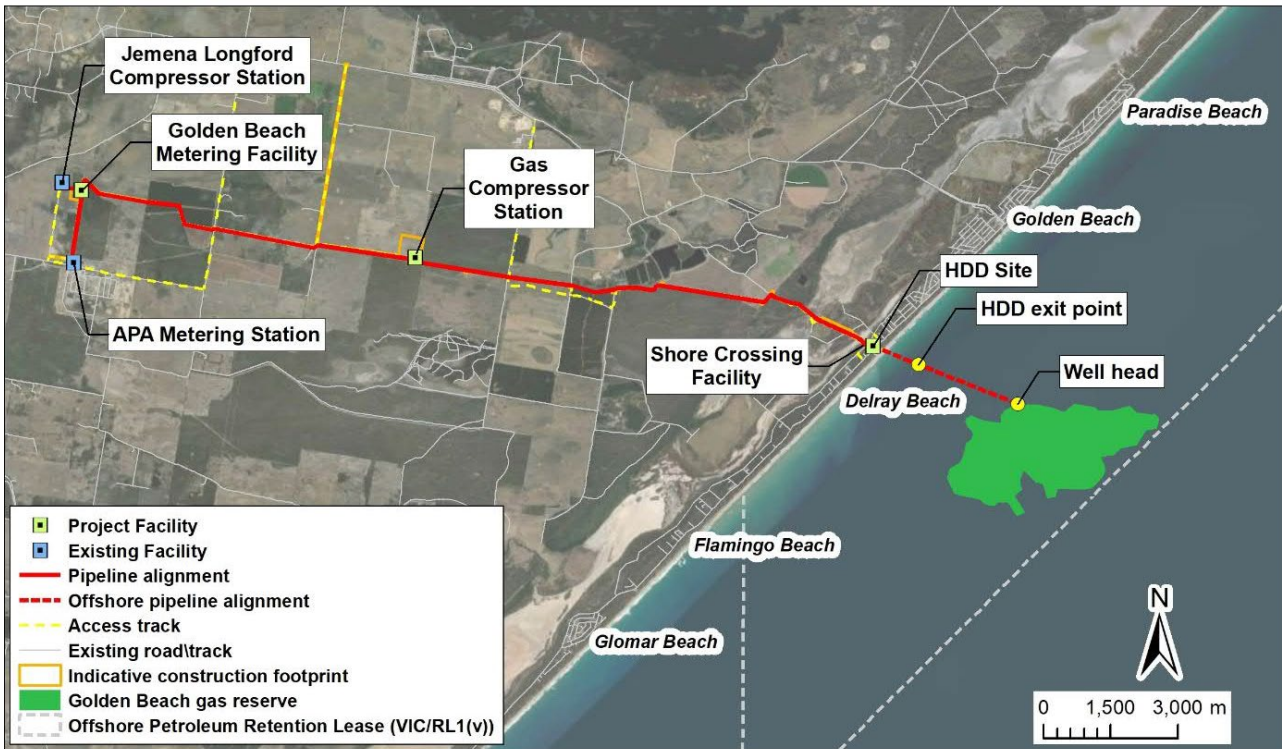


Figure 1: Golden Beach Gas Project area.

## 3. Statutory processes

### 3.1 Environment Effects Act

Following exhibition of an earlier draft for public comment, in May 2020, I issued the scoping requirements that specified the range of matters to be addressed in the EES. A technical reference group<sup>2</sup> was convened by the Department of Environment, Land, Water and Planning (DELWP) in accordance with normal EES practice to provide advice to the proponent and DELWP on the preparation of the EES.

The EES, prepared by GB Energy was placed on public exhibition from 26 October to 7 December 2020. A pipeline licence application and an EPA works approval application were also exhibited with the EES. Thirteen submissions were received, five of which were from state and local government bodies.

On 29 November 2020, with the consent of the Governor in Council, I appointed an inquiry under the Section 9(1) of the Environment Effects Act, to review submissions and inquire into the environmental effects of the proposal, in accordance with its terms of reference, which I approved on 13 September 2020. The inquiry members were also appointed as a panel under section 40 of the *Pipelines Act 2005* to consider the pipeline licence application.

The inquiry held a directions hearing on 17 December 2020, followed by a submitter conference, which was held on 18 January 2021. The inquiry provided its report to me on 2 March 2021. The inquiry's report, exhibited EES documentation, other information provided to the inquiry, and public submissions, have informed the preparation of my assessment of the project's environmental effects.

The next step under the Environment Effects Act, requires me to provide this assessment to statutory decision-makers under Victorian law. Decision-makers must then consider this assessment before deciding whether and how the proposal should proceed.

### 3.2 Offshore Petroleum and Greenhouse Gas Storage Act

The *Offshore Petroleum and Greenhouse Gas Storage Act 2010* regulates licensing, operating and environmental issues for offshore gas fields. The project will require a production licence, an approved field development plan, a pipeline licence (offshore) and approved environment plan(s) for the construction and operational phases of the project under the Act. These approvals are issued by the Minister for Resources or delegate.

NOPSEMA is responsible for regulating well and pipeline integrity together with safety matters under the Offshore Petroleum and Greenhouse Gas Storage Act. NOPSEMA need to assess and accept a number of plans including risk management plans, safety cases, well operations management plans and offshore project proposals and environmental plans for the project to proceed.

I note that the Department of Jobs, Precincts and Regions is pursuing legislative amendments to the Offshore Petroleum and Greenhouse Gas Storage Act in order to permit underground petroleum gas storage and recovery operations in a depleted offshore petroleum reservoir.

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2. The technical reference group comprised representatives of DELWP (Planning, Environment and Energy portfolios), Department of Jobs, Precincts and Regions (Earth Resources Regulation), Heritage Victoria, Aboriginal Victoria, Environment Protection Authority, Parks Victoria, West Gippsland Catchment Management Authority, Gippsland Water and Wellington Shire Council. The proponent and relevant members of its consultant team also attended meetings.

While this assessment considers the potential environmental effects associated with both storage and recovery of gas within the offshore Golden Beach Gas Reservoir, GB Energy will also need to meet the relevant requirements of potential amendments to the Act. In making her decisions, the Minister for Resources should have due regard for the specific recommendations of the inquiry and my assessment as outlined in Section 6 and Appendix B.

### 3.3 Pipelines Act

The Pipelines Act governs the construction and operation of gas pipelines in Victoria. A pipeline licence application was submitted to the Minister for Energy, Environment and Climate Change on 8 October 2020 and was jointly advertised with the EES. The pipeline licence application relates to the onshore and shore crossing pipeline and associated infrastructure. The sub-sea pipeline between the wellheads and the horizontal directional drilling (HDD) punch-through are regulated under the Offshore Petroleum and Greenhouse Gas Storage Act. Matters relevant to the assessment of the pipeline licence application are addressed throughout Section 5 of this assessment.

In making her decision, the Minister for Energy, Environment and Climate Change should have due regard for the recommendations of the inquiry and my assessment as outlined in Section 6 and Appendix B.

### 3.4 Environment Protection Act

An application for a works approval (1004060) for the compressor station has been received by the EPA and was advertised jointly with the EES, in accordance with Section 20AA of the Environment Protection Act. Matters relevant to the assessment of the works approval application are addressed in Section 5.7 of this assessment. With specific regard to the works approval application and EPA's decision, the EPA should assess the project's compliance with applicable state environment protection policies (SEPPs), particularly SEPP (Ambient Air Quality) and SEPP (Air Quality Management) and with other relevant policy under the Environment Protection Act.

In making its decision, EPA should have due regard to this assessment as well as the specific recommendations of the inquiry and my assessment as outlined in Section 6 and Appendix B.

### 3.5 Aboriginal Heritage Act

Beyond any other triggers which may apply, the Aboriginal Heritage Act stipulates that an approved cultural heritage management plan (CHMP) must be prepared for works for which an EES is required. Matters relevant to the assessment of the CHMP are addressed in Section 5.3 of this assessment. The project is located on land for which the Gunaikurnai Land and Waters Aboriginal Corporation is the registered Aboriginal party (RAP) under the *Aboriginal Heritage Act 2006*. The CHMP will be evaluated by the Gunaikurnai Land and Waters Aboriginal Corporation.

### 3.6 Other Victorian statutory approvals

The project requires other Victorian statutory approvals. Those approvals or consents are generally less significant and/or technical in nature:

- consent under the *Marine and Coastal Act 2018*;
- consent to undertake works on or across a waterway under the *Water Act 1989*;
- a licence to withdraw water entrained within the gas under the *Water Act 1989*;
- permits under the *Roads Management Act 2004* and *Road Safety Act 1986*;
- a permit under the *Fisheries Act 1995*;
- consent under the *National Parks Act 1975*;

- a permit to remove listed flora and/or fauna from public land under the *Flora and Fauna Guarantee Act 1988*; and
- if needed, a permit to take wildlife under the *Wildlife Act 1975*.

### 3.7 Commonwealth statutory approval

On 14 August 2019, the GB Energy referred the Golden Beach Gas project to the Commonwealth Minister for the Environment (Referral EPBC 2019/8513) for a determination on whether the project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

On 22 November 2019, the delegate for the Minister determined the project to be a controlled action requiring assessment and approval under the EPBC Act because of its potential for significant impacts on matters of national environmental significance (MNES). The EES is an accredited assessment process under a bilateral agreement between the Australian and Victorian governments. Hence, my assessment will inform the Commonwealth Minister's decision about whether and under what conditions to approve the project, therefore fulfilling the assessment requirements for MNES under the EPBC Act. My assessment of the potential impacts on MNES is addressed in Appendix A.

## 4. Environmental assessment and management framework

This part of my assessment:

- summarises my approach to assessing the environmental effects of the project;
- explains relevant aspects of the regulatory framework and proposed environmental control regime that have informed my assessment; and
- sets out my analysis and findings on the project's effects.

### 4.1 Consideration of environmental effects

My assessment has been informed by consideration of the EES, public submissions, evidence tabled with the inquiry, information and submissions presented at the inquiry's submitter conference and the inquiry's report. Legislation, policy, strategies and guidelines, summarised in Chapter 5 of the EES, and the objectives and principles of ecologically sustainable development, also contextualise my assessment.

### 4.2 Assessment evaluation objectives

To provide an integrated structure for this assessment, key aspects of legislation and statutory policy have been synthesised into a set of evaluation objectives (Table 1). These objectives are derived from the evaluation objectives included in the scoping requirements for the EES and used by GB Energy in its assessment of alternatives and effects within the EES. The inquiry also assessed the project having regard to the evaluation objectives.

**Table 1: Assessment evaluation objectives.**

Section	Evaluation objective
2, 5.8, 6	Provide for safe and cost-effective augmentation of Victoria's natural gas supply in the medium to longer term.
5.1, 5.2	Avoid or minimise potential adverse effects on terrestrial, aquatic and marine biodiversity values within the project site and its environs, including native vegetation, listed species and ecological communities, other protected species and habitat for these species.
5.3, 5.8	Avoid or minimise adverse effects on Aboriginal and historic cultural heritage and associated values.
5.4, 5.5	Maintain the functions and values of aquatic environments, groundwater, stream flows and water quality and prevent adverse effects on protected beneficial uses including the ecological character of the Gippsland Lakes Ramsar site.
5.6, 5.7, 5.8	Avoid and minimise adverse effects for community amenity and well-being, with regard to project noise, vibration, air quality (including greenhouse gas emissions) and landscape and visual effects.
5.7, 5.8	Avoid and minimise adverse effects on land use, social fabric of the community, traffic and road infrastructure, local infrastructure and to neighbouring landowners during construction, operation and decommissioning of the project.

### 4.3 Management of environmental effects

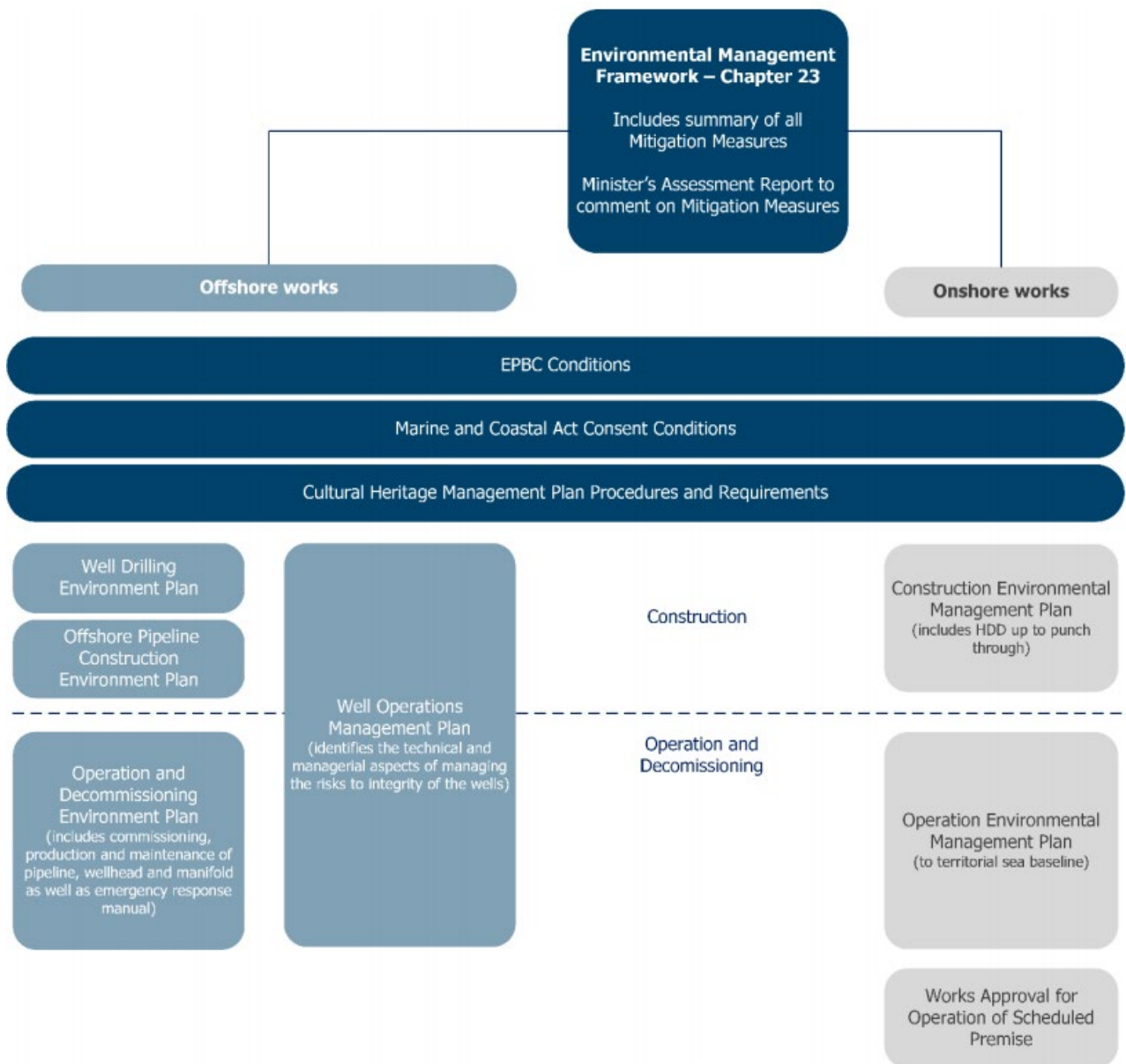
I acknowledge that the project will generate environmental effects. A sound regulatory framework and environmental control regime is needed to ensure that adverse effects of the project are effectively

mitigated and managed. I have considered key elements of that regime, described below, when assessing the project’s environmental effects.

**Environmental management framework**

An environmental management framework (EMF) was presented in chapter 23 of the exhibited EES. As noted by the inquiry, the EMF does not have any statutory weight as has been the case for a number of recent EESs where the EMF is given statutory weight through a planning scheme amendment. Section 85 of the Pipelines Act switches off the requirement for a planning permit for the onshore pipeline.

The EES outlines an environmental management regime including the key approvals and statutory environmental management plans in which the proposed environmental mitigation measures (EMMs) are to be given statutory weight via either conditions in approvals or captured in various environmental plans that are required to be approved by a statutory authority (Figure 2).



**Figure 2: Statutory approvals and environmental plans which would give mitigation measures statutory weight (Source GB Energy, Chapter 23 of the EES).**

A key element of the proposed EMF is the proposed EMMs, which set out the commitments the proponent has made to manage the potential environmental effects of the project identified in the EES. The EMMs were the subject of discussion during the submitter conference and through submissions. The inquiry's consideration of the EMMs is reflected in recommendations within their report. See Section 5 and Appendix 2 of my assessment for detailed comments and recommendations about the EMMs.

The inquiry concluded that with some refinement to provide clearly specified responsibilities for environmental compliance (including for developing and implementing environmental documentation), the EMF provides an appropriate basis for informing the various approvals for the project, and to guide the preparation of the various plans and other environmental documentation that will be required.

The inquiry recommended that regulators should ensure that conditions in all relevant project approvals and/or in other environmental documentation such as environmental management plans support clear performance objectives underpinned by measurable quantitative limits or explicit measures to minimise impacts or risks. The inquiry also recommended that conditions be placed in the works approval, pipeline licence and approvals under the Offshore Petroleum and Greenhouse Gas Storage Act, that require a consistent environmental management system to be prepared and implemented across all the different elements of the project. This should also include audits of environmental performance and compliance conducted by an auditor approved by the relevant regulator and maintaining an environmental risk register that is reviewed throughout the project life. It is my recommendation that the proponent should also promptly publish the results of the environmental performance and compliance auditing on their website, as I have recommended in a number of my recent assessments. This will ensure the community are aware of the environmental performance of the proponent. I support the findings and recommendations of the inquiry in relation to the EMF.

The inquiry also recommended that a condition be included in the works approval requiring an environmental management plan relating specifically to the construction and operation of the compressor station be prepared to the satisfaction of the EPA. I support this recommendation from the inquiry.

#### **4.4 Consideration of alternatives**

As set out in the scoping requirements and the EES procedures and requirements issued by the Minister under the Environment Effects Act, this EES was required to describe and assess effects of relevant alternatives for the Golden Beach Gas project. This needed to include comparative assessment of environmental effects of relevant feasible alternatives, as well as explain why the preferred alternative was selected.

The EES assessed a number of project alternatives for certain aspects of construction and infrastructure, in particular: drilling techniques and well head infrastructure; subsea pipeline route; shore crossing location and method; onshore pipeline alignment and construction methods; and location of the gas compressor station. The alternatives that were considered for different aspects of the project are described further in Chapter 3 of the EES.

My assessment focuses on the preferred project as presented in the EES with:

- conventional jack-up drilling of two subsea offshore wells;
- shore crossing alignment adjacent to the Dutson Downs Ocean Outfall Pipeline, constructed using either horizontal directional drilling (HDD) or micro-tunnelling;
- the Lakeside option, to the north-west of Flamingo Drive, for the siting of the shore crossing facility;
- the onshore pipeline alignment, as described in Chapter 4 of the EES, via either a single 24-inch diameter pipeline or dual 18-inch diameter pipelines constructed by open trenching; and



- a mid-line compressor station located off Sandy Camp Road.

## 5. Assessment of environmental effects

On balance, it is my assessment that the project can meet the evaluation objectives, and that its environmental effects will be acceptable, provided the recommendations of this assessment are adopted and implemented effectively.

The inquiry made several findings and recommendations in respect of the project and its effects. My response to its key findings and recommendations, along with my assessment of the main environmental effects of the project, are detailed in the sections below. Section 6 identifies some of the main issues and summarises my key recommendations in these respects.

### 5.1 Onshore biodiversity

#### Evaluation objective

*Avoid or minimise potential adverse effects on terrestrial, aquatic [and marine] biodiversity values within the project site and its environs, including native vegetation, listed species and ecological communities, other protected species and habitat for these species.*

#### Assessment context

Onshore biodiversity effects are addressed in Chapters 7 and 22 and Technical Report A of the EES, as well as in Chapter 4 of the inquiry's report. Twenty-three EMMs deal with onshore biodiversity matters, some of which have been the subject of recommendations by the inquiry.

A number of potential effects of the project for onshore biodiversity values were examined through the EES and inquiry process, in particular:

- loss or degradation of native vegetation and/or habitat for species and communities listed under the EPBC Act, FFG Act and/or DELWP advisory lists;
- adverse effects on the ecological character and biodiversity values of the Gippsland Lakes Ramsar site;
- cumulative effects on biodiversity values from the project in combination with other adjoining projects;
- indirect physical effects from changes in hydrology, water quality, contaminants and pollutants, edge effects, habitat fragmentation, loss of connectivity, dust, noise, environmental weeds pathogens and pest animals;
- adverse effects from noise, light, vibration and visual intrusion of people and machinery; and
- effects on dune stability.

#### Discussion

##### *Listed threatened flora species*

The EES identified 16 state and nationally significant flora species, listed under the EPBC Act, FFG Act and/or DELWP Advisory list, as having a moderate or greater likelihood of occurrence within the project areas. These include five EPBC Act-listed threatened species; Maroon Leek-orchid and Metallic Sun-orchid, Wellington Mint-bush, Thick-lip Spider-orchid and Trailing Hop-bush, the first three of which are also listed under the FFG Act. Four threatened flora species were detected within the project footprint during surveys; Gippsland Lakes Peppermint, Salt Lawrencia, Ribbed Thryptomene, Blue Mat-rush all of which are listed within the DELWP Advisory list. Other significant species were detected near the project area and/or could be present but not detected.

The assessment of impacts on MNES listed under the EPBC-Act (i.e. threatened and migratory species and communities) are discussed in detail, in the context of commonwealth guidelines, within Appendix A.

Potential effects identified for threatened flora within the EES include direct removal of habitat and individual plants, unplanned loss of habitat, invasive weeds, pests and pathogens and effects of dust (Technical Report A). The EES predicts at a local level, there may be possible short-term and reversible effects on most threatened flora species, that will be reduced in the longer-term with habitat restoration of the project area. For Gippsland Lakes Peppermint, which is endemic to the Gippsland area, there is the potential for possible long-term impacts at both a species and local level from the loss of trees (Chapter 7). Additional mitigation measures for this species are outlined in Tabled Document 6 and endorsed by the inquiry.

Targeted surveys undertaken following the exhibition of the EES (in spring 2020) identified populations of Maroon Leek-orchid and Metallic Sun-orchid adjacent to the project area. The results were presented to the inquiry (Tabled Document 6), with additional mitigation measures to protect these populations during construction. While a Wellington Mint-bush was previously recorded within the project areas it has since died. Mitigation measures for this species, including protecting potential soil-stored seed of the species and monitoring for germinant plants, were included in Tabled Document 6. The inquiry supported the inclusion of these mitigation measures into the EMMs. I endorse the inclusion of the recommended measures from Tabled Document 6 into the EMMs.

DELWP and the Australian Native Orchid Society of Victoria made submissions recommending additional measures for the protection of orchids, particularly if translocation is required. DELWP proposed amendments to require the development of a Flora/Orchid Management Plan and precautionary translocation plan. The inquiry agreed with the submissions and proposed their own amendments, incorporating DELWP's suggestions. The proponent agreed to incorporate the Flora/Orchid Management Plan into the CEMP. I endorse this approach.

The inquiry was satisfied that the proposed EMMs in combination with additional measures proposed in Tabled Document 6, and amendments made by the inquiry, are appropriate to manage potential effects to listed threatened flora species. I agree with the inquiry's assessment; if all mitigation measures are implemented effects to threatened flora will be acceptable.

#### *Listed threatened fauna and migratory species*

The EES identified 43 state and nationally significant fauna species, listed under the EPBC Act, FFG Act and/or DELWP Advisory list, as having a moderate or higher likelihood of occurrence within the project area. This included nine EPBC Act-listed threatened species: Spot-tailed Quoll, Southern Brown Bandicoot, Red Knot, Growling Grass Frog, Green and Golden Bell Frog, Shy Albatross, Grey-headed Flying Fox, Hooded Plover and New Holland Mouse. Many species listed as migratory under the EPBC Act and/or of state significance (listed under FFG Act and/or DELWP advisory list) were also identified as having a moderate or higher likelihood of occurrence. Fourteen significant fauna species have been detected within or directly adjacent to the project area; Growling Grass Frog, Green and Golden Bell Frog, Shy Albatross, Hooded Plover and New Holland Mouse, Blue-billed Duck, White-bellied Sea-Eagle, Black Falcon, Hardhead, Pacific Golden Plover, Southern Toadlet, Pacific Gull and Pied Cormorant and Common Long-necked Turtle. Other species with suitable habitat present may not have been detected because they are cryptic, occur at low density or are mobile species (Technical Report A).

Potential effects for threatened fauna identified within the EES include habitat removal, fragmentation of habitat, introduction of Chytrid Fungus to frog population and disturbance from vibration, noise and lighting (Technical Report A). The EES assessments concluded that effects of the project on threatened species would be short-term and localised, with a low residual risk to threatened species following habitat

restoration of the project area. The EES (Chapter 7) concluded there would be unlikely to be a significant impact to EPBC Act-listed fauna species provided the EMMs are implemented. The inquiry noted further guidance is needed for mitigation of impacts to some species, as FFG Act action statements and EPBC Act recovery plans are only available for a subset of the threatened fauna species that would be addressed through the preparation of a fauna management plan. I note that further guidance beyond existing protocols is required and to help address this and recommend that the fauna management plan and any necessary threatened species protocols be prepared in consultation with DELWP and DAWE, and to their satisfaction.

Habitat fragmentation will result from clearing required for the pipeline and works areas (Technical Report A). The EES states that with avoidance and mitigation measures in place, the impacts of habitat fragmentation should be minimal in the long term (i.e. more than five years). It is stated that in the short to medium term the impacts of habitat fragmentation will be greatest for small ground-dwelling fauna (e.g. frogs, New Holland Mouse and Southern Brown Bandicoot) and arboreal mammals. Table 29 of Technical Report A identifies the areas of greatest impact and the species likely to be impacted. The EES proposes mitigation measures to address habitat fragmentation. The inquiry noted that “once the pipeline trench is filled, the land along the pipeline will be available for use by many fauna species, even though only limited vegetation will be allowed to re-establish along the pipeline right of way for operational safety and maintenance reasons”. I agree with the inquiry’s observation and note that as some degree of habitat fragmentation will remain for the life of the project. Therefore, opportunities to further avoid habitat removal should be pursued as far as reasonably practicable. Table 29 of Technical Report A should be referred to in order to identify key areas for further avoidance. I recommend that the fauna management plan should identify further areas of avoidance and recommend an amendment to the EMMs to give this effect.

The project has the potential to introduce or increase Chytrid Fungus, which is a key threat to frog species. The EMMs include the requirement to develop and implement a biosecurity management plan as part of the CEMP and OEMP. The EES found that provided this mitigation measure is implemented, the expected impacts from Chytrid are likely to be minor (Technical Report A). I agree that the risk from the spread of Chytrid is low, provided biosecurity measures are strictly implemented.

Potential effects of artificial lighting on fauna can lead to disorientation, attraction or avoidance (Technical Report A). These may affect critical behaviours such as foraging, reproduction and communication or lead to risk of injury or mortality. The EES states that with the implementation of mitigation measures as outlined in the EMMs, most impacts resulting from artificial lighting are expected to be minor and short-term. I support this conclusion.

Noise and vibration may impact on the behaviour of native fauna during construction interfering with normal activities such as resting, foraging and communicating and potentially temporarily displacing some species. The EES states effects are likely to be localised to the vicinity of the construction activities and expected to be short term. The EMMs propose measures for noise to be implemented in areas of potential disturbance to sensitive fauna. However, as it is not stated how these areas will be identified, I propose that the fauna management plan should identify areas for additional measures and recommend an amendment to the EMMs to give this effect (Appendix B).

DELWP submitted that a wildlife handler would be required to have appropriate wildlife permits and accreditations and that all translocations need to be documented and release sites reported to the Victorian Biodiversity Atlas. The recommended changes to the EMMs to reflect DELWP’s recommendations that I support.

The inquiry considered that the effects of the project on threatened fauna species are acceptable, provided the proposed EMMs, as amended, are implemented. I agree with this conclusion, with the additional requirement that the fauna management plan (and threatened species protocols) required under the EMMS are developed consistent with my Assessment and in consultation with DELWP and DAWE, and to their satisfaction.

### *Loss of native vegetation*

Nine ecological vegetation classes (EVCs) were recorded within the project area. The EES identified a maximum extent of 40.2ha of native vegetation patches and 14 scattered trees (10 large and 4 small) that are expected to be cleared for the project. Of the vegetation proposed to be removed, 0.952ha is classified as endangered, 20.576ha as vulnerable, 1.715ha as depleted and 16.974ha as least concern in accordance with the Bioregional Conservation Status of the relative EVCs (Table 2).

**Table 2: Predicted maximum loss of EVCs (source: Table 7-8 of Chapter 7).**

EVC (Bioregional conservation status)	Maximum anticipated loss presented in EES (Ha)
Coast Banksia Woodland (vulnerable)	5.7489
Damp Sands Herb-rich Woodland (vulnerable)	0.8290
Coastal Saltmarsh (least concern)	2.5560
Estuarine Wetland (least concern)	0.6987
Lowland Forest (vulnerable)	13.9979
Heathy Woodland (least concern)	14.4179
Swamp Scrub (endangered)	0.2192
Plains Grassy Woodland (endangered)	0.0338
Coastal Dune Scrub (depleted)	1.7155
<b>Total</b>	<b>40.2170</b>

The vegetation to be removed includes 2.56ha of the EPBC Act-listed threatened ecological community Subtropical and Temperate Coastal Saltmarsh, which is listed as Vulnerable. The EMMs require a subtropical and temperate coastal saltmarsh management plan to be prepared to address the effects of pipeline construction on this community. The EES states that it will be possible to reinstate this community through natural revegetation.

I consider the clearance of up to 40.2ha of native vegetation, over half of which has a bioregional conservation status as vulnerable and 2.56ha of which is vulnerable under the EPBC Act to be significant at a local and regional level. The clearing warrants very careful examination to ensure that the loss will be minimised to the extent practicable during detailed design and mitigated to an acceptable level.

The EES states that the pipeline footprint was selected and refined to avoid and minimise effects on vegetation, with further avoidance and minimisation through micro-siting and reduction of the right of way in some areas. The EES states that further opportunities to reduce native vegetation loss would be sought during the detailed design process, such as by reducing the right of way where possible and engaging an arborist to determine which trees can be retained. EMMs with measures to avoid or minimise native vegetation loss are proposed but several submitters including DELWP and Wellington Shire Council stated that the proponent should seek to further avoid and minimise removal of native vegetation, particularly high value vegetation and trees.

DELWP submitted that construction using HDD rather than trenching to reduce the removal of high value vegetation should be further considered. Areas of high value considered for HDD in the EES included the Lake Reeve Ramsar site, potential orchid habitat, and the existing offset site on Gippsland Water Land. DELWP did not consider that the proponent had demonstrated that the use of HDD would prevent the project from achieving its objectives. The inquiry accepted the proponent's response that comparison of HDD to trenched crossings had been covered in Chapter 3 of the EES, and that geotechnical conditions,

time, cost, environmental benefit and the risk of internal pipe corrosion (from sand and water from the raw gas settling within low points of the pipeline) factored in the decision to trench rather than HDD crossings. The inquiry recognised that the risk of corrosion to the pipeline, if constructed via HDD, may result in unplanned vegetation loss in the future anyway if digging is required for pipeline repairs. However, the inquiry recommended further consideration of HDD within the EMMs to reduce native vegetation loss. I accept that sand and water in the raw gas could cause internal corrosion at low points in the pipe if construction is by HDD. At the location where this is a risk, between the shoreline crossing and the compressor station, I consider the impacts of trenching are acceptable. Sand and water will be removed from the gas at the compressor station so pipe corrosion would not be a risk from this point onwards. I consider that HDD should be further investigated through the detailed design, in consultation with DELWP, to reduce native vegetation loss beyond the compressor station.

The inquiry was satisfied that the project has been designed to avoid and minimise loss of native vegetation, in accordance with the requirements of the Native Vegetation Guidelines. The inquiry agreed with submitters that further opportunities to reduce native vegetation loss should be pursued as far as reasonably practicable through the detailed design and recommended the wording of the EMMs be strengthened to reflect this. I agree with the inquiry's assessment amended EMMs with the addition that this should be undertaken in consultation with and to the satisfaction of DELWP.

DELWP and EPA submitted proposed changes to the EMMs to strengthen the requirements for the monitoring of revegetation works by qualified personnel. This included requirements for specialists to advise on the delivery stages and the recording of the structure and composition of vegetation prior to works do enable like-for like revegetation during reinstatement. The EPA recommended that site rehabilitation plans allow for a minimum of three years of post-construction monitoring and maintenance along the length of the pipeline easement, rather than the proposed 12 months. The inquiry endorsed these suggestions and proposed changes to the EMMS that I agree with.

The project has the potential to degrade native vegetation through the effects of dust and the introduction or increase of invasive weeds and pathogens. Technical Report A states that the impact of dust on vegetation will be low, provided the mitigation measures as outlined the EMMs are implemented. The EES described that the impacts of high threat weeds and diseases such as Cinnamon Fungus will be minor following the development and implementation of a biosecurity management plan. I consider that these potential effects on native vegetation will be acceptable, provided the mitigation measures are implemented.

#### *Gippsland Lakes Ramsar site*

The Gippsland Lakes Ramsar site is listed under the *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* (Ramsar, Iran, 1971). Lake Reeve, which is crossed by the pipeline, is part of the Gippsland Lakes Ramsar site. It is an ephemeral hypersaline lagoon, which is connected to Lake Victoria. It supports a range of estuarine and fringing vegetation, particularly saltmarsh, which includes Subtropical and Temperate Coastal Saltmarsh (a community listed as vulnerable under the EPBC Act).

The assessment of impacts on the EPBC-Act listed Ramsar site are discussed in Appendix A. Potential effects include removal of vegetation, short term impacts to waterbirds, surface water impacts from sedimentation and the disturbance of acid sulfate soils (ASS) and hazardous material spills. EMMs are proposed to manage the impacts of construction on Lake Reeve's biodiversity. For the reasons discussed in Appendix A, the inquiry recommended amendments to the EMMs to require monitoring of the regeneration of the Temperate Coastal Saltmarsh Community be extended from three years to a four year minimum if regeneration is not successful after the first 12 months. I agree with this amendment.

I endorse the inquiry's conclusion that subject to the implementation of the EMMs, as amended by the inquiry, effects on Lake Reeve will be managed acceptably.

#### *Onshore aquatic habitat and Groundwater Dependent Ecosystems*

The EES identified aquatic habitat (including wetlands, waterways and waterbodies) and groundwater dependent ecosystems throughout the project area and surrounds. The project has the potential to impact on aquatic habitat values through changes in hydrology and water quality (Technical Report A).

Changes in hydrology within and surrounding the project area could result from earthworks, leading to potential effects on groundwater dependent ecosystems, wetlands, waterways and aquatic or semi-aquatic fauna. Technical Report A states that effects related to changes in groundwater levels resulting from excavation and dewatering of the pipeline trench are likely to be localised, short-term and reversible. The EES concluded that effects of the pipeline trench on groundwater dependent ecosystems would be negligible.

The effects of the offshore gas extraction on groundwater dependent ecosystems are also addressed in the EES (Technical Report G). The EES stated the upper aquifer system which groundwater dependent ecosystems within the study area are likely to be connected to, is not expected to be significantly affected by the project. In response to a submission from the EPA and the inquiry's request for further information, the proponent responded that stygofauna were unlikely to occur in the lower aquifer system where gas extraction and reinjection is proposed (Tabled Document 11). The inquiry found that the project presented a low risk to groundwater availability for groundwater dependent ecosystems. I agree with this finding.

The potential effects of contaminated or sediment-laden surface water leading to a decline in aquatic biodiversity values were assessed within the EES. A variety of mitigation measures to prevent impacts on water quality during construction are included in the EMMs. The inquiry concluded that the surface water aspects of the evaluation objective can be achieved. I accept this conclusion and consider surface water effects of the project on biodiversity values will be acceptable, provided mitigation measures as outlined in Section 5.4 of my assessment are implemented.

#### *Dune biodiversity and stability*

The EES identified that the shore crossing may require clearing of coastal vegetation on the sand dunes between Shoreline Drive and the beach. If the pipeline needs to be inserted into the shore-crossing offshore, or if the sub-sea pipeline section were to be fabricated onshore, it would need to be launched by pulling the pipe strings over the dunes by a vessel, necessitating clearing a 30m wide strip over the dunes. Following completion of this section of the pipeline works this area the previous dune contours will be reinstated and revegetated. The inquiry noted that clearing vegetation from the seaward side of the dune present risk of erosion. The proponent submitted Tabled Document 11 in response to the inquiry's request for further information, stating that the risk to the stability of the dune system is considered low as it will be revegetated afterwards. The proponent noted that the Dutson Downs Outfall pipeline shore crossing was successfully rehabilitated in the early 1990s.

The inquiry considered that a pipe-pull should be avoided to the extent practicable and that approvals for the shore crossing should include a condition stating that a pipe pull is not permitted without the written consent of DELWP Pipelines Regulation and Energy Safe Victoria. The inquiry recommended the EMMs be amended to require that the shore crossing management plan must further examine the risks of the shore crossing on the sensitive dunes and coastal environment, and must:

- incorporate advice from a certified professional in erosion and sediment control;

- specify measures to rehabilitate the dunes and surrounding coastal environment after completion of the shore crossing, to the satisfaction of DELWP Pipelines Regulation and Energy Safe Victoria; and
- include a requirement for monitoring for a period of at least three years to ensure the success of the rehabilitation work proposed under the plan, to the satisfaction of DELWP Pipelines Regulation and Energy Safe Victoria.

The inquiry noted that as a Marine and Coastal Act consent is likely to be required for the shore crossing, the shore crossing management plan will assist in assessing the application for consent. I support and endorse the inquiry's amendments and note that the pipe-pull method requiring clearing of the dune should be avoided if at all practicable.

### *Cumulative impacts*

A brief assessment of the cumulative impacts of the project, the Star of the South, Ninety Mile Beach subdivision and Seacombe West Nunduk Spa Retreat was included in Technical Report A. The transmission line for the Star of the South will be the largest project, impacting on native vegetation and terrestrial habitat for threatened flora and fauna which are largely synonymous with those identified for the project. While the other two projects are likely to be of much smaller impact, they would also involve clearing similar native vegetation and habitat for threatened species to that within the project area. In the context of potential cumulative vegetation loss within the local landscape, I reiterate that further avoidance of vegetation and habitat removal should be avoided to the extent practicable during detailed design.

### **Assessment**

It is my assessment that effects to onshore biodiversity, particularly the loss of up to 40.2 ha of native vegetation, much of which represents habitat for threatened species, is significant at a local and regional level. However, I assess the predicted effects acceptable if managed appropriately through implementation of the proposed EMMs, incorporating all amendments proposed by the inquiry and this assessment. It is my expectation that during the detailed design stage further avoidance of native vegetation and fauna habitat be identified and adopted, as far as reasonably practicable. I also recommend that the pipe-pull method for the shore crossing should be avoided if at all practicable. I support the inquiry's proposed changes to the EMMs as outline in Appendix B with an additional requirement for a fauna management plan developed in consultation with DELWP.

## **5.2 Marine environment**

### **Evaluation objective**

*Avoid or minimise potential adverse effects on terrestrial, aquatic and marine biodiversity values within the project site and its environs, including native vegetation, listed species and ecological communities, other protected species and habitat for these species.*

### **Assessment context**

Marine environmental effects are addressed in Chapter 8 and Technical Report B of the EES and in Chapter 5 of the inquiry's report. The proponent offered 67 EMMs that deal with marine environment matters, some of these EMMs have been the subject of recommendations by the inquiry.

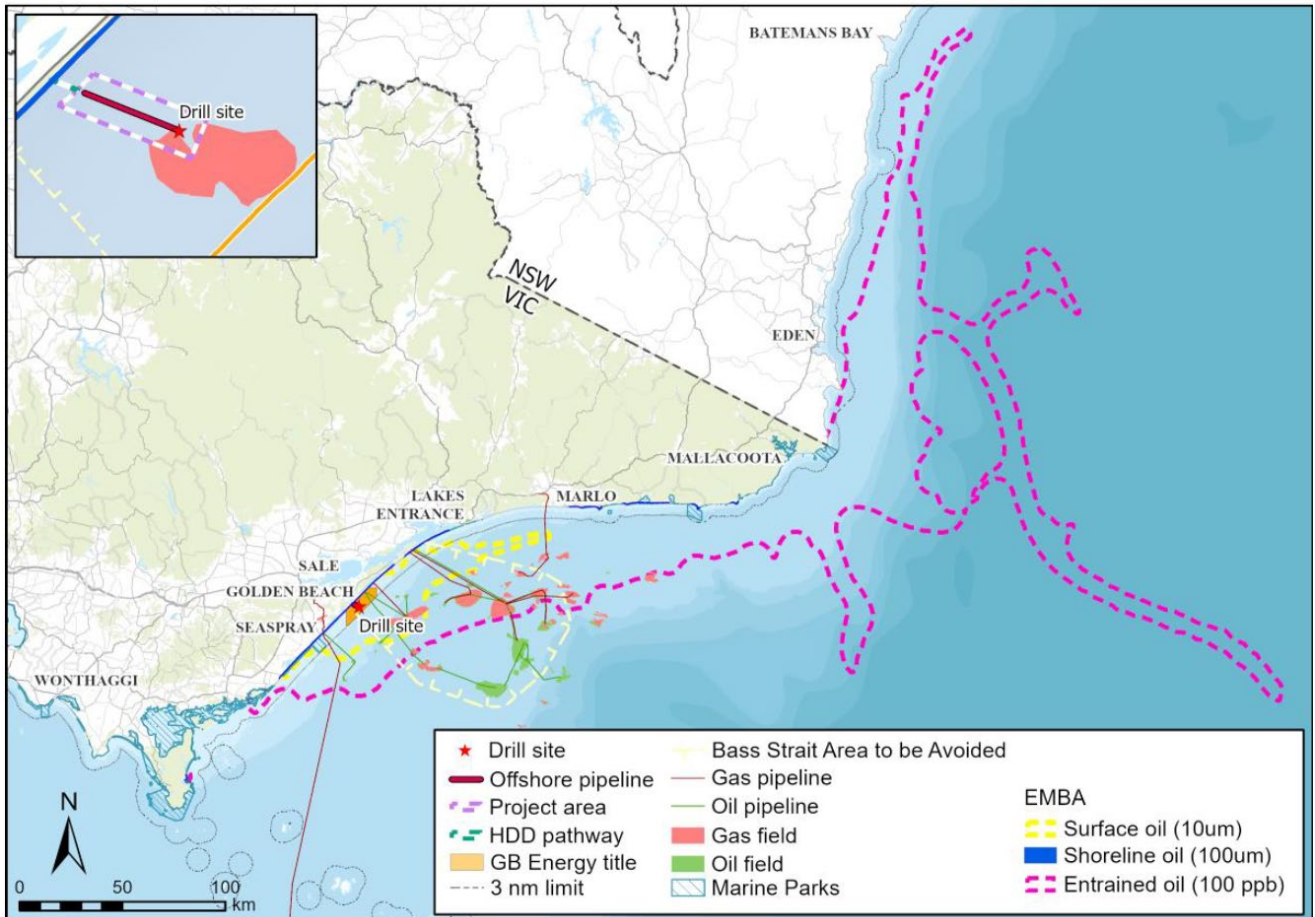
The key types of potential effects for the marine environment identified for this project through the EES process can be summarised as:

- introduction and establishment of invasive marine species;
- accidental spill of marine diesel and the associated clean-up activities;
- spills or discharges of other materials;



- light or sound emissions;
- physical disturbance to the seabed resulting in increased turbidity, or direct trauma of benthic fauna; and
- collisions of project vessels with marine fauna.

The project study area in the EES was defined based on the environment that may be affected by a marine diesel spill (Figure 3).



**Figure 3: Project area and environment that may be affected (EMBA) by a 500m<sup>3</sup> marine diesel spill (from EES Chapter 8).**

The EES identified a number of sites of high conservation value in the marine and coastal study area including:

- the East Gippsland Australian Marine Park;
- the Gippsland Lakes and Corner Inlet Ramsar sites;
- 13 nationally important wetlands;
- six marine protected areas and six coastal protected areas under the Victorian *National Parks Act 1975*; and
- two coastal protected areas under the *National Parks and Wildlife Act 1974* (NSW).

Chapter 8 of the EES lists the marine flora and fauna species and communities that have been recorded or may occur in the study area, which include species listed under the EPBC Act, FFG Act and two threatened communities under the EPBC Act.

## Discussion

### *Invasive marine species*

The EES concluded that the most significant risk to the marine environment from the project is the introduction of invasive marine species to the area through ballast water or biofouling associated with the jack-up rig and other vessels for construction, operation and decommissioning. The EES proposed EMMs including compliance with applicable national guidelines, requirements and international certificates, reporting of known or suspected non-compliance with biosecurity measures, cleaning of submersible equipment, pre-qualification of vessel contractors and invasive marine species evaluations prior to mobilisation to site.

The EES concluded that with the implementation of the proposed EMMs that the risk was unlikely to occur and that if the impact were to occur it would be short-term and localised. The inquiry was satisfied that compliance with the regulatory regime and proposed EMMs will address this risk to the extent reasonably practicable. The inquiry proposed minor changes to the EMMs to clarify that necessary cleaning or re-application of anti-fouling coating would be undertaken as deemed necessary as part of invasive marine species evaluations prior to mobilisation. I support the conclusion of the inquiry and this recommendation.

### *Marine diesel spill*

The EES considered two spill scenarios (a 155m<sup>3</sup> and 500m<sup>3</sup> release of marine diesel, presented as a worst-case scenario) for which spill trajectory modelling was conducted. The scenarios represent different sized vessels that would be used in different stages of the construction of the project.

Potential effects to the marine environment considered in the EES as a result of a marine diesel spill and spill response activities included reduction in water quality, injury or fatality to marine fauna and seabirds exposed to marine diesel, and habitat damage where the oil reaches the shoreline. The EES proposed a number of EMMs that relate to spill response training, the development of emergency response plans and specific controls for the prevention of a marine diesel spill. A number of EMMs were also proposed relating to the management of a spill and shoreline clean-up activities. The EES concluded that the risks associated with a marine diesel spill and spill response activities rated from low to very low after accounting for the proposed EMMs.

The inquiry received submissions relating to a marine diesel spill from DELWP and EPA. EPA (Submission 5) accepted that the likelihood is very low but submitted that the EES downplays the consequence of a marine diesel spill to the environment. EPA noted the proximity of the project to the coastline warranted a higher consequence rating and therefore additional precautions to reduce the risk of a spill and increased responsiveness to a spill, however, EPA did not propose any specific measures that should be adopted. The proponent in their response to submissions (Document 20) outlined that measures to avoid collision and emergency response protocols would be included in their oil pollution emergency plan and the statutory environment plans and safety cases required under the Offshore Petroleum and Greenhouse Gas Storage Act. The EPA indicated, at the submitter conference, that it was satisfied with the proponent's response.

The inquiry agreed with EPA that the EES downplays the consequences of a marine diesel spill to the environment. The inquiry noted that the EES highlighted the sensitivity of a number of receptors, including whales, pinnipeds, shorebirds, commercial fisheries and marine parks, to oil spills. The EES also discussed potential acute and chronic environmental effects to invertebrate communities along sandy beaches in the inter-tidal and shallow sub-tidal zones. The inquiry concluded that at a local scale, the consequence of a marine diesel spill could range from major to severe. However, the inquiry, and submitters, have not recommended any specific changes to the proposed EMMs relating to marine diesel spills or clean-up. The inquiry also noted that it is impossible to eliminate the risk of a spill, which must be accepted if the project is approved.

I agree with the findings of the inquiry that there may be locally significant effects to marine environmental values in the unlikely event of a marine diesel spill. I find that the level of risk is acceptable subject to the implementation of the proposed EMMs and the regulatory framework governing the management of this risk.

#### *Other marine discharges or spills*

Potential effects associated with the discharge of drill cuttings from the jack-up rig, and from the construction of the shore-crossing punch-through the seabed, include increased turbidity, smothering of benthic habitat and fauna, alteration of benthic substrate and toxicity to fauna. The EES proposed a number of EMMs to manage these potential effects including the use of low toxicity, biodegradable additives for drilling muds, use of a separation treatment to maximise fluid separation for the cuttings prior to discharge and a requirement to discharge drilling muds over a minimum period of six hours to minimise potential effects to pelagic and benthic fauna. The EES found that the effects associated with drill cuttings and muds would be minor, with the modelling finding that distribution of cuttings and sediments would be localised and restricted to the sandy seabed. The small isolated reefs and sponge gardens in the vicinity of the project area are unlikely to be impacted.

The EES considered other potential effects associated with the discharge of cement during drilling, treated sewage and grey water from the jack-up rig and other vessels, cooling water and brine water from the jack-up rig from support vessels and bilge water. Accidental releases of food waste and hydrocarbons and chemicals such as drilling and pipelay chemicals, hydraulic oil and aviation fuel were also considered. The EES concluded that, as the discharges would be small and diluted by wide dispersion in open water, the residual risks would be low to very low after the implementation of the proposed EMMs. The EPA's submission noted that the treatment and discharge of noxious substances to Victorian waters is regulated by *Prohibition of Waters by Oil and Noxious Substances Act 1986* and that as there are no major discharges a works approval application would not be required for marine discharges. EPA's submission accepted that the marine discharges are to a large, high energy, offshore environment and situated away from sensitive environmental receptors lowering the environmental risk. DELWP's submission supported the implementation of the EMMs developed for the marine environment. The inquiry accepted the findings of the EES and made no proposed changes to the EMMs. I accept the inquiry's conclusions on this matter.

#### *Light and sound emissions*

The EES identified potential light emissions, primarily associated with vessels and the jack-up rig, above the water surface and the operation of submersible vehicles below the water surface. Potential effects to the marine environment included the attraction of fish and plankton which can increase predation rates and impacts to birds where they may fly off course or risk collision with infrastructure. The EES proposed a number of EMMs which relate to direction lighting, limiting lighting directed overboard and limiting flaring as part of well testing. The EES concluded that effects associated with lighting would be negligible, with the implementation of mitigation measures.

Underwater sound emissions would be generated from well-drilling, vessel engine noise and pipeline installation activities. Operation of vessels and the sub-sea pipeline would generate noise during the project's operation phase. Underwater noise could result in mortality or injury to whales, dolphins or fish and other marine fauna through physical injury to auditory tissue or organs, hearing impairment, direct impacts to natural behaviour or indirect impacts which impair or mask the ability of marine fauna to navigate and find food.

The inquiry was satisfied that with the implementation of the EMMs that the risks associated with underwater noise and lighting were low. The inquiry proposed a minor change to the EMMs to clarify that

the whale management strategy would be established rather than discussed. I support this recommendation from the inquiry.

### **Assessment**

Marine environment effects are likely to be low and acceptable and risks can be managed appropriately if the project is implemented in accordance with the proposed EMMs and those modified consistent with Appendix B of my assessment. I acknowledge and agree with the inquiry's finding that, although unlikely, a marine diesel spill is likely to result in locally significant effects to the marine environment. However, I accept that the proposed mitigation measures are appropriate for managing that risk.

## **5.3 Aboriginal cultural heritage**

### **Evaluation objective**

*Avoid and minimise adverse effects on Aboriginal and historical cultural heritage and associated values.*

### **Assessment context**

Aboriginal cultural heritage effects are addressed in Chapter 9 and Technical Report C of the EES and in Chapter 6 of the inquiry's report. One EMM addresses Aboriginal cultural heritage matters; no recommendations have been made by the inquiry about Aboriginal cultural heritage.

The types of potential effects for Aboriginal cultural heritage identified for this project through the EES process can be summarised as:

- damage or loss of known Aboriginal cultural heritage values primarily during the construction of the onshore pipeline, shore crossing facility and associated infrastructure; and
- potential damage or loss of unknown Aboriginal cultural heritage values primarily during the construction of the onshore pipeline, shore crossing facility and associated infrastructure.

### **Discussion**

The EES identifies effects to known Aboriginal places, which through consultation with the Gunaikurnai Land and Waters Aboriginal Corporation, were assigned low to moderate level significance. These include the destruction of a number of low-density artefact distributions, a shell midden and partial disturbance of artefact scatters at Fergusons East and West Dams. The EES identifies draft mitigation measures such as defining protection zones and salvage and rerecording of items of significance to be included in the CHMP to address the impacts. The draft mitigation measures were developed in consultation with Gunaikurnai Land and Waters Aboriginal Corporation.

The EES and the proponent's response to the inquiry's request for information (Tabled Document 11) note Aboriginal ancestral remains are known to be present in the vicinity of the project footprint, although it is considered unlikely the project would disturb these given the investigations that have been undertaken to support the development of the EES, as well as given previous disturbance to the area associated with the construction of the Dutson Downs Ocean Outfall Pipeline. The CHMP will also provide mitigation measures to manage potential harm to unknown Aboriginal places and values.

The EES concludes that the CHMP, which has been prepared with the participation of Gunaikurnai Land and Waters Aboriginal Corporation, has allowed for Aboriginal cultural heritage values to be identified within the project area and the avoidance and minimisation of impacts. The inquiry concluded that the CHMP will ensure that Aboriginal cultural heritage values are appropriately protected and made no recommendations in relation to the EMM relating to Aboriginal cultural heritage.

I note the significance of any potential unexpected disturbance of Aboriginal ancestral remains. The EES identifies that the CHMP will include mitigation measures relating to unexpected finds, including ancestral remains, which will require approval from the Gunaikurnai Land and Waters Aboriginal Corporation.

### **Assessment**

Aboriginal cultural heritage effects can be managed appropriately if the project is implemented in accordance with a CHMP approved by the Gunaikurnai Land and Water Aboriginal Corporation.

## **5.4 Groundwater and surface water**

### **Evaluation objective**

*To maintain the functions and values of aquatic environments, groundwater, stream flows and water quality and prevent adverse effects on protected beneficial uses including the ecological character of the Gippsland Lakes Ramsar site.*

### **Assessment context**

Groundwater and surface water effects are addressed in Chapters 13 and 17 and Technical Reports G and K of the EES and in Chapters 10 and 14 of the inquiry's report. Five EMMs deal with groundwater matters and nine EMMs deal with surface water matters. Some of these EMMs have been the subject of recommendations by the inquiry. Some of the EMMs related to other matters (e.g. contamination, acid sulfate soils and flora and fauna) have been addressed in this section of my assessment, where they are relevant to water. Potential effects associated with contaminated groundwater, contaminated land and acid sulfate soils are otherwise addressed within Section 5.5 of my assessment.

Several types of potential effects for groundwater and surface water were examined through the EES:

- potential groundwater drawdown in the upper aquifer system during construction associated with dewatering of open trenches or the shore crossing;
- potential mounding or preferential flows of groundwater during operations due to differing hydrogeological properties of the back-filled trench or the presence of a pipeline;
- potential groundwater quality effects associated with drilling muds during construction of the shore-crossing;
- potential groundwater drawdown in the lower aquifer system during operations due to water extraction and movement associated with offshore gas extraction and storage;
- potential for reduced water availability for groundwater dependent ecosystems during construction and operation;
- potential impacts to consumptive groundwater users in the upper and lower aquifer systems;
- potential surface water impacts (e.g. hydrological, water quality and sedimentation) associated with construction of the onshore pipeline alignment across waterways, including Lake Reeve;
- potential water quality impacts during construction and operations relating to spills, discharge of water from trench dewatering activities and construction and decommissioning of infrastructure including the compressor station, shore crossing facility and metering facility; and
- potential hydrology and water quality impacts related to the siting of the shore crossing facility adjacent to the Lake Reeve floodplain.

### **Discussion**

#### *Groundwater*

The inquiry concluded, consistent with the findings presented in the EES, that the onshore pipeline and shore crossing facility present a low risk to groundwater provided the proposed EMMs are applied. The EES stated that an HDD management plan would be prepared for the construction of the shore-crossing pipeline to outline the specific controls that will be utilised to manage the effects of drilling muds on

groundwater. The inquiry identified that this commitment was not expressly captured in the proposed EMMs. The inquiry recommended that the EMM relating to the management of drilling muds be amended to include the development of an HDD management plan. I support this recommendation.

The onshore pipeline depth would be shallow, approximately 2m deep, and only a limited length of the alignment is expected to intercept groundwater. The proposed EMMs would provide a framework to ensure that potential effects to the upper aquifer system, associated with the onshore pipeline and shore crossing, are temporary and minor. I concur with the inquiry's findings on the low level of environmental risk to groundwater values associated with the onshore pipeline and shore crossing facility and support the inquiry's recommendations relating to the groundwater EMMs.

Several submissions were received by the inquiry highlighting that groundwater, particularly in the lower aquifer system, has already been significantly impacted by historical and existing groundwater extraction including from oil, gas and coal developments. Submitter's concerns were focussed on the assessment of cumulative impacts, regional aquifer depressurisation leading to increased costs for groundwater access and subsidence. The proponent's EES acknowledges that the lower aquifer system has been and continues to be severely impacted by groundwater extraction both onshore and offshore to provide context for the significance of the effects of this project.

The inquiry agreed that the incremental additional effects of the project with the operating scenario presented in the EES are likely to be minor but noted the critical thresholds for cumulative effects on the groundwater system are unknown. The inquiry recommended that should approval be granted, a condition be applied to approval under the Offshore Petroleum and Greenhouse Gas Storage Act to require the gas wells to be operated as described in the EES groundwater scenario (i.e. production phase followed by re-injection and storage) and any material change to the operating regime should require further review and approval.

I note that the EES did consider the effects of the final production scenario, when the final gas drawdown in the reservoir will occur, so has assessed the full scale of the impact. This impact would occur approximately 38 years after the initial production phase ends, during which the re-injection and storage phase of the project would allow for some recovery and stability in gas reservoir pressures. However, I support the recommendation from the inquiry given that the scale of the impact assessed in the EES was presented to occur over a 40-year operational life.

In their response to the inquiry (Document 25), Southern Rural Water noted that it is likely the project would require a licence under the Water Act for extraction of water entrained within the gas and potentially movement of water into the gas reservoir. The proponent will need to confirm and work through the requirements for obtaining a licence. It is my recommendation that any further review and approval of the operating regime's effects on groundwater, under the condition to be applied to the Offshore Petroleum and Greenhouse Gas Storage Act approvals, be conducted in consultation with Southern Rural Water.

I am satisfied that if the proponent applies the EMMs, accounting for the recommendations of the inquiry, and adheres to potential requirements under the Water Act, that the project's effects on groundwater can be acceptably managed.

#### *Surface water*

The EES concluded that potential effects associated with the project construction, operation and decommissioning were low to very low. The EES reached this conclusion noting that the waterways intersected by the project were ephemeral and typically dry. The project proposes to open trench the

waterway crossings but time construction so that the waterways are dry and immediately reinstate and stabilise the water crossings once construction is complete.

The EPA submitted (Submission 5) that the proponent's EMMs are not adequate to ensure that rehabilitation and revegetation of the ephemeral waterways is successful and proposed a minimum of three years of post-construction monitoring and maintenance along the length of the pipeline. The inquiry agreed with EPA and recommended that the EMM relating to management of trenching across waterways, be amended to require a minimum monitoring period of three years following construction of the waterway crossing, to ensure the stability of the waterway and effectiveness of revegetation. I support this recommendation, to help ensure acceptable residual environment effects on waterways are both low and short term.

The inquiry noted an error in the presentation of the number of waterways that would be intersected by the project. The proponent clarified in their response to the inquiry (Document 11) that the Gippsland Water outfall channel is not proposed to be crossed. The inquiry recommended, and I support the recommendation, that the proponent provide mapping of all proposed waterway crossings to the satisfaction of West Gippsland Catchment Management Authority prior to commencing pipeline construction.

Water collected from the open trenches or shore crossing facility would require discharge and be irrigated on land near the project area or collected and removed to a licensed waste facility, if water quality criteria cannot be met. The inquiry found the EMMs about dewatering of the open trench and the shore crossing and the management of hydrotest and produced water did not ensure that water from these activities would not be directly discharged to waterways. The inquiry noted that the EES relies on an assumption that there will be sufficient and appropriate land to discharge water from the open trench and shore crossing facility for a period of up to two days, without providing evidence that the appropriate land is available. The inquiry proposed changes to the EMMs including requiring a dewatering plan be prepared prior to commencement of trenching or shore crossing construction, not only once it is determined that more than two days of dewatering is required. The inquiry also proposed that the dewatering plan account for surface and groundwater, include a water balance assessment of the adequacy of proposed storage and discharge sites, and measures for ensuring that excess trench water does not overflow to nearby watercourses. The inquiry noted that the EMMs should be similarly strengthened for hydrotest and produced water to include demonstration of the capacity of the land to manage the water without run-off to nearby waterways. I support these recommendations.

The section of Lake Reeve that would be crossed by the onshore pipeline alignment is split into two arms. The north-west arm of Lake Reeve falls within the Gippsland Lakes Ramsar site, while the south-east arm is located outside the Ramsar site. The inquiry noted that the two arms of Lake Reeve are connected when the lake is inundated. The inquiry recommended that the EMMs which relate to potential water quality effects associated with spills of hazardous materials be amended to ensure that they are applied to both arms of Lake Reeve so that the Ramsar site would not be impacted. I support this recommendation.

The inquiry recommended that the EMMs relating to the management and storage of hazardous materials and refuelling and maintenance of vehicles or machinery be amended to include a requirement to take appropriate measures, such as bunding, in all areas with direct hydraulic connection to Lake Reeve. The inquiry also found that the EES's reliance on a proposed separation distance of 20 m from waterways for refuelling and maintenance activities to not be supported by any evidence on the speed of hydraulic transmission. The inquiry recommended the EMMs be amended to make it clear that the minimum set-back should be 20 m and that these activities should take place as far as reasonably practicable from waterways. I agree with the inquiry's conclusion on this and support these recommendations.

The preferred location for the shore crossing facility is immediately adjacent to Lake Reeve and a Land Subject to Inundation Overlay. West Gippsland Catchment Management Authority submitted to the inquiry (Submission 13) that the shore crossing facility be located on land above the existing 2.7m AHD to account for the effects of climate change on future flood levels. The inquiry accepted the recommendation of the catchment management authority, proposing a change to the EMMs to ensure that the facility is constructed a minimum of 0.8m above the declared 1% annual exceedance probability (AEP) flood level. In making their recommendation the inquiry noted that the shore crossing facility will include storage and handling of chemicals and hazardous materials and that the site has a direct hydraulic connection to the Gippsland Lakes Ramsar site when flooded. I support this recommendation in order to manage the risk to this Ramsar wetland.

### **Assessment**

Groundwater and surface water effects are likely to be low and acceptable and can be managed appropriately if the project is implemented in accordance with the groundwater scenario presented in the EES, the proposed EMMs, accounting for the inquiry's proposed changes (as set out in Appendix B) and in accordance with requirements under the Water Act. I support the inquiry's recommendation that the proponent map each of the proposed waterway crossings to the satisfaction of West Gippsland CMA prior to commencing construction of the pipeline.

I support the inquiry's recommendation that a condition is included in the approvals under the Offshore Petroleum and Greenhouse Gas Storage Act that requires the project to be operated consistently with the groundwater assessment scenario (i.e. gas production and storage) in the EES, except with the consent of the relevant regulator. It is my recommendation that any further review and approval of the operating regime on groundwater also be conducted in consultation with Southern Rural Water.

## **5.5 Contamination and acid sulfate soil**

### **Evaluation objective**

*To maintain the functions and values of aquatic environments, groundwater, stream flows and water quality and prevent adverse effects on protected beneficial uses including the ecological character of the Gippsland Lakes Ramsar site.*

### **Assessment context**

Contamination and acid sulfate soil (ASS) effects are addressed in Chapter 10 and Technical Report D of the EES and in Chapter 7 of the inquiry's report. Ten EMMs deal with contamination and ASS matters, some of these EMMs have been the subject of recommendations by the inquiry.

The potential effects for contamination and ASS identified for this project through the EES process can be summarised as:

- disturbance or mobilisation of existing soil contamination or ASS which could lead to potential impacts to the beneficial uses of land or water; and
- spills of hazardous substances or mismanagement of waste leading to contamination of land or water.

### **Discussion**

The EES confirmed the presence, effects of and requirement to manage ASS along the onshore pipeline alignment, particularly in the vicinity of Lake Reeve. The EES identified some limited evidence of contamination along the onshore pipeline alignment including elevated hydrocarbons, which were attributed to agriculture, and perfluoro-octane sulfonate (PFOS) in the vicinity of Dutson Downs where there is an EPA Priority Sites Register site subject to a Clean-up Notice. The EES found that contamination



associated with spills and mismanagement of waste would be able to be managed with standard industry mitigation measures. The EES concluded there was a low to very low risk of impacts to the environment and human health associated with contamination and ASS if the project is managed in accordance with the proposed EMMs.

The inquiry received a number of submissions addressing the density of sampling of contaminated soils and groundwater along the pipeline alignment, including from the EPA (Submission 5). EPA's submission noted and supported the contamination and acid sulfate soils impact assessment's (Technical Report D) recommendation for further investigations to be conducted during detailed design and construction and was focused on strengthening of the EMMs. The proponent's response to submissions (Document 20) accepted all of the EPA's recommendations for EMMs with the exception of the addition of a new EMM about the monitoring and management of acid sulfate soils during wet-trenching, which the proponent contended could be incorporated within the existing EMMs. The proponent also submitted (Document 20) that the existing EMMs addressed the EPA's proposed recommendation for surface and groundwater baseline monitoring and did not need to be addressed as proposed in EPA's submission. The inquiry supported EPA's recommendation for further surface water and groundwater baseline monitoring in the vicinity of wet trenching areas. I accept the inquiry's recommendation, including that for further baseline water monitoring, particularly given the proponent's proposed EMMs do not account for further baseline monitoring of groundwater.

The inquiry found that EPA input would be needed for the finalisation of the statutory CEMP required under the Pipelines Act to ensure that the further investigations EPA have proposed be required through changes to EMMs are appropriately designed and implemented. The inquiry proposed that the program to identify soil and groundwater contamination along the pipeline route and onshore facility sites and protocols to manage contaminated soil and groundwater should be prepared as part of the statutory CEMP under the Pipelines Act and endorsed by EPA. I support this finding and the recommendation of the inquiry to have EPA review, and once appropriate, endorse the programs and protocols that they have recommended be prepared and implemented through the EMMs. This will ensure that risks are managed appropriately and in accordance with the relevant environmental regulations.

The inquiry also recommended further investigations into contaminated soil and ASS, prior to construction, be required as a condition in the works approval for the compressor station. I support this recommendation to ensure that potential disturbance of contamination or ASS associated with construction of the compressor station will be managed effectively.

The inquiry also proposed some changes to the EMMs relating to the management of spills and waste, which I have supported. These changes have been addressed in Section 5.4 of my assessment as they relate to potential effects on water.

The inquiry found that the level of investigation presented in the EES is sufficient to conclude that the effects would be acceptably low if appropriate EMMs, supported by improved baseline data, are applied. I agree with the findings of the inquiry.

### **Assessment**

Contamination and ASS effects are unlikely and should be acceptable, as they can be readily managed if the project is implemented in accordance with the proposed EMMs, accounting for the inquiry's proposed changes (as set out in Appendix B).

I support the inquiry's recommendation of a condition in the works approval requiring further investigation of the presence of any soil contamination or ASS to the satisfaction of EPA prior to commencing construction of the compressor station. I also support the inquiry's recommendation that a program to

further characterise groundwater and soil contamination along the pipeline route and protocols to be applied if contaminants are encountered be included in the statutory CEMP required under the Pipelines Act and endorsed by the EPA once appropriate.

## 5.6 Air quality and greenhouse gas emissions

### Evaluation objective

*Avoid and minimise adverse effects for community amenity and well-being, with regard to project noise, vibration, air quality (including greenhouse gas emissions) and landscape and visual effects.*

*Provide for safe and cost-effective augmentation of Victoria's natural gas supply in the medium to longer term.*

### Assessment context

Greenhouse gas and air quality effects are addressed in Chapters 14 and 18 and Technical Reports H and L of the EES, as well as in Chapters 11 and 15 of the inquiry's report. Nine EMMs deal with greenhouse gas matters and 10 EMMs deal with air quality matters.

#### *Greenhouse gas emissions*

Greenhouse gas emissions will be generated by the project during construction, operation (including production and storage phases) and decommissioning. Project activities that generate greenhouse gas emissions include burning fossil fuels in vehicles, vessels, plant and equipment, electricity use, vegetation clearance and manufacturing and transporting materials for construction. Greenhouse gas emissions will also be generated by the end use of gas extracted by the project.

Greenhouse gas emissions from the project are calculated in accordance with the *Greenhouse Gas Protocol, 2003* (GHG protocol) which separates greenhouse gas emissions into three categories known as scopes:

- Scope 1 – direct greenhouse gas emissions from sources that are owned or operated by a reporting organisation;
- Scope 2 – indirect emissions associated with the import of energy from another source; and
- Scope 3 – other indirect emissions not included in Scope 2 which are a direct result of the operations of the organisation, but from sources not owned or operated by them.

Under the Commonwealth *National Greenhouse and Energy Report Act 2007* proponents are required to report their energy use and greenhouse gas emissions. Greenhouse gas emissions from the project need to be managed in line with EPA Victoria's Protocol for Environmental Management: Greenhouse Gas Emissions and Energy Efficiency in Industry.

#### *Air quality*

During construction dust emissions will be generated from project activities such as vehicle movements, bulk earthworks and materials handling. There are few residences located in proximity to the work area and the majority of construction activities associated with the pipeline works would occur in a progressive linear manner.

During operation the key source of air emissions would be associated with operation of the gas compressor station. The compressor station would emit a range of combustion emissions including nitrogen dioxide, carbon monoxide and volatile organic compounds (benzene and formaldehyde).

### Discussion

#### *Greenhouse gas emissions*

Construction of the project (Scope 1 and Scope 2 emissions) is estimated to generate the equivalent of approximately 0.06% of Victoria's annual greenhouse gas emissions. Operation of the project (production

and storage phases; Scope 1 and Scope 2 emissions) is estimated to generate the equivalent of approximately 0.05% of Victoria's annual greenhouse gas emissions. Decommissioning (Scope 1 and Scope 2 emissions) is estimated to generate the equivalent of approximately 0.02% of Victoria's annual greenhouse gas emissions.

The total Scope 1, 2 and 3 emissions (excluding emissions from end use of the gas supplied to the Victorian gas network) is estimated to be generated over the asset life is equivalent to approximately 2.15% of Victoria's annual greenhouse gas emissions. The storage phase of the project would generate most greenhouse gas emissions. The EES did not quantify Scope 3 emissions associated with the end use of gas by third party receiving the gas through the Victorian network. The proponent argued that this is beyond the scope of the EES as they are not able to influence the demand for gas or the end use consumption of the gas.

The project's greenhouse gas emissions are estimated to be above the National Greenhouse and Energy Reporting Scheme reporting requirements meaning that they would trigger the requirement to report project greenhouse gas emissions annually.

A series of EMMs are included in the EES to avoid and reduce Scope 1 and Scope 2 greenhouse gas emissions associated with the project. One EMM requires operation of the compressor station to comply with the Protocol for Environmental Management: Greenhouse Gas Emissions and Energy Efficiency in Industry. There is uncertainty relating to how effective EMMs will be in avoiding and reducing greenhouse gas emissions from the project. The EES does not include a discussion on the effectiveness of EMMs or estimate residual greenhouse gas emissions from the project with mitigation measures in place.

Some submitters to the inquiry expressed opposition to the project due to its use of fossil fuels and impact on climate change. It is not the role however of the impact assessment and EES process to examine the rationale and commercial drivers for a project being proposed, which seems to respond to an existing need for gas in Victoria, as set out in the EES. I acknowledge though the concerns raised by the inquiry about the approval of a fossil fuel-based project with a 40-year design life at a time when Victorian energy policy is focused on a transition to renewable energy and net zero greenhouse gas emissions by 2050. The inquiry highlighted a gap in statutory decision making for fossil fuel-based projects without explicit consideration of interim and long-term greenhouse gas targets. The inquiry also indicated that greater guidance would be beneficial on how to consider the interim and long-term greenhouse gas targets in decision making. As outlined in Section 2.1, I recommend the Minister for Energy, Environment and Climate Change consider the inquiry's findings on this policy related matter.

The inquiry indicated that as the *Climate Change Act 2017* requires consideration of direct and indirect greenhouse gas emissions, in their view this would include Scope 3 emissions associated with end use of project gas and third party gas stored in the Golden Beach gas field. While I acknowledge the inquiry's position, in my view it is not appropriate that emissions outside of the proponent's control (such as downstream consumption of gas supplied via an existing state network) be included as part of the project's accounting and reporting of its greenhouse gas emissions. I accept the approach taken as a part of the EES to determine which Scope 3 emissions to include in the project's accounting and reporting as it is based on criteria set out in the Greenhouse Gas Protocol.

I agree with the inquiry conclusion that the EES only provides a preliminary outline of measures to avoid and minimise project emissions. In particular, I support the inquiry's conclusion that the EES does not clearly articulate how effective the EMMs would be in avoiding and reducing Scope 1 and Scope 2 greenhouse gas emissions from the project and/or actions to be taken to comply with the Protocol for Environmental Management: Greenhouse Gas Emissions and Energy Efficiency in Industry.

The inquiry indicates that consideration needs to be given to requirements under the new *Environment Protection Act 2017*. This includes the general environmental duty and demonstrating that reasonably practicable actions would be taken to minimise the risk of greenhouse gas emissions from the project. The inquiry has recommended that if the project is approved a series of conditions should be included in the works approval and discharge licence for the compressor station and the operational EMPs under the Pipelines Act and Offshore Petroleum and Greenhouse Gas Storage Act. I support these recommendations of the inquiry.

### *Air quality*

Dust emissions from construction works have the potential to generate localised air quality effects, for a limited number of sensitive receptors in proximity to the works. The linear progression of the works associated with the pipeline will generate dust that will be short-lived at the small number of sensitive receptors. The EES indicates that with appropriate controls in place construction generated dust is unlikely to deteriorate the existing air quality environment beyond very short-term localised air quality effects. The risk of dust soiling and human health risks during construction is rated as negligible to low in the EES. I agree with the inquiry's conclusion that these emissions present low risk and can be readily managed through the proposed EMMs.

The EES includes dispersion modelling of the likely emissions from the compressor station and assessment of compliance with State Environment Protection Policy (Air Quality Management) (SEPP (AQM)). The dispersion modelling was conducted for three operating scenarios, including a worst-case scenario. The modelling predicts no exceedances of SEPP (AQM) design criteria at sensitive receptor locations. Modelling also predicts compliance with the proposed environment reference standards objective to be made under the amended *Environment Protection Act 2017*. Based on this, I agree with the inquiry and EES conclusions that operation of the compressor station is unlikely to have any significant effect on air quality at the regional or state level. I note that the compressor station will require a works approval and discharge licence which will require that it operates in compliance with set air emission limits to protect beneficial uses of the local airshed. The proponent will also be required to demonstrate that reasonably practical action is being taken to eliminate or minimise the risk of harm under the amended Environment Protection Act.

A submitter to the inquiry raised concerns about the reliance on EPA monitoring data to characterise background air quality for use in the model. As no local air monitoring data was available, background concentrations for the modelling were sourced from EPA monitoring stations in Alphington and Traralgon, both of which have a greater pollution potential than the project area. I agree with the inquiry that the approach taken in the EES to characterise background air quality was conservative and appropriate.

There is the potential for the project to generate cumulative air quality impacts during operation due to the presence of nearby pollution sources such as the existing Jemena Longford Compressor Station and Esso Longford plant. The EES indicates that both these facilities are located approximately 7 km from the Golden Beach gas compressor station. As background air quality data used for dispersion modelling was sourced from Traralgon which has a greater pollution potential than the project area, the EES indicates that it is adequate to represent cumulative impacts from the Jemena Longford Compressor Station and Esso Longford plant. Due to the conservative approach taken to characterise background air quality, I accept the EES' finding that cumulative impacts are low.

### **Assessment**

Greenhouse gas and air quality effects are of low significance and acceptable and would not preclude the project being approved. Further to this I support the greenhouse gas conditions recommended by the inquiry, and outlined in Table 4 of my assessment, for inclusion in the works approval and discharge licence for the compressor station and the operational EMPs under the Pipelines Act and Offshore Petroleum and

Greenhouse Gas Storage Act. Finally, I agree with the inquiry that dust emissions from project construction will be managed to an acceptable level through the proposed EMMs and CEMP.

## 5.7 Noise and vibration

### Evaluation objective

*Avoid and minimise adverse effects for community amenity and well-being, with regard to project noise, vibration, air quality (including greenhouse gas emissions) and landscape and visual effects.*

### Assessment context

Noise and vibration effects are addressed in Chapter 12 and Technical Report F of the EES and in Chapter 9 of the inquiry's report. Nine EMMs address noise and vibration from the construction and operation of the project. The inquiry made three recommendations in relation to noise and vibration, including recommending amendments to two EMMs (NV07 and NV08).

The key issues for potential noise and vibration effects identified for this project through the EES process were:

- reduced amenity during construction;
- reduced amenity during operation, especially in respect of the shore crossing facility, compressor station and metering facility; and
- implementation of mitigation measures to ensure noise levels meet legislation and guidelines.

### Discussion

The EES predicted that noise and vibration from most construction works will be very localised and readily managed using good practice and standard management techniques consistent with the EPA guidelines (Publication 1254). Standard noise controls, including avoiding noisy works outside of normal working hours whenever possible, is expected to readily minimise residual noise effects.

The modelling used for the EES predicted more significant noise from night-time works associated with the horizontal direct drilling (HDD) for the shore crossing, which has the potential to impact on three nearby residences. The HDD is proposed to occur 24-hours a day for 120 days. However, the EES notes that a combination of on-site mitigation (e.g. noise walls and/or enclosures) will be used to reduce the noise at the residences. Monitoring will be used to test the effectiveness of the measures and their modification, as required. Offsite management measures are also proposed to notify residents, provide individual briefings and offer respite where appropriate. The EES concluded there may be some impacts to local amenity from construction noise and vibration (at night in particular), but they will be localised and managed.

Two submissions raised noise, including the submission from the EPA, which generally supported the EMMs proposed in the EES to address construction noise, with one exception. The EPA recommended the EMMS stipulate an independent person to approve unavoidable night work (10:00 pm to 7:00 am) applications. This was not accepted by the proponent; it proposed to consult with EPA and Wellington Shire Council and agree on necessary 24-hour construction activities. I note that this commitment is not explicitly captured in the proponent's EMMS and recommend a proposed change to the EMMs to include the proponent's commitment to consult with EPA and Wellington Shire Council and agree on necessary 24-hour construction activities.

The inquiry was generally satisfied there's justification for night construction works and that the EMMs, together with the roles of regulators, already address noise impacts associated with night works. The inquiry did, however, recommend some additional requirements for the construction environment management plan (CEMP), including the appointment of an independent person to receive and manage

noise complaints and to advise the proponent and regulators if the EMMS have been properly implemented. I support these additional requirements to help ensure night-time noise from unavoidable construction works are appropriately managed and minimised.

The EES considered noise during project operations, related to the 24-hour continuous operation of the gas compressor station, metering facility and shore crossing facility. It predicted that noise from the gas compressor station would be low, except under emergency conditions, when it could result in a minor exceedance the cumulative maximum noise level recommended by the *Noise from Industry in Regional Victoria* (EPA Publication 141). The EES concluded that noise during the construction and decommissioning phases of the project can be adequately managed. The EPA did not identify any concerns with operational noise and supported the proponent's controls in the EES for the gas compressor station and shore crossing facility, agreeing that it will meet the *Noise from Industry in Regional Victoria* guideline (and be implemented in consultation with the EPA).

The inquiry supported the proposed verification of noise compliance at the commissioning stage, along with the installation of acoustic mitigation as necessary. However, the inquiry proposed, and I support, an amendment to the EMMs to require the proponent to prepare and provide a report to the EPA on the outcomes of compliance testing.

The inquiry also found that the proponent should have ongoing engagement with key stakeholders to effectively manage any cumulative noise impacts from the operation of other existing sources. The inquiry proposed changes to the EMMS to require the proponent to consult with key stakeholders during the detailed design of the compressor station regarding the management of cumulative noise from the plant operations. I support the proposed changes, as recommended by the inquiry.

The inquiry accepted the conclusion of the EES that operational, construction and decommissioning related noise is likely to be readily minimised and managed with the techniques and controls, set out in EMMs. It also accepted that vibration was highly unlikely to cause any human disturbance or damage to buildings or structures, providing appropriate protection is implemented for the Dutson Downs Outfall Pipeline (as agreed with Gippsland Water). I concur with these findings of the inquiry that noise and vibration effects are not significant and can be readily avoided and minimised using EMMs.

### **Assessment**

Likely noise and vibration effects are not significant and meet the evaluation objective, such that the project can readily avoid and minimise adverse effects on community amenity and well-being, providing the changes to EMMs and conditions of approval I recommend in Appendix B and Table 4, are implemented effectively.

I also support the inquiry's recommendations for requirements to be included in the CEMP/Environment Plan under the Pipelines Act and Offshore Petroleum and Greenhouse Gas Storage Act to require the appointment of an independent person to:

- receive any public complaints about construction noise;
- monitor the noise impacts of construction work where required to enable a response to potential complaints;
- advise the proponent/operator and the relevant regulators on whether the environmental management measures to mitigate construction noise have been properly implemented.

## **5.8 Localised effects**

As noted in my published reasons for requiring an EES and the EES scoping, the EES was to largely focus on potentially significant effects of the project related to onshore and offshore biodiversity and Aboriginal

cultural heritage values. The EES also carefully examined potential effects associated with water, contamination and ASS, noise, vibration, air quality and greenhouse gas emissions. There are, however, likely to be other localised effects realised as a result of the project. These more localised and less significant effects are discussed in EES Chapters 11, 15, 16, 19, 20 and 21 and were informed by Technical Reports E, I, J, M, N and O covering: landscape and visual; traffic; land-use and planning; social; historic heritage; and safety, hazard and risk. The inquiry discussed these issues in Chapters 8, 12, 13, 16, 17 and 18 of its report.

Table 3 outlines the inquiry’s assessment of these localised effects and discusses the overall significance of effects against the management regime proposed. Generally, I support the findings of the EES and inquiry in relation to localised effects. It is my assessment that these effects are relatively low and are indeed localised and can be effectively managed through well-established practices including the mitigation measures that would be given statutory weight through conditions on approvals and statutory environmental management plans. I offer recommendations for refining the EMMs in Appendix B.

**Table 3. Other social and environmental effects.**

Inquiry findings	Assessment
<p><b>Landscape and visual</b></p> <p>The inquiry concluded that once construction is complete, the above ground elements of the project will not have a significant impact on visual amenity or landscapes.</p> <p>The moderate visual effects associated with the jack-up rig would be temporary, and no reasonable measures are practically available that could mitigate that impact.</p> <p>The inquiry accepted that further reduction of visual effects would be achieved through EMMs relating to control of lighting and through revegetation of the pipeline corridor after construction.</p>	<p>I accept the inquiry’s findings and agree that the project’s landscape and visual effects are acceptable. I note that the proposed changes to EMM relating to the timing of construction works to avoid peak holiday periods and the End of Summer Surf Festival where possible may further reduce the impact of visual effects associated with construction.</p>
<p><b>Traffic and transport</b></p> <p>The inquiry concluded that while some upgrades to roads and intersections will be required, as will temporary road closures for some roads, the affected roads and intersections generally have low traffic volumes and the proposed EMMs are appropriate to manage the traffic effects of the project.</p> <p>The inquiry noted that in the absence of a planning permit, the Traffic Management Plan, to be prepared as an EMM, could be a required sub-plan of the CEMP required under the <i>Pipeline Act 2005</i>.</p>	<p>I support the findings and recommendations of the inquiry and agree that the project’s traffic effects are acceptable with the implementation of the proposed EMMs.</p>
<p><b>Land use and planning</b></p> <p>The inquiry concluded the while the project will have some amenity effects on surrounding land uses during construction that suitable EMMs can be put in place to manage these effects.</p> <p>The inquiry recommended I advise the Minister for Energy, Environment and Climate Change, under section 49(g) of the Pipelines Act, that the project is broadly consistent with the planning policy and land use framework, and the pipeline will have limited effect on the planning of the area through which it is to pass.</p>	<p>I support the findings and recommendations of the inquiry and agree that the project’s land-use and planning effects are acceptable with the implementation of the proposed EMMs.</p>

/cont.

**Table 3 (cont.). Other social and environmental effects.**

Inquiry findings	Assessment
<p><b>Social</b></p> <p>The inquiry agreed that the social effects from land occupation and land severance are likely to be negligible. While the inquiry acknowledged there would be amenity effects associated with the construction phase, they have found that these effects are both temporary and acceptable subject to the implementation of the EMMs and their recommendations.</p> <p>The inquiry received submissions about broader social effects to the community such community concerns about the effects of climate change or environmental damage associated with developments. The inquiry accepted that these concerns are causing real distress for some sections of the community, however found that the effects are not generated directly by this project and that it is not appropriate or possible for this project to mitigate those broader community concerns.</p> <p>The inquiry agreed with the recommendations of the Social Impact Assessment (Technical Report M) that construction should avoid peak holiday periods and the End of Summer Surf Festival and recommended that MM-SE04 be strengthened to provide more guidance on how this would be approached. I agree with the recommendation of the inquiry and note the higher value that events which bring communities together now have given the impacts of COVID-19 restrictions.</p> <p>The inquiry proposed some minor changes to the EMMs about the community engagement and stakeholder plan to ensure the plan was developed in consultation with Wellington Shire Council and the complaints management process to ensure the proponent responds promptly to complaints.</p>	<p>I accept that the social effects of this project are acceptable, with the implementation of the EMMs and recommendations of the inquiry. I also acknowledge that the project will have positive effects for the community and that the implementation of the local employment fund and community benefit fund will seek to maximise these benefits.</p>
<p><b>Historic heritage</b></p> <p>The inquiry accepted the EES’s assessment and was satisfied that effects on historic heritage are unlikely.</p> <p>The inquiry recommended that chance find protocols should be included in the statutory CEMP (for onshore works) and the statutory environment plan (for offshore works) in relation to managing unexpected heritage or maritime archaeological finds.</p> <p>The inquiry recommended that the protocols in Appendix C of the Historic Heritage Impact Assessment (Technical Report N) and Annex A of the Cosmos Report (Appendix D of Technical Report N) provide a suitable basis for the protocols, consistent with the EMMs, and relevant legislation and policy requirements.</p>	<p>I support the inquiry’s findings that the project’s effects on historic heritage are likely to be acceptable, if the EMMs, accounting for the recommendations of the inquiry, are implemented.</p>
<p><b>Safety, hazard and risk</b></p> <p>The inquiry found that the project construction, operation and decommissioning would pose an acceptable level of risk for public safety and nearby operations, subject to the application of the proposed EMMs and the applicable regulatory regime. The inquiry made no recommendations about this matter.</p>	<p>I accept the findings of the inquiry.</p>



## 6. Conclusion

The project is expected to give rise to residual impacts particularly to onshore biodiversity values, Aboriginal cultural heritage, water and amenity. This is following the progressive reduction of the project's potential impacts on the terrestrial, aquatic and marine environment through project refinement and the development additional safeguards as part of the EES and the subsequent inquiry process. There will also be further opportunities, particularly for the onshore pipeline's design and construction to continue to be refined to further avoid and minimise regionally significant impacts to native vegetation and onshore biodiversity values. That said, my overall conclusion is that the project can proceed with acceptable environmental effects, subject to the implementation of the proposed mitigation measures as well as adoption of recommendations endorsed in this assessment.

The project is proposed to contribute to addressing projected shortfall in natural gas supply in the near to medium term. Submitters and the inquiry have noted the inconsistency with the proposed 40-year design life of the project and State targets of net zero emissions by 2050. I note that the long term viability of this project would be contingent on an ongoing requirement for natural gas over this project's life, or the ability for the project to transition to other future energy or gas storage requirements, which are scenarios beyond the scope of the EES and my assessment. The long-term viability of the project is a matter for the proponent.

My assessment includes recommendations for conditions to be attached to relevant approvals and to strengthen EMMs to ensure that these opportunities are appropriately considered in consultation with the relevant regulators during the project's detailed design and construction, should approvals be granted.

My assessment addresses the environmental effects of the project that have been adequately investigated through the EES process. My assessment does not endorse impacts resulting from subsequent project changes or unforeseen scenarios which may have different or more severe environmental effects. My assessment also does not extend to an expanded or upgraded version of the project nor to other related future projects that might interact with the project.

My responses to the inquiry's detailed recommendations are presented in Table 4. My comments on the proposed changes to EMMs or additional EMMs recommended by the inquiry or my assessment are presented in Appendix B.

**Table 4: Response to inquiry recommendations.**

	Inquiry recommendation	Summary response	Sect.
1	The environment effects of the Golden Beach Gas Project can generally be managed to an acceptable level and the Project approvals should be granted.	Generally supported, noting the storage phase is likely to require amendments to the Offshore Petroleum and Greenhouse Gas Storage Act for the project to proceed.	5, 6
2	The environmental management measures (amended in accordance with the specific recommendations of the inquiry) should be implemented through conditions in the relevant Project approvals or the Environmental Management Plans required under the Pipelines Act and the Environment Plans required under the Offshore Petroleum and Greenhouse Gas Storage Act.	Generally supported, noting my comments on the proposed changes to EMMs or additional EMMs as recommended by the inquiry or my assessment are presented in Appendix B.	4

/cont.

**Table 4 (cont.): Response to inquiry recommendations.**

Inquiry recommendation	Summary response	Sect.
3 Ensure conditions in all relevant Project approvals and/or in other environmental documentation such as Environmental Management Plans support clear performance objectives underpinned by measurable quantitative limits or explicit measures to minimise impacts or risks.	Generally supported.	4
4 The proponent should provide mapping of all proposed waterway crossings to the satisfaction of West Gippsland Catchment Management Authority prior to commencing pipeline construction.	Generally supported.	5.4
<b>Specific recommendations relevant to the works approval application</b>		
5 Include a condition in the works approval requiring further investigation of the presence of any soil contamination or acid sulfate soils to the satisfaction of the Environment Protection Authority prior to the commencement of construction of the compressor station.	Generally supported.	5.5
6 Include a condition in the works approval for the compressor station requiring a report(s) from a suitably qualified person, which is independently verified, demonstrating that: a) the detailed design for the compressor station optimises its energy efficiency and minimises its greenhouse gas emissions, consistent with best practice b) the compressor station meets applicable greenhouse gas emission performance objectives, standards or requirements under applicable legislation or legislative instruments.	Generally supported.	5.6
7 Include conditions in the discharge licence for the compressor station that require: a) monitoring and independent auditing of greenhouse gas emissions from operation of the facility b) on-going implementation of best practice measures to mitigate greenhouse gas emissions, to the extent reasonably practicable.	Generally supported.	5.6
8 Include a condition in the works approval requiring an Environmental Management Plan for the construction and operation of the compressor station to be prepared to the satisfaction of the Environment Protection Authority.	Generally supported.	4
9 Include conditions in the works approval that require: a) environmental management systems to be prepared and implemented that are consistent with those for other elements of the Project b) audits of environmental performance and compliance to be conducted by a suitably qualified person approved by the relevant regulator. Scope and timing of audits should be approved by the relevant regulator c) maintenance and review of an environmental risk register.	Generally supported. It is my recommendation that the audit reports on environmental performance and compliance be published on the proponent's website.	4

/cont.

**Table 4 (cont.): Response to inquiry recommendations.**

Inquiry recommendation	Summary response	Sect.
<b>Specific recommendations relevant to the pipeline licence application</b>		
10 The Planning Minister’s comments to the Pipelines Minister under section 49(g) of the Pipelines Act should include a statement to the effect that the Project is broadly consistent with the planning policy and land use framework, and the pipeline will have limited effect on the planning of the area through which is it to pass.	Generally supported.	5.8
11 Include a condition in the pipeline licence that no pipe pull over the dunes is permitted without the written consent of the Department of Environment, Land, Water and Planning Pipelines Regulation Unit and Energy Safe Victoria.	Generally supported.	5.1
12 Include a condition in the pipeline licence that requires native vegetation offsets to be secured to the satisfaction of the Department of Environment, Land, Water and Planning before any vegetation is removed.	Generally supported.	5.1
13 Include conditions in the pipeline licence that require: a) environmental management systems to be prepared and implemented that are consistent with those for other elements of the Project b) audits of environmental performance and compliance to be conducted by a suitably qualified person approved by the relevant regulator. Scope and timing of audits should be approved by the relevant regulator c) maintenance and review of an environmental risk register.	Generally supported, with audit reports on environmental performance and compliance published on the proponent’s website.	4
14 Include the following requirements in the statutory Construction Environmental Management Plan required under the Pipelines Act, each as endorsed by the Environment Protection Authority: a) a program to identify soil and groundwater contamination along the pipeline route and at the onshore facility sites b) protocols to be applied if contaminated soil and groundwater are encountered, consistent with relevant national and Environment Protection Authority policy guidance and the new duties under the <i>Environment Protection Act 2017</i> .	Generally supported.	5.5
15 Include requirements in the Construction Environmental Management Plan required under the Pipelines Act for the Proponent/operator to: a) appoint an independent suitably qualified person to: i. receive any public complaints about construction noise ii. monitoring the noise impacts of construction work where required to enable a response to potential complaints iii. advise the Proponent/operator and the relevant regulators on whether the environmental management measures to mitigate construction noise have been properly implemented b) inform the independent person promptly of any complaints received by the Proponent.	Generally supported.	5.7
16 Include conditions in the operational Environmental Management Plan required under the Pipelines Act that require: a) monitoring and independent auditing of greenhouse gas emissions from the relevant project infrastructure b) on-going implementation of best practice measures to mitigate greenhouse gas emissions, to the extent reasonably practicable.	Generally supported.	5.6

/cont.

**Table 4 (cont.): Response to inquiry recommendations.**

Inquiry recommendation	Summary response	Sect.
<b>Specific recommendations relevant to approvals under the Offshore Petroleum and Greenhouse Gas Storage Act</b>		
17 Include a condition in the approvals under the Offshore Petroleum and Greenhouse Gas Storage Act that requires the Project to be operated consistent with the groundwater scenario assessed in the Environment Effects Statement (namely reinjection of gas into the gas field following extraction), except with the consent of the relevant regulator.	Generally supported, with any review and approval of alternative operating scenarios to include consultation with Southern Rural Water.	5.4
18 Include conditions in the approvals under the Offshore Petroleum and Greenhouse Gas Storage Act that require: a) environmental management systems to be prepared and implemented that are consistent with those for other elements of the Project b) audits of environmental performance and compliance to be conducted by a suitably qualified person approved by the relevant regulator. Scope and timing of audits should be approved by the relevant regulator c) maintenance and review of an environmental risk register.	Generally supported. It is my recommendation that the audit reports on environmental performance and compliance be published on the proponent's website.	4
19 Include requirements in the Construction Environment Plan under the Offshore Petroleum and Greenhouse Gas Storage Act for the Proponent/operator to: a) appoint an independent suitably qualified person to: i. receive any public complaints about construction noise ii. monitoring the noise impacts of construction work where required to enable a response to potential complaints iii. advise the Proponent/operator and the relevant regulators on whether the environmental management measures to mitigate construction noise have been properly implemented b) inform the independent person promptly of any complaints received by the Proponent.	Generally supported.	5.7
20 Include conditions in the operational Environment Plan under the Offshore Petroleum and Greenhouse Gas Storage Act that require: a) monitoring and independent auditing of greenhouse gas emissions from the relevant project infrastructure b) on-going implementation of best practice measures to mitigate greenhouse gas emissions, to the extent reasonably practicable.	Generally supported.	5.6



HON RICHARD WYNNE MP  
Minister for Planning

6 / 04 / 2021

# Appendix A Matters of national environmental significance

Under the Environment Protection Biodiversity Conservation Act (EPBC Act) bilateral (assessment) agreement between the Australian and Victorian governments, the EES and this assessment must examine the project's likely impacts on matters of national environmental significance (MNES): Ramsar wetlands (sections 16 and 17B), listed threatened species and communities (sections 18 and 18A) and listed migratory species (sections 20 and 20A).

This appendix consolidates information on likely effects of the proposal on MNES protected under the EPBC Act, drawing upon the assessment of specific matters discussed in other sections of my assessment.

Potential impacts on MNES are summarised in Chapter 22 and Technical Reports A and B of the EES. The more detailed information about potential impacts that relate to my assessment of impacts on MNES can also be found in Technical reports A, B, D, G and K of the EES. The EES identifies the key issues for MNES as direct and indirect impacts of construction and operation to flora and fauna species listed as threatened and/or migratory under the EPBC Act and the Gippsland Lakes Ramsar wetland. Marine diesel spill is identified as a potential risk to listed or migratory species dependent on the marine or shore ecosystems, the Corner Inlet Ramsar wetland and the Giant Kelp Marine Forests of South East Australia threatened ecological community.

Section 21 of the inquiry's report examined the likely impacts on MNES. The overall finding of the inquiry was that the project will not have a significant impact on MNES providing the mitigation and management measures with the amendments recommended by the inquiry (listed in Appendix B) are effectively implemented. This is explored below in relation to the specific MNES.

## A.1 Gippsland Lakes and Corner Inlet

The EES considers two Ramsar wetlands; Gippsland Lakes Ramsar site and Corner Inlet Ramsar site. These areas are listed under the *Convention on Wetlands of International Importance Especially as Waterfowl Habitat* (Ramsar, Iran, 1971), commonly referred to as the Ramsar Convention.

### Gippsland Lakes Ramsar Site

Lake Reeve is part of the Gippsland Lakes Ramsar site. It is an ephemeral hypersaline lagoon, which is connected to Lake Victoria. The EES identified that the section of Lake Reeve within the project area is important for two of Gippsland Lakes Ramsar Site's twelve ecosystem components, processes and benefits/services (CPS) that make up its ecological character<sup>3</sup>: Component 5 saltmarsh wetlands and Component 6 abundance and diversity of waterbirds. Lake Reeve supports a range of estuarine and fringing vegetation, particularly saltmarsh, which includes Subtropical and Temperate Coastal Saltmarsh community (listed as vulnerable under the EPBC Act). The Gippsland Lakes Ramsar site supports 86 species of waterbird and shorebirds, many of which utilise habitats within Lake Reeve. Lake Reeve provides habitat for migratory waders in particular. Impacts on migratory birds are discussed in detail below.

The EES included an assessment of key risks, which could impact on the CPS and other linked biodiversity values within the Ramsar site, to inform an assessment against the limits of acceptable change for the site. Key risks for potential impacts to the Ramsar site include removal of vegetation, short term impacts to waterbirds, surface water impacts from sedimentation and the disturbance of Acid Sulfate Soils and hazardous material spills.

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<sup>3</sup> EGCMA (2016) Gippsland Lakes Ramsar Site Management Plan, East Gippsland Catchment Management Authority.

It is proposed that Lake Reeve will be crossed using an open wet trenching method, where the pipe will be laid in a wet trench, without removal of groundwater. Construction is proposed to be undertaken when Lake Reeve is not inundated, over period of 2 to 7 days. Rehabilitation would commence once the trench is filled. The pipeline is proposed to cross two sections of Lake Reeve, which are separated by an island. Only the northern section to be crossed is part of the Gippsland Lakes Ramsar site. However, the southern section to be crossed has a close hydraulic connection to the Ramsar site. The inquiry recommended that the mitigation measures for crossing Lake Reeve (including MM-CO05, MM-FF17 and MM-FF23) should be amended to ensure that they are applied to both arms of Lake Reeve. I agree with this recommendation.

The EPA submitted that a site rehabilitation plan for the project should include a commitment for at least three years of post-construction monitoring and maintenance along the length of the pipeline, to ensure appropriate revegetation. The inquiry concluded that the 12-month monitoring period proposed by the proponent post-construction is not sufficient to establish whether the ecological rehabilitation is successful, particularly for Coastal Saltmarsh. It recommended that MM-FF23 be amended to require a three-year monitoring period after reinstatement, to be extended to four years if the regeneration is not successful after the first 12 months of monitoring. I support this recommendation.

Acid Sulfate Soils are likely to be encountered near Lake Reeve. The EPA submitted that it is “uncertain if the wet trenching methodology proposed will prevent the oxidation of sulfide minerals” and recommended additional the development and implementation of a management plan in accordance with the *National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soil in shallow groundwater environments* (Shand et al, 2018)<sup>4</sup>. The proponent accepted this recommendation, to be incorporated into the MM-CO05. The inquiry agreed with this addition to MM-CO05 with the addition that the Acid Sulfate Soils Management Plan is required to be endorsed by the EPA. I agree and support these amendments to MM-CO05.

A submission was received questioning the arrangements to be put in place if a sudden inundation of the Lake Reeve occurred. The proponent responded that this risk would be managed through checking weather forecasts to avoid wet weather and having a short construction period. The proponent stated that in the event of expected delays stockpiles would be moved away from Lake Reeve and additional sediment controls (silt fencing) would be used to prevent impacts from sedimentation.

The inquiry was concerned that a setback distance of 20 to 50m may not be sufficient to protect Lake Reeve from unforeseen and hazardous spills. The inquiry recommended that MM-SW03 and MM-CO09 include a requirement to take appropriate measures (for example by bunding) in all areas with a direct hydraulic connection to Lake Reeve to ensure that Lake Reeve is hydraulically isolated in the event of a spill. I agree this extra level of risk management is needed and support these changes to the above management measures.

The EES included an assessment of the impacts of the project against the limits of acceptable change defined for the Gippsland Lakes Ramsar site’s ecosystem components, processes and benefits/services that make up its ecological character (Technical Report A). The assessment determined that any impacts to the ecological character for the Ramsar site would be within the limits of acceptable change. Whilst the project will affect the saltmarsh wetlands the EES states that the impacts will be short-term, with restoration of the saltmarsh habitat to ameliorate removal in the medium to long term. The impacts on wetland birds are expected to occur mainly during the construction of the Lake Reeve Crossing. Disturbance impacts are expected to be temporary and of short duration (7-10 days) and works will avoid the period when groups of

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<sup>4</sup> Shand, P, Appleyard, S, Simpson, SL, Degens, B 2018, ‘National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soils in shallow groundwater environments’, Department of Agriculture and Water Resources, Canberra, ACT

shorebirds are actively foraging or roosting. The EES also included an assessment against the Significant Impact Guidelines 1.1<sup>5</sup> for Ramsar wetlands. The assessment found that the likelihood of significant occurring was determined as being unlikely to rare.

The inquiry concluded that, subject to the implementation of the proposed mitigation measures with (amendments as recommended by the inquiry), the impacts on the Gippsland Lakes Ramsar wetland are acceptable. I concur with the conclusions of the EES and inquiry and support the amendments to EMM set out by the inquiry.

### **Corner Inlet Ramsar Site**

Corner Inlet Ramsar site is located 55km from the offshore works. It is a largely unmodified wetland that supports a range of estuarine habitats. The site provides important habitat for migratory birds listed under the EPBC Act and a wide variety of cetaceans and pinnipeds. The key potential impact identified for the Ramsar site is risk from a marine diesel spill (Technical Report B).

The inquiry agreed with the case presented in the EES that the overall level of risk to Corner Inlet Ramsar site from marine diesel spill is low, due to the distance between the project area and the site. The inquiry concluded that provided the proposed EMMs (with amendments recommended by the inquiry) are effectively implemented, potential impacts of the project on Corner Inlet Rams Site will not be significant. I agree with this conclusion and support the proposed amendments to the EMMs outlined earlier in my assessment regarding the risk from diesel spills in marine and coastal waters.

## **A.2 Listed threatened species and communities**

The EES identifies five terrestrial flora species and eight terrestrial fauna species listed as threatened under the EPBC Act that have a moderate or higher likelihood of occurrence in the project area. The threatened flora include Maroon Leek-orchid, Metallic Sun-orchid, Thick-lip Spider-orchid, Trailing Hop-bush and Wellington Mint-bush. The threatened fauna include Green and Golden Bell Frog, Growling Grass Frog, Hooded Plover, Red Knot, Grey-headed Flying-fox, New Holland Mouse, Southern Brown Bandicoot and Spot-tailed Quoll.

### **Wellington Mint-bush**

Wellington Mint-bush is listed as Vulnerable under the EPBC Act. The EES (Technical report A) notes that there are two records of Wellington Mint-bush within the pipeline footprint at KP 2.5, recorded in 2017. The results of surveys undertaken in spring of 2020 are presented in Tabled Document 6. These surveys did not detect the species indicating the plants previously recorded have died, although viable seeds may remain in the seedbank (Tabled Document 6).

Tabled Document 6 included a recommendation to protect any soil-stored seedbank of Wellington Mint-bush, in accordance with MM-FF06 which is in Technical Document A of the EES. Further it was recommended was that targeted surveys for Wellington Mint-bush should occur within the footprint 1, 2, 3 and 5 years after construction to search for germinants of this species, and if found, slashing of the easement in that location should cease if possible, or be increased in height to no shorter than 50 cm above ground. The inquiry supports these measures and recommends that the EMF should be amended to include all the additional measures recommended in Tabled Document 6 (as EMMs). I support this.

Tabled Document 6 states that recommended mitigation measures should ensure that, should plants return after disturbance (due to being present in the soil stored seedbank), the area of occupancy, critical

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<sup>5</sup> DoE (2013) Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999.

habitat and habitat quality should not be significantly affected. I agree with this and consider that all existing and recommended mitigation measures are implemented the project will not have significant impacts on Wellington Mint-bush.

## Orchids

Maroon Leek-orchid and Metallic Sun-orchid are listed as endangered under the EPBC Act, whilst Thick-lip Spider-orchid is listed as vulnerable. Technical Report A of the EES identified suitable habitat for the species as occurring within the proposed pipeline easement. There is one previously known recorded location of this species at the edge of Lake Reeve outside the project area. Metallic Sun-orchid was identified in a fenced area close to Lake Reeve and adjacent to the project area. Both Maroon Leek-orchid and Metallic Sun-orchid occur within grasslands heathlands and grassy woodlands on moist well drained soils. Thick-lip Spider-orchid was not recorded during the assessment. Habitat for the species occurs in heathland, heathy or grassy woodland, and grassy or sedgy open forests in well drained sand and clay loams<sup>6</sup>. Technical Report A notes the location of suitable habitat for these orchid species within the pipeline alignment.

Targeted surveys undertaken during 2019 and again in 2020 did not detect any of these species within the proposed works area, however both Maroon Leek-orchid and Metallic Sun-orchid were located in areas adjacent to the project area. The location information about these plants is restricted to ensure their ongoing survival. The results of the 2019 surveys were included in the EES (Technical Report A) whilst the follow-up 2020 surveys were presented to the inquiry in Tabled Document 6.

Tabled Document 6 outlined additional mitigation measures for Maroon Leek-orchid and Metallic Sun-orchid including creating no-go zones around both populations (including erecting no-go zone fencing) and ensuring contractors undergo inductions on the environmental sensitivity of the area and identification of the species. The proponent proposed that these recommendations would be included in the Orchid/Flora Management Plan within the CEMP required for this project. The inquiry supports these measures and recommends that the EMF should be amended to include all of the additional measures recommended. I support the inquiry's recommendations on this matter.

DELWP made a submission recommending an additional mitigation measure, MM-FF15 to require the development of a flora/orchid management plan before construction commences. This plan is to include a precautionary translocation plan for threatened values identified during construction. The Australian Native Orchid Society of Victoria submitted that Maroon Leek-orchid requires a 10m buffer to protect known populations and if this could not be provided then that section of pipeline should be bored. They requested the opportunity to review and provide technical input to any translocation plan for Orchids. The proponent agreed to prepare a flora/orchid management plan and stated that they would invite the Australian Native Orchid Society of Victoria to participate in the preparation, including the translocation plan. The inquiry agreed with the recommended changes to MM-FF15 and proposed that implementation of the recommendations in Tabled Document 6 also be a requirement of MM-FF15. I also support this recommendation of the inquiry.

Technical Report A of the EES and Tabled Document 6 both included an assessment of potential impacts for each of these species in accordance with Significant Impact Guidelines 1.1 for critically endangered and endangered species, which determined that a significant impact was rare to unlikely. I agree with this

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<sup>6</sup> Duncan, M. 2010. National Recovery Plan for the Thick-lip Spider-orchid *Caladenia tessellata*. Department of Sustainability and Environment, Melbourne



conclusion and consider that provided all existing and amended mitigation measures are implemented there is unlikely to be a significant impact on these orchid species.

### **Trailing Hop-bush**

Trailing Hop-bush is listed as vulnerable under the EPBC Act. The species occurs within the nearby Dutson Downs (Technical Report A). Despite targeted surveys the species was not detected within the project footprint. It is therefore considered unlikely that the species will be significantly impacted by the project.

### **Frogs**

Green and Golden Bell Frog and Growling Grass Frog are both listed as vulnerable under the EPBC Act. Green and Golden Bell Frog was recorded during targeted surveys within the Dutson Downs Treatment Lagoons. There are several records for Growling Grass Frog in the local area, including some from wetlands at Dutson Downs, within the alignment at KP 6. Both these species may occur in farm dams and other freshwater waterways whilst Green and Golden Bell Frog, which is tolerant of brackish water, has been recorded adjacent to Lake Reeve. The EES identifies that potential impacts to these species would mainly occur during the construction phase from potential habitat removal, introduction of Chytrid Fungus and disturbance from noise and vibration.

The inquiry recommended that MM-FF11 (Growling Grass Frog and Green and Golden Bell Frog) be amended to include a requirement for all translocations of protected fauna species to be documented and release sites reported in the Victorian Biodiversity Atlas. I support this amendment.

Assessments against the Significant Impact Guidelines 1.1. for vulnerable species the Significant Impact Guidelines for the vulnerable Green and Golden Bell Frog and the Significant Impact Guidelines for the vulnerable Growling Grass Frog were undertaken for both frog species and it was determined that significant impacts for both species were rare to unlikely (Technical Report A). The inquiry found that if properly implemented, the many EMMs relating to fauna will minimise impacts on these threatened fauna species. I agree with the inquiry's conclusion and consider that significant impacts on Green and Golden Bell Frog and Growling Grass Frog from the project are unlikely.

### **Hooded Plover**

Hooded Plover is listed as vulnerable under the EPBC Act. Hooded Plover is a residential shorebird which was recorded foraging on the Golden Beach shoreline during surveys for the project. The EES discussed that as the main habitat for the species occurs along high-energy surf beaches the species is unlikely to make significant use of the project area apart from Golden Beach itself (Technical Report A). It is stated that that the species would be unlikely to utilise Lake Reeve as habitat except as refuge during inclement weather or extreme high tides (Chapter 22). Consequently, construction at Lake Reeve is unlikely to impact on the species.

Technical Report A of the EES included an assessment of potential impacts for Hooded Plover in accordance with the Significant Impact Guidelines 1.1 for vulnerable species, which determined that the likelihood of a significant impact was rare. This was an assessment against the impacts of the construction and general operation of the project.

Impacts of a marine diesel spill are discussed in the marine impact assessment (Technical Report B). The marine impact assessment acknowledges that shorebirds have high sensitivity to oil spill and that Hooded Plovers and their nests are the key environmental receptor potentially impacted by oil and oil spill clean-up (Technical Report B). Technical Report B states that the Ninety Mile Beach provides important Hooded Plover nesting habitat. The EES argued that the toxicity effects from ingestion of contaminated prey, direct exposure or transport back to nest is unlikely as the volatile components of the oil are likely to have

weathered prior to stranding and hydrocarbon entering the sandy nests of Hooded Plovers is likely to percolate through the sand rather than accumulate in the feathers of adults or young (Technical Report B). No evidence specific to Hooded Plovers was presented to support these arguments. The EES states that oil spill clean-up activities are likely to impact Hooded Plovers through disturbance and impacts to any nest sites present in the area.

An assessment of the impacts of oil spill and oil spill clean-up was not undertaken for Hooded Plover under the Significant Impact Guidelines 1.1 for vulnerable species. Whilst significant impact assessments were undertaken for migratory shorebird species in accordance with EPBC Act Policy Statement 3.21 and for threatened seabird species against the Significant Impact Guidelines 1.1 Hooded Plover is neither migratory nor a seabird and requires a separate assessment. In the absence of that assessment in the EES, I cannot conclude or assume that impacts of an oil spill or oil spill clean-up on this species would not be significant. I acknowledge, however, the likelihood of these events occurring is low. Further to that, the EMMs for mitigating risk from diesel spills in marine and coastal waters, incorporating the modifications recommended by the inquiry, are an acceptable means of managing the potentially significant impacts.

### **Red Knot**

Red Knot is listed as endangered and migratory under the EPBC Act. There are no records of the species within the project area, however there are many records of the species at the western end of Lake Reeve and at The Honeysuckles. Lake Reeve has in the past supported the largest concentration (5000 individuals) of Red Knot recorded in Victoria. It is stated within the EES (Technical Report A) that the species may occur in the project area occasionally during their migration, including at Lake Reeve and the beach.

A significant impact assessment against the Significant Impact Guidelines 1.1 for critically endangered and endangered Species, Significant Impact Guidelines 1.1 for listed migratory species and the EPBC Act Policy Statement 3.21<sup>7</sup> were undertaken for the impacts of the construction and operation of the project (Technical Report A). The assessments determined that the construction and operation of the project is unlikely to have significant impacts on the species provided the EMMs are implemented. The inquiry was satisfied that provided the proposed EMMs are effectively implemented, potential impacts on migratory species will be acceptable. I agree with these findings.

An assessment of the marine impacts of the project on Red Knot was also undertaken (Technical Report B). This included an assessment an oil spill scenario for migratory shorebird species in accordance with EPBC Act Policy Statement 3.21, which found that oil spill would not have a significant impact on migratory shorebirds. As described below, the inquiry considered that the EES understates the consequences of a marine diesel spill, which appear to be locally 'major' or 'severe' rather than 'low'. I agree with the inquiry's conclusion and consider that the impacts of a marine diesel spill on migratory shorebirds may be significant, although it is unlikely this would occur. As I have noted above, the EMMs for mitigating risk from diesel spills needs to incorporate the modifications recommended by the inquiry, to be an acceptable means of managing the risk of significant impact.

### **Grey-headed Flying-fox**

Grey-headed Flying-fox is listed as vulnerable under the EPBC Act. The EES identified that trees along the pipeline alignment represent suitable foraging habitat of the species. No known roost or camp sites are present within the project area and it is stated that the species may occasionally use the project area for foraging. The EES stated that there is a very low likelihood of significant impacts to this species with the

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<sup>7</sup> Department of Environment (2017) EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species

adoption of the mitigation measures (Technical Report A). An assessment of the impacts of the project on Grey-headed Flying-fox under the Significant Impact Guidelines 1.1 for vulnerable species was not undertaken. Based on the argument that the species is only expected to use the project area occasionally for foraging, I agree there is a low likelihood of significant impacts to Grey-headed Flying-fox.

### **New Holland Mouse**

New Holland Mouse is listed as vulnerable under the EPBC Act. The species was potentially detected during camera trapping surveys for the project. The EES states that extensive areas of suitable habitat for the species occur within the project area and there are several recent records from Dutson Downs (Chapter 22). Potential impacts on the species include removal and/or fragmentation of habitat and disturbance from noise and vibration. The inquiry considered that these impacts are expected to be short-term and temporary, with risks reduced following habitat restoration within the project area.

DELWP submitted that if the species is to be translocated then the wildlife handler would be required to have appropriate wildlife permits and accreditations and that all translocations needed to be documented and release sites reported to the Victorian Biodiversity Atlas. The inquiry agreed and recommended that MM-FF13 (New Holland Mouse and Eastern Pygmy Possum) be amended to require all translocations to be documented and release sites reported in the Victorian Biodiversity Atlas. A further recommended change to MM-FF13 included the addition of “who has appropriate wildlife permits and accreditations” after “suitably qualified wildlife handler”. I agree with these arguments and support the changes to MM-FF13.

The EES included an assessment of potential impacts for the species in accordance with the Significant Impact Guidelines 1.1 for vulnerable species, which determined that a significant impact was rare to unlikely for most criteria. However, it was determined that it was possible that the action may adversely affect habitat critical to the survival of the species (Technical Report A). The assessment in Technical Report A stated that “Implementing mitigation measures for habitat restoration and/or improvement, after temporary loss of vegetation, will minimise the potential of permanent adverse effects on habitat that may be critical to the survival of this species into the long-term.” The inquiry found that if properly implemented, the many EMMs relating to fauna will minimise impacts on threatened fauna species. I agree with these conclusions and consider that significant impacts are unlikely provided habitat restoration activities are undertaken in accordance with the EMMs.

### **Southern Brown Bandicoot**

Southern Brown Bandicoot is listed as endangered under the EPBC Act. The EES states that while no recent records of the species occur within the vicinity of the project area, suitable habitat for the species is present. Potential impacts to the species include removal and/or fragmentation of habitat and disturbance from noise and vibration. The inquiry considered that these impacts are expected to be short-term and temporary, with risks reduced following habitat restoration within the project area.

The EES included an assessment of potential impacts for the species in accordance with the Significant Impact Guidelines 1.1 for critically endangered and endangered species, which determined that a significant impact was rare to unlikely (Technical Report A). The inquiry found that if properly implemented, the many EMMs relating to fauna will minimise impacts on threatened fauna species. I agree with the findings of the EES and consider that significant impacts of the project on Southern Brown Bandicoot are unlikely provided habitat restoration activities are undertaken in accordance with the EMMs.

### **Spot-tailed Quoll**

Spot-tailed Quoll is listed as endangered under the EPBC Act. The EES states that there are no local records of the species. However, suitable habitat for the species occurs within the project area in vegetation with a

dense understorey and hollows. Potential impacts of the project on the species include the removal of habitat.

The EES included an assessment of potential impacts for the species in accordance with the Significant Impact Guidelines 1.1 for critically endangered and endangered species, which determined that the likelihood of a significant impact is rare (Technical Report A). I accept that the project is unlikely to have a significant impact on Spot-tailed Quoll.

### **Turtles**

Loggerhead Turtle and Leatherback Turtle are listed as endangered whilst Green Turtle, Hawksbill Turtle and Flatback Turtle are listed as vulnerable under the EPBC Act. All five species are listed as migratory under the EPBC Act. The EES states that biologically important areas for these species within Bass Strait and there are low numbers within Victorian waters in general (Technical Report B). These species do not breed within Victorian waters as indicated by the Recovery Plan for Marine Turtles in Australia<sup>8</sup>.

The EES assessed potential impacts on marine turtles including vessel strike, artificial light, non-hazardous waste, underwater noise, hydrocarbon spill. Impacts to these species were considered minor to low due to the implementation of mitigation measures in the EPSs and the generally low numbers of these species likely to be present. An assessment of potential impacts for the species in accordance with the Significant Impact Guidelines 1.1 for critically endangered and endangered species and vulnerable species was not undertaken. However, I do agree with the conclusion of the EES that the construction and operation of the project is unlikely to impact negatively on these species.

### **Sharks**

Great White Shark is listed as vulnerable and migratory under the EPBC Act. Grey Nurse Shark is listed as critically endangered under the EPBC Act. The EES states that a biologically important area for breeding for Great White Shark intersects with the project area, and juvenile are known to congregate in the Ninety Mile Beach area (Chapter 22). This species is transitory and may occur within the project areas and marine study area. The EES states that Grey Nurse Shark is all but absent from Victorian waters. No aggregation sites for the species are known off the Victorian coast and significant numbers are unlikely to occur within the marine study area (Technical Report B).

The EES assessed the potential impacts on shark species from underwater noise related to sonar surveys. It stated that threatened sharks are unlikely to experience effects that cause mortality or behavioural impacts as they lack a swim bladder, are transitory and can avoid sudden sound sources. An assessment against the Significant Impact Guidelines 1.1 for the impacts of sonar surveys on threatened fish species, determined that there would not be a significant impact (Technical Report B). I agree with this assessment.

The EES states that the consequence of a marine diesel oil spill on pelagic fish, including sharks, is likely to be low as these species spend most of their time in the water column, rather than at the surface and so are unlikely to be exposed to toxic levels of hydrocarbons (Technical Report B). I accept this reasoning.

### **Australian Grayling**

Australian Grayling is listed as vulnerable under the EPBC Act. The EES describes that populations of the species are known from several streams which flow into the marine study areas when the stream mouths open to the ocean. The species is amphidromous: adults spawn in the lower fresh water reaches of the streams, larval fish drift downstream into salt water, and juveniles migrate back upstream into the streams to fresh water. No targeted surveys for the species were undertaken in waterways intersected by the

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<sup>8</sup> DoEE (2017) Recovery Plan for Marine Turtles in Australia, Department of the Environment and Energy, Commonwealth of Australia.

pipeline easement and it is stated there is a low likelihood of occurrence within the onshore pipeline project area and shore crossing area (Technical Report A). The EES states that the species may be present within the marine study area in the event that the stream mouths are open whilst the species is spawning (Technical Report A).

It is stated that the onshore pipeline component of the project has a low likelihood of impacting the species (Technical Report A). The risks of marine diesel spill are not discussed specifically for this species, however, it is stated that fish eggs and larvae are highly sensitive to oil exposure (Technical Report A). The consequence of an oil spill on marine plankton is stated as being of moderate consequence. It is my assessment that this may be of significant consequence to larvae of Australian Grayling, however the likelihood of occurrence is low.

### **Dwarf Galaxias**

Dwarf Galaxias is listed as vulnerable under the EPBC Act. Targeted surveys were undertaken in waterways and waterbodies within the onshore pipeline project area. The species was not detected and it was determined to be unlikely that Dwarf Galaxias occur within the project area (Technical Report A).

### **Black Rock Cod**

Black Rock Cod is listed as vulnerable under the EPBC Act. This species is not likely to occur within the project area but may occur within the far-eastern area of the marine study area, north of Mallacoota (Chapter 22). The risks of marine diesel oil spill are not discussed specifically for this species.

### **Whales**

Pygmy Blue Whale and Southern Right Whale are both listed as endangered whilst Humpback Whale is listed as vulnerable under the EPBC Act. All three species are listed as migratory under the EPBC Act. The EES states that these whale species may occur in the project and marine study areas, however the likelihood is considered low. Records for all three species occur within the marine study area but not the project area. Most of eastern Bass Strait, including the project area, is considered a biologically important area for foraging Pygmy Blue Whales. All Victorian state waters, including those around the project area are recognised as a biologically important area for migration and resting during migration for Southern Right Whale. The project area and marine study area are within the recognised core range for the species (Technical Report B). The EES states that “the shallow water of the Project area is not preferred habitat for humpback whales and there is no defined migration route for pygmy blue whales through the regions”, however that Southern Right Whales are more likely to present during migration as this species has a defined near shore migration route (Technical Report B).

The EES assessed potential impacts on whales including vessel strike, underwater sound and marine diesel oil spill. The EES rated megafauna vessel strike as a very low risk as the inspection vessels will be moving very slowly.

It was recognised within the EES (Technical Report B) that baleen whales are the fauna group most at risk from acoustic disturbance from underwater construction activities and sonar surveys and that underwater sound may potentially cause injury or mortality to marine fauna including whales. Technical Report B describes predicted impacts of noise from the project on whales and states that behavioural effects are expected to be limited to short-term avoidance of the project area. The EES indicates that there may be cumulative impacts of underwater sound from the project and other sources it does not provide an assessment of these on the basis that species will only be moving through the area, not spending an extended time there. Assessments against the Significant Impact Guidelines 1.1 were undertaken for threatened species for drilling noise and the use of side scan sonar and multibeam echosounder and determined that there would be no significant impact. The inquiry was satisfied with the EES assessment

that residual risks of underwater sound can be satisfactorily mitigated to 'low' risk with the proposed mitigation measures and recommended a minor adjustment to the wording of MM-ME41 below to strengthen the measure. I agree with this conclusion and recommended change to MM-ME41.

Whales are a high sensitivity receptor for marine diesel oil spill. The EES notes that whales could be exposed through hydrocarbon vapour, to direct contact and ingestion, and maternal transfer to embryos. The EES included an assessment against the Significant Impact Guidelines 1.1 for the impact of a hydrocarbon spill scenario on threatened cetacean species, which determine that there would not be a significant impact. The inquiry considered that the EES understates the consequences of a marine diesel oil spill, which appear to be locally 'major' or 'severe' rather than 'low'. I agree with the inquiry's conclusion and consider that the impacts of a marine diesel oil spill on whales may be significant, although it is unlikely this would occur.

### **Threatened ecological communities**

Giant Kelp Marine Forests of South East Australia is listed as endangered under the EPBC Act. This community is mapped as occurring within small coastal parts of the marine study area including a small area southwest and east of Mallacoota. This community is not recorded in the project area.

It is stated in Technical Report B that mixing of the waters within the marine study area and the low concentrations at this part of the study area would mean that "Due to the well-mixed nature of the waters of the EMBA (and therefore short exposure time to MDO) and the low concentrations of MDO in this part of the EMBA, coating of macroalgae by hydrocarbons is considered highly unlikely, and therefore significant impacts are not likely". The EES assess the impact of a hydrocarbon spill scenario on Giant Kelp Marine Forests threatened ecological community against the Significant Impact Guidelines 1.1 and determined there would not be a significant impact. Given the large distance between this community and the project area I accept this conclusion.

## **A.3 Listed migratory species**

### **Migratory shorebirds**

A number of migratory shorebirds listed under the EPBC Act are considered to have a moderate of higher likelihood of occurrence in the project area. These include Red-necked Stint, Sharp-tailed Sandpiper, Red Knot, White-winged Black Tern, Latham's Snipe and Pacific Golden Plover. Additional species are likely to occur within the broader marine study area.

The EES identifies that removal for suitable habitat for these species will occur within the Lake Reeve crossing area. It is stated that these species are unlikely to be present during construction, as this is planned to occur over a short time-frame when Lake Reeve is not inundated. As discussed above, the inquiry recommended additional monitoring to ensure ecological rehabilitation of Lake Reeve following construction. The inquiry was satisfied that the risks to migratory shorebirds from the Lake Reeve crossing are appropriately addressed by proposed mitigation measures. I agree with the inquiry's conclusion.

The EES identified other risks to migratory shorebirds including light and noise and stated that residual risks were likely to be low with all mitigation measures in place. In particular works are to be undertaken in accordance with the measures described in Appendix A of Australian Standard *AS 4282- 1997 Control of the Obtrusive Effects of Outdoor Lighting*<sup>9</sup> and Principles of Best Practice Lighting Design in the *National Light Pollution Guidelines for Wildlife including marine turtles, seabirds and migratory shorebirds*<sup>10</sup>. The inquiry

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<sup>9</sup> Standards Australia (1997) AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting Standards Australia, Homebush, NSW.

<sup>10</sup> DoEE (2020) National Light Pollution Guidelines for Wildlife Including marine turtles, seabirds and migratory shorebirds. Department of Environment and Energy.

was satisfied that the proposed management measures, if properly implemented, will manage these risks appropriately. I agree with this conclusion.

A combined significant impact assessment was undertaken for the migratory species listed above in accordance with Significant Impact Guidelines 1.1 (listed migratory species) and the significant impact guidelines outlined in EPBC Act Policy Statement 3.21. I agree with this assessment and consider that there is unlikely to be a significant impact on migratory shorebirds from the construction and operation of the project.

Impacts of a marine diesel spill are discussed in the marine impact assessment (Technical Report B). This section of the EES acknowledges that shorebirds have high sensitivity to oil spill. An assessment of an oil spill scenario for migratory shorebird species was undertaken in accordance with EPBC Act Policy Statement 3.21, which found that a marine diesel oil spill would not have a significant impact on migratory shorebirds. The inquiry considered that the EES understates the consequences of a marine diesel oil spill, which appear to be locally 'major' or 'severe' rather than 'low'. I agree with the inquiry's conclusion and consider that the impacts of a marine diesel oil spill on migratory shorebirds may be significant, although it is unlikely this would occur.

### **Migratory seabirds**

The EES states that a large number of migratory shorebirds listed under the EPBC Act are likely to occur within the project and marine study area (Chapter 22). This includes sixteen albatross species, including Shy Albatross which was recorded flying over the project area during the assessment (Chapter 22, Technical Reports A and B). The EES also lists five shearwater species and six petrel species likely to occur as well as Common Noddy and Great Skua (Technical Report B). Most of these species are able to cover vast ocean distances while foraging and may occur in the vicinity of the marine study area and occasionally over the project area (Chapter 22).

The EES discusses the potential impact of artificial light on seabirds, which are known to be susceptible to attraction to and disorientation by artificial light. The EES states that impacts on these species from artificial light during drilling activities are not likely to be significant, given that this will be a temporary activity (up to 90 days). Lighting used during the offshore pipeline laying is proposed to be in accordance with the *Draft National Light Pollution Guidelines for Wildlife including marine turtles, seabirds and migratory shorebirds*. The inquiry agreed with the proponent's assessment that the residual risk on fauna from lighting was low. I accept this conclusion.

The potential impacts of a marine diesel oil spill on seabirds are discussed above and in the marine impact assessment (Technical Report B). These species would be at risk from contact with and ingestion of marine diesel oil when resting at sea or foraging. An assessment of an oil spill scenario for threatened migratory seabird species was undertaken in accordance with the Significant Impact Guidelines 1.1, which found that a marine diesel oil spill would not have a significant impact on threatened migratory seabirds. The inquiry considered that the EES understates the consequences of a marine diesel oil spill, which appear to be locally 'major' or 'severe' rather than 'moderate'. I agree with the inquiry's conclusion and consider that the impacts of a marine diesel oil spill on migratory shorebirds may be significant, although it is unlikely this would occur.

### **Migratory marine mammals**

Impacts on the three migratory whale species considered likely to occur within the project and marine study area are discussed above.

### **Migratory sharks and rays**

Giant Manta Ray, Shortfin Mako, Porbeagle and Great White Shark are listed as migratory under the EPBC Act. Giant Manta Ray may occur within the furthest eastern extent of the marine study area but is unlikely to be present within the project area. Shortfin Mako and Porbeagle both have a widespread distribution in Australian waters and may be found within the project area and marine study area, in low numbers (Technical Report A). Great White Shark is discussed above.

For the reasons discussed for threatened sharks, the EES considered that underwater noise was unlikely to have a significant impact on migratory sharks and rays. These species are also considered unlikely to be significantly impacted by a marine diesel oil spill (Technical Report B). I agree with this conclusion.

### **A.4 Assessment**

- Impacts to the Gippsland Lakes Ramsar wetland and Corner Inlet Ramsar wetland do not meet significant impact criteria under the Significant Impact Guidelines and are considered acceptable.
- Impacts of the project construction and operation on EPBC Act-listed threatened species do not meet significant impact criteria under the Significant Impact Guidelines and are considered acceptable.
- Impacts of the project construction and operation on EPBC Act-listed migratory species do not meet significant impact criteria under the Significant Impact Guidelines and are considered acceptable.
- Impacts of a marine diesel oil spill on EPBC Act-listed threatened and migratory species may be significant, however the chances of this occurring are unlikely. The EMMs for mitigating risk from diesel spills in marine and coastal waters, incorporating the modifications recommended by the inquiry, are an acceptable means of managing the potentially significant impacts.
- I support the proposed amendments to MM-CO05, MM-CO09, MM-SW03, MM-FF11, MM-FF13, MM-FF15, MM-FF17, MM-FF23 and MM-ME41



## Appendix B Environment mitigation measures

The inquiry recommended specific changes to many of the environmental mitigation measures published in the EES in response to submissions and through their analysis of the issues. I commend GB Energy for responding proactively and adopting some of these measures themselves in response to matters raised by submitters. I generally support the inquiry's recommended version of each environmental mitigation measures except where qualified in the Minister's assessment column of Table B1.

**Table B1: Recommended changes to environmental mitigation measures.**

Inquiry's recommendations	Minister's assessment
<p>Amend MM-FF01 (Avoid and minimise areas of impact) to:</p> <p>a) strengthen the requirement to pursue all opportunities to reduce native vegetation loss by inserting the following clause at the start of MM-FF01:</p> <ul style="list-style-type: none"> <li>• Ensure that all opportunities to reduce native vegetation loss are pursued to the extent reasonably practicable, including modifications to access routes, micro-siting of the pipeline, tree protection measures and further consideration of Horizontal Directional Drilling.</li> </ul> <p>b) include a requirement for suitably qualified personnel to identify biodiversity values to be available at all relevant times during Project delivery (not just an initial walk-through).</p>	<p>It is my recommendation that MM-FF-01 reflect that further consideration of HDD should be conducted in consultation with DELWP to reduce native vegetation loss, in particular, along the pipeline alignment beyond the compressor station.</p>
<p>Amend MM-FF05 (Site Reinstatement and Rehabilitation) to:</p> <p>a) include a requirement to record current vegetation structure and composition prior to commencement work works, to enable like for like delivery of vegetation during reinstatement and rehabilitation works</p> <p>b) require a minimum 3-year monitoring period after reinstatement works are complete.</p>	
	<p>It is my recommendation that MM-FF10 (Fauna injury and mortality) be amended to require the fauna management plan to be prepared in consultation with DELWP and DAWE and to their satisfaction, as part of the CEMP and OEMP. I recommend that the fauna management plan should also identify further areas of avoidance for habitat removal as far as reasonably practicable.</p>
<p>Amend MM-FF11 (Growling Grass Frog and Green and Golden Bell Frog), MM-FF12 (Southern Toadlet and Martin's Toadlet) and MM-FF13 (New Holland Mouse and Eastern Pygmy Possum) to include a requirement for all translocations of protected fauna species to be documented and release sites reported in the Victorian Biodiversity Atlas.</p>	<p>It is my recommendation that MM-FF11, FF12 and FF13 be amended to include that the fauna management plan will be prepared in consultation with and to the satisfaction of DELWP and DAWE.</p>
<p>Amend MM-FF13 (New Holland Mouse and Eastern Pygmy Possum) to add "who has appropriate wildlife permits and accreditations" after "suitably qualified wildlife handler".</p>	

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**Table B1 (cont.): Recommended changes to environmental mitigation measures.**

Inquiry's recommendations	Minister's assessment
<p>Amend MM-FF15 (Threatened Orchids, Wellington Mint-bush and Trailing Hop-bush) to include the following requirements:</p> <ul style="list-style-type: none"> <li>a) implementation of all of the recommendations in the Arcadis report (Document 6)</li> <li>b) the Flora/Orchid Management Plan must be prepared before construction commences</li> <li>c) a translocation plan must be prepared for threatened values identified during construction, which includes appropriate land manager consent, translocation methods, translocation site selection criteria and post-translocation monitoring.</li> </ul>	
	<p>It is my recommendation that MM-FF18 (Noise and vibration impacts on fauna) be amended as follows: "In areas of potential disturbance to sensitive fauna species, <b>as identified in the Fauna Management Plan</b>, there will be additional measures developed and implemented..."</p>
<p>Amend MM-FF23 (EPBC Act Subtropical and Temperate Coastal Saltmarsh) to require a minimum 3 year monitoring period after the completion of the reinstatement works, extended to a 4 year minimum period if the regeneration is not successful after the first 12 months of monitoring.</p>	
<p>Amend MM-FF24 (Shore Crossing Management Plan) to add the following. The Shore Crossing Management Plan must assess the impacts of the shore crossing on the sensitive dunes and coastal environment, and must:</p> <ul style="list-style-type: none"> <li>• incorporate advice from a Certified Professional in Erosion and Sediment Control</li> <li>• specify measures to rehabilitate the dunes and surrounding coastal environment after completion of the shore crossing, to the satisfaction of the Department of Environment Land Water and Planning Pipelines Regulation Unit and Energy Safe Victoria</li> <li>• include a requirement for monitoring for a period of at least 3 years to ensure the success of the rehabilitation work proposed under the plan, to the satisfaction of the Department of Environment Land Water and Planning Pipelines Regulation Unit and Energy Safe Victoria.</li> </ul>	
<p>Amend MM-ME35 (Invasive marine species evaluation prior to mobilisation to site) by adding "and undertake such cleaning or re-application of anti-fouling coating as determined to be necessary" to the end of the fourth dot point.</p>	
<p>Amend MM-ME41 (Whale management strategy) by changing 'discussed' to 'established' in the first dot point.</p>	
<p>Amend MM-CO01 (Contaminated Soils), MM-CO02 (Contaminated Groundwater) and MM-CO04 (Unknown Contamination) as recommended by the Environment Protection Authority in Submission 5. ]</p>	

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**Table B1 (cont.): Recommended changes to environmental mitigation measures.**

Inquiry's recommendations	Minister's assessment
<p>Amend MM-CO05 (Acid Sulfate Soils) to:</p> <ol style="list-style-type: none"> <li>include the additional requirement recommended by the Environment Protection Authority as MM-CO11 in Submission 5</li> <li>require the Acid Sulfate Soils Management Plan to be endorsed by the Environment Protection Authority.</li> </ol>	
<p>Amend MM-CO05 (Acid sulfate soils), MM-FF17 (Impacts to Gippsland Lakes Ramsar site) and MM-FF23 (EPBC Act Subtropical and Temperate Coastal Saltmarsh) to ensure that they are applied to both arms of Lake Reeve.</p>	
<p>Amend MM-CO08 (Hydrotest water) and MM-CO10 (Waste management) to require discharges to not exceed the capacity of the land receiving the hydrotest water or produced water without overflow to nearby watercourses.</p>	
<p>Amend MM-CO09 (Fuel and chemical leaks and spills) to replace the first sentence of the second clause with:</p> <ul style="list-style-type: none"> <li>The refuelling or maintenance of equipment, machinery and vehicles is to be conducted as far away as is reasonably practical but no less than 20m away from any waterway.</li> </ul>	
	<p>It is my recommendation that MM-NV-01 (Managing noise from construction activities) be amended to require the proponent to consult with EPA and Wellington Shire Council and agree on necessary 24-hour construction activities.</p>
<p>Amend MM-NV07 (Cumulative operational noise controls) to require the Proponent/operator to consult with Esso, Jemena, Wellington Shire Council and local stakeholders (as well as the Environment Protection Authority) during the detailed design for the compressor station regarding the management of cumulative noise from plant operations.</p>	
<p>Amend MM-NV08 (Commissioning requirements) to require a report to be provided to the Environment Protection Authority in relation to the results of the noise compliance testing.</p>	
<p>Amend MM-GW03 (Uncontrolled loss of drilling muds) to include a requirement for the development of a Horizontal Directional Drilling Management Plan to further address appropriate controls to manage the impacts of drilling muds on groundwater.</p>	
<p>Amend MM-SW01 (Trench dewatering) and MM-CO03 (Contaminant migration) to reference the Dewatering Plan required by MM-GW01 and MM-GW02. The Dewatering Plan should:</p> <ol style="list-style-type: none"> <li>be prepared prior to the commencement of trenching (not conditional on two days of continuous dewatering)</li> <li>address matters relating to both surface water and groundwater, including a water balance assessment of the adequacy of proposed storage and disposal sites</li> <li>include measures for ensuring that excess trench water does not overflow to nearby watercourses.</li> </ol>	

/cont.

**Table B1 (cont.): Recommended changes to environmental mitigation measures.**

Inquiry's recommendations	Minister's assessment
Amend MM-SW02 (Trenching across waterways) to include a requirement for a minimum monitoring period of three years following construction of the waterway crossings, to ensure the stability of the waterway and effectiveness of vegetation rehabilitation.	
Amend MM-SW03 (Hazardous spill management) and MM-CO09 (Fuel and chemical leaks and spills) to include a requirement to take appropriate measures (for example by bunding) in all areas with a direct hydraulic connection to Lake Reeve to ensure that Lake Reeve is hydraulically isolated in the event of a spill.	
Amend MM-SW07 (Waterways or floodplain function) to include a requirement for the shore crossing facility to be constructed a minimum of 0.8m above the declared 1% annual exceedance probability flood level (to allow for sea level change).	
Amend MM-SE01 (Community and stakeholder engagement plan) to add a requirement for the plan to be developed in consultation with Wellington Shire Council.	
Amend MM-SE02 (Complaints management) by inserting 'promptly' after 'Project' in the third dot point.	
<p>Replace MM-SE04 (Construction scheduling) with the following:</p> <ul style="list-style-type: none"> <li>• To the extent practicable, avoid off-shore construction and on-shore construction in the vicinity of Golden Beach from Christmas to the end of January and during the Golden Beach End of Summer Surf Festival (including two days either side of the festival).</li> <li>• Consult with the organisers of the Golden Beach End of Summer Surf Festival if scheduling off-shore construction or on-shore construction in the vicinity of Golden Beach within a month prior to the Festival.</li> <li>• Provide the local community with at least one month's advanced notice of the construction schedule and proposed construction activities as part of the Community and Stakeholder Engagement Plan (MM-SE01).</li> </ul>	