

Environment Effects Act 1978

Pipelines Act 2005

Inquiry and Panel Report

Golden Beach Gas Project

2 March 2021

Environment Effects Act 1978

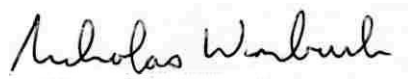
Pipelines Act 2005

Inquiry Report pursuant to section 9(1) of the *Environment Effects Act 1978*

Panel Report pursuant to section 47 of the *Pipelines Act 2005*

Golden Beach Gas Project

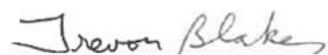
2 March 2021



Nick Wimbush, Chair



Sarah Carlisle, Deputy Chair



Trevor Blake, Member



Sandra Brizga, Member

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Glossary and abbreviations

AEMO	the Australian Energy Market Operator
AHD	Australian Height Datum
ALARP	as low as reasonably practicable (in the context of safety risks)
ANOS-Vic	Australian Native Orchid Society of Victoria
APGA Code of Environmental Practice	<i>Code of Environmental Practice - Onshore Pipelines, Revision 4</i> , Australian Pipelines and Gas Association, 2017
AS2885	<i>Australian Standard 2885: Pipelines—Gas and liquid petroleum</i>
ASS	acid sulfate soils
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
CMA	West Gippsland Catchment Management Authority
Council	Wellington Shire Council
CPS	Components, Processes and Services
DELWP	Department of Environment, Land, Water and Planning
DJPR	Department of Jobs, Precincts and Regions
EE Act	<i>Environment Effects Act 1978</i>
EES	Environment Effects Statement
EES Guidelines	<i>Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978</i> , Seventh Edition, Department of Sustainability and Environment, June 2006
EMF	Environmental Management Framework
EMM	Environmental Management Measure
EMP	Environmental Management Plan
Environment Effects Minister	the Minister administering the <i>Environment Effects Act 1978</i>
EPA	Environment Protection Authority
EP Act	<i>Environment Protection Act 1970</i>

EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
ERR	Earth Resources Regulation Branch of DJPR
EVC	Ecological Vegetation Classes
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
GDE	groundwater dependent ecosystem
Greenhouse PEM	EPA Publication 824, the Protocol for Environmental Management <i>Greenhouse Gas Emissions and Energy Efficiency in Industry, 2002</i>
Greenhouse Protocol	<i>Greenhouse Gas Protocol 2003</i> issued by the World Business Council for Sustainable Development and the World Resources Institute
HDD	horizontal directional drilling
MM-[code]	Mitigation Measure [code] contained in the EES
MNES	matters of national environmental significance
Native Vegetation Guidelines	<i>Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017)</i>
NIRV	EPA publication 1411 <i>Noise from Industry in Regional Victoria Guideline</i>
NOPSEMA	the National Offshore Petroleum Safety and Environmental Management Authority
OPGGGS Act	<i>Offshore Petroleum and Greenhouse Gas Storage Act 2010</i>
PE Act	<i>Planning and Environment Act 1987</i>
PFAS	per and polyfluoroalkyl substances
Pipelines Minister	the Minister administering the <i>Pipelines Act 2005</i> , namely the Minister for Environment and Climate Change
Planning Scheme	Wellington Planning Scheme
SEPP	State Environment Protection Policy
SEPP (AQM)	State Environment Protection Policy - Air Quality Management
SEPP (Contaminated Land)	State Environment Protection Policy - Prevention and Management of Contaminated Land
TEG	triethylene glycol
WAA	Works Approval Application

Overview

Project	
The Project	Golden Beach Gas Project
Project description	Construction of two sub-sea wells for gas extraction, a sub-sea and onshore bi-directional gas pipeline and associated infrastructure including a shore crossing facility, compressor station and metering facility. Following extraction, the gas basin is proposed to be converted to a natural gas storage facility
Project location	Wells to be located 3 kilometres offshore from Golden Beach in Gippsland, in the municipality of Wellington. Shore crossing to be located 4 kilometres south west of the Golden Beach township
The Proponent	Golden Beach Energy Pty Ltd

Inquiry process	
The Inquiry	Nick Wimbush (Chair), Sarah Carlisle (Deputy Chair), Trevor Blake, Sandra Brizga
Exhibition	26 October to 7 December 2020
Submissions	Number of Submissions: 13 (including one late submission) Opposed: 8 submissions Neutral: 5 submissions
Site inspection	Accompanied, 16 December 2020
Directions Hearing	17 December 2020 by video conference
Submitter conference	18 January 2021 by video conference
Appearances	Proponent: Jade Rowarth and Tim Vesey EPA: Peter Tziotis DJPR (CarbonNet Project): Mel Barker Submitters: Jo McCubbin, Jane Hildebrandt
Citation	Golden Beach Gas Project (EES) [2021] PPV
Date of this Report	2 March 2021

Response to Terms of Reference for the EES Inquiry	
Terms of Reference item	Where responded to
35. The inquiry must produce a written report for the Minister for Planning containing the Inquiry's:	
a. analysis and conclusions with respect to the environmental effects of the project and its significance and acceptability;	Chapters 4 to 18, 19

b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;	Chapters 4 to 18, 19
c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects to acceptable environmental outcomes, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;	Chapters 4 to 18, 19
d. recommendations to any feasible modifications to the project (e.g. design, alternative configurations, or environmental management) that would enable beneficial outcomes;	See consolidated recommendations
e. recommendations to the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects, contingency plans and site rehabilitation;	Chapter 20
f. recommendations with respect to the WAA, including recommendations about conditions that might appropriately be attached to a works approval if issued; and	Chapter 22
g. specific findings and recommendations about the predicted impacts and residual risks for matters of national environmental significance and their acceptability, including appropriate controls and environmental management.	Chapter 21
36. The report should include:	
a. information and analysis in support of the inquiry's findings and recommendations;	Chapters 4 to 18, 19
b. a list of all recommendations, including cross references to relevant discussions in the report;	Executive Summary
c. a description of the submitter conference conducted by the inquiry, and a list of those persons consulted with or heard by the inquiry;	Chapters 2.4 and 2.5, Overview
d. a list of all submitters in response to the exhibited EES; and	Appendix B
e. a list of the documents tabled during the submitter conference.	Appendix D

Executive summary

The Golden Beach Gas Project involves the construction and operation of gas wells and a pipeline to extract gas from the Golden Beach gas field for provision to the Victorian Transmission System. The gas field is 3 kilometres offshore from Golden Beach and 20 kilometres from the Longford Gas Hub and associated strategic pipeline infrastructure. According to the Environment Effects Statement (EES) prepared by GB Energy Pty Ltd (the Proponent), the Golden Beach gas field contains sales-quality natural gas, with no heavy elements or condensates.

The gas pipeline is proposed to be bi-directional, allowing for the gas field to be used as a gas storage facility once extraction is complete. Gas extraction is expected to continue for 2 to 4 years, and the storage facility is expected to operate for a further 36 to 38 years. The Project has a 40 year design life.

The main approvals required for the Project to proceed are:

- approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (OPGGGS Act) for offshore drilling, pipeline construction and gas extraction (and possibly also gas injection and storage)
- a pipeline licence under the *Pipelines Act 2005* for the onshore construction and operation of the pipeline and associated facilities
- a works approval under the *Environment Protection Act 1970* for the compressor station.

The Project also requires approval for a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), due to its potential to have a significant impact on Ramsar wetlands, listed threatened species and communities and listed migratory species (which are all Matters of National Environmental Significance (MNES) under the EPBC Act).

Although a relatively small number of submissions were received, they raised a number of issues and concerns:

- the need for the Project and whether gas (or fossil fuels) should be supported over renewable energy
- impact on climate change and consistency with policy around the reduction of carbon emissions
- protection and management of the Ramsar Wetlands including:
 - impacts of acid sulfate soil impacts on the Ramsar wetland of Lake Reeve
 - the use of wet trenching installation in the vicinity of Lake Reeve
- the removal of large amounts of native vegetation, including whether the Project meets the requirements of native vegetation avoidance, mitigation and offsets policies
- potential impact on rare and common orchid species
- impacts on native fauna from the removal of the native vegetation and construction activity
- ensuring appropriate rehabilitation or revegetation of the pipeline corridor occurs
- impact on surface water and groundwater resources including groundwater drawdown and potential land subsidence

- disturbance and management of contaminated and acid sulfate soils within the Project area
- impact on air quality and the lack of locally based baseline monitoring
- construction noise and vibration (particularly during the evening and early morning) and operational noise and vibration impacts
- whether the potential for radioactive waste from gas extraction has been properly considered
- the quality of the gas to be produced
- the need for additional precautions to be taken to reduce the risk of accidental releases of diesel (oil spill) to the marine environment
- cumulative impacts of the Project and other projects in the area including the CarbonNet Project
- ensuring Project benefits flow back to the local community and maximise local employment opportunities
- development of relevant plans by the Proponent to mitigate the social and environmental impacts over the life cycle of the Project.

Having considered the submissions to the EES and those made at the submitter conference, the EES documentation and other material provided to the Inquiry as part of the process, the Inquiry has concluded that the Project is capable of contributing to a safe, reliable and environmentally acceptable energy supply for Victoria over the short to medium term. The environmental effects of the Project can be managed to an acceptable level, subject to some modifications and additions to the environmental management measures (EMMs) and certain conditions being applied to the Project approvals. The Project approvals should be granted, subject to the recommendations in this report.

An integrated assessment of the Project required a careful balance between the environmental, social and economic impacts of the Project. Key considerations are the need to drive down greenhouse gas emissions and work toward Victoria's long term target of net zero emissions by 2050, balanced with the need to maintain a safe, secure and reliable energy supply. Short, medium and long term impacts must all be considered, including the need to safeguard the welfare of future generations.

The most significant environmental risks associated with the onshore pipeline are associated with the Lake Reeve Crossing, which intersects the Gippsland Lakes Ramsar site. Key issues include the removal of Subtropical and Temperate Coastal Saltmarsh (a threatened ecological community listed as vulnerable under the EPBC Act) and potential disturbance of acid sulfate soils. The construction of the onshore pipeline also presents risks to several threatened species of flora and fauna, including direct impacts from construction activities and indirect impacts through disturbance to habitat. With the proper implementation of the proposed EMMs (including the amendments recommended by the Inquiry), these risks are manageable.

The scale of offshore gas extraction is small compared to historical and existing development. Incremental additional depressurisation of the Lower Aquifer System is expected to occur, but is not expected to have significant effects on consumptive groundwater users or groundwater dependent ecosystems (GDE). That said, an important limitation of the EES assessment of groundwater is that it only examines a single groundwater scenario, which is based on initial extraction of gas, then cycles of reinjection and re-extraction. The reinjection would

counterbalance the groundwater drawdown caused by extraction. If reinjection were not to occur, groundwater impacts could be more significant than the EES assessed.

The most significant risk to the marine environment is the potential introduction of invasive marine species by the offshore jack-up drilling rig, vessels and other equipment used for construction and operation of the offshore gas wells and sub-sea pipeline. The EES concluded that the residual risk is medium, after application of the proposed EMMs in the EES. No opportunities have been identified to further reduce this risk.

There is also the possibility of a marine diesel oil spill which, if it were to occur, could have significant consequences for the marine environment and nearby sandy shorelines. However while local impacts could be more significant, the Inquiry is satisfied that the overall residual risk (after the EMMs are properly implemented) is generally low, primarily because of the rare likelihood of a spill. Risks to Ramsar wetlands are low, primarily due to their distance from the offshore facilities.

Other construction related risks to the onshore environment include the possibility that contaminated or acid sulfate soils may be disturbed, or that sediments may escape into surface waters, or spills may occur which result in pollution of the soil, surface water or groundwater. The construction and to a lesser extent the operation and decommissioning of the offshore gas wells and pipeline also brings risks including discharges and spills, light and noise. The Inquiry is satisfied that the proposed EMMs (with some adjustments recommended by the Inquiry) will, if properly implemented, manage these risks appropriately.

Amenity impacts will be felt during the construction and to a lesser extent the operation and decommissioning phases of the Project. Construction impacts are likely to include dust, noise and light spill, including for short periods during unavoidable night works. Construction traffic will also have some impacts, particularly for the surrounding community. The compressor station will generate noise and air emissions during the operational phase. However, with the application of the proposed EMMs (including the amendments recommended by the Inquiry), these risks are manageable.

In short, the Inquiry is satisfied that the non-greenhouse environmental effects of the Project can be avoided and minimised.

The Inquiry is satisfied that the Project could contribute to a safe and reliable energy supply for Victoria over the short to medium term, through both the production and storage of natural gas. Current policy and legislative settings at both State and Federal levels recognise the role that natural gas can play in supporting the transition to a renewables based economy, in particular in meeting peak demands and seasonal demands that renewable sources are currently unable to reliably meet.

The Project has the potential to make a significant economic contribution over the first two to four years (presumably during the construction and production phases), although the longer term economic benefits are less clear. The EMMs include development of a recruitment plan which seeks to maximise local employment. This has the potential to provide local social and economic benefits to the Gippsland Region and aid in the transition of the Latrobe Valley from a historically coal based job market.

The aspect of the Project that is most troubling to the Inquiry is its greenhouse gas impacts. It is difficult to reconcile the approval of a fossil fuel based project with a policy context that

is clearly seeking a downward trajectory in greenhouse gas emissions. Given its 40 year design life, the Project will continue to contribute to greenhouse gas emissions well beyond 2050 when, according to current policy and legislative settings, Victoria is to achieve net zero emissions.

Further, while the long term target of net zero emissions by 2050 is clear, it is less clear how we get there. Greater guidance on considering the interim and long term greenhouse gas targets in relevant statutory decision making for projects of this nature would assist. This could include interim targets and guidelines under section 18 of the Climate Change Act.

The Inquiry accepts that the Scope 1 and Scope 2 emissions directly attributable to the Project, while by no means insignificant, are likely to represent a relatively small contribution to the State's total greenhouse gas emissions generated over the life of the Project. Further, the Inquiry recommends that Project approvals include conditions that require the Proponent/operator to do the following over the life of the Project:

- install and effectively manage best practice, energy efficient plant and equipment that will reduce greenhouse gas emissions to the extent practicable
- monitor and manage its energy consumption and greenhouse gas emissions.

The Proponent/operator will also be required to report its energy consumption and greenhouse gas emissions in accordance with reporting requirements under the *National Greenhouse and Energy Reporting Act 2007* (Cth).

These requirements should ensure that greenhouse gas emissions directly attributable to the construction and operation of the Project are managed and reduced wherever practicable.

Conditions or requirements attached to Project approvals can do little to ameliorate the greenhouse gas emissions associated with the end use of the gas extracted from the Golden Beach gas field, or other gas stored in the field.

It may be appropriate to review the conditions of relevant Project approvals where the relevant legislation allows, to confirm that the operation of the Project continues to be consistent with the State's transition to net zero emissions over the 40 year life of the Project. However, it is beyond the scope of this Inquiry to consider whether or how this might be done.

Recommendations

The Inquiry makes the following recommendations based on the reasons set out in this report. Cross references to the relevant chapters are provided.

General recommendations

- 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.** [Chapter 19.4]
- 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 2005* and the Environment Plans required under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010*.** [Chapter 19.4]

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. [Chapter 20.4]**

Specific recommendations – environmental management measures

4. **Amend MM-FF01 (Avoid and minimise areas of impact) to:**
 - a) **strengthen the requirement to pursue all opportunities to reduce native vegetation loss by inserting the following clause at the start of MM-FF01:**

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.
 - 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). [Chapter 4.3]**
5. **Amend MM-FF05 (Site Reinstatement and Rehabilitation) to:**
 - 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**
 - b) **require a minimum 3-year monitoring period after reinstatement works are complete. [Chapter 4.3]**
6. **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. [Chapter 4.5]**
7. **Amend MM-FF13 (New Holland Mouse and Eastern Pygmy Possum) to add “who has appropriate wildlife permits and accreditations” after “suitably qualified wildlife handler”. [Chapter 4.5]**
8. **Amend MM-FF15 (Threatened Orchids, Wellington Mint-bush and Trailing Hop-bush) to include the following requirements:**
 - a) **implementation of all of the recommendations in the Arcadis report (Document 6)**
 - b) **the Flora/Orchid Management Plan must be prepared before construction commences**
 - 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. [Chapter 4.4]**
9. **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. [Chapter 4.6]**

10. **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:
 - 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 the Department of Environment Land Water and Planning Pipelines Regulation Unit and Energy Safe Victoria
 - 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. [Chapter 4.7]
11. **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.** [Chapter 5.6]
12. **Amend MM-ME41 (Whale management strategy) by changing ‘discussed’ to ‘established’ in the first dot point.** [Chapter 5.6]
13. **Amend MM-CO01 (Contaminated Soils), MM-CO02 (Contaminated Groundwater) and MM-CO04 (Unknown Contamination) as recommended by the Environment Protection Authority in Submission 5.** [Chapter 7.6]
14. **Amend MM-CO05 (Acid Sulfate Soils) to:**
 - a) include the additional requirement recommended by the Environment Protection Authority as MM-CO11 in Submission 5
 - b) require the Acid Sulfate Soils Management Plan to be endorsed by the Environment Protection Authority. [Chapter 7.6]
15. **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.** [Chapter 14.6]
16. **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.** [Chapter 14.6]
17. **Amend MM-CO09 (Fuel and chemical leaks and spills) to replace the first sentence of the second clause with:**
The refuelling or maintenance of equipment, machinery and vehicles is to be conducted as far away as is reasonably practical but no less than 20 metres away from any waterway. [Chapter 14.6]
18. **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. [Chapter 9.6]

19. 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. [Chapter 9.6]
20. 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. [Chapter 10.6]
21. 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:
 - a) be prepared prior to the commencement of trenching (not conditional on two days of continuous dewatering)
 - b) address matters relating to both surface water and groundwater, including a water balance assessment of the adequacy of proposed storage and disposal sites
 - c) include measures for ensuring that excess trench water does not overflow to nearby watercourses. [Chapter 14.6]
22. 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. [Chapter 10.6]
23. 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. [Chapter 14.6]
24. Amend MM-SW07 (Waterways or floodplain function) to include a requirement for the shore crossing facility to be constructed a minimum of 0.8 metres above the declared 1 percent annual exceedance probability flood level (to allow for sea level change). [Chapter 14.6]
25. Amend MM-SE01 (Community and stakeholder engagement plan) to add a requirement for the plan to be developed in consultation with Wellington Shire Council. [Chapter 16.5]
26. Amend MM-SE02 (Complaints management) by inserting 'promptly' after 'Project' in the third dot point. [Chapter 16.5]
27. Replace MM-SE04 (Construction scheduling) with the following:

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).

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.

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). [Chapter 16.5]

Specific recommendations - works approval and discharge licence for the compressor station

- 28. 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. [Chapter 7.6]**
- 29. 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. [Chapter 11.7]****
- 30. 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. [Chapter 11.7]****
- 31. 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. [Chapter 22.6]**
- 32. 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. [Chapter 20.4]****

Specific recommendations - pipeline licence and related Environmental Management Plans

- 33. The Planning Minister's comments to the Pipelines Minister under section 49(g) of the *Pipelines Act 2005* 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. [Chapter 13.6]**

34. 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. [Chapter 4.7]
35. 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. [Chapter 4.8]
36. 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. [Chapter 20.4]
37. Include the following requirements in the statutory Construction Environmental Management Plan required under the *Pipelines Act 2005*, 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 *Environment Protection Act 2017*. [Chapter 7.6]
38. Include requirements in the Construction Environmental Management Plan required under the *Pipelines Act 2005* for the Proponent/operator to:
 - a) appoint an independent suitably qualified person to:
 - receive any public complaints about construction noise
 - monitoring 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
 - b) inform the independent person promptly of any complaints received by the Proponent. [Chapter 9.6]
39. Include conditions in the operational Environmental Management Plan required under the *Pipelines Act 2005* 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. [Chapter 11.7]

Specific recommendations - approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* and related Environmental Management Plans

40. Include a condition in the approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* 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. [Chapter 10.6]

41. Include conditions in the approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* 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. [Chapter 20.4]
42. Include requirements in the Construction Environment Plan under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* for the Proponent/operator to:
 - a) appoint an independent suitably qualified person to:
 - receive any public complaints about construction noise
 - monitoring 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
 - b) inform the independent person promptly of any complaints received by the Proponent. [Chapter 9.6]
43. Include conditions in the operational Environment Plan under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* 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. [Chapter 11.7]

PART A: BACKGROUND

1 The Project

1.1 The Project

The Project involves the construction and operation of facilities to extract gas from the Golden Beach gas field for provision to the Victorian Transmission System. The gas field is in Victorian state waters in the Gippsland Basin, 3 kilometres offshore from Golden Beach and 20 kilometres from the Longford Gas Hub and associated strategic pipeline infrastructure. According to the EES, the Golden Beach gas field contains sales-quality natural gas, with no heavy elements or condensates.

The Project includes:

- offshore drilling, testing and completion of two sub-sea wells
- laying of a sub-sea pipeline and sub-sea infrastructure
- a 1.5 kilometre shoreline crossing, approximately 3.8 kilometres south-west of the Golden Beach township, by horizontal directional drilling (HDD)
- construction of an 18.5 kilometre buried pipeline by trenching, in a 30 metre wide right of way
- a compressor station with export metering and connection to the existing transmission pipelines.

The gas pipeline is proposed to be bi-directional, allowing for the gas field to be used as a gas reservoir or storage facility when the gas field is depleted. Gas extraction is expected to continue for 2 to 4 years, and the storage facility is expected to operate for a further 36 to 38 years. The Project has a 40 year design life.

1.2 Project approvals

Chapter 5 of the EES outlines the project approvals required, both at a State and Commonwealth level. The main approvals are:

- offshore drilling, pipeline construction and gas extraction and possibly also gas injection and storage will require approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* (OPGGGS Act)
- onshore construction and operation of the pipeline and associated facilities will require a pipeline licence under the *Pipelines Act 2005*
- the compressor station will require a works approval and discharge licence under the *Environment Protection Act 1970* (the EP Act 1970).

Approvals under those Acts will be the primary tools for managing any effects of the Project on the environment, through conditions and approved environmental management plans (EMPs) which must be in place before activities commence. (The Pipelines Act refers to 'environment management plans' in relation to onshore activities, and the OPGGS Regulations refers to 'environmental plans' in relation to offshore activities. This report refers to them collectively as 'statutory EMPs').

Approvals and consents will also be required for a range of other Project elements including waterway crossings and the shore crossing facilities. These are summarised in Chapter 5 of the EES and not repeated here.

1.3 The CarbonNet Project

The Inquiry understands that one of the storage fields being investigated as part of the CarbonNet Project underlies the Golden Beach gas field.

The CarbonNet Project is being led by DJPR, with joint funding from the Victorian and Commonwealth Governments. It aims to establish a commercial scale Carbon Capture and Storage network in Gippsland as part of the State Government's climate change mitigation strategy. According to material published by DJPR:

The network will deliver carbon dioxide (CO₂) captured from a range of industries based in Victoria's Latrobe Valley, via an underground pipeline, to offshore storage sites in Bass Strait.

There is potential for CarbonNet to capture, transport and store five million tonnes of CO₂ per year, with capacity available to scale-up storage as required.

Investigations, review and modelling of potential CO₂ storage sites in Bass Strait have been ongoing since 2010. The project has secured legal access to offshore sites, and greenhouse gas assessment permits under the OPGGS Act which allow the State to explore for greenhouse gas storage areas within the permits.

The first proposed storage site is known as the Pelican field. Pelican can store at least five million tonnes of CO₂ per year for 25 years. It is located in the Gippsland Basin, about eight kilometres off the coast of Ninety Mile Beach.

If CarbonNet proceeds, the anticipated timelines are:

- planned final investment decision by 2024
- the project would be operational by 2030.

1.4 The requirement for an EES

The Proponent referred the Project under the *Environment Effects Act 1978* (EE Act) to the Minister for Planning, who administers the EE Act (referred to in this report as the Environment Effects Minister). The Environment Effects Minister determined on 8 September 2019 that an Environment Effects Statement (EES) was required, and must address:

... the investigation and avoidance of potential environmental effects of the Project, including relevant alternatives, and associated environmental avoidance, management and EMMs.

The Environment Effects Minister issued Scoping Requirements for the EES in May 2020. They included draft evaluation objectives for each of the topics to be addressed in the EES, which identify desired outcomes in the context of key legislative and statutory policies, and the principles and objectives of ecologically sustainable development and environment protection including net community benefit.

The Scoping Requirements required the EES to include an Environmental Management Framework (EMF) describing objectives, indicators and monitoring requirements for managing the environmental impacts of the Project. It must include Environmental Management Measures (EMMs) to address specific issues, which include commitments to mitigate adverse effects and enhance environmental outcomes.

1.5 Referral under the EPBC Act

The Project was referred to the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). The delegate for the Commonwealth Minister for the Environment determined on 22 November 2019 that the Project is a 'controlled action' as it is likely to have a significant impact on the following MNES:

- Ramsar wetlands (sections 16 and 17B)
- listed threatened species and communities (sections 18 and 18A)
- listed migratory species (sections 20 and 20A).

What are generally termed 'effects' in the EES process correspond to 'impacts' under the EPBC Act. The EES process is accredited to assess impacts on MNES under the EPBC Act through the Bilateral (Assessment) Agreement between the Commonwealth and Victoria. There will be no separate assessment by the Commonwealth. This avoids process duplication and enables alignment of mitigation and requirements under the relevant state and commonwealth legislation.

1.6 Exhibition and submissions

The EES was on public exhibition from 26 October 2020 to 7 December 2020, together with:

- an application for a pipeline licence under the Pipelines Act (No. PL006928)
- an application for a works approval under the EP Act 1970 (EPA WAA 1004060)
- a Project risk register.

The EES includes 15 technical reports assessing the potential environmental impacts of the Project. The Technical Reports were exhibited.

The Proponent provided notice of the exhibition and submissions were made directly to Planning Panels Victoria through the Engage Victoria website.

At the close of exhibition, 12 submissions were received. The Inquiry accepted a late submission from the West Gippsland Catchment Management Authority (CMA), taking the total number of submissions to 13. The full list of submitters is in Appendix B.

Submissions raised a number of issues, including:

- the need for the Project and whether gas (or fossil fuels) should be supported over renewable energy
- impact on climate change and consistency with policy around the reduction of carbon emissions
- protection and management of the Ramsar Wetlands including:
 - impacts of acid sulfate soil impacts on the Ramsar wetland of Lake Reeve
 - the use of wet trenching installation in the vicinity of Lake Reeve
- the removal of large amounts of native vegetation, including whether the Project meets the requirements of native vegetation avoidance, mitigation and offsets policies
- potential impact on rare and common orchid species
- impacts on native fauna from the removal of the native vegetation and construction activity
- ensuring appropriate rehabilitation or revegetation of the pipeline corridor occurs

- impact on surface water and groundwater resources including groundwater drawdown and potential land subsidence
- disturbance and management of contaminated and acid sulfate soils within the Project area
- impact on air quality and the lack of locally based baseline monitoring
- construction noise and vibration (particularly during the evening and early morning) and operational noise and vibration impacts
- whether the potential for radioactive waste from gas extraction has been properly considered
- the quality of the gas to be produced
- the need for additional precautions to be taken to reduce the risk of accidental releases of diesel (oil spill) to the marine environment
- cumulative impacts of the Project and other projects in the area including the CarbonNet Project
- ensuring Project benefits flow back to the local community and maximise local employment opportunities
- development of relevant plans by the Proponent to mitigate the social and environmental impacts over the life cycle of the Project.

1.7 Appointment of the Inquiry and Panel

On 29 November 2020, Nick Wimbush (Chair), Sarah Carlisle (Deputy Chair), Trevor Blake and Sandra Brizga were appointed by the Environment Effects Minister as the Inquiry under the EE Act to inquire into the potential environment effects of the Project.

On 9 December 2020, the members of the Inquiry were appointed by the Pipelines Minister as the Panel under the Pipelines Act to consider submissions regarding the pipeline licence application. Mr Wimbush was also appointed as Panel Chairperson.

The Inquiry and Panel are collectively referred to as the Inquiry in this Report.

Mr Wimbush was not able to be present for the submitter conference. On 14 January 2021 the members of the Inquiry and Panel agreed to exercise the quorum provisions under Clause 32 of the Inquiry Terms of Reference and have Ms Carlisle chair the submitter conference. The members also resolved to appoint Ms Carlisle as chairperson for the submitter conference under section 44(c) of the Pipelines Act.

2 The Inquiry process

2.1 The role of the Inquiry

The Environment Effects Minister signed the Inquiry's Terms of Reference on 18 October 2020. A copy is provided in Appendix A. The purpose of the Inquiry is set out in Clauses 4 and 5:

4. The inquiry is appointed by the [Environment Effects Minister] under section 9(1) of the EE Act to hold an inquiry into the environmental effects of the project. The inquiry is to:
 - a. review and consider the environment effects statement (EES), submissions received in relation to the project, the predicted environmental effects, and the other exhibited documents;
 - b. consider and report on the potential environmental effects of the project, their significance and acceptability, and in doing so have regard to the draft evaluation objectives in the EES scoping requirements and relevant policy and legislation;
 - c. identify any measures it considers necessary and effective to avoid, mitigate or manage the environmental effects of the project within acceptable limits, including any necessary project modifications;
 - d. advise on how this relates to relevant conditions, controls and requirements that could form part of the necessary approvals and consent for the project;
 - e. report its findings and recommendations to the [Environment Effects Minister] to inform his assessment under the EE Act.
5. The inquiry will provide advice to inform the EPA's consideration of the WAA prepared by the proponent for the project.

Clause 29 sets out the matters that the Inquiry must consider. They include:

- a. the exhibited EES, pipeline licence application and WAA;
- b. all submissions and any evidence provided to it by the proponent, state agencies, local council and submitters;
- c. any information provided by the proponent and parties that responds to either submissions or directions of the inquiry; and
- d. any other relevant information that is provided to, or obtained by, the inquiry.

Clause 35 sets out the matters that must be included in the Inquiry's report. The Overview section of this report contains a table extracting the requirements of clause 35, and providing cross references to the relevant parts of the report at which those matters are addressed.

It should be noted that while the Inquiry was required by its Terms of Reference to conduct its proceedings through a submitter conference, Clause 4 of the Terms of Reference require the Inquiry to carry out a full assessment of the EES. Accordingly, the Inquiry has considered all of the potential environmental effects of the Project, not just those issues that were raised in submissions or at the submitter conference.

2.2 The role of the Panel

The Panel's appointment under the Pipelines Act states:

After conducting the public hearing, the panel must, in accordance with s 47(1) of the Pipelines Act:

- (a) report to the [Pipelines] Minister on the submissions; and

- (b) make a recommendation to the [Pipelines] Minister as to the action that it believes should be taken with respect to the Pipeline Licence Application.

To assist with the [Pipelines] Minister's consideration and determination of the Pipeline Licence Application, and without limiting other matters that the panel may think relevant in preparing its report and recommendation, I direct your attention the following matters that the [Pipelines] Minister must consider in determining the Application under s 49 of the Pipelines Act:

- the potential environmental, social, economic and safety impacts of the proposed pipeline;
- the potential impact of the proposed pipeline on cultural heritage (including Indigenous cultural heritage); and
- the benefit of the proposed pipeline to Victoria relative to its potential impacts.

2.3 Site visit

The Proponent organised an accompanied Site and Route Inspection (including the shore crossing location, pipeline route and plant locations) on 16 December 2020. The inspection was attended by the Inquiry members (other than Ms Carlisle who was unavailable) and representatives of the Proponent. No submitters or representative(s) from government agencies took up the offer to attend.

The inspection comprised a half day 4WD vehicle tour looking at the locations of key elements of the Project, including the shore crossing location (near the Dutson Downs Ocean Outfall) and shore crossing launch point, the proposed compressor station location and access road on Sandy Camp Road, and the proposed metering station and offtakes. The Inquiry travelled the pipeline route through farmland and viewed the shore crossing site for the Dutson Downs facility owned by Gippsland Water, the Lake Reeve crossing (along with the surrounding Ramsar wetland) and the parts of the old Ninety Mile Beach subdivision over which the pipeline will cross. It observed areas of native vegetation likely to be impacted by the Project.

2.4 Requests for information

After reviewing the EES and associated Technical Reports, the Inquiry issued a Request for Further Information to the Proponent on 15 December 2020 that included 40 questions about surface and groundwater impacts, Aboriginal cultural heritage, traffic, biodiversity and habitat, cumulative effects, noise and vibration, air quality, greenhouse gases, MNES, and safety, hazard and environmental management (Document 7). The Proponent provided responses on 16 December 2020 (Documents 11, 12 and 13) and 6 January 2021 (Document 21).

The Inquiry wrote to the following government agencies seeking further information:

- DELWP
- DJPR
- the CMA
- Southern Rural Water.

All provided responses (Documents 22, 23 and 25) save for the CMA, which indicated that it had nothing further to add to its written submission to the EES (Submission 13).

2.5 The submitter conference

Under the Terms of Reference, the Inquiry was required to conduct its proceedings through a submitter conference (Clause 26). The Inquiry could also:

- make other such enquiries as are relevant to undertaking its role (Clause 26)
- inform itself in any way it sees fit (Clause 29).

All submitters were given the opportunity to present at the submitter conference by completing a request to be heard form. Three submitters indicated they wanted to attend, but only Ms Hildebrandt and Ms McCubbin attended.

The conference was conducted on 18 January 2021, electronically due to social distancing requirements in relation to Covid-19. The agenda for the conference is contained in Appendix C. Participants are listed in the Overview. There were also several observers present at the conference, including from the Impact Assessment Unit at DELWP, and the CarbonNet Project at DJPR.

The Inquiry identified five key issues raised in submissions that were discussed at the conference:

- Victorian policy context around gas development and greenhouse gas emissions and mitigation
- cumulative impact of this and other projects including the CarbonNet Project
- the approach to native vegetation including avoidance, mitigation and offsets
- how Ramsar Wetlands will be protected and managed through project implementation
- the regulatory framework and planned response to marine spills.

The discussion of each key issue involved opening remarks from the Proponent, followed by questions from the EPA, questions from submitters and questions from the Inquiry.

After the discussion of the five key issues, the EPA gave a brief oral presentation in relation to its submission to the EES (Submission 5). Ms Hildebrandt and Ms McCubbin also made brief oral submissions. There was then a general discussion of other issues (beyond the five key issues), guided by a series of questions from the Inquiry. The Proponent was provided with an opportunity for closing comments.

2.6 The Inquiry's approach

The Inquiry has considered all written submissions made in response to the exhibition of the EES and related documents, observations from its site visit, and submissions and discussion at the submitter conference. It has reviewed a large volume of material, and has had to be selective in referring to the more relevant or determinative material in the Report. All submissions and materials have been considered by the Inquiry in reaching its conclusions, regardless of whether they are specifically mentioned in the report.

Part B of this report contains the Inquiry's analysis of the specific impacts of the Project, including the proposed EMMs contained in the EMF for mitigating those impacts. The Inquiry has made specific recommendations in the relevant issue chapter where it considers that adjustments or additions to the EMMs are required. If no specific recommendations are made, the Inquiry supports the EMMs as exhibited.

In assessing the impacts of the Project and the effectiveness of the proposed EMMs, the Inquiry has adopted an evidence based approach – albeit on the basis of the limited material before the Inquiry (see below). In making its recommendations the Inquiry has sought to apply a proportional response, with a focus on preventing harm where possible, in accordance with the principles of sustainable development.

2.7 Limitations

The submitter conference did not include the presentation of independent expert evidence, the calling of witnesses and the testing of evidence through questions and cross examination. Accordingly, the Inquiry has been limited to relying primarily on the EES including the Technical Reports prepared by the Proponent and its consultants, the submissions, the responses to the Inquiry's requests for information and the other tabled documents listed in Appendix D.

3 Relevant policy and legislation

3.1 The Victorian gas market

According to the EES (Chapter 2 Project Rationale), roughly 290 petajoules (PJ) of natural gas was consumed in Victoria in the year ending 30 June 2018. This is more than double the consumption in New South Wales over the same period, although it is lower than states with significant demand from resource-based industries (Western Australia and Queensland). Victoria has a high demand for gas for heating, and our consumption peaks in the winter months.

The EES states (at page 2-2):

Demand for gas is expected to continue primarily as a result of the decline in coal consumption. This is due to the closure of brown coal fired power stations such as Hazelwood and the possible early closure of other coal fired power stations in the Latrobe Valley such as Yallourn and Loy Yang B.

AEMO [the Australian Energy Market Operator] has forecast that if Victoria wishes to accelerate the closure of its coal fired power stations, more peaking gas (gas needed during periods of high demand) will be needed to ensure the reliability of supply.

The Victorian Gas Program (which operated until mid 2020) assessed the potential for further discoveries of onshore and offshore gas in Victoria, to ensure that the State maintains an adequate and diverse supply of gas. It also investigated whether the State's current underground gas storage capacity could be expanded. Geoscientific studies conducted as part of the program focused on Victoria's two most prospective regions for undiscovered accumulations of gas:

- the Otway Basin
- the Gippsland Basin.

The Golden Beach field is within the Gippsland Basin.

3.2 Policy framework

(i) Commonwealth and State greenhouse targets

In December 2015, the Commonwealth Government signed the Paris Agreement under the United Nations Framework Convention on Climate Change. Under the Paris Agreement, the Commonwealth Government has committed to reduce national greenhouse gas emissions by 26 to 28 percent on 2005 levels by 2030. This commitment is an initial contribution towards holding the projected increase in the global average temperature to below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

The Victorian Government has committed to a greenhouse target of net zero greenhouse gas emissions by 2050. This target is legislated in the *Climate Change Act 2017*, which is discussed in more detail below.

Victoria has also recently revised its renewable energy target to 50 percent renewable energy by 2030. The target is legislated in the *Renewable Energy (Jobs and Investment) Act 2017*, and replaces the Government's previous targets of 25 per cent by 2020 and 40 per cent by 2025.

(ii) Victoria's Renewable Energy Roadmap

The Victorian Government released *Victoria's Renewable Energy Roadmap – Delivering jobs and a clean energy future* in August 2015. The Roadmap states:

It is the Victorian Government's objective to accelerate development of renewable energy generation in Victoria to reduce emissions, create jobs, and put downward pressure on energy prices.

The Roadmap sets out the Government's plan to attract renewable energy investment and jobs, and to accelerate the development of renewable energy projects in Victoria. The Roadmap identifies four priority areas:

- transforming Victoria's generation stock towards renewable energy
- addressing barriers to distributed generation and storage
- encouraging household and community renewable generation
- expanding the Government's role in facilitating the uptake of renewable energy.

(iii) Victoria's Renewable Energy Action Plan

Victoria's Renewable Energy Action Plan, released in July 2018, seeks to (among other things):

- ensure an affordable energy supply
- ensure a smart, safe and reliable energy system by advancing energy storage.

It outlines 23 government actions to encourage investment in renewable, affordable and reliable energy. The actions include setting renewable energy targets, investing in renewable energy projects and delivering a more flexible approach to grid connections.

Action 18 is particularly relevant to the Project:

Action 18 Advocate to deliver secure, reliable and fairly priced gas for renewable energy generation

We will continue to use gas as a fuel to support renewable energy generation.

The current upward pressure on gas prices and forecast constraints on gas supplies is the result of the commencement of exports of gas from interstate. To ensure gas is available to support renewable energy generation, we require a sufficient supply at a fair price ...

3.3 Legislative framework

Except where indicated otherwise, the legislation referred to in this report is Victorian legislation.

(i) Climate Change Act

The Climate Change Act provides a foundation to manage climate change risks and support Victoria's transition to a net zero emissions climate resilient economy. It states (Inquiry's emphasis):

Although responding to climate change is a responsibility shared by all levels of government, industry, communities and the people of Victoria, the role of subnational governments in driving this transition cannot be understated. Through decisive, long-term action to reduce greenhouse gas emissions, the Victorian government can help Victoria achieve an orderly and just transition to a net zero greenhouse gas emissions economy and remain prosperous and liveable. It will also enable Victoria to benefit from the global trend towards decarbonisation.

Section 6 of the Act sets the long term greenhouse emissions reduction target for Victoria of net zero emissions by 2050.

Section 17 sets out guidance for decision-makers under legislation listed in the schedule to the Climate Change Act. Scheduled Acts include the EP Act 1970 (under which a decision will be made about the WAA), the Marine and Coastal Act, the FFG Act and the Water Act. Neither the Pipelines Act nor the OPGGS Act are scheduled Acts, however the Climate Change Act is still relevant for decisions on approvals under those and other Acts, as section 17(6) states:

Nothing in this Part limits the power of a person making a decision or taking an action not referred to in subsection (1) to consider any potential impacts of climate change or potential contributions to the State's greenhouse gas emissions in making any other decision or taking any other action under any other Act or subordinate instrument.

Further, section 20 states:

The Government of Victoria will endeavour to ensure that any decision made by the Government and any policy, program or process developed or implemented by the Government appropriately takes account of climate change if it is relevant by having regard to the policy objectives and the guiding principles.

The policy objectives are set out in section 22. Of particular relevance are:

- to reduce the State's greenhouse gas emissions consistent with long term and interim emissions reduction targets (to date the only target that has been set is the long term target of net zero emissions by 2050)
- to promote and support the regions, industries and communities to adjust to the transition to a net zero greenhouse gas emissions economy
- to support vulnerable communities and promote social justice and intergenerational equity.

The guiding principles are set out in sections 23 to 28. In summary, they guide:

- informed decision making, based on the best practicably available information about the potential impacts of climate change relevant to the decision
- integrated decision making, that balances the competing long term, medium term and short term environmental, economic, health and other social considerations relating to climate change
- risk management based decision making
- equity based decision making that has regard to (among other things) ensuring any adverse impacts of climate change are minimised for future generations
- community engagement
- compatibility (decisions that seek to promote a coherent policy framework within the State and with other levels of government).

(ii) Victoria's Climate Change Framework

Victoria's Climate Change Framework was prepared under the Climate Change Act. It identifies four pillars that underpin the transition to a climate resilient and net zero emissions Victoria by 2050. The pillars of particular relevance to the Project are:

- Increase our energy efficiency and productivity
- Move to a clean electricity supply by increasing renewable energy generation.

(iii) Environment Effects Act

The EE Act provides for the assessment of the potential environmental impacts or effects of a project through an EES process. The assessment process does not result in an approval. Rather, it is used to inform other statutory decision-makers to make decisions about whether project approvals should be granted (and on what terms).

The EE Act and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*, Seventh Edition, Department of Sustainability and Environment, June 2006 (EES Guidelines) set out the process for the Environment Effects Minister to determine whether or not an EES is required, the scoping of an EES, the preparation and public exhibition of an EES, and the appointment of an Inquiry to consider the EES and submissions.

(iv) Aboriginal Heritage Act

Under the *Aboriginal Heritage Act 2006*, a Cultural Heritage Management Plan (CHMP) must be prepared for every project that requires an EES. The CHMP must be approved by the relevant Registered Aboriginal Party – in this case, the Gunaikurnai Land and Waters Aboriginal Corporation – before any other statutory approvals are issued.

(v) Environment Protection and Biodiversity Conservation Act (Cth)

The EPBC Act is the main environmental legislation of the Commonwealth Government. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the Act as MNES.

The objectives of the EPBC Act include:

- protecting the environment, especially MNES, and conserving Australian biodiversity
- providing a streamlined national environmental assessment and approvals process
- promoting ecologically sustainable development through the conservation and ecologically sustainable use of natural resources
- recognising the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity.

The Commonwealth Department of Agriculture, Water and the Environment determined that the Project was a controlled action due to its potential to have significant environmental impacts on the following MNES:

- Ramsar wetlands
- listed threatened species and communities
- listed migratory species.

If a project requires assessment under both the EPBC Act and the EE Act, the EES process is accredited under the Assessment Bilateral Agreement between the Commonwealth and Victoria. This means that proponents do not have to undertake two separate assessment processes.

(vi) Pipelines Act

The Pipelines Act is administered by the Minister for Energy, Environment and Climate Change, referred to in this report as the Pipelines Minister, supported by DELWP and Energy Safe Victoria.

Section 49 of the Pipelines Act sets out the matters that the Pipelines Minister must consider when assessing an application for a pipeline licence (in addition to the sustainable development principles outlined below):

- (a) the potential environmental, social, economic and safety impacts of the proposed pipeline;
- (b) the potential impact of the proposed pipeline on cultural heritage (including Indigenous cultural heritage);
- (c) the benefit of the proposed pipeline to Victoria relative to its potential impacts;
- (d) the submissions received under section 34 in relation to the application;
- (e) the report of the panel (if any) on the submissions received in relation to the application;
- (f) the assessment of the Environment Effects Minister in relation to the proposed pipeline, if an assessment has been made;
- (g) any written comments received from the Planning Minister or the relevant responsible authority on the effect of the proposed pipeline on the planning of the area through which it is to pass;
- (h) any written comments received from the Water Minister and from the relevant Crown Land Minister on the impact of the proposed pipeline.

(vii) Environment Protection Act

The EP Act 1970 is the primary legislation in Victoria protecting the environment from pollution and environmental damage. It sets environmental quality objectives, mainly through State Environment Protection Policies (SEPPs), and puts in place programs to meet them.

The EP Act 1970 provides a legal framework for regulating noise emissions, air, water and land in Victoria, and the territorial sea along the Victorian coast. It includes a system of works approvals and licences that are required to construct and operate premises that discharge emissions to the environment. As noted in Chapter 1.2, the gas compressor station is a scheduled premise and will require a works approval and discharge licence under the EP Act 1970.

A new EP Act passed through Parliament in 2017, which was then amended in 2018 (the EP Act 2017). It will come into force on 1 July 2021. The EP Act 2017 introduces a general environmental duty, which states:

A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

The EP Act 2017 also introduces a new set of Environmental Reference Standards (yet to be finalised) that cover the four key aspects of the environment – ambient air, ambient sound, land and water (surface water and groundwater). They will perform a similar function to SEPPs, and will replace SEPPs once they are finalised, on or after 1 July 2021 when the EP Act 2017 comes into operation.

(viii) State Environment Protection Policies

The Project will need to comply with a number of SEPPs, including:

- State Environment Protection Policy – Prevention and Management of Contaminated Land (SEPP (Contaminated Land))
- State Environment Protection Policy – Air Quality Management (SEPP (AQM))
- State Environment Protection Policy – Waters.

SEPPs provide more detailed requirements and guidance for the application of the EP Act 1970 to Victoria. SEPPs nominate ‘beneficial uses’, which refers to the values and uses protected under these policies. They aim to protect beneficial uses from the effects of pollution and waste. Works approvals, licences and other regulatory tools must be consistent with SEPPs.

3.4 Sustainable development principles

Under section 4 of the Pipelines Act, administration of the Act is to have regard to the principles of sustainable development, which are set out in section 4(2):

- (a) individual and community wellbeing and welfare should be enhanced by following a path of economic development that safeguards the welfare of future generations;
- (b) there should be equity within and between generations;
- (c) biological diversity should be protected and ecological integrity maintained;
- (d) there should be recognition of the need to develop a strong, growing, diversified and internationally competitive economy that can enhance the capacity for environment protection;
- (e) measures to be adopted should be cost effective and flexible, not disproportionate to the issues being addressed, including improved valuation, pricing and incentive mechanisms;
- (f) both long and short term economic, environmental, social and equity considerations should be effectively integrated into decision-making;
- (g) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- (h) decision-making should be guided by—
 - (i) a careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and
 - (ii) an assessment of the risk-weighted consequences of various options;
- (i) development should make a positive contribution to regional development and respect the aspirations of the community and of Indigenous peoples;
- (j) decisions and actions should provide for community involvement in issues that affect them.

The same principles apply to decision making under section 61 of the OPGGS Act. These principles guide decisions on whether to grant approvals under those Acts and what conditions should apply.

The EP Act 2017 sets out a series of environmental principles in sections 1B to 1L. They include:

- integration of environmental, social and economic considerations
- the precautionary principle

- intergenerational equity
- conservation of biological diversity and ecological integrity
- integrated environmental management
- accountability.

The EP Act 2017 introduces a new set of environmental principles. Many of the principles in the EP Act 1970 are retained (albeit in a slightly different form). New principles which have been added include:

- proportionality
- primacy of prevention
- evidence based decision making.

3.5 The Code of Environmental Practice for Onshore Pipelines

The *Code of Environmental Practice - Onshore Pipelines Revision 4* (APGA Code of Environmental Practice) is an industry code published by the Australian Pipelines and Gas Association (APGA) in 2017. Its purposes include:

- providing industry accepted guidance on environmental management through the planning and asset acquisition, construction, operational and decommissioning phases of a pipeline's lifecycle
- informing the industry and regulators of environmental risks arising from pipeline activities
- providing an outline of the environment risk management methodology
- assisting the industry to identify and meet its legal obligations around environmental management.

It states that the role of environmental management is *"to adequately identify, assess and manage potential impacts on the natural environment – the ideal outcome being avoidance or minimisation of any environmental harm – in line with, or in exceedance of, environmental laws"*.

PART B: ASSESSMENT OF ENVIRONMENTAL IMPACTS

4 Terrestrial and freshwater biodiversity

The construction of the onshore pipeline will require native vegetation removal and will affect flora and fauna through light, noise, vibration and dust. No additional areas are proposed to be cleared during operations, but the Proponent indicated at the submitter conference that AS2885 requires a clear line of sight to be maintained along the pipeline route, which will inhibit regeneration. Decommissioning will not require vegetation removal but will cause other disturbances similar to construction.

The EES provides an assessment of the effects of the Project on terrestrial and freshwater biodiversity in Chapter 7 and Technical Report A *Terrestrial And Freshwater Biodiversity Impact Assessment Golden Beach Gas Project* prepared by Practical Ecology dated October 2020. Mitigation measures MM-FF01 to MM-FF24 address potential impacts on terrestrial and freshwater biodiversity.

4.1 The issues

The issues are:

- Are the measures to avoid or minimise vegetation loss adequate?
- Are the effects on threatened flora species acceptable?
- Are the effects on threatened fauna species acceptable?
- Are the effects of the Lake Reeve Crossing on biodiversity acceptable?
- Are the effects on the coastal environment acceptable?
- Are suitable offsets available to compensate for project impacts?
- Can the biodiversity and habitat evaluation objective be met?

4.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements include the following draft evaluation objective related to terrestrial and freshwater biodiversity:

Biodiversity and habitat - 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.

(ii) Relevant policy

The Victorian and Commonwealth governments both have legislative and policy frameworks for managing terrestrial and freshwater biodiversity underpinned by the principles of ecologically sustainable development.

Victorian Biodiversity Plan

The Victorian Biodiversity Plan, *Protecting Victoria's Environment - Biodiversity 2037*, is the main Victorian government policy document in relation to biodiversity. It must be considered by the Pipelines Minister in making decisions under the Pipelines Act in accordance with the obligation under the FFG Act (see section 4B).

The Biodiversity Plan is based on the vision that “*Victoria’s biodiversity is healthy, valued and actively cared for*”. A key goal is that:

Victoria’s natural environment is healthy. Victoria has functioning plant and animal populations, improved habitats and resilient ecosystems, even under climate change.

Planning Policy Framework

The Wellington Planning Scheme sets out a number of policies relating to biodiversity. The Project will not require a planning permit, because section 85 of the Pipelines Act states that if a pipeline licence is issued, the pipeline does not require a permit under the PE Act. That said, the Planning Policy Framework remains relevant, because section 49(g) of the Pipelines Act states that the Pipelines Minister must consider the following when assessing an application for a pipeline licence:

- (g) any written comments received from the Planning Minister or the relevant responsible authority on the effect of the proposed pipeline on the planning of the area through which it is to pass;

DELWP also noted in its response to the Inquiry’s Request for Information (Document 23) that environmental policies contained in or implemented by the Planning Scheme remain relevant for assessment of the Project under the Pipelines Act.

The *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) (the Native Vegetation Guidelines) are an incorporated document in the Planning Scheme.

Other policies

Biodiversity is a central consideration for policies relating to integrated catchment management and integrated coastal zone management, including the *Victorian Waterway Management Strategy 2013*, *Marine and Coastal Policy 2020*, *West Gippsland Regional Catchment Strategy 2013-2019* and *West Gippsland Waterway Strategy 2014-2022*.

In addition to the FFG Act Threatened list, DELWP maintains the Victorian threatened species advisory lists, which are non-statutory lists of threatened species based on technical information and scientific advice. The advisory lists are intended for use in planning processes including local government planning schemes and regional catchment strategies. As a result of legislative reforms set out in the FFG Act, the FFG Act Threatened list and DELWP advisory lists are under review in DELWP’s Conservation Status Assessment Project and a single Threatened List will be established.

(iii) Relevant legislation

The FFG Act establishes a legal and administrative framework to enable and promote the conservation of Victoria’s native flora and fauna and protect them from potentially threatening processes. Section 4B states that Ministers and public authorities must give proper consideration to the objectives of the FFG Act in performing their functions under any other Act. Further, the Project may require permits under the FFG Act for activities that could harm threatened species protected under the Act.

The Pipelines Act includes an obligation to ensure that pipelines are constructed and operated in such a way that minimises adverse environmental impacts. It includes an express requirement in section 4(2)(c) that:

... biological diversity should be protected and ecological integrity maintained.

Section 54(2)(c) of the Pipelines Act provides that a licence may include conditions related to the protection of the environment, which would include native vegetation and other aspects of biodiversity.

DELWP advised that the Native Vegetation Guidelines do not have legal effect under the Pipelines Act but are intended to be applied to inform consideration of the environmental impacts of a proposed pipeline when assessing a pipeline licence application.

Other Victorian legislation relevant to terrestrial and freshwater biodiversity includes:

- the *Wildlife Act 1975*
- the *Fisheries Act 1995*
- the Marine and Coastal Act which includes all biodiversity within 5 kilometres inland of the high water mark of the sea
- the EP Act
- the *Water Act 1989*
- the *Catchment and Land Protection Act 1994*.

The Commonwealth legislative framework relating to biodiversity is based on the EPBC Act, which is outlined in Chapter 3 and further discussed in Chapter 21.

(iv) The APGA Code of Environmental Practice

The APGA Code of Environmental Practice identifies that native vegetation, fauna and biosecurity are all key environmental risk areas for onshore pipelines. It proposes a hierarchy of management in which (at page 39):

... native vegetation (and activities which impact upon native vegetation) should be treated from the most desirable (avoid impacts) to least desirable option (impact and rehabilitate).

In regard to fauna it proposes (at page 40), that:

Planning and implementation of appropriate fauna impact management controls are essential to limit environmental impacts during all phases of the pipeline lifecycle.

4.3 Vegetation loss

(i) The EES

Construction of the onshore components of the Project will result in the removal and disturbance of native vegetation. Loss of vegetation may extend beyond the construction zone, for example, due to accidental damage or habitat disturbance. A right of way will need to be retained along the pipeline during the operational phase to enable safe operation and management of the pipeline.

The EES states that the onshore pipeline construction footprint was selected and refined to avoid and minimise impacts on terrestrial and freshwater flora and fauna habitat using a pipeline options analysis. There has been further avoidance and minimisation of vegetation loss through micro-siting of the pipeline alignment within sensitive areas and reducing the right of way from 30 metres in width to 20 metres in some areas. The Proponent will seek to further minimise the pipeline right of way associated with the Lake Reeve crossing by reducing the 20 metre buffer from the Dutson Downs Ocean Outfall Pipeline.

The Proponent indicated that it will undertake measures to further minimise vegetation loss during construction if possible, including reducing the right of way and associated buffers where possible and engaging an arborist to determine which trees can be retained within the right of way. The vegetation loss calculations assume the need for a 30 metre right of way from Shoreline Drive to the sea for pulling pipe strings, but this may not necessarily be required.

HDD options to avoid vegetation loss were investigated for the Lake Reeve Crossing and Gippsland Water Offset Area but were found to be unsuitable for technical and operational reasons, including geological conditions through the proposed drill paths and risk of damage to the Dutson Downs Ocean Outfall pipeline. HDD would also be significantly more expensive than open trenching.

The Project would lead to the direct loss of up to 41 hectares of native vegetation, including 33.30 hectares along the pipeline footprint and the remainder in buffers in accordance with the Native Vegetation Guidelines. Vegetation loss would include 4 small scattered trees, 10 large scattered trees and 167 large canopy trees.

The areas of native vegetation that could be lost include the following Ecological Vegetation Classes (EVCs) (based on Tables 7-8 of the EES):

- two endangered EVCs (Swampy Scrub and Plains Grassy Wetland) – 0.3 ha
- three vulnerable EVCs (Coast Banksia Woodland, Damp Sands Herb-rich Woodland, Lowland Forest) – 20.6 ha
- one depleted EVC (Coastal Dune Scrub) – 1.7 ha
- three least concern EVCs (Coastal Saltmarsh, Estuarine Wetland, Heathy Woodland) – 17.7 ha.

MM-FF23 requires a Subtropical and Temperate Coastal Saltmarsh Management plan to be prepared to address the effects of pipeline construction on Coastal Saltmarsh. The EES anticipates that it will be possible to successfully reinstate this vegetation community.

Native vegetation loss would be compensated through procurement of offsets in accordance with the Native Vegetation Guidelines.

The following EMMs set out measures to avoid or minimise native vegetation loss:

- MM-FF01 (Avoid and minimise areas of impact)
- MM-FF02 (Unplanned loss of native vegetation and significant habitat)
- MM-FF03 (Contractor/staff awareness)
- MM-FF05 (Site reinstatement and rehabilitation)
- MM-FF06 (Topsoil rehabilitation)
- MM-FF23 (EPBC Act Subtropical and Temperate Coastal Saltmarsh), which includes a Subtropical and Temperate Coastal Saltmarsh Management Plan.

(ii) Submissions

DELWP (Submission 9) submitted that the biodiversity assets impacted by the Project are adequately described in the EES but some details around the Vegetation Quality Assessment method used to inform the native vegetation site assessment remained outstanding. The Proponent responded by tabling the Vegetation Quality Field Assessment Sheets (Document 27).

Several submitters questioned whether the measures proposed in the EES to avoid or minimise vegetation loss are adequate, including Wellington Shire Council (Submission 4), DELWP and Ms Hildebrandt (Submission 6).

Council submitted that:

There are significant opportunities to reduce the amount of native vegetation that is to be removed and this should be done to the fullest practical extent (and be appropriately offset). This includes on land currently owned by Council (to be transferred to the State Government as part of the resolution of the inappropriate subdivision area along the Ninety Mile Beach) and along Sandy Camp Rd.

Similarly, DELWP submitted that:

There are still opportunities to further avoid and/or minimise adverse impacts on high value native vegetation and large trees through detailed site design and investigation of alternative construction methods associated with works within the right of way.

The Proponent responded that opportunities to further mitigate vegetation loss by altering pipeline routing (for example from Sandy Camp Road into cleared farmland) were constrained by landholder objections.

DELWP submitted that:

The use of horizontal directional drilling and the reasons why it cannot be used to reduce the impacts on high value native vegetation need further consideration.

Statements relating to unacceptable costs associated with horizontal directional drilling are not supported by evidence showing the use of horizontal directional drilling would prevent the Project from achieving its objectives.

The Proponent responded by drawing attention to the comparison of HDD to trenched crossings in Chapter 3 of the EES. It submitted that the cost of HDD would be 2 to 3 times the cost of trenching (including native vegetation offset considerations). It also submitted that the duration of works in the vicinity of Lake Reeve would be 22 days rather than 2 to 7 days, extending the period of disruption associated with construction.

At the submitter conference, the Proponent confirmed that the decision to propose trenching rather than HDD for the onshore pipeline was based on consideration of time, cost and environmental benefit. The risk to the integrity of the pipeline resulting from corrosion in low points was a significant consideration.

DELWP and the EPA made submissions in relation to monitoring. DELWP submitted that:

MM-FF01 identifies a process akin to “rapid risk assessments” where biodiversity values are searched for during stages of the development with predetermined actions identified in Technical Report A. To deliver this, suitably qualified personnel must be available at appropriate times during all delivery stages of the development.

It further submitted that:

It is unclear in the report how current vegetation structure and composition is recorded to ensure that post works site rehabilitation and revegetation will be delivered on public land to enable like for like recovery.

The Proponent responded by stating that reinstatement and revegetation will be undertaken in accordance with the APGA Code of Environmental Practice.

The EPA recommended that Site Rehabilitation Plans allow for a minimum of 3 years of post-construction monitoring and maintenance along the length of the pipeline.

At the submitter conference, the Proponent confirmed that an intensive monitoring program was proposed for the first 12 months after construction. After that, ongoing monitoring would be required throughout operations to fulfil obligations under pipeline regulations. The results of the monitoring would be reported to the Pipelines Minister and DELWP.

(iii) Discussion

The EES states that the Project would lead to the direct loss of up to 41 hectares of native vegetation. It indicates that further opportunities to reduce this would be sought during the detailed design process. Both DELWP and Council submitted that further opportunities were available to reduce native vegetation loss. The Inquiry agrees that further opportunities to reduce native vegetation loss should be pursued, and mitigation MM-FF01 should be strengthened to require this. Recommended wording is provided below.

DELWP questioned the EES conclusion that HDD for the onshore pipeline could not be used to further reduce impacts on native vegetation. The Proponent's response highlighted construction, maintenance and safety issues. While it is desirable to avoid native vegetation loss to the extent practicable, the Inquiry recognises that HDD brings other risks, including potential unplanned vegetation loss in the future (for example, if the pipeline needs to be dug up to repair corrosion).

DELWP questioned the adequacy of some of the proposed EMMs. The Inquiry accepts these submissions and recommends the following changes to the relevant EMMs:

- MM-FF01 should 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.
- MM-FF05 should include a requirement to record current vegetation structure and composition prior to commencement work works, to enable like for like delivery of vegetation during site reinstatement and rehabilitation works.

Reinstatement and rehabilitation of vegetation that is lost or disturbed during construction works is an important part of managing the impacts on vegetation, and associated impacts on habitat for flora and fauna. The Proponent proposed a 12 month post-construction monitoring program in accordance with requirements under the Pipelines Regulations, whereas the EPA considered that a minimum of 3 years was appropriate.

The Inquiry is not convinced that the monitoring required under the Pipelines Regulations will cover all requirements relevant to the success of ecological rehabilitation works. Re-establishment of vegetation and habitat can take considerably longer than 12 months, and monitoring over at least one to two seasons is generally required to ensure the rehabilitation is established and effective. The Inquiry supports the EPA's proposal for 3 years of post-construction monitoring.

(iv) Conclusions and recommendations

The Inquiry concludes:

- While some vegetation will inevitably be lost during the construction and operation of the pipeline, it is satisfied that the Project has been designed to avoid (where practicable) and minimise vegetation loss, in accordance with policy requirements including the Native Vegetation Guidelines.

- Opportunities may arise during the detailed design stage to further avoid the loss of native vegetation. These opportunities should be pursued as far as reasonably practicable.
- The requirement in MM-FF01 to have suitably qualified personnel available to identify biodiversity values should be extended to all relevant times during Project delivery (not just an initial walk-through).
- Site reinstatement and rehabilitation works should be monitored for a minimum of 3 years after reinstatement works are complete, to ensure rehabilitation is effective.
- The evaluation objective – namely to avoid or minimise potential adverse effects on native vegetation – can be achieved.

The Inquiry recommends that if the Project is approved:

Amend MM-FF01 (Avoid and minimise areas of impact) to:

- b) strengthen the requirement to pursue all opportunities to reduce native vegetation loss by inserting the following clause at the start of MM-FF01:**

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.

- c) 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).**

Amend MM-FF05 (Site Reinstatement and Rehabilitation) to:

- 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**
- b) require a minimum 3-year monitoring period after reinstatement works are complete.**

4.4 Effects on threatened flora species

(i) The EES

Construction of the Project could potentially affect threatened flora in a number of ways, including habitat removal and the introduction of weeds and pathogens.

The EES identifies the following significant flora species as having been recorded or having a moderate or greater likelihood of occurring within the project area:

- two EPBC-listed endangered species – the Maroon Leek-orchid and Metallic Sun orchid. Both are also listed under the FFG Act and have a high likelihood of occurrence in the Project area
- three EPBC-listed vulnerable species – Thick-lip Spider-orchid, Trailing Hop-bush and Wellington Mint-bush. The Wellington Mint-bush is also listed under the FFG Act
- 16 plant species that are on the DELWP advisory lists, including the 5 species above, and 11 other species that are not listed under the EPBC or FFG Acts.

Detailed field surveys were undertaken in Spring 2020 to provide more detailed information about the presence of threatened flora species. The Proponent tabled a report by Arcadis

presenting the results of targeted surveys for threatened flora species recommended in the EES (Document 6), including native orchids. These species are:

- Maroon Leek-orchid *Prasophyllum frenchii*: EPBC Act Endangered, FFG Act listed, endangered in Victoria
- Metallic Sun-orchid *Thelymitra epipactoides*: EPBC Act Endangered, FFG Act listed, endangered in Victoria
- Thick-lip Spider-orchid *Caladenia tessellata*: EPBC Act Vulnerable, vulnerable in Victoria
- Wellington Mint-bush *Prostanthera galbraithiae*: EPBC Act Vulnerable, FFG Act listed, vulnerable in Victoria
- Trailing Hop-bush *Dodonaea procumbens*: EPBC Act Vulnerable, vulnerable in Victoria
- Dwarf Kerrawang *Commersonia prostrata*: EPBC Act Endangered, FFG Act listed, endangered in Victoria
- Gippsland Lakes Peppermint *Eucalyptus arenicola*: rare in Victoria.

The Arcadis surveys were undertaken in October and November 2020. None of the EPBC Act-listed species were identified within the construction footprint, though some species occur immediately adjoining the construction zone. Arcadis reported that the Wellington Mint-bush had previously occurred along the pipeline alignment in one location but the plants have died. However, they advised that a soil-stored seed bank may be present.

Arcadis reported that Gippsland Lakes Peppermint was present in several locations. They also found three other species listed as rare in Victoria:

- Slender Wire-lily *Laxmannia gracilis*: one plant located on Sandy Camp Road
- Salt Lawrenia *spicata*: multiple plants located on the edge of Lake Reeve
- Ribbed Thryptomene *micrantha*: multiple plants located west of Lake Reeve.

Arcadis made the following recommendations:

- Erecting No-Go Zone fencing:
 - Maroon Leek-orchid: at the southern edge of the road for 50 m either side of the mapped Maroon Leek-orchid population. Fence must be located immediately adjoining the road carriageway with footings located on the road or road batter (i.e. not at the bottom of the batter or off the road as this is Maroon Leek-orchid habitat with plants occurring very close to the road).
 - Metallic Sun-orchid: The population is fenced within an easily identifiable enclosure – no alterations to this fence is to occur, nor entry by personnel or other impacts in the enclosure area. No-Go Zone fencing will be required along the edge of the construction zone.
- To protect the soil stored seedbank of Wellington Mint-bush, careful retention and reinstatement of topsoil between KP 2-KP 3 will be required. This will need to be carefully managed to retain the integrity of the soil, the details of which are included in line the Technical Report (Mitigation Measure ID MM FF6; Practical Ecology 2020).
- Targeted surveys for Wellington Mint-bush should occur 1, 2, 3 and 5 years after construction to search for germinants of this species within the Footprint.
 - If germinants are found within the easement, slashing of the easement in that location should cease if possible, or be increased in height to no shorter than 50 cm above ground.
- If works on the pipeline are to occur in the future that involve removal of regenerated Wellington Mint-bush plants occurring within the easement, a salvage and translocation plan will be required.

- If expansion of Sandy Camp Road occurs, prioritise expansion to the eastern side of the road away from the Slender Wire-lily plant. Ensure No Go Zone fencing is erected.
- Mitigation measures for Gippsland Lakes Peppermint will be provided in the arborist report. These will include recommendations for avoiding/reducing damage to large roots encountered during digging operations and compaction of soil. Seed should be collected for propagation and use in reinstatement and rehabilitation works.
- Ensure all contractors undergo a brief induction explaining the ecological sensitivity of the study area and identification of the EPBC Act listed species should they be encountered during construction.

Arcadis concluded that provided their recommended mitigations are followed:

... the Golden Beach Gas Project is not considered likely to have a significant impact on any rare or threatened flora species.

The Proponent accepted Arcadis' recommendations and proposed that they would be included in the Orchid/Flora Management Plan within the statutory CEMP.

The following EMMs address risks to specific threatened flora species or communities:

- MM-FF15 (Threatened Orchids, Wellington Mint-bush and Trailing Hop-bush), which includes a requirement for a Flora/Orchid Management Plan
- MM-FF16 (Gippsland Lakes Peppermint).

The following EMMs address risks to threatened flora more generally:

- MM-FF01 (Avoid and minimise areas of impact)
- MM-FF02 (Unplanned loss of native vegetation and significant habitat)
- MM-FF03 (Contractor/staff awareness)
- MM-FF04 (Invasive weeds, pests and pathogens), which includes a requirement for a Biosecurity Management Plan
- MM-FF05 (Site Reinstatement and Rehabilitation)
- MM-FF20 (Dust impacts to native flora and fauna).

(ii) Submissions

DELWP's submission indicated that it was satisfied that the Proponent has provided a comprehensive risk assessment of all identified significant biodiversity values in the proposed Project area.

DELWP and the Australian Native Orchid Society of Victoria (ANOS-Vic) made submissions in relation to native orchids. DELWP recommended that:

MM-FF15 A Flora/Orchid Management Plan needs to be developed before construction commences. A precautionary translocation plan needs to be developed for threatened values identified during construction. This needs to include appropriate land manager consent, methods and translocation site selection criteria. Also address post translocation monitoring.

ANOS-Vic (Submission 10) submitted:

- The EES is incomplete with regard to the assessment of potential effects of the Project on orchids, and lacks specific details as to the orchids that may actually be affected by the Project.

- A minimum ten metre buffer is required to protect the known population of *Prasophyllum frenchii*. If the buffer cannot be provided this section of the pipeline should be bored.
- It is preferable to protect remnant orchid populations than to undertake a translocation due to failure risks and costs.
- Translocation is a long term project and ANOS-Vic recommended a minimum monitoring period of 10 years post-translocation to understand the success or otherwise of the translocation.

ANOS-Vic requested the opportunity to review and provide technical input to any translocation plan for Orchids.

The Proponent responded that it noted and accepted DELWP's recommendation in relation to the Flora/Orchid Management Plan, and that ANOS-Vic would be invited to participate in the preparation of the Flora/Orchid Management Plan including the translocation plan.

(iii) Discussion

While the information presented in the EES was incomplete, the Proponent commissioned targeted surveys undertaken by Arcadis in spring 2020 (Document 6) to further assess the presence of and likely impacts to listed threatened flora species.

The Arcadis surveys were undertaken in October and November 2020, which the Inquiry considers to be a suitable time of year to identify potential occurrence of the listed threatened species. None of the EPBC Act-listed species were identified within the construction footprint, though some species occur immediately adjoining the construction zone. There may also be seed banks present within or nearby the Project area.

The EMF includes a comprehensive set of mitigation measures to protect listed threatened flora species, including specific requirements for the protection and translocation of native orchids, Wellington Mint-bush, Trailing Hop-bush and Gippsland Lakes Peppermint.

Arcadis recommended a detailed set of additional measures to address potential impacts on threatened flora species, which the Proponent accepted. The Inquiry supports these measures, and recommends that the EMF should be amended to include all of the additional measures recommended by Arcadis in Document 6.

The Inquiry notes the Proponent's statement that ANOS-Vic would be invited to participate in the preparation of the Flora/Orchid Management Plan, including the translocation plan.

Finally, for completeness, the EES does not provide any assessment of the risk to terrestrial and freshwater flora and fauna associated with a gas leak or explosion, which may lead to a fire. The Inquiry asked the Proponent to provide more detail about this risk in its Request for Information (Document 7). The Proponent's response (Document 11) states that:

The likelihood of a gas leak or explosion is rare. In the rare event of a release of hydrocarbon, the dispersion of gas is up into the atmosphere as opposed to along the ground surface.

The Proponent referred to:

- MM-SH06 (Onshore Pipeline), which requires the onshore pipelines and facilities to be designed and constructed in accordance with AS2885
- MM-SH09 (Emergency Response Plan).

(iv) Conclusions and recommendation

The Inquiry concludes:

- While no listed threatened species were discovered in the Project area in the Spring 2020 targeted surveys, suitable habitat for some species appears to exist within or near the Project area, and seed banks may be present.
- The Inquiry is satisfied that the proposed EMMs outlined in the EMP, together with the additional measures recommended by Arcadis in Document 6, are appropriate to manage impacts on listed threatened flora species. It also supports DELWP's proposed amendments to MM-FF15.
- The evaluation objective – namely to avoid or minimise potential adverse effects on listed species and ecological communities and their associated habitat – can be achieved.

The Inquiry recommends that if the Project is approved:

Amend MM-FF15 (Threatened Orchids, Wellington Mint-bush and Trailing Hop-bush) to include the following requirements:

- a) **implementation of all of the recommendations in the Arcadis report (Document 6)**
- b) **the Flora/Orchid Management Plan must be prepared before construction commences**
- 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.**

4.5 Effects on threatened fauna species**(i) The EES**

The EES has identified the following significant fauna species as being recorded or having a moderate or greater likelihood of occurring within the Project area:

- three EPBC-listed endangered species – Spot-tailed Quoll, Southern Brown Bandicoot and Red Knot. The Spot-tailed Quoll and Southern Brown Bandicoot are also listed under the FFG Act
- six EPBC-listed vulnerable species – Growling Grass Frog, Shy Albatross, Grey-headed Flying Fox, Hooded Plover, New Holland Mouse, and the Green and Golden Bell Frog. All of these species except the Green and Golden Bell Frog are also listed under the FFG Act
- fourteen other fauna species that are listed under the FFG Act but not the EPBC Act, and another 20 fauna species on the DELWP Advisory list that are not listed under the FFG Act or EPBC Act.

The Project presents a number of risks to threatened fauna, including:

- risk of habitat removal or fragmentation of threatened fauna species
- potential introduction of Chytrid Fungus affecting local frog populations
- disturbance to fauna from construction – vibration, noise, lighting

- at a local level, possible short term temporary impacts on the New Holland Mouse, Eastern Pygmy Possum and non-detected threatened fauna species in the Project area, although loss of habitat due to construction would be temporary
- risks to Growling Grass Frog and Green and Golden Bell Frog, Southern Toadlet, Martins Toadlet through removal of habitat or introduction of Chytrid Fungus.

The EES concludes that the Project may have short term local impacts on some taxa but is unlikely to have a significant impact at a species level. Detailed assessments presented in Technical Report A indicate that the potential impacts of the Project on threatened fauna are manageable, and the residual risk of significant impacts is low. For the New Holland Mouse, Southern Brown Bandicoot, Eastern Pygmy Possum, Martin's Toadlet, Southern Toadlet, Tyler's Toadlet, Swamp Skink, Eastern Long-necked Turtle, Glossy Grass Skink, Lace Monitor, Red Capped Plover, there may be possible short term local impacts, which will be reduced to low risk in the longer term with habitat restoration in the Project area as part of the EMMs.

The following EMMs address risks to specific fauna species (each requires a Fauna Management Plan):

- MM-FF11 (Growling Grass Frog and Green and Golden Bell Frog)
- MM-FF12 (Southern Toadlet and Martin's Toadlet)
- MM-FF13 (New Holland Mouse and Eastern Pygmy Possum).

In addition, the following EMMs address risks to fauna more generally:

- MM-FF01 (Avoid and minimise areas of impact)
- MM-FF02 (Unplanned loss of native vegetation and significant habitat)
- MM-FF03 (Contractor/staff awareness)
- MM-FF04 (Invasive weeds, pests and pathogens), which includes a requirement for a Biosecurity Management Plan
- MM-FF09 (Trench entrapment)
- MM-FF10 (Fauna injury and mortality)
- MM-FF18 (Noise and vibration impact on fauna), which includes implementation of noise and vibration measures in accordance with MM-NV01 and MM-NV04
- MM-FF19 (Lighting disturbance to native fauna)
- MM-FF20 (Dust impacts to native flora and fauna).

(ii) Submissions

DELWP's submission indicates that it was satisfied that the Proponent has provided a comprehensive ranked risk assessment of all identified significant biodiversity values in the Project area. DELWP submitted in relation to EMMs to manage impacts to New Holland Mouse and Eastern Pygmy Possum (MM-FF13):

The "suitably qualified wildlife handler" is required to have appropriate wildlife permits and accreditations to deliver this work. All translocations need to be documented and release sites reported in the Victorian Biodiversity Atlas.

Ms McCubbin (Submission 11) drew attention to the presence of New Holland Mouse and Green and Golden Bell frog populations at Dutson Downs and submitted that they are likely to be encountered during construction.

(iii) Discussion

The EES's assessment of impacts of the Project on threatened fauna species is robust and adequate. The terrestrial and freshwater fauna of the Project area is described based on desktop reviews of fauna records and field surveys. Targeted fauna surveys were undertaken for mammals and reptiles, shorebirds and waterbirds, fish and amphibians. The field surveys also included incidental fauna and habitat assessments. Impacts of the Project were assessed in relation to species detected during the surveys and non-detected species identified based on database searches and the presence of suitable habitat.

The Project area provides habitat for threatened fauna species listed under the EPBC Act, FFG Act and in the DELWP advisory lists. Native vegetation removal and other disturbances associated with construction of the onshore pipeline and other infrastructure (including light, dust and noise) would lead to temporary loss and fragmentation of habitat for threatened fauna species along the onshore pipeline. 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.

Terrestrial amphibians, ground-dwelling mammals and arboreal mammals are identified as being at greatest risk of impact from habitat fragmentation. Amphibians (including the Southern Toadlet, Martin's Toadlet, Growling Grass Frog and Green and Golden Bell Frog) are also susceptible to impacts resulting from the spread of Chytrid Fungus. The EES includes EMMs that specifically address these threatened amphibian species (MM-FF11 and MM-FF12) as well as more general EMMs including biosecurity mitigation measures (MM-FF04). A specific targeted EMM is also proposed for the New Holland Mouse and the Eastern Pygmy Possum (MM-FF13).

The EMMs for threatened species refer to DELWP and the Commonwealth Department of Agriculture, Water and the Environment threatened species protocols. However, action statements made under the FFG Act and recovery plans made under the EPBC Act are only available for a subset of the threatened fauna species.

The Inquiry considers that the effects on threatened fauna species are acceptable. It notes DELWP's submission in relation to MM-FF13 and supports DELWP's proposed additions to that mitigation measure.

(iv) Conclusions and recommendations

The Inquiry concludes:

- The EES provides an adequate assessment of potential impacts of the Project on threatened fauna species.
- The Project may have short term local impacts on some taxa but is unlikely to have a significant impact at a species level.
- With the implementation of the proposed mitigation measures, residual risks will be reduced to an acceptable level.
- The evaluation objective – namely to avoid or minimise potential adverse effects on listed species and ecological communities and their associated habitat – can be achieved.

The Inquiry recommends that if the Project is approved:

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.

Amend MM-FF13 (New Holland Mouse and Eastern Pygmy Possum) to add “who has appropriate wildlife permits and accreditations” after “suitably qualified wildlife handler”.

4.6 Effects of the Lake Reeve Crossing

(i) The EES

Lake Reeve is part of the Gippsland Lakes. It is a hypersaline lagoon connected to Lake Victoria. The onshore pipeline will make two crossings of Lake Reeve, because Lake Reeve is divided into two arms around a central island where it intersects the pipeline alignment. The northern arm is part of the Gippsland Lakes Ramsar site. The southern arm is not part of the Gippsland Lakes Ramsar site but is hydraulically connected to it when Lake Reeve is inundated.

The Gippsland Lakes Ramsar site supports 86 species of waterbird and shorebird, many of which use habitats associated with Lake Reeve. In particular, Lake Reeve provides habitat for migratory waders. The Subtropical and Temperate Coastal Saltmarsh Threatened Ecological Community (listed as vulnerable under the EPBC Act, and corresponding to the Victorian EVC Coastal Saltmarsh) occurs in the vicinity of the Lake Reeve Crossing.

The Lake Reeve crossing is proposed to be constructed by open wet trenching. Construction will be undertaken when Lake Reeve is not inundated, over a short construction window of 2 to 7 days, with sediment control measures and strict management of acid sulfate soils (ASS). Rehabilitation would commence immediately after the trench is filled.

The following EMMs specifically address risks from construction of the Lake Reeve Crossing for biodiversity:

- MM-FF14 (Waders and Waterbirds/migratory birds), which includes a requirement for a Fauna Management Plan
- MM-FF17 (Impacts to Gippsland Lakes Ramsar site)
- MM-FF23 (EPBC Act Subtropical and Temperate Coastal Saltmarsh), which includes a requirement for a Subtropical and Temperate Coastal Saltmarsh Management Plan.

Other general EMMs that will assist in managing impacts to Lake Reeve include:

- MM-CO05 (ASS Management Plan), discussed in more detail in Chapter 7
- MM-FF05 (Site Reinstatement and Rehabilitation).

(ii) Submissions

Ms Hildebrandt (Submitter 6) asked what arrangements would be put in place to deal with a sudden inundation event during trenching.

The Proponent responded that this risk would be managed by checking weather forecasts before trenching to avoid trenching during wet weather, and having a short construction period (2 days) when the trench would be open. The Proponent stated that Lake Reeve inundation did not show a rapid response to rainfall. The use of the existing causeway

servicing the Dutson Downs Ocean Outfall pipeline for construction access would enable such a short construction window. In the event of unexpected delays, stockpiles would be moved away from Lake Reeve and silt fencing would be used to prevent sedimentation.

The EPA drew attention to the importance of appropriate rehabilitation or revegetation of the pipeline corridor at waterway crossings, including Lake Reeve. It submitted that the Site Rehabilitation Plan for the Project should include a commitment for at least 3 years of post-construction monitoring and maintenance along the length of the pipeline.

(iii) Discussion

The Inquiry is satisfied that the effects of the Lake Reeve Crossing on biodiversity are acceptable, noting the proposed EMMs to reduce risk. Waders and waterbirds, including migratory species, will potentially be locally affected by the construction of the Lake Reeve Crossing, but the Inquiry is satisfied that MM-FF14 appropriately addresses these impacts.

As noted in Chapter 4.3, the Inquiry agrees with the EPA that the Proponent's proposal for a 12 month monitoring period for rehabilitation works as required under the Pipelines Regulations is inadequate and a minimum period of 3 years should be required. The Inquiry considers that a monitoring period of 12 months is too short to ensure the success of rehabilitation works, particularly at waterway crossings where natural variability flow and water quality conditions can affect the outcome of rehabilitation works.

The EMMs appropriately propose monitoring in both MM-FF05 (Site Reinstatement and Rehabilitation) and MM-FF23 (EPBC Act Subtropical and Temperate Coastal Saltmarsh), because more targeted measures of specific attributes of Subtropical and Temperate Coastal Saltmarsh are required to assess the effectiveness rehabilitation measures for this Threatened Ecological Community.

The Inquiry considers that mitigation measures MM-FF23 should be amended to require a minimum 3 year monitoring period after reinstatement works, extended to 4 years if the regeneration is not successful after the first 12 months of monitoring (to give a minimum of 3 years of monitoring after the last intervention). The Inquiry has made a similar recommendation in Chapter 4.3 in relation to MM-FF05.

(iv) Conclusions and recommendations

The Inquiry concludes:

- On the basis of the information before it, and subject to the implementation of the proposed EMMs, impacts of the Lake Reeve Crossing can be managed to an acceptable level.
- The 12 month monitoring period proposed by the Proponent post-construction is not sufficient to cover all requirements relevant to the success of ecological rehabilitation works, including for Coastal Saltmarsh. MM-FF23 should provide for a minimum 3 year monitoring period after reinstatement works have been completed, extended to 4 years if the regeneration is not successful after the first 12 months of monitoring.

The Inquiry recommends that if the Project is approved:

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.

4.7 Effects on the coastal environment

(i) The EES

The EES states that the shore crossing may possibly require clearing of coastal vegetation on the sand dunes between Shoreline Drive and the sea. The preferred construction method would be to insert the pipeline into the shore crossing entry point from onshore, as this would avoid the need for the pipe string to be pulled across the sand dunes. However, if the pipeline needs to be inserted from 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, resulting in vegetation loss over a 30 metre wide area over the sand dunes. The impacted area would be reinstated to the previous dune contours and revegetated following completion of the pipeline works.

If this were the case, a Shore Crossing Management Plan would be developed that would need to be to the satisfaction of DELWP Pipelines Regulation and Energy Safe Victoria prior to commencement of construction (MM-FF24).

(ii) Discussion

No submissions were received in relation to impacts on coastal flora, fauna or ecosystems, although one submitter expressed concern about potential damage to the 'outer barrier' of the Gippsland Lakes arising from potential subsidence associated with groundwater depressurisation. The 'outer barrier' plays a key role in relation to the Gippsland Lakes Ramsar wetland site by separating the sea from the lakes. This issue is discussed in more detail in Chapter 10.

Should a 'pipe pull' over the dunes be required, clearing of the seaward side of coastal dune system of vegetation would expose the dunes to increased risk of coastal erosion. In response to the Inquiry's Request for Further Information, the Proponent submitted (in Document 11) that the risk to the stability of the dune system is considered low. It noted that the disturbed areas will be reinstated and monitored during rehabilitation. It also drew attention to the successful rehabilitation of the Dutson Downs Outfall pipeline shore crossing, which was installed in the early 1990s.

Given the impacts of a pipe pull over the dunes, the Inquiry considers that this should be avoided to the extent practicable. 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.

Mitigation measure MM-FF24 requires a Shore Crossing Management Plan, presumably to manage the impacts of the shore crossing on the sensitive coastal and dune environment. However this is not expressly stated, and nor does MM-FF24 expressly require rehabilitation of the dunes and surrounding coastal environment after the shore crossing is complete. These requirements should be built into the Shore Crossing Management Plan, along with a monitoring period of at least 3 years to ensure the rehabilitation of the dunes and surrounding coastal environment is successful. The Inquiry does not consider that the more generic

requirements in MM-FF05 (Site Reinstatement and Rehabilitation) are necessarily specific enough to cover rehabilitation of the sensitive coastal and dune environment.

The Inquiry also considers that MM-FF24 should be amended to include a requirement for the Shore Crossing Management Plan to incorporate advice from a Certified Professional in Erosion and Sediment Control, as proposed by the Proponent in the response to the Request for Further Information.

The Inquiry notes that MM-FF24 references the Shore Crossing Management Plan needing approval from DELWP Pipelines Regulation and Energy Safe Victoria. MM-FF24 does not mention Marine and Coastal Act consent being required, but the Inquiry expects that this would also be required (consent is required for any development on Crown land up to 200 metres inland of the high water mark of the sea). Marine and Coastal Act consents are intended to ensure that coastal development is consistent with the objectives and guiding principles of the Act, as well as the Marine and Coastal Policy, Marine and Coastal Strategy, and any other plans, policies and recommendations applying to that land. The guiding principles and objectives of the Marine and Coastal emphasise protection and enhancement of the coastal environment and its resilience to climate change.

(iii) Conclusions and recommendations

The Inquiry concludes:

- If practicable, the pipeline shore crossing should avoid any pipe pull over the coastal dunes, to minimise impacts on the coastal environment.
- If a pipe pull is required, there is likely to be significant (although temporary) impact on the coastal environment, including vegetation loss and erosion risks to the dunes.
- Approvals for the shore crossing should include a condition that no pipe pull over the dunes is permitted without the written consent of the relevant agencies (DELWP Pipelines Regulation Unit and Energy Safe Victoria).
- Mitigation measure MM-FF24, requiring a Shore Crossing Management Plan, is generally suitable to manage the impacts of the shore crossing to the coastal environment, subject to including requirements for:
 - the plan to incorporate advice from a certified professional in erosion and sediment control
 - a rehabilitation plan to reinstate and rehabilitate the coastal and dune environment
 - a minimum 3 year monitoring period to ensure rehabilitation of the dunes is successful.
- 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.

The Inquiry recommends that if the Project is approved:

Include a condition in the pipeline licence that no pipe pull over the dunes is permitted without the written consent of the Pipelines Regulation Unit of the Department of Environment, Land, Water and Planning and Energy Safe Victoria.

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:

- **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**
- **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 DELWP Pipelines Regulation and Energy Safe Victoria.**

4.8 Offsets to compensate for project impacts

(i) The EES

The EES presents preliminary calculations of the offsets that would be required to meet Victorian government requirements under the Native Vegetation Guidelines, and states that final offset requirements would be determined once the extent of vegetation loss is confirmed. It states that the Project is anticipated to be able to satisfy all offset requirements. The EES states (at page 7-57) that as at the time the EES was exhibited:

GB Energy is currently in initial discussions with landholders and authorities in the area in relation to offsets. Once offset requirements are known and finalised based on design and adoption of minimisation as much as possible, site assessments for suitability would be undertaken by GB Energy and offsets would be secured prior to construction.

The EES states that additional flora surveys in Spring 2020 would be required to determine the need for Commonwealth offsets under the EPBC Act Environmental Offsets Policy. The extent to which such offsets would be required depends on extent of impact on species and habitat for the Maroon Leek-orchid, Metallic Sun-orchid, Wellington Mint-bush and Trailing Hop-bush. It does not provide any indication of the availability of suitable offsets.

(ii) Submissions

DELWP submitted that that the native vegetation removal assessment in the EES does not provide an accurate measure of impacts and offsets. It submitted that it expects the Proponent to provide the following additional information:

... a final DELWP generated native vegetation report once actual direct and indirect impacts have been identified through changes to detailed plans and the implementation of further EMMs.

DELWP further submitted that:

The Project has stated offsets are required and are likely to be met but has yet to provide evidence the offsets needed are available and able to be secured as required by the regulations, should the removal of native vegetation be approved.

The Proponent responded by stating that:

GB Energy will secure all required offsets prior to commencement of construction (and prior to removal of native vegetation).

At the submitter conference, the Proponent confirmed that the offsets required to compensate for projects impacts were available, with the majority being present on a single property.

(iii) Discussion

The EES does not provide clarity regarding offsets. The Proponent subsequently confirmed in the Response to Submissions (Document 20) and verbally at the submitter conference that the offsets required for the Project were available and would be secured prior to the removal of native vegetation.

The EES did not specify what, if any, offsets would be required for the Project under the EPBC Act. The Arcadis report advises that:

By implementing the EMMs recommended in this report, it is anticipated the impacts to EPBC Act listed species will be avoided.

The Inquiry understands this means that the Project is not expected to have any impacts on EPBC-listed vegetation that would not require Commonwealth offsets under the EPBC Act.

(iv) Conclusions and recommendations

The Inquiry concludes:

- It is critical that appropriate offsets are secured for the unavoidable loss of native vegetation.
- The EES does not provide a clear statement regarding offset requirements and availability. However the Proponent subsequently indicated that the required offsets are available and would be secured prior to construction. This should be secured by an appropriate condition.

The Inquiry recommends that if the Project is approved:

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.

5 Marine environment

5.1 The issues

The issues are:

- Are the risks associated with marine diesel oil spills acceptable?
- Are the risks associated with other discharges and spills to the marine environment acceptable?
- Are the potential effects of the Project on marine biota acceptable?
- Can the marine environment evaluation objective be met?

The implications of the Project for marine fisheries are considered in Chapter 16.

5.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements include the following draft evaluation objective related to marine environments:

Biodiversity and habitat - 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.

(ii) Relevant policy and legislation

The Project area is situated within Victorian coastal waters. The EES study area for assessment of effects on the marine environment extends beyond Victoria coastal waters into marine areas managed by the Commonwealth government and a small area within NSW coastal waters (near the Victorian border). The EES reviews Victorian and Commonwealth legislation relevant to the marine environment but does not examine NSW legislation.

Offshore components of the Project will require approval under the OPGGS Act.

The Marine and Coastal Act provides the legislative framework for integrated management of marine environments in Victoria. Consent is required for components of the Project that will be located offshore within Victorian waters and/or situated on coastal Crown land within 200 metres of the high water mark. Other relevant Victorian legislation includes:

- the EP Act and SEPP (Waters)
- the *Pollution of Waters by Oil and Noxious Substances Act 1986*
- legislation relating to the protection of wildlife and national parks, including the FFG Act, *National Parks Act 1975*, *Wildlife Act 1975* and *Heritage Act 1995*. Input of petroleum and related products into Victorian marine and estuarine environments is listed as a threatening process under the FFG Act.

Relevant Commonwealth legislation includes:

- the EPBC Act, which defines the Commonwealth regulatory regime in relation to marine environments and biodiversity, together with the following EPBC Act Policy Statements:
 - EPBC Act Policy Statement 1.1 – Significant Impact Guidelines – Matters of National Environmental Significance (DoE, 2013); and

- EPBC Act Policy Statement 2.1 - Interactions between Offshore Seismic Operations and Whales (Department of the Environment, Heritage, Water and the Arts (DEWHA), September 2008).
- other legislation relating to the marine environment, including the *Australian Maritime Safety Authority Act 1990*, the *Biosecurity Act 2015*, the *Environment Protection (Sea Dumping) Act 1981*, the *Fisheries Management Act 1991* and the *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006*.

The *Marine and Coastal Policy 2020*, which is adopted Victorian Government policy made under the Marine and Coastal Act, sets out policies for planning and managing Victoria's marine and coastal environment, including Victorian coastal waters.

Other policies, including the Victorian Biodiversity Plan, *Protecting Victoria's Environment - Biodiversity 2037*, also apply to Victoria's marine environment.

5.3 The EES

The EES deals with impacts on the marine environment in Chapter 8 and Technical Report B *Marine Environmental Impact Assessment Technical Report* prepared by Aventus Consulting dated 6 October 2020. The EMF includes a detailed and extensive list of mitigation measures address potential impacts on the marine environment (MM-ME01 to MM-ME67).

(i) The study area

The marine environment study area was defined based on the most significant hazard to the marine environment (a marine diesel oil spill) which was used to define the maximum 'environment that may be affected' for the Project (Figure 1).

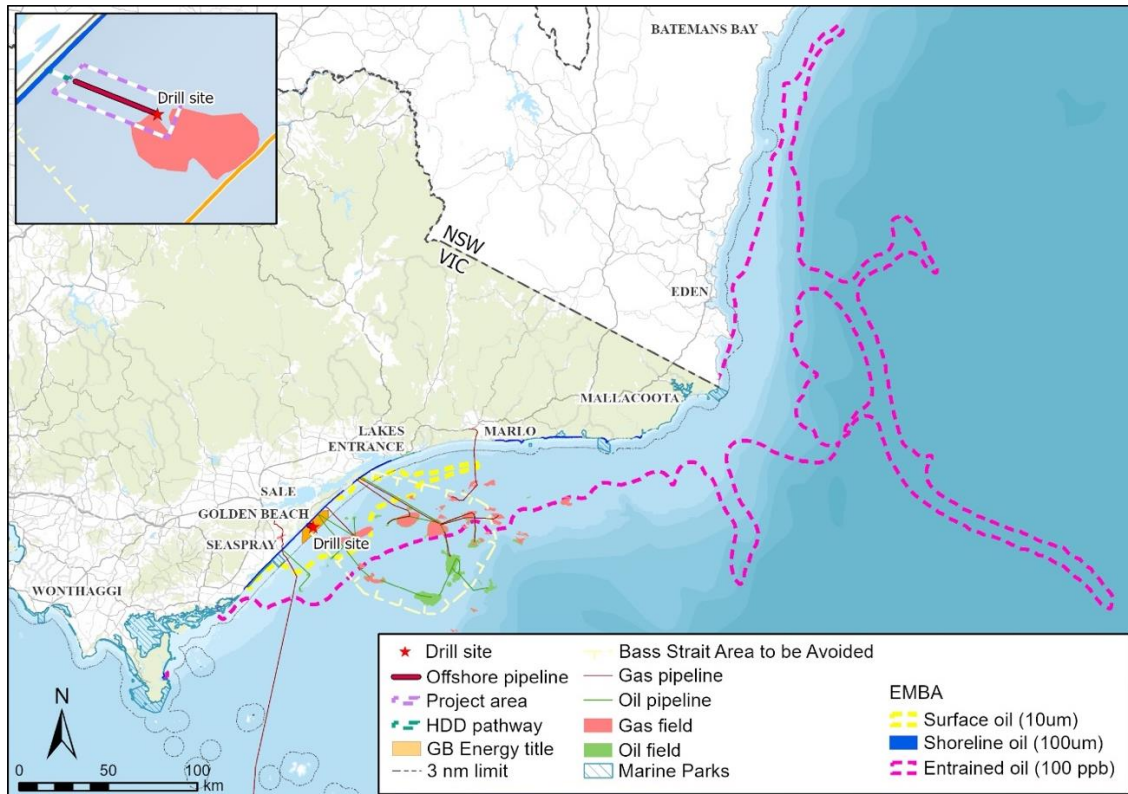


Figure 1 EES marine environment study area (based on extent of 500 m³ oil spill)

Source: Technical Report B

The study area contains sites of high conservation value, including:

- the East Gippsland Australian Marine Park
- two Ramsar listed wetlands (the Gippsland Lakes and Corner Inlet)
- thirteen nationally important wetlands – ten of these intermittently intersect the study area when they are open to the sea
- six marine protected areas and six coastal protected areas under the Victorian National Parks Act
- two coastal protected areas under the *National Parks and Wildlife Act 1974* (NSW).

The EES states that the marine study area supports many marine flora and fauna species and that the following species have been recorded or may potentially occur in the study area:

- 75 fish species have been recorded in the study area, including commercial and recreational fishery species
- 42 fish species protected under the EPBC Act, including 33 species of seahorses and pipefish, 3 species of shark, Black rock-cod, Giant manta ray and Australian grayling (the Australian grayling is also listed under the FFG Act)
- 25 whale species and 8 dolphin species, including 6 species protected under the EPBC Act
- 3 species of seals, including 2 species listed under the EPBC Act
- 5 species of marine turtle (all protected under the EPBC Act)
- 84 EPBC-listed seabirds and shorebirds species, including species that are also listed under the FFG Act

- 2 threatened ecological communities (TECs) listed under the EPBC Act – ‘Giant kelp marine forests of south-east Australia TEC’ (Endangered) and ‘Subtropical and temperate coastal saltmarsh TEC’ (Vulnerable).

(ii) Risks associated with marine diesel oil spills

A diesel oil spill could occur from a collision or grounding of the jack-up rig, pipelay or support vessel. Shoreline clean-up activities would be required in the event of an oil spill, and stringent management would be required to avoid exacerbating impacts.

High sensitivity receptors that could be affected by a marine diesel oil spill include whales, seals, shorebirds, commercial fisheries and marine parks. Other receptors include marine reptiles, seabirds, benthic fauna, plankton, pelagic fish, macroalgae, sandy beaches and rocky shores (EES Technical Report B). Key potential impacts include:

- deterioration in water quality
- injury or fatality of marine fauna and seabirds exposed to oil
- habitat damage where the spill reaches the shoreline.

The EES presents the results of oil spill trajectory modelling for two scenarios, representing the different sized vessels required for different phases of the project:

- **Scenario 1:** release of 155 m³ of diesel into the marine environment during drilling and well operations
- **Scenario 2:** release of 500 m³ of diesel into the marine environment during pipeline installation (worst case scenario).

Scenario 2, which was used to define the marine study area, shows that a marine diesel oil spill could stretch from the eastern side of Wilsons Promontory in Victoria to Eden in New South Wales, and extend over 200 kilometres out to sea (Figure 1). Even the smaller spill (Scenario 1) has a 48 percent probability of reaching a shoreline.

The EES rates the initial risks associated with a diesel oil spill as ‘low’, and the mitigated risks as ‘low’ to ‘very low’ (Technical Report B at pages 301, 485 and 564). This is based on a diesel oil spill having ‘moderate’ consequence but an ‘unlikely’ likelihood, which would be reduced to ‘rare’ by the mitigation measures. Risks associated with hydrocarbon spill response activities are rated ‘very low’ to ‘medium’ (initial risk) and ‘very low’ to ‘low’ (mitigated risk) (Technical Report B at pages 301, 485 and 564).

Technical Report B presents a detailed assessment of the potential effects of a marine diesel oil spill, which shows that impacts on threatened and migratory marine species and threatened ecological communities would not be ‘significant’ as assessed against the EPBC Act Policy Statement 3.2, despite the high sensitivity of some groups, including cetaceans, pinnipeds and shorebirds. There is no habitat critical for any threatened or migratory marine species restricted to the spill ‘environment that may be affected’. Residual risk to the nearest Ramsar sites (Gippsland Lakes and Corner Inlet) is also assessed as ‘low’ to ‘very low’ with the proposed mitigation measures, based on distance from the Project area and the separation of the Gippsland Lakes Ramsar site from the sea by the Lakes Entrance channel. Oil reaching the nearest Ramsar sites is likely to be weathered and of low concentration. The Corner Inlet Ramsar site is 55 kilometres from Project area.

The social sensitivity of sandy beaches to a diesel oil spill is rated as ‘medium’, which is higher than the ‘low’ rating for ecological sensitivity (Technical Report B at page 434). The shoreline

between Seaspray and seaward of Loch Sport is predicted to be exposed to moderate to high marine diesel oil loadings or volumes if a spill in the Project area were to occur. Areas further away from the Project area would have low exposure and are not expected to exhibit environmental harm, with natural weathering aiding in recovery.

The EES proposes a range of controls and EMMs to prevent and manage a marine diesel oil spill and subsequent clean-up, including:

- MM-ME27 (Spill response training and equipment)
- MM-ME28 (Shipboard Marine Pollution Emergency Plan)
- MM-ME48 (Reporting and monitoring of diesel oil spills)
- MM-ME49 (Prevention of diesel oil spills)
- MM-ME54 (Oil Pollution Emergency Plan)
- MM-ME56 (Maintain preparedness for a level 2 or 3 spill event)
- MM-ME57 (Surveillance and tracking)
- MM-ME58 (Real-time Oil Spill Trajectory Modelling)
- MM-ME60 (Briefings of coastal sensitivities)
- MM-ME61 (Access to environmentally sensitive areas restricted following an oil spill)
- MM-ME62 (Management of recovered oil and/or oily water).

(iii) Risks from drilling

Drill cuttings and muds will be discharged to the sea from the jack-up rig and from the construction of the shore crossing punch-through on the seabed. Potential impacts include:

- increased turbidity of the water column
- smothering of benthic habitat and fauna
- alteration of benthic substrate
- potential toxicity impacts to fauna.

The EES rates the initial risks and mitigated risks associated with the discharge of drill cuttings and muds as 'low' to 'medium' (Technical Report B at page 300).

The EES proposes the following EMMs:

- MM-ME05 (HDD (Punch-Through and Control fluid system)), which requires the use of low toxicity, readily biodegradable and non-bioaccumulating water-based muds and additives
- MM-ME10 (Optimisation of cutting discharges), which requires the use of a separation treatment system to maximise fluid separation from cuttings prior to overboard disposal
- MM-ME11 (Mud discharges), which requires discharge of drilling mud over a minimum duration of six hours at the end of the drilling program to minimise adverse effects on pelagic and benthic fauna.

(iv) Risks from other discharges

Other discharges to the marine environment during construction, operation and decommission present 'low' or 'very low' residual risks as they would be small, localised and temporary, diluted by wide dispersion in open water and effectively mitigated by the proposed mitigation measures. There are no sensitive habitats in the Project area and relevant mitigation measures would be applied. In brief, these discharges are as follows:

- discharge of cement during the drilling phase
- discharge of treated sewage and grey water from the jack-up rig, support vessels, pipelay vessel and anchor handling
- discharge of cooling and brine water from the jack-up rig and support vessels during construction and operation
- bilge water discharge
- accidental overboard release of food wastes
- accidental discharge of hydrocarbons and chemicals including drilling and pipelay associated chemicals, hydraulic oil, aviation fuel.

(v) Risks associated with invasive species

The EES concludes that the most significant risk to the marine environment arising from the Project is potential introduction of invasive marine species into the Project area through ballast water or biofouling associated with the jack-up rig and other vessels used for construction and operation. Introduction of invasive species is listed as a threatening process under both the EPBC and FFG Acts. The EES states that the introduction and establishment of invasive marine species could result in a measurable change to ecosystem components with a major change in function and could affect commercial fisheries. However, with the application of relevant EMMs, the introduction of invasive marine species would be unlikely.

The EES rates the initial risks associated with the introduction of invasive marine species as medium to high, and the mitigated risks as medium (Technical Report B at pages 301, 485 and 564).

The EMF proposes the following EMMs:

- MM-ME29 (Compliance with the National Biofouling Management Guidance for the Petroleum Production and Exploration Industry)
- MM-ME30 (International Anti-fouling System Certificates)
- MM-ME31 (Discharge of low-risk ballast water from pipelay and support vessels)
- MM-ME32 (Reporting of known or suspected non-compliance with biosecurity measures)
- MM-ME33 (Cleaning of submersible equipment)
- MM-ME34 (HSE pre-qualification of vessel contractor)
- MM-ME35 (Invasive marine species evaluation prior to mobilisation to site).

(vi) Risks from light emissions

Light emissions are expected from a number of sources during construction, primarily above the water surface, including vessel lighting, the jack-up rig and well testing flames from gas flaring. Light emissions can attract fauna, including fish, plankton and birds, and potentially cause harm to migratory birds through deviations from usual flight trajectories and collisions with infrastructure.

The EES rates the initial risks associated with light emissions as medium during drilling and wellhead installation, low to medium during pipeline installation, and low during the operation phase. Residual risks are low to very low (Technical Report B at pages 300, 484 and 563).

The EMF includes four EMMs to manage light emissions:

- MM-ME20 (Lighting)
- MM-ME21 (Lighting directionality)
- MM-ME07 (Minimisation of well testing (flaring))
- MM-ME08 (Minimisation of atmospheric and overboard discharges).

(vii) Risks from noise emissions

Underwater sound is expected to be generated from well drilling, vessel engine noise and pipeline installation activities during the construction phase, and the operation of vessels and the sub-sea pipeline during the operational phase. Underwater sound may potentially cause mortality or injury to whales, dolphins and fish, and also possible impacts on seals, benthic invertebrates and plankton.

The EES indicates that impacts of the Project on underwater sound may be cumulative with the effects of underwater sound generated by other uses in the study area. However it does not provide an assessment of cumulative effects on the basis that there are no biologically important areas for whales and dolphins in the vicinity of the Project area.

The EES rates the initial risks associated with underwater sound as low to medium and mitigated risks as low (Technical Report B, at pages 300, 484, 563).

Relevant EMMs are:

- MM-ME06 (Minimisation of underwater sound generation)
- MM-ME09 (Maintenance of pipelay and support vessel maintenance)
- MM-ME41 (Whale management strategy).

(viii) Other risks to marine biota and habitat

The EES concludes that with the implementation of the proposed measures there would be negligible impacts on threatened and migratory species. Other potential impacts on marine biota and habitat, including seabed disturbance and vessel contact with megafauna, are rated as 'low' or 'very low'.

5.4 Submissions

DELWP (Submission 9) submitted that in relation to the marine environment:

The proposed avoidance and EMMs are likely to be effective providing the measures described are fully considered and applied.

The EPA's submission (Submission 5) raised concerns over the risks to the marine environment posed by diesel oil spills. It submitted that:

The largest environmental risk to the marine environment is likely to be associated with the accidental release of diesel (oil spill) to the environment. Based on Victoria and Australia's excellent maritime safety record, the likelihood of an accidental collision or grounding resulting in an oil spill is very low; however, the consequences may be relatively high. The report downplays the consequences of the oil spill to the environment arguing that there are few sensitive receptors in the area (e.g. reef habitat, seal or bird colonies). Risks to sea and shorebirds in the affected area may still be very high. The report models the release of oil (e.g. Fig 8.9) and shows that adjacent sandy beaches from Golden Beach to Paradise Beach, and close to population centres, will be most affected.

The EPA recommended:

Due to the close proximity of the drilling and pipelaying activities to shore (less than 3 nautical miles) EPA recommends additional precautions should be taken to reduce the risk of marine accidents or increase the level of responsiveness to accidental releases.

The EPA did not specify what additional precautions should be taken.

The Proponent responded by drawing attention to the following measures outlined in the EES (Document 20):

GB Energy will prepare an Oil Pollution Emergency Plan (OPEP) in accordance with MM-ME54. GB Energy will also prepare Environment Plans (EPs) and Safety Cases in accordance with the OPGGS Act (Vic) for assessment and approval by relevant regulators (DJPR and NOPSEMA respectively). These will include measures to avoid collision and emergency response protocols.

At the submitter conference, the EPA indicated that it was satisfied with the Proponent's response.

The EPA's submission was less concerned about the risks posed by other marine discharges, noting that discharges are to a large, high energy, offshore receiving environment, situated away from sensitive environmental receptors, which maximises the dilution and dispersal of minor discharges reducing overall environmental risk. It submitted that the Project will not require a works approval or discharge licence to discharge to the marine environment.

5.5 Discussion

The key risks of the Project to the marine environment are:

- the introduction of invasive species associated with the jack-up rig and other vessels used for construction and operation
- a marine diesel oil spill with potential impacts on sensitive receptors including sandy beaches, marine ecosystems and local fisheries
- local pollution and impacts on habitat and fauna resulting from discharge of drill cuttings and muds during construction
- effects of light emissions on marine fauna and birds
- effects of underwater sound on marine fauna.

Technical Report B of the EES presents a detailed and generally robust assessment of potential impacts and risks to the marine environment arising from the Project. No evidence was presented in submissions to contest the EES assessment of the marine environment. The EPA submitted that the EES understates the risk to the marine environment associated with a marine diesel oil spill. No significant concerns regarding effects of the Project on the marine environment or proposed mitigation measures were raised by DELWP or the EPA.

The EES indicates that the risks associated with invasive marine species can only be mitigated from a 'high' initial to 'moderate' residual risk, and that risks associated with the discharge of drill cuttings and mud will remain as 'medium' despite mitigation measures. The risks associated with invasive marine species are not specific to the Project and the Inquiry is satisfied that compliance with the regulatory regime under the *Biosecurity Act 2015* and mitigation measure MM-ME35 will address this risk to the extent reasonably practicable. For avoidance of doubt, the Inquiry recommends MM-ME35 should be strengthened by inserting some additional words recommended below.

The proposed mitigation measures relating to the discharge of drill cuttings and mud appear reasonable, and no additional measures have been proposed in any of the submissions. The Inquiry notes that although the residual risk remains 'medium', the impacts will be temporary (during drilling in the construction phase) and are expected to be localised.

The Inquiry is satisfied with the EES assessment that residual risks of light emissions and underwater sound can be satisfactorily mitigated to 'low' risk with the proposed EMMs. The Inquiry recommends a minor adjustment to the wording of MM-ME41 below to strengthen the measure.

The Inquiry shares the EPA's concern that the EES downplays the consequences of a marine diesel oil spill to the environment. The EES states that a number of receptors (including whales, pinnipeds, shorebirds, commercial fisheries and marine parks) have high sensitivity to an oil spill. Some of the detailed information presented in Technical Report B is incongruent with the assessment of the consequences of a marine diesel oil spill being only 'moderate'.

For example, Table 8.53 in Technical Report B assesses the environmental sensitivity of sandy beaches to oiling as 'low' but the accompanying text provides detailed discussion of scientific literature that shows potential chronic effects. At local scale, the consequences of a marine diesel oil spill in areas subject to the highest oil volumes or loadings would be expected to be 'major' or possibly 'severe'. This would increase the overall risk rating to 'medium' even if the likelihood is 'rare' (based on the risk assessment matrix in Technical Report B at page 296).

The EPA did not indicate any additional mitigation measures that could be applied to further reduce the risk, and no additional mitigation measures were proposed in any other submissions. The Inquiry notes that it is impossible to eliminate the risk of a marine diesel oil spill given the nature of the construction and operational activities required for the Project. The risk of a marine diesel oil spill must be accepted if the Project is approved.

The Inquiry otherwise accepts the findings of the EES in relation to potential effects on the marine environment and proposed mitigation measures.

5.6 Conclusions and recommendations

The Inquiry concludes that:

- The EES assessment of the marine environment is generally adequate.
- The risks associated with a marine diesel oil spill are assessed in the EES as 'low' based on 'moderate' consequences but 'rare' residual likelihood. The Inquiry considers that this understates the consequences of a marine diesel oil spill, which appear to be locally 'major' or 'severe' based on the detailed information and discussion presented in Technical Report B.
- The other significant residual risks to the marine environment are the potential introduction of invasive marine species and discharge of drilling cuttings and muds during drilling and wellhead installation, which both have a 'medium' residual risk.
- Other residual risks to the marine environment are 'low' or 'very low'.
- The EES presents an extensive set of EMMs to address potential impacts on the marine environment, which are broadly appropriate. Minor amendments to MM-ME35 and MM-ME41 are proposed to strengthen these measures.
- The evaluation objective – namely to avoid or minimise potential adverse effects on marine biodiversity values within the project site and its environs – can be achieved.

The Inquiry recommends that if the Project is approved:

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.

Amend MM-ME41 (Whale management strategy) by changing ‘discussed’ to ‘established’ in the first dot point.

6 Aboriginal cultural heritage

6.1 The issue

The issue is:

- Will the Project meet the Aboriginal cultural heritage evaluation objective?

6.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Cultural heritage – Avoid or minimise adverse effects on Aboriginal and historic cultural heritage and associated values.

(ii) Relevant legislation and policy

Assessment of impacts on Aboriginal heritage is undertaken under the Aboriginal Heritage Act. The Act requires a CHMP to be prepared for any works that require an EES. The CHMP must be approved by the relevant Registered Aboriginal Party before works are undertaken, and before any other statutory approvals for the works are granted. The Gunaikurnai Land and Waters Aboriginal Corporation is the Registered Aboriginal Party for the area.

Section 5.5 of the APGA Code of Environmental Practice highlights the importance of proponents of pipeline projects consulting with the Aboriginal community. It states:

Aboriginal stakeholders should be considered the primary source of information about their cultural heritage and how it is best identified, protected and conserved.

The Code states that effective consultation:

- provides representatives of the Aboriginal community with the opportunity to participate in the field assessment process and to inspect and comment on the Aboriginal sites and values of the study area
- encourages all Aboriginal stakeholders to participate in the cultural heritage assessment process, and provide knowledge that will ensure that sites are avoided, protected and any potential damage mitigated
- identifies the Aboriginal cultural heritage values of the study area
- provides an opportunity for the registered stakeholders to comment on the outcomes and recommendations of heritage assessment and reporting
- integrates Aboriginal heritage values and recommendations into project construction and operational procedures.

6.3 The EES

The EES deals with Aboriginal cultural heritage in Chapter 9 and Technical Report C *Aboriginal Cultural Heritage Impact Assessment, Golden Beach Gas Project EES* prepared by Jem Archaeology dated 15 October 2020.

A CHMP is being prepared for the Project (MM-ACH01), which will outline a process for protecting and managing Aboriginal cultural heritage during the construction, operation and decommissioning phases.

The main potential impact to Aboriginal cultural heritage is the disturbance of Aboriginal places during construction, which has the potential to result in damage to or a loss of heritage value. The Project activity area includes two registered Aboriginal places, as well as an additional seven places (two artefact scatters and five low density artefact distributions) identified while preparing the CHMP. There is also the possibility of Aboriginal ancestral remains on the shores of Lake Reeve, the Lake Reeve 'island' and on the coastal dunes between Lake Reeve and Delray Beach, although they are generally rare in the archaeological record.

The Cultural Heritage Impact Assessment involved:

- a desktop and field-based assessment (surface survey, archaeological survey and archaeological excavations) to understand the environmental, ethnohistorical, historical and archaeological context of the activity area and surrounding geographic region
- a risk assessment to identify risks associated with the construction, operation and decommissioning of the Project
- an impact assessment for each phase of the Project
- recommendations for mitigating impacts, including measures to undertake when known and discovered Aboriginal places are to be disturbed
- environmental management and monitoring conditions.

The Gunaikurnai Land and Waters Aboriginal Corporation was consulted throughout the process of the Cultural Heritage Impact Assessment.

The Cultural Heritage Impact Assessment concluded that the main risks to Aboriginal cultural heritage are during the construction phase (impacts are unlikely during the operational and decommissioning phases). Once approved, the CHMP will provide the processes to manage any potential harm to known Aboriginal places, as well as any Aboriginal places that may be discovered during construction.

Construction of the Project will result in the total destruction of five of the known Aboriginal places within the Project area (all low density artefact distributions), and disturbance to a known shell midden at Delray Beach. However this is considered acceptable by the Gunaikurnai Land and Waters Aboriginal Corporation as the places are of low scientific and Aboriginal traditional significance. No mitigation of harm to these is required.

Construction will also result in partial disturbance of artefact scatters at Fergusons East Dam and Fergusons West Dam. Portions of these places are located outside the activity area and will be protected from harm with temporary fencing along the boundary of the activity area. The partial impact to these artefact scatters is considered acceptable by the Gunaikurnai Land and Waters Aboriginal Corporation, as the places are considered to be of moderate scientific and cultural significance, and impacts will be mitigated through salvage and recording of items of significance.

6.4 Submissions

Other than Ms Hildebrandt, submissions did not raise any concerns in relation to Aboriginal cultural heritage impacts. Ms Hildebrandt submitted:

The land [Country] also holds spiritual, cultural and economic importance for Traditional Owners and this should be honoured.

6.5 Discussion

The Inquiry is satisfied that appropriate consideration has been given to Aboriginal cultural heritage impacts in preparing the EES. The methodology of the Cultural Heritage Impact Assessment is appropriate and in line with accepted industry standards and practice. The assessment was comprehensive, and the Gunaikurnai Land and Waters Aboriginal Corporation were consulted throughout the assessment process, in accordance with the APGA Code of Environmental Practice.

While some impacts on Aboriginal cultural heritage will occur, the Inquiry is satisfied based on the views of the Gunaikurnai Land and Waters Aboriginal Corporation that the impacted places are generally of low scientific and cultural significance. The two Aboriginal places of moderate significance that will be impacted (artefact scatters at Fergusons Dam) will only be partially impacted. The Gunaikurnai Land and Waters Aboriginal Corporation has indicated that those impacts are acceptable, subject to EMMs.

The CHMP sets out comprehensive conditions to ensure that adverse effects on the two artefact scatters at Fergusons Dam East and West are avoided, minimised or mitigated. These include:

- defining protection zones within the areas in which no ground disturbance can occur
- sections of the places must be surveyed and fenced before any construction vehicles or machinery arrive
- previously recorded surface artefacts must be found and relocated, and the remaining parts of the place must be thoroughly searched prior to works commencing
- an archaeological salvage must take place before works commence, supervised by a qualified archaeologist and representatives of the Gunaikurnai Land and Waters Aboriginal Corporation
- all salvaged material must be dated, bagged, labelled, stored and managed as set out in the CHMP
- the archaeological salvage must seek to address research questions listed in the CHMP.

Unexpected places or objects of Aboriginal cultural heritage may be discovered during construction. The Inquiry is satisfied that these can be dealt with in accordance with the measures outlined in the Cultural Heritage Impact Assessment, and the CHMP.

6.6 Conclusions

The Inquiry concludes:

- The Project will not affect any areas of high scientific or cultural significance.
- Areas of moderate significance will be partially impacted. The CHMP contains comprehensive conditions designed to minimise and mitigate those impacts. The Gunaikurnai Land and Waters Aboriginal Corporation regards those impacts as acceptable, subject to the EMMs being applied.
- While some areas of low scientific or cultural significance will be impacted (total destruction), the Gunaikurnai Land and Waters Aboriginal Corporation regards those impacts as acceptable and not requiring mitigation.

- The evaluation objective – namely to avoid or minimise adverse effects on Aboriginal cultural heritage values – can be achieved.

No recommendations are necessary. The conditions of the CHMP will ensure that Aboriginal cultural heritage values are appropriately protected, in accordance with MM-ACH01.

7 Contamination and acid sulfate soils

7.1 The issues

The issues are:

- Is construction of the pipeline or onshore facilities likely to disturb or mobilise existing soil contamination or acid sulfate soils (ASS) with resultant risks to beneficial uses of land or water?
- Have adequate EMMs been put forward?
- Will the Project meet the evaluation objective related to contamination and ASS?

7.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements do not include a draft evaluation objective specifically related to contamination or ASS. The most relevant objective is:

Catchment values and hydrology – 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.

This objective provides a context for considering water-related impacts of contamination and ASS. In considering the potential environmental effects of the Project more broadly (as required under the Terms of Reference), the Inquiry has also considered impacts of contamination and ASS on land environments.

(ii) Relevant policy

Beneficial uses of land and water environments are currently protected and managed from the effects of contamination under SEPP (Contaminated Land) and SEPP (Waters).

Investigation levels for assessing soil contamination in the EES were derived from the Amended *National Environment Protection (Assessment of Site Contamination) Measure 2013*, based on the protected beneficial uses for the study area as defined in SEPP (Contaminated Land).

Other statutes and policy documents relating to industrial wastes and contaminants are also relevant, given the proposed reuse of excavated material for backfill and potential requirements for off-site disposal. These include:

- the Environment Protection (Industrial Waste Resource) Regulations 2009
- the *Industrial Waste Resource Guidelines: Soil Hazard Categorisation and Management* (EPA Publication 621)
- *Waste Disposal Categories - Characteristics and Thresholds* (EPA Publication 1828)
- *Interim Position Statement on Per- and polyfluoroalkyl substances (PFAS)* (EPA Publication 1669.3)
- the PFAS National Environment Management Plan (2018).

A key policy document in relation to ASS is the *Industrial Waste Management Policy (Waste Acid Sulfate Soils) 1999*, made under the EP Act.

The APGA Code of Environmental Practice provides generic guidance on relevant risks and management methods for construction, operation and decommissioning of onshore pipelines. Relevant aspects include dealing with trench spoil and managing hydrostatic test water.

(iii) Relevant legislation

The Pipelines Act regulates the storage onsite of any contaminated material that is produced and its off-site disposal.

The EP Act 2017, coming into effect in July 2021, includes duties to manage and notify of contaminated land:

- (1) A person in management or control of contaminated land must minimise risks of harm to human health and the environment from the contaminated land so far as reasonably practicable.
- (2) For the purposes of subsection (1), minimising risks of harm to human health and the environment from contaminated land includes (but is not limited to) carrying out any of the following—
 - (a) identification of any contamination that the person knows or ought reasonably to know of;
 - (b) investigation and assessment of the contamination;
 - (c) provision and maintenance of reasonably practicable measures to minimise risks of harm to human health and the environment from the contamination, including undertaking clean-up activities where reasonably practicable; ...

This duty would apply to the Proponent with respect to the pipeline easement and onshore facilities. The regulatory framework for this duty has yet to be confirmed.

7.3 The EES

The EES deals with contamination and ASS in Chapter 10 and Technical Report D *Contamination and acid sulfate soils* prepared by AECOM dated 7 October 2020.

The EES draws on existing records of soil contamination and ASS near the onshore pipeline alignment, as well as sampling from soil and groundwater monitoring bores.

Key areas of contamination risk are where the pipeline alignment passes through the Dutson Downs facilities including near the Regional Outfall Sewer open channel, and adjoining the Esso Longford Gas Plant. The soil sampling found limited evidence of contamination exceeding investigation levels. Elevated levels of zinc and nickel in the vicinity of Lake Reeve were attributed to their natural mobilisation in acidic soils. An elevated occurrence of total recoverable hydrocarbon C₁₀-C₁₆ was attributed to agricultural activities. A minor exceedance of perfluoro-octane sulfonate near the Dutson Downs lagoons was considered to be compatible with the reuse of the affected soil onsite.

The investigation of shallow groundwater along the first four kilometres of the pipeline alignment found limited contamination. Low pH levels near Lake Reeve were attributed to the occurrence of ASS, while elevated ammonia levels in this area were considered to be natural in origin. Some evidence of contaminants from irrigation was found in another borehole.

The EES concludes:

With the application of standard EMMs, risks to human health and the environment due to contaminated soils, groundwater or ASS during construction, operation and decommissioning are rated as low and very low. This is predominantly due to limited contamination in the Project area, and the ability to manage contaminated soils and groundwater and ASS using standard pipeline construction methods in accordance with industry and government guidelines.

Specifically in relation to ASS:

The potential environmental impacts ... are limited by the shallow depth of trenching, the short duration of stockpiling and avoidance of trench dewatering activities (where groundwater is intersected in areas of ASS, particularly in the Lake Reeve area).

Key mitigation measures for dealing with existing soil and groundwater contamination as well as ASS are set out in MM-CO01 to MM-CO06. MM-CO01 and MM-CO02 relate to classifying and managing soil and groundwater contamination in accordance with EP Regulations, SEPPs and EPA guidance. MM-CO05 and MM-CO06 relate to ASS and potential ASS. Key aspects of these EMMs are to:

- avoid trench dewatering that could mobilise contaminated groundwater
- avoid discharge to the environment of water from areas with contamination
- minimise the disturbance and oxidation of ASS by implementing an ASS Management Plan
- undertake pipeline construction across Lake Reeve when it is not inundated.

MM-CO07 to MM-CO10 relate to the management of wastes and spills.

7.4 Submissions

No evidence was presented in submissions to contest the EES assessment of soil contamination and ASS.

One submission (Submission 6) contended that the EES investigation of potential ASS, which was confined to the proposed 30 metre pipeline right of way area, was contrary to the *Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulphate Soils*¹, which require off-site impacts to be considered. It drew attention to the decision making principles in these guidelines, the first of which is to avoid disturbing ASS. It commented that while the EES addresses the disturbance of ASS in the proposed crossing of Lake Reeve, the potential acidity impacts in other waterways to be crossed by the pipeline are unclear.

Submission 12 expressed a similar concern that the EES investigation of soil contamination and ASS was too limited to enable conclusions about the source and extent of contaminants. Submission 11 expressed a concern that pipeline laying near the Regional Outfall Sewer may encounter more extensive contamination than recognised in the EES.

The EPA's submission (Submission 5) pointed out that "*limited soil sampling has been undertaken along the transect line as investigation findings were based on 1km distance sampling between KP3 to KP20*", yet from "*KP2.6 to KP12, the pipeline runs across the EPA Priority Sites Register site in the Dutson Downs region which is presently subject to a Clean-up Notice*". The EPA therefore considered that the EES risk rating of 'very low' associated with contaminated soils, surface water quality affected by contaminated runoff and groundwater

¹ Australian and Victorian Governments, 2010

quality affected by leaching from contaminated soils is not proportionate. It viewed the field investigation as adequate only *“to provide a preliminary indication of the likely extent and magnitude of contaminated soils in the project area and to inform the impact assessment”*.

The EPA supported the recommendation in the AECOM contamination assessment that further assessments should be carried out as part of the detailed design and construction. The contamination assessment states that:

It is noted that sampling density for the field investigation does not comply with EPA Victoria Publication IWRG702: Soil Sampling and localised impacts may be present at other locations and may be encountered during Project construction works.

In the EPA’s view, further investigation for the presence of PFAS in soils and groundwater along the pipeline route is warranted. Indeed, a complete analytical suite including dioxins and furans was recommended.

The EPA submission notes the potential for unexpected contamination to be encountered, and the need for appropriate management of any affected materials. The submission also identifies the need for caution in disturbing contaminated areas, using excavated soil that may be contaminated to backfill the pipeline trench, and in ensuring that any imported backfill in potentially contaminated areas has a suitable hydraulic conductivity. It recommended changes to strengthen the corresponding EMMs (MM-CO01, CO02 and CO04).

The EPA also considered that a more cautious approach is needed in relation to ASS. It accepted the Ramsar wetland of Lake Reeve is the primary area requiring ASS management. It noted that under the *Industrial Waste Management Policy (Waste Acid Sulfate Soils)* the onsite management of waste ASS must apply current best practice to prevent adverse impacts on any beneficial uses of the environment. The EPA submission states that it is *“uncertain if the wet trenching methodology proposed will prevent the oxidation of sulfide minerals”*. It therefore recommended a further EMM:

CO11 Wet Trenching

Where wet trenching is proposed in the vicinity of Lake Reeve, a management plan should be developed and implemented in accordance with of the National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soil in shallow groundwater environments (Shand et al, 2018)². At a minimum this should include:

- Establishment of baseline conditions of surface water and groundwater in the vicinity of the wet trenching area;
- Monitoring of groundwater, surface water and trench water daily during construction works to identify if wet trenching is resulting in acidification;
- If the results of groundwater and/or trench water monitoring indicate deterioration in water quality e.g. groundwater pH is less than 5.5 pH units or a significant drop in pH compared with baseline conditions, wet trenching should cease. A risk assessment should be undertaken to determine the need for appropriate remedial actions.

In its response to submissions, the Proponent accepted the EPA’s recommendations, with one qualification – MM-CO11 put forward by the EPA would be incorporated into MM-CO05, rather than being included as a separate EMM.

² 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

7.5 Discussion

There is consistency across several public submissions, the EPA's submission and the contamination assessment in Technical Report D that further site investigations of both soil contamination and ASS along the onshore pipeline route will be needed as part of the detailed project design. At the same time, the available data is sufficient to conclude that the risk of impacts on beneficial uses of the environment would be acceptably low if appropriate EMMs, supported by improved baseline data, are applied.

The Inquiry considers that clarification is needed in relation to the respective roles of the EPA and the decision-maker under the Pipelines Act in terms of dealing with site contamination. While the pipeline licence will be the main approval regulating the pipeline construction and operation, the EPA may become involved if there is a risk of harm related to soil or water contamination.

The Inquiry therefore considers that input from the EPA will be appropriate both before the statutory EMP required under the Pipelines Act for the construction phase is approved, as well as for aspects of its implementation. Further EPA input in relation to the EMP for the operational and decommissioning phases may be appropriate, but this would be more limited in scope.

7.6 Conclusions and recommendations

The Inquiry concludes:

- The assessment in the EES has been adequate to establish that disturbance of soil or groundwater contamination or ASS by construction activities is unlikely to pose an unacceptable level of risk if appropriate EMMs are applied.
- More detailed sampling to detect soil and groundwater contamination will be needed as part of the detailed design for the pipeline and onshore facilities.
- The EPA will need to provide input to the finalisation of the statutory CEMP required under the Pipelines Act (including the ASS Management Plan).
- The proposed EMMs should enable contamination and ASS risks to be managed consistent with the closest relevant draft evaluation objective – namely 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.

The Inquiry recommends that if the Project is approved:

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.

Include the following requirements in the statutory Construction Environmental Management Plan required under the *Pipelines Act 2005*, 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 EPA policy guidance and the new duties under the *Environment Protection Act 2017*.**

Amend MM-CO01 (Contaminated Soils), MM-CO02 (Contaminated Groundwater) and MM-CO04 (Unknown Contamination) as recommended by the Environment Protection Authority in Submission 5.

Amend MM-CO05 (Acid Sulfate Soils) to:

- a) include the additional requirement recommended by the Environment Protection Authority as MM-CO11 in Submission 5**
- b) require the Acid Sulfate Soils Management Plan to be endorsed by the Environment Protection Authority.**

8 Landscape and visual

8.1 The issue

The issue is:

- Will the Project meet the landscape and visual evaluation objective?

8.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Community amenity and greenhouse gas emissions – 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.

(ii) Relevant legislation and policy

The main legislation that regulates landscape and visual impacts in Victoria is the *Planning and Environment Act 1987* (PE Act) and planning schemes made under the PE Act (in this case, the Wellington Planning Scheme). A planning permit is not required for the Project by virtue of section 85 of the Pipelines Act, but planning policies remain relevant because the Pipelines Minister is required to consider any comments of the Planning Minister and the responsible Authority (Council) under section 49(g) of the Pipelines Act.

Planning policy framework

There are many planning policies which relate to the protection of landscapes and management of visual impacts. These are comprehensively summarised in Chapter 4 of the Landscape and Visual Impact Assessment (Technical Report E). Key policy considerations include:

- Clause 12.02-1S (Protection of Coastal Areas), which recognises the value of coastal areas to the community, and seeks to:
 - conserve and enhance coastal areas and ensure sustainable use of natural coastal resources
 - ensure development is sensitively sited and designed and respects the character of coastal settlements.
- Clause 21.13 (Environment and Landscape Values), which identifies that infrastructure development can have significant detrimental effects on the landscape, and that the rural amenity of the Shire is an asset which warrants protection. One of the strategies under this Clause is to protect locally significant views and vistas that contribute to the character of coastal and coastal hinterland areas.
- Clause 22.08 (Ninety Mile Beach Policy), which states that settlement patterns and development outcomes should respond to the values and capacities of the natural environment.

The Coastal Spaces Landscape Assessment Study (2006) is a reference document in the Planning Scheme, and sets objectives and strategies to enhance and protect the landscape

character of the coastal areas, including the Ninety Mile Coast character area. Objectives (which have been translated into the Planning Scheme) include:

- minimise the visual impact of signage and infrastructure, particularly adjacent to the Gippsland Lakes or Ninety Mile Beach or areas of high visibility
- site infrastructure away from highly scenic locations, key views and near coastal locations, or underground wherever possible in the case of powerlines and other utility services
- protect locally significant views and vistas that contribute to the character of coastal and coastal hinterland areas, particularly from the Longford-Loch Sport Road to Lake Wellington and Lake Reeve and to the coastal dunes of the Ninety Mile Beach.

Siting and Design Guidelines for Structures on the Victorian Coast

The Siting and Design Guidelines seek to ensure a structure is sited and designed to:

- fulfil its purpose with sustainable use of resources
- culturally respect its setting and visually complement the surrounding coastal landscape.

The Code of Environmental Practice

The APGA Code of Environmental Practice states:

Assessment of visual amenity should consider the following factors:

- Temporary activities and infrastructure associated with construction.
- Long term activities and infrastructure associated with operations.
- Short term activities associated with operational maintenance of the pipeline.
- Short term activities and infrastructure associated with decommissioning.

The Code recognises the visual impact of vegetation removal associated with a pipeline project, and states:

Significant ecosystem patches or individual trees that are identified as having significant natural, heritage or visual amenity values should be avoided by the alignment during the planning phase.

- If this is not possible specific environmental management procedures should be adopted to minimise environmental impacts.
- Consideration should be given to retention of significant ecosystem patches or individual trees within the approved corridor, where they have significant natural, heritage or visual amenity values.

8.3 The EES

The EES deals with landscape and visual impacts in Chapter 11 and Technical Report E *Golden Beach Gas Project, EES Technical Report for Landscape and Visual Impact Assessment* prepared by Hansen Partnership in August 2020.

While equipment and activity will be visible during the construction phase, once the Project enters the operational phase, visible above ground infrastructure is limited (primarily the shore crossing facility, the compressor station and the metering facility). The largest structure that will be used during the construction phase is an offshore jack-up rig which will sit 120 metres above sea level and is likely to be visible from 7 kilometres. However the jack-up rig will only be in position for 90 to 120 days. The largest and tallest element of permanent above

ground infrastructure is the compressor station, the highest element of which will be 29 metres.

Consistent with accepted industry practice, the Landscape and Visual Impact Assessment:

- defined the study area (the viewshed that might be impacted by the Project)
- defined the landscape character and values of the study area, based on distinctive landscape features and planning controls
- undertook a visual sensitivity assessment including identifying particular and representative viewpoints from which the Project might be seen
- assessed the visual impact of the Project through photomontages.

The Landscape and Visual Impact Assessment identified three Landscape Character Areas within the study area:

- Landscape Character Area 1: Undulating pastures and plantations, which was assessed as a 'Low to Medium' relative landscape value
- Landscape Character Area 2: Gippsland Lakes and Plains, which was assessed as a 'High' relative landscape value
- Landscape Character Area 3: Ninety Mile Coast, which was assessed as a 'High' relative landscape value.

The Assessment stated:

These Landscape Character Areas contain landscapes that have statutory significance for their landscape and visual values in the planning scheme, or form part of landscapes that are designated for protection under the Ramsar Convention (Lake Reeve) and National Trust (Ninety Mile Beach).

The Assessment considered which elements of the Project would have a visual impact, and narrowed this down to the jack-up rig and the compressor station. The other elements were considered to have no visual impact (in some cases following rehabilitation of vegetation) due to being underground or low lying.

The impact of the jack-up rig was assessed from one viewpoint – the Golden Beach Picnic Ground, which is located approximately 4 kilometres from the rig. While the Landscape Character Value of the beach was considered high, and the rig was assessed as having a 'medium' impact, no EMMs were recommended primarily because the rig will only be in place for 90 to 120 days. In any event, mitigation of the visual impact of the rig would be practically difficult to achieve.

The impact of the compressor station was assessed from five viewpoints, all on privately owned land. Impact was assessed as 'negligible/very low' from all five viewpoints.

On that basis, no specific landscape or visual EMMs were recommended. The EES notes that some of the other EMMs will assist in reducing visual impacts, including:

- MM-FF19 (Flora and fauna - Lighting disturbance (onshore))
- MM-ME20 (Marine Environment - Lighting (offshore))
- MM-ME21 (Marine Environment - Lighting directionality (offshore)).

8.4 Submissions

No submissions raised specific concerns in relation to landscape or visual impact.

8.5 Discussion

Some of the landscapes through which the Project will traverse are high value landscapes given specific recognition and protection under the Planning Scheme, including the Gippsland Lakes and Plains and the Ninety Mile Coast. However once construction is complete, there will be very little infrastructure visible above the ground. The above ground elements are generally small in scale and low in profile, and while they will represent an intrusion into rural and coastal landscape settings, the Inquiry does not consider that the impacts are likely to be significant.

The Inquiry considers that the Landscape and Visual Assessment methodology is essentially robust, and the analysis undertaken is proportional to the likely impact.

The Assessment states that while the jack-up rig would likely be more visible from some other locations along the coast, Golden Beach Picnic Ground was selected as the viewpoint from which impact was assessed, as it is considered representative of views from Ninety Mile Beach and within the Ninety Mile Beach Landscape Character Area, although it is not clear on what basis this conclusion was drawn. The picnic ground was also considered to have a higher visitation rate than other locations along the coast.

Generally speaking, when landscape and visual impact assessments assess impacts from private viewpoints, dwellings or private open space around the dwelling are selected as viewpoints rather than surrounding paddocks. This is partly because residents are regarded as sensitive receptors, whereas farm workers are generally not. While it is not overly clear from the Landscape and Visual Assessment, it appears that the five private viewpoints selected for assessment are all located in private open space around dwellings (farmhouses).

The five private viewpoints selected for assessment were all about 4 kilometres away from the compressor station. Ordinarily the Inquiry would expect viewpoints to be selected within 2 kilometres rather than 4 kilometres, as visual impacts are generally higher closer to the source of impact. Chapter 11 of the EES states:

Five private view locations were selected as representative of the potential impact from the compressor station. There are no private view locations within two kilometres of the location of the compressor station. Accordingly, for the purposes of this assessment, the assessment area was extended to five kilometres to account for the higher level of sensitivity a visual impact may have on a private residence.

The Inquiry accepts this reasoning for the selection of viewpoints on private property, and has no reason to question whether the Assessment considered a 'worst case' visual impact.

Removal of vegetation will have a some visual impact, but the Inquiry is satisfied that the EMMs relating to vegetation clearance and revegetation of the pipeline corridor once construction is complete will mitigate these impacts to an acceptable level. The Assessment did not specifically consider the visual impacts of short term activities associated with maintenance of the pipeline (referred to in the APGA Code of Environmental Practice). However based on the EES's description of maintenance activities, the Inquiry does not consider that these will have a significant impact.

8.6 Conclusions

The Inquiry concludes:

- Once construction is completed, the above ground elements of the Project (which are generally low scale and low lying) will not have a significant impact on visual amenity or landscapes.
- The moderate visual impact associated with the jack-up rig will be temporary, and no reasonable measures are practically available that could mitigate that impact.
- Further reduction of visual impacts will be achieved through control of lighting (MM-FF19, MM-ME20 and MM-ME21), and through revegetating the pipeline corridor once construction is complete as provided for in MM-FF05 (Site Reinstatement and Rehabilitation).
- The evaluation objective – namely to avoid and minimise adverse effects for community amenity and well-being with regard to landscape and visual effects – can be achieved without specific EMMs.

9 Noise and vibration

9.1 The issues

The issues are:

- Are there any residents or other receptors or environmental values that are likely to be significantly affected by noise or vibration from the project?
- Are adequate EMMs proposed?
- Will the Project meet the noise and vibration evaluation objective?

9.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Community amenity and greenhouse gas emissions – 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. (emphasis added)

(ii) Relevant policy

There is no SEPP regulating noise in regional Victoria. Relevant policy and guidelines include:

- EPA Publication 1411 *Noise from Industry in Regional Victoria Guideline* (NIRV)
- EPA Publication 1254 *Noise Control Guidelines*
- EPA Publication 480 *Environmental Guidelines for Major Construction Sites*, Section 5 (Noise and vibration).

The EES assessment of construction noise applied EPA Publication 1254 and Section 5 in EPA Publication 480. This EPA guidance was superseded by EPA Publication 1834 *Civil Construction, Building and Demolition Guide* in November 2020. No substantive changes have been made to the basis for determining acceptable noise levels.

The EPA published a draft of the *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* in September 2019, which is expected to apply under the EP Act 2017 when it comes into effect on 1 July 2021. The Noise and Vibration Impact Assessment (Technical Report F) states that the draft protocol would not change requirements affecting the Project.

In the absence of statutory policy or regulations relating to vibration in Victoria, the EES has drawn on British and German standards to guide safe working distances from structures.

The APGA Code of Environmental Practice provides generic guidance on relevant risks and management methods for construction, operation and decommissioning of onshore pipelines, including noise.

(iii) Relevant legislation

The EP Act 1970 and the Pipelines Act are the two primary Acts under which noise from the Project can be regulated. Noise associated with the compressor station will be regulated through the works approval and discharge licence under the EP Act 1970. Noise from onshore construction activities – and potentially noise from other operational activities – can be

regulated through the pipeline licence under the Pipelines Act. There is also scope under the OPGGS Act to regulate noise from offshore activities, while the EPBC Act could be used to regulate noisy activities affecting endangered or migratory fauna.

9.3 The EES

The EES deals with noise and vibration in Chapter 12 and in Technical Report F *Noise and Vibration Impact Assessment* prepared by AECOM dated 7 October 2020.

The EES noise investigation found background levels to be typical of rural and coastal areas, with negligible noise from transportation and industrial sources:

The ambient levels included distant and local road traffic, wildlife, insects and wind through trees. Typically, daytime levels ranged from 39 L_{Aeq} dB to 48 L_{Aeq} dB with lower levels of between 33 L_{Aeq} dB and 42 L_{Aeq} dB during the evening and night.

The EES identifies the following key sources of noise from the Project:

- Construction of the pipeline shore crossing using HDD or micro tunnelling, including the subsequent pipeline insertion. This is proposed to occur on a 24 hour basis over a period of up to 120 days to manage risks of drill hole collapse and consequent delays.
- Other onshore construction activities, which are proposed to occur from 6 am (7 am on Sunday) to 6 pm seven days a week.
- Drilling of the well 3.8 kilometres offshore could also cause noise impacts to residents, particularly during the well testing phase. All nearshore and offshore construction works would be undertaken on a 24 hour basis, seven days a week.
- Operation of the compressor station and the metering facility.

(i) Construction noise

Predictive noise modelling was used to estimate noise levels from both construction and operational activities. Predicted noise levels were then compared with acceptable limits – determined relative to baseline data – in accordance with the EPA policy guidance.

The modelling found that:

- Construction of the shore crossing facility – including the associated drilling – would generate noise marginally exceeding the recommended maximum noise level for the evening/weekend period (48 L_{Aeq} dB) at the three nearest residences on Shoreward Way, Golden Beach. The maximum predicted noise level of 49 L_{Aeq} dB would also exceed the estimated night background level of 33 L_{A90} dB at nearby residences.
- The recommended maximum noise level for the evening/weekend period would be exceeded at the closest residence on Murtnaugh Road, Longford due to construction of the metering facility, but not at the closest residence in Sandy Camp Road, Dutson Downs due to construction of the compressor station.

The predicted exceedances during evening/weekend periods, together with the obligations to implement noise reduction measures during normal working hours and to avoid audible impacts inside habitable rooms at night, will require appropriate mitigation. The EES states on page 12-8:

... applying an “inaudibility in residences” criterion at night (Mon-Sun: 10pm - 7am) is not considered practical for the prediction and measurement of noise for many dwellings over a large project area. Accordingly the outdoor night-time L_{Aeq} (15min)

noise criteria used for the noise impact assessment was developed based on maintaining existing average background level, i.e. zero decibels above the outdoor night-time measured background noise level ($L_{Aeq(15min)} = L_{A90} + 0 \text{ dB}$).

The EES indicates an intention to manage noise from construction of onshore facilities (with reference to EPA Publications 1254 and 480) through the following broad approach (at page 12-10):

Works outside of EPA normal working hours would be undertaken for program-critical activities and noisy works would be avoided outside of EPA normal working hours where possible in accordance with MM-NV01. Restrictions to the program would be balanced against the benefits of an expedited program that could reduce the overall duration of the works and the residual exposure to construction noise.

Where the construction works are required to occur outside of EPA normal working hours and where exceedances of the evening/weekend criteria have been predicted at three closest residential receptors located on Shoreward Way, Golden Beach, and at 307 Murtnaugh Road, Longford, all reasonable and feasible EMMs would be implemented to minimise the impact on the receptors, including the implementation of onsite EMMs where required.

The Proponent also intends to apply the same approach to manage and mitigate potential noise impacts on sensitive receptors during construction of the onshore pipeline, which is expected to take 6 to 9 months.

Further EMMs may be needed for 'unavoidable works' that need to occur on a 24-hour basis, which have the potential to cause night disturbance at receptors. 'Unavoidable works' are defined under EPA Publication 1834 as *"works which pose an unacceptable risk to life or property or a major traffic hazard and can be justified [including] an activity which has commenced but cannot be stopped."* Unavoidable works include all nearshore and offshore construction works, drilling of the shore crossing, hydrostatic testing of the integrity of pipeline, and commissioning of onshore facilities. The EES states at page 12-15:

In addition to the application of general good practice techniques and standard controls included within MM-NV01 during unavoidable works, the application of onsite EMMs outlined in MM-NV02 would also be implemented where required.

The noise impacts on onshore receptors from nearshore and offshore construction works will depend on the sound power levels associated with the specific equipment that is used. Compliance may be achieved if estimated sound power levels are not exceeded. If this is not the case, off-site mitigation may be needed as noise mitigation at source would not be feasible. The EES states that at page 12-14:

Accordingly, offsite noise management measures would be adopted to provide residents with works notifications, individual briefings and offers of respite where appropriate when measured or modelled levels are above background levels.

These measures may also be necessary for noise disturbance from other unavoidable works.

(ii) Operational noise

The EES sets out recommended operational noise levels for the Project that were derived in accordance with NIRV. A 3 dB reduction has been applied to the recommended operational noise levels for the gas compressor station and the metering facility to allow for the contribution of industrial noise from the existing Longford gas plants.

To determine noise propagation from the operation of the gas compressor station, two normal operating scenarios and one emergency condition scenario were modelled. Normal

operation of the shore crossing facility and metering facility were also modelled. This modelling found that one residence (414 Sandy Camp Road, Dutson Downs) would be subject to marginal noise exceedances due to operational noise from the compressor station, though only at night during emergency conditions.

The EES notes that the predicted noise levels are based on typical equipment selections. The Proponent considers that selection of lower-noise equipment during detailed design will enable compliance.

MM-NV06 specifies that:

All equipment will achieve a maximum noise level of 85 L_{Aeq} dB at one metre.

Commissioning measurements within six months of the start of commercial operations will confirm noise levels at sensitive receptors and guide any further EMMs such as acoustic insulation of equipment.

(iii) Vibration

The EES found that the separation of the Project works from nearby buildings and structures is sufficient to avoid damage due to vibration impacts from construction activities. The one exception is the proximity of the Dutson Downs Outfall Pipeline. The Proponent has agreed with Gippsland Water's requests for separation distances between the outfall pipeline and the Project works.

9.4 Submissions

No evidence was presented in submissions to contest the EES noise assessment.

Ms Hildebrandt (Submission 6) drew attention to the EES assessment that construction of the shore crossing facility as well as operation of the compressor station were likely to generate audible noise at the closest residences. She did not comment on the details of the noise assessment or the consistency with policy guidance. Rather, she stressed qualitative changes: *"Residents and visitors currently enjoy a quiet, tranquil coastal ambience so it is expected that this noise will be extremely intrusive"*.

The submission from the EPA (Submission 5) does not provide detailed comment on the EES noise assessment. It noted that the EPA had advised on the preparation of the EES through the Technical Reference Group. The submission observed that *"[e]valuation of noise, including expectations for monitoring and mitigation during construction, have developed substantially within the past few years"*, and advised that *"refined noise modelling for construction noise and vibration should be conducted"*. A clear rationale for requiring further modelling was not provided.

The EPA submission provided broad advice with respect to managing construction noise (at page 21):

EPA recommends all reasonably practicable actions to minimise construction noise and its impact should be taken from the outset of the Project, rather than being conditional upon exceedances. This should apply to regular works and unavoidable works, at any time. ...

Extensive and transparent engagement with affected communities is crucial to manage expectations and optimise the opportunities for people to cope with the noise.

EPA recommends proactive notification of all potentially impacted residents for any night-time works, regardless of the noise levels that are modelled to be produced.

The EPA drew attention to the release of EPA Publication 1834, which has now replaced previous guidance on construction related matters including noise. The EPA recommended that the CEMP should refer to this new guide.

The EPA appeared to be generally satisfied with the EMMs proposed to address construction noise, as only one specific recommendation was made:

EPA recommends that the last point of Mitigation Measure NV01 be amended to:

“Appointing an independent person to the project to approve unavoidable night work (10:00 pm to 7:00 am) applications.”

The EPA noted that:

... an ‘independent person’ for a project of this scope may not be required to be an Environmental Auditor, however they should be a person who has skills and expertise in risk/safety assessment (such as an HSE specialist), who has no prior involvement in either the planning or delivery of the project and who can make decisions free from any influence or pressure related to the delivery of the project.

In its written response to submissions, the Proponent did not accept the EPA’s recommendation of an ‘independent person’. It proposes to consult with the EPA on its development of a management plan for noise and vibration, which will be incorporated into the CEMP. In its response to the Request for Information, the Proponent stated that *“the 24 hour construction activities will need to be discussed and agreed with Wellington Shire Council and EPA”* (emphasis added).

The EPA submission does not provide a clear statement of the adequacy of the operational noise assessment. This is identified as a future task in assessing the WAA:

EPA will assess the likely acoustic impacts of the operation of the gas compressor station and associated equipment to determine whether the design can achieve compliance with the NIRV and whether proper processes are in place to ensure the adoption of best practice noise mitigation.

At the same time, the EPA’s submission did not identify any reservations regarding the assessment of operational noise. The submission endorses the Proponent’s commitment under MM-NV06 that the gas compressor station and shore crossing facility will achieve the intent of NIRV in consultation with the EPA. However, in the context of NIRV, the EPA recommended that wider stakeholder engagement be undertaken:

Mitigation Measure NV07 [require] engagement with all relevant stakeholders, in addition to EPA, when considering the management of cumulative noise impacts.

The EPA’s advice was that this would require consideration of noise associated with existing industry, as well as *“approved commercial, industrial and trade developments and consultation with council about potential future industry”*.

9.5 Discussion

The Inquiry is satisfied that an appropriate methodology has been applied in the EES to assess potential noise impacts from the construction and operational phases of the Project. The assessment is therefore sufficient for the purposes of the EE Act in evaluating the likely effects of the Project.

Notwithstanding that the EPA has stressed its future statutory role in considering the WAA, the Inquiry considers that the EPA has had an opportunity through its submission to identify any major deficiencies in the EES assessment of noise impacts. No such deficiencies have been identified.

The WAA notes that (page 49):

All equipment will be specified to have noise levels no greater than 85 dB(A) at one metre. Compressor station piping will be sized to reduce the noise created by process gas flow to an acceptable level. Short term upset events may result in noise levels which exceed normal station limits.

Noise levels at 85 dB(A) or more may require treatment with acoustic insulation following commissioning field testing. The completed compressor station will be assessed during to commissioning to verify compliance with the NIRV Maximum Recommended Noise Levels.

The Inquiry supports the proposed verification of compliance at the commissioning stage, with any necessary installation of acoustic mitigation, as provided for in MM-NV08. However it considers that a report should be prepared and provided to the EPA in relation to the compliance testing. Recommended amendments to MM-NV08 are provided below.

The Inquiry is satisfied that there is a justification for unavoidable night-time work, and feasible EMMs to address impacts are available. It also notes that there have been no submissions about night-time noise from potentially affected parties.

The Inquiry accepts that there is an appropriate role for an independent person in monitoring the noise impacts of construction, particularly unavoidable night work, but considers that this role need not extend to approving such work. An approval role would unnecessarily cut across the role of the regulators under the Pipelines Act, the OPGGS Act and the EP Act 1970. The independent person should have a role in responding to public complaints about construction noise, including:

- receiving public complaints (the independent person should be informed immediately of any complaints received by the Proponent)
- monitoring the noise impacts of construction work where required to enable a response to potential complaints
- advising both the Proponent and the regulators on whether the relevant noise EMMs have been effectively implemented.

The Inquiry has provided an appropriate recommendation below.

The Inquiry notes the EPA's view that the Proponent should consult more widely with stakeholders to identify any additional sources of industrial noise that might combine with that from the Project. The Inquiry agrees that ongoing engagement with other stakeholders by the Proponent will be appropriate to effectively manage any cumulative noise impacts from the operation of other existing sources, approved development or future industry. The Inquiry has recommended modifications to MM-NV07 (Cumulative operational noise controls) in this regard.

The Inquiry finds that the noise EMMs put forward in the EES provide a generally robust basis for managing potential noise impacts. Some qualifications are appropriate, having regard to comments from the EPA.

Clear accountabilities for noise performance, including processes to ensure the adoption of reasonably practicable measures to reduce noise, will need to be established as part of the approvals for the Project under the Pipelines Act, the EP Act 1970 and the OPGGS Act should the Project be approved. This is discussed in more detail in Chapter 20 dealing with the EMF.

Persons potentially affected by scheduled works should be informed of the works program and noisy activities in a timely manner. This is discussed in more detail in Chapter 16 dealing with social impacts.

The Inquiry accepts the EES conclusion that noise from operational and decommissioning activities is likely to be adequately managed by good practice noise management techniques and standard controls. It also accepts that vibration from Project activities is unlikely to cause human disturbance or damage to buildings or structures, subject to appropriate protections for the Dutson Downs Outfall Pipeline which have been agreed with Gippsland Water.

9.6 Conclusions and recommendations

The Inquiry concludes:

- The EES assessment of noise and vibration is sufficient for the purposes of the EE Act in evaluating the likely effects of the Project and their acceptability considering the proposed EMMs.
- The assessed noise impacts should not be an obstacle to approval of the Project, subject to appropriate accountabilities for noise performance, including for implementation of reasonably practicable noise EMMs. This can be addressed through conditions on approvals (should they be issued) or statutory EMPs requires for the onshore and offshore components of the Project.
- The EMMs proposed in the EES are broadly suitable for this purpose, subject to:
 - modification of MM-NV07 to require consultation with operators of other noise sources to manage cumulative noise impacts
 - an additional requirement to appoint an independent person to receive and advise on complaints arising from construction noise.
- The draft evaluation objective – namely to avoid and minimise adverse effects for community amenity and well-being from project noise and vibration – can be met.

The Inquiry recommends that if the Project is approved:

Include requirements in the Construction Environmental Management Plans under the Pipelines Act 2005 and the Offshore Petroleum and Greenhouse Gas Storage Act 2010 for the Proponent/operator to:

- a) **appoint an independent suitably qualified person to:**
 - **receive any public complaints about construction noise**
 - **monitoring 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**
- b) **inform the independent person promptly of any complaints received by the Proponent.**

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.

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.

10 Groundwater

10.1 The issues

The issues are:

- Will the onshore pipeline have significant effects on groundwater?
- Will construction of the shore crossing have significant effects on groundwater?
- Will the gas wells have significant effects on groundwater?
- Will the Project have significant effects on groundwater availability for consumptive users?
- Will the Project have significant effects on groundwater dependent ecosystems (GDEs)?
- Can the groundwater evaluation objective be met?

Contamination risks associated with groundwater are dealt with in Chapter 7.

10.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements include the following draft evaluation objective related to groundwater:

Catchment values and hydrology – 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.

(ii) Relevant policy and legislation

The Water Act is the primary legislation relating to water in Victoria. Its objectives include sustainable management of water resources and “*integrated management of all elements of the terrestrial phase of the water cycle*”. It establishes a licensing system for extraction of water (including surface water and groundwater).

Sustainable Water Strategies were developed by the Victorian government under the Water Act to identify threats to the reliability of supply and quality of water (including groundwater) for environmental and consumptive uses as well as to identify opportunities and priorities for protection and improvement. The Gippsland Sustainable Water Strategy 2011 states at page iv that the approach to groundwater management is based on:

... promoting sustainable use of the resource, and protecting the health of groundwater resources.

The Project is likely to require a groundwater licence under the Water Act for the offshore gas extraction because the gas extraction includes take of groundwater, and the point of extraction is less than 5.5 kilometres offshore (Document 25). A groundwater licence may also be required for extraction of water from onshore wells for construction.

The EP Act establishes the statutory framework for managing pollution and impacts on water quality. SEPP (Waters) provides the key state-wide policy framework for water quality protection in Victoria and sets environmental quality objectives for surface water and

groundwater. The SEPP is expected to be replaced by an Environmental Reference Standard for water under the EP Act 2017 (see Chapter 3.3(vii)).

10.3 The EES

The EES provides an assessment of the effects of the Project on groundwater in Chapter 13 and Technical Report G *Groundwater Impact Assessment* prepared by AECOM. (Chapter 10 and Technical Report D, which deal with contamination and ASS, also address some matters relating to groundwater).

The EES assessed the impacts of key elements of the Project on groundwater (onshore pipeline, shore crossing and gas wells), as well as overall impacts on other consumptive users of groundwater and GDEs. The EES examined the effects of the Project on groundwater levels, flow, yield and quality. Risk ratings for effects on groundwater are 'low' to 'very low'. Mitigation measures MM-GW01 to MM-GW05 address potential impacts on groundwater.

The onshore pipeline will intersect shallow groundwater associated with the Upper Aquifer System. The offshore gas extraction wells will tap into gas reserves associated with Lower Aquifer System. The operation of the gas wells will result in some deep groundwater being extracted together with the gas, with implications for groundwater pressure in the Lower Aquifer System.

(i) Onshore pipeline

The EES states that the onshore pipeline will be installed in a shallow trench approximately 2 metres deep, with minor and temporary effects on groundwater, limited to the Upper Aquifer System. The EES classifies the onshore pipeline route into three sections based on likely groundwater interactions:

- KP 0 – KP 2 (from the shore crossing to 2 kilometres west of the shore crossing). This section includes the Lake Reeve Crossing. Groundwater is expected to be encountered during trenching. Wet trenching is proposed for the two Lake Reeve Crossings (approximately 600 metres) to mitigate risks associated with ASS and potential contamination.
- KP 2 – KP 4 (near Dutson Downs). In this section, groundwater may possibly be encountered during trenching. Dry trenching with short term dewatering is proposed, with possible localised installation of the pipeline in a wet trench if necessary. Effects are expected to be temporary and localised.
- West of KP 4 to KP 20. In this section, groundwater is not expected to be encountered during trenching. No groundwater was encountered in any of the shallow boreholes installed for the EES investigation.

The EES proposes the following mitigation measures to address risks to groundwater arising from construction of the onshore pipeline:

- MM-GW01 (Trench dewatering), which requires a Dewatering Plan to be included in the statutory CEMP if more than two days of continuous dewatering is required for a trenched section
- MM-GW05 (Preferential flow), which requires use of in-trench barriers and compaction of backfilled soils to the same permeability as adjoining area, as per AS2885.1.

(ii) Shore crossing

The EES identifies the following potential impacts of the construction of the shore crossing on groundwater, which are expected to be minor and temporary:

- Short term dewatering of the shore crossing entry pit may be required during the construction phase to enable the tie in of the shore crossing pipeline with the onshore pipeline. Any impacts in terms of drawdown are expected to be minor and temporary (days to weeks).
- There could be a risk to groundwater quality if uncontrolled loss of drilling mud occurs whilst drilling the shore crossing.

The following mitigation measures are proposed in the EMF:

- MM-GW02 (Shore crossing dewatering), which requires a Dewatering Plan to be included as part of the statutory CEMP if dewatering is required continually for longer than two days
- MM-GW03 (Uncontrolled loss of drilling muds).

The EES also proposes a HDD Management Plan to address the risk of uncontrolled loss of drilling muds, but this is not reflected in the EMF. A Shore Crossing Management Plan will be developed as part of the statutory CEMP (MM-FF24). EMMs including use of non-toxic bentonite muds have been included to minimise impacts to GDEs.

(iii) Gas wells

The Golden Beach gas field is situated within the Lower Tertiary Aquifer of the Lower Aquifer System. Groundwater in the Lower Aquifer System flows from west to east across inland and offshore areas, and discharges via upwards leakage offshore. Fresh water in the Lower Aquifer System extends to approximately 30 kilometres offshore. The Lower Tertiary Aquifer is a high yielding, good quality aquifer that is regionally extensive and water is extracted from the onshore parts of this aquifer for irrigation, industry, stock and domestic uses.

The EES states that the potentiometric surface of the Lower Aquifer System (a measure of groundwater pressure) has decreased by over 50 metres since the 1960s due to groundwater extraction for consumptive purposes and offshore oil and gas development. However, this has not significantly affected water levels in the overlying Upper Aquifer System due to the presence of thick aquitards between the two aquifer systems.

Gas extraction associated with the Project is likely to lead to a further reduction in groundwater pressure with potential implications for groundwater levels. However, the EES points out that the impacts of the Project would be small compared to the existing effects of onshore groundwater extraction and offshore oil and gas development. It states at page 13-10:

The size of the Golden Beach gas field and scale of gas extraction is small (48 billion cubic feet) relative to other offshore gas and oil extraction in the Gippsland Basin (279,000 billion cubic feet extracted and 6,000 billion cubic feet remaining) ...

The total volume of groundwater extracted as 'associated water' during gas extraction will be very low (between five and 13 megalitres over the Project's 40-year life) ...

The EES estimates that the total volume of water movement would be 30 gigalitres over the 40 year life of the Project. By comparison, this is between 1 and 3 percent of the total offshore groundwater volume extracted by other offshore oil and gas projects in the Gippsland Basin

over a 40 year period, depending on the method used to calculate the total offshore groundwater extraction volume.

Further, the EES indicates that the decline in groundwater pressures would only occur during the extraction phase, not during the storage phase. This means that there would not be an ongoing decline in groundwater pressures and levels over the life of the Project. The EES states at page 13-10:

Based on GB Energy reservoir modelling to date ... maximum reductions in onshore groundwater levels would be expected around three to four years after the start of initial and final gas extraction, and subsequent recovery over the following five to 10 years. The storage phase of the Project (approximately 38 years) involves cyclical extraction and injection of gas, which would have negligible effects on onshore depressurisation of the Lower Aquifer System due to reservoir pressures maintaining an equilibrium over short timeframes (in the order of months).

The EES reported that coastal land subsidence may occur due to historical declines in groundwater pressure, with subsidence modelling by CSIRO suggesting a maximum subsidence of between 0.48 m (realistic modelled scenario) and 1.2 m (pessimistic modelled scenario) could occur by 2056. The EES contended that the Project is not expected to have a significant effect on subsidence.

The EES does not propose any EMMs to address the effects of the gas wells on groundwater.

(iv) Effects on consumptive users

The EES defines the study area for groundwater as *“the onshore portion of a 25-kilometre radius arc from the offshore well head”* (Technical Report G, page ii). There are 758 registered bores in the study area, 272 of which are licenced for consumptive uses including irrigation, industrial, dairy, commercial, domestic, and stock. However, only 22 bores potentially extract water from the Lower Aquifer System, including 11 consumptive use bores and 11 bores of unknown use.

The EES concludes that consumptive use groundwater bores in the Upper Aquifer System are unlikely to be affected by the Project. There are no registered consumptive use bores within the Upper Aquifer System within 200 metres of the onshore pipeline, where temporary minor effects on groundwater could potentially occur during construction if trench dewatering is required. There is limited hydraulic connection between the Upper Aquifer System and the Lower Aquifer System that hosts the Golden Beach gas field, therefore gas extraction is not expected to affect groundwater bores in the Upper Aquifer System.

The EES states that the groundwater bores accessing the Lower Aquifer System are deep (156 to 680 metres below ground surface) with groundwater levels approximately 0 to 6 metres below sea level. Potential drawdown effects from the Project would be a fraction of the standing water level column in the bores. Offshore gas extraction is not expected to affect groundwater quality for consumptive users who extract water from the onshore part of the Lower Aquifer System because the seawater interface is approximately 30 kilometres offshore.

The EMF includes one EMM which addresses impacts on consumptive users of groundwater (MM-GW04). MM-GW04 addresses direct effects of construction on registered bores, rather than changes in water availability.

(v) Effects on groundwater dependent ecosystems

The EES identified 27,299 hectares of potential aquatic GDEs and 35,868 hectares of potential terrestrial GDEs in the groundwater study area. The potential aquatic GDEs include Lake Coleman, Boundary Creek, Carr Creek, and Merriman Creek, which are gaining waterbodies and streams that partially rely on groundwater flows. Potential terrestrial GDEs consist of a range of vegetation communities, including lowland forest, woodlands, heathlands, scrub, floodplain reedbed, sedge wetland, deep freshwater marsh and coastal saltmarsh. Lake Reeve is not classified as a potential aquatic GDE.

These potential terrestrial and aquatic GDEs are likely to be connected to the Upper Aquifer System, which is not expected to be significantly affected by the Project. The EES does not propose any EMMs to address the effects of the Project on GDEs.

10.4 Submissions

Southern Rural Water (Document 25) submitted that:

Generally, pipeline construction on shore involves minimal and temporary disturbance to groundwater.

Southern Rural Water also submitted that existing bore infrastructure should not be disturbed during onshore pipeline construction.

The EPA (Submission 5) submitted that backfill materials should have similar or lower hydraulic conductivity than the surrounding soils in areas where the potential for soil or groundwater contamination has been identified. It raised the possibility of groundwater mounding occurring after installation of the onshore pipeline, if the backfilled trench is of lower hydraulic conductivity due to over-compaction. It noted that the EMMs proposed in MM-GW05 for reducing the formation of preferential flow pathways are also likely to mitigate against the potential for groundwater mounding but submitted that nonetheless the possibility of groundwater mounding should be accounted for.

The Proponent responded that groundwater mounding is unlikely to occur, and any groundwater mounding that were to occur would be negligible. This conclusion is based on the following mitigating factors:

- The majority of the trench will be above the water table.
- The onshore pipeline alignment will be parallel or sub-parallel to the shallow groundwater flow direction.
- The trench will be approximately 0.9 metres wide and will not be keyed into underlying lower permeability sediments.

In relation to impacts of the wells on groundwater, the EPA submitted that:

The assessment into potential impacts on groundwater appears largely appropriate. EPA notes that offshore extraction from the Lower Aquifer System proposed in this project has the potential to contribute to cumulative impacts on the Lower Aquifer System onshore, potentially resulting in declining groundwater levels.

Submissions were made that it is not appropriate for the Proponent to have regard to the proposed CarbonNet Project when considering groundwater pressure because that project is not approved and may not go ahead. The EPA submitted that:

The EES indicates that the contribution of this project to regional aquifer depressurisation is minimal and would be off-set by the proposed CarbonNet gas

sequestration project. EPA suggests that relying on a proposed project to offset the impacts of this project is inappropriate and recommends CarbonNet's potential effect be disregarded as it has not yet been approved.

Similarly, Submitter 12 submitted that:

CarbonNet's CO₂ storage project could reverse the drawdown from GB Energy's project ...if the storage project does not go ahead, GB Energy will have many more concerns with onshore falling water levels in the Latrobe aquifer system.

The Proponent responded by stating that potential cumulative impacts on groundwater together with the CarbonNet Project were considered in the EES in response to questions raised by the community at an information session.

Submissions 6 and 12 expressed concerns about aquifer depletion, loss of hydraulic pressure in the aquifer and ground movement due to subsidence. They argued that the EES fails to account for the cumulative effects of all sources of fluid extraction both offshore and onshore, including historical water and hydrocarbon extraction over decades, and expressed concern about the Proponent's conclusion that the impact of the Project will be "*small*" in the context of existing aquifer decline. Submitter 6 submitted that there is significant uncertainty about groundwater flow patterns and inter-aquifer mixing, and cited a report by Hofmann and Cartwright (2013) that found that "*inter-aquifer mixing and leakage may be significant*".

The Proponent responded that the risk of subsidence (and potential compromise of the outer dune barrier) was assessed in the EES to be 'very low'.

Submitter 6 expressed concern about potential impacts of the Project on groundwater availability for consumptive users, citing CSIRO and other reports which outlined how the Latrobe group aquifer is already stressed, reducing farmers' access to groundwater and increasing the costs for bore construction, pumps and operating costs (such as power). The submission also raised concerns about implications for town water supplies, including Sale, including risks of increasing salinisation due to offshore gas extraction.

In terms of impacts on GDEs, the EPA submitted that:

There are many groundwater dependent ecosystems (GDE) present within the project area and risks associated with cumulative depressurisation of the Lower Aquifer system on these ecosystems are largely unknown.

The EPA also noted that the EES did not consider potential impacts on subterranean GDEs (such as stygofauna), submitting that the absence of information should not be interpreted as an absence of GDEs.

The Proponent responded that no GDEs were identified as being potentially impacted by the Project other than those discussed in the EES. It cited a regional baseline stygofauna survey (Hocking et al. 2020) that found a low abundance of stygofauna compared to other state surveys. It claimed that:

Stygofauna is unlikely to occur in the Lower Aquifer System given the depth and distance along groundwater flow paths (i.e.. distance from recharge areas)

10.5 Discussion

The groundwater assessment is appropriate and addresses all relevant matters. The assessment includes desktop reviews as well as drilling and monitoring of shallow groundwater bores to relating to potential impacts of onshore works.

(i) Onshore pipeline and shore crossing

The Inquiry accepts the EES conclusion that construction of the shore crossing will present low risks to groundwater provided that the proposed mitigation measures are applied. These include MM-GW02 (Shore crossing dewatering) and MM-GW03 (uncontrolled loss of drilling muds). The Inquiry recommends that a requirement for the development of a HDD Management Plan should be added to MM-GW03, as it is not currently referenced in the EMMs.

(ii) Gas wells

Several submitters including the EPA have drawn attention to the fact that the Project impacts will be superimposed on a groundwater system that has already been significantly impacted by historical and existing development, including groundwater extraction and oil and gas development. Historical impacts have included falls in groundwater pressures and levels, and probable coastal land subsidence.

The Scoping Requirements required the EES to identify effects of the Project with reference to existing conditions, rather than natural conditions. The EES has met this requirement and highlighted the existing modified condition of the Lower Aquifer System.

The EES states the effects of the Project on groundwater will be very small compared to existing and historical development and does not identify any critical thresholds of cumulative impact that will be exceeded by the Project. The EES concludes that the additional incremental risk to groundwater arising from the Project is low.

The assessment was based on a single scenario – namely gas extraction followed by reinjection and re-extraction of gas. The effects on groundwater might be different if the storage phase of the Project does not go ahead, and gas is not reinjected into the empty basin. The EES does not provide assurance that if the gas field were to be operated for gas extraction only, risks to groundwater would remain as minor, although this is implied by the small scale of the Project.

The EES assessment of the effects of the gas wells on groundwater is also based on a cumulative impact assessment that assumes the proposed CarbonNet project (which proposes the injection and storage of greenhouse gases into the Pelican field) will be operational. Several submitters, including the EPA, queried the appropriateness of including the effects of the CarbonNet project in the EES given that it has not been approved.

The Inquiry agrees that the incremental additional effects of the Project on groundwater, based on the operational scenario presented in the EES, would be minor. It notes that these effects would be superimposed upon a groundwater system that is already significantly modified, and that critical thresholds of cumulative impact are unknown.

No EMMs are proposed in the EES in relation to the effects of gas well operation on groundwater, and it is unclear what EMMs, if any, could feasibly be applied.

Given that only a single operational scenario was assessed in the EES, approval of the Project, if granted, should include a requirement for the gas wells to be operated as described in the EES groundwater scenario. Any material change to the operating regime of the gas wells (for example extraction of gas without reinjection) should require further review and approval.

(iii) Consumptive users and groundwater dependent ecosystems

On the basis of the material before it, the Inquiry accepts the EES findings that the project presents a low risk to groundwater availability for consumptive users and GDEs. The EES identified potential aquatic and terrestrial GDEs in the groundwater study area. In response to submissions 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
- there was no indication that the Project would have a material impact on any submarine discharge areas.

(iv) Impacts of climate change

The Scoping Requirements required that appropriate climate change scenarios be considered in the assessment of likely effects on catchment values and hydrology (which includes groundwater). The EES claims (in Technical Report G at Section 6.1.2):

... climate change does not present a material change in potential adverse effects to groundwater during the operational and decommissioning phases.

The Inquiry requested further explanation of this statement, but the Proponent did not provide any additional information in its response to the Request for Further Information.

10.6 Conclusions and recommendations

The Inquiry concludes:

- Based on the information before the Inquiry, the effects on the Project on groundwater are likely to be acceptable, provided that the proposed EMMs are applied, and the gas wells are operated as described in the EES (initial period of extraction, followed by cycles of reinjection and re-extraction, which limits the extent of aquifer depressurisation).
- The aspects of the evaluation objective relating to groundwater – namely to maintain the functions and values of groundwater – can be achieved.

The Inquiry recommends that if the Project is approved:

Include a condition in the approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* 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.

Amend MM-GW03 (Uncontrolled loss of drilling muds) to include a requirement for the development of a Horizontal Direction Drilling Management Plan to further address appropriate controls to manage the impacts of drilling muds on groundwater.

11 Greenhouse gas

11.1 The issues

The key issues are:

- Is the Project consistent with statutory obligations to minimise greenhouse gas emissions?
- Is the Project consistent with the legislated target of enabling a transition to zero net greenhouse gas emissions?
- Can the greenhouse gas evaluation objective be met?

11.2 Context

The Greenhouse Gas Protocol 2003 issued by the World Business Council for Sustainable Development and the World Resources Institute (Greenhouse Protocol) distinguishes between direct and indirect greenhouse gas emissions, as set out in Table 1.

Table 1 Direct and indirect greenhouse gas emissions defined

Direct or indirect	Scope	Description
Direct	Scope 1	Greenhouse gas emissions that the reporting organisation is responsible for
Indirect	Scope 2	Greenhouse gas emissions associated with the import of energy
Indirect	Scope 3	Greenhouse gas emissions from other sources due to diverse upstream or downstream activities

Regarding Scope 3 emissions of the Project, key upstream activities involve the inputs of fuel, electricity and embodied energy in equipment and construction materials, while the main downstream activities relate to end uses of gas.

It is useful to distinguish emissions associated with construction, operation and decommissioning of the project facilities ('project emissions'), which are largely Scope 1 and Scope 2, from Scope 3 emissions associated with end uses of gas produced or stored in the Golden Beach field ('end use emissions').

A further distinction can be made in relation to the end use emissions associated with the Project:

- those produced from the end use of gas extracted from the Golden Beach field, including 'cushion gas'
- those produced from the end use of gas extracted from elsewhere and stored in the Golden Beach field during the storage phase ('third party gas').

11.3 Relevant considerations

(i) Evaluation objectives

The EES Scoping Requirements provided the following draft evaluation objective:

Community amenity and greenhouse gas emissions - 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.

The following draft evaluation objective is also of some relevance in this chapter, since the Project's greenhouse gas emissions would arise from its role in contributing to Victoria's gas supply:

Energy efficiency, security, affordability and safety - Provide for safe and cost-effective augmentation of Victoria's natural gas supply in the medium to longer term.

This second objective is considered further in Chapter 19 (Integrated Assessment).

(ii) Relevant policy

Chapter 3 outlines in brief terms:

- the Victorian Government's gas program to assess the potential for further discoveries of onshore conventional gas and offshore gas, to ensure that the State maintains an adequate and diverse supply of gas
- the Commonwealth Government's commitment under the Paris Agreement to reduce national greenhouse gas emissions by 26 to 28 per cent on 2005 levels by 2030
- the Victorian Government's target of net zero emissions by 2050, legislated in the Climate Change Act.

A key policy aim under SEPP (AQM) is to "*support Victorian measures to address the enhanced greenhouse effect*". Clauses 18 and 19 require generators of greenhouse gas emissions to manage their emissions in accordance with best practice management.

EPA Publication 824, the Protocol for Environmental Management *Greenhouse Gas Emissions and Energy Efficiency in Industry*, 2002 (Greenhouse PEM), requires that best practice, energy efficient plant and equipment is installed and effectively managed. The Greenhouse PEM states:

The approach underpinning the protocol is to ensure that individual businesses understand and manage their energy consumption and greenhouse gas emissions as part of ongoing integrated environmental management processes, systems and reporting.

Under the Greenhouse PEM, the compressor station will need to undertake audits to identify the sources and amounts of energy used, as well as opportunities to make energy savings. The focus here is effectively on Scope 1 and Scope 2 emissions.

(iii) Relevant legislation

As noted above, the Climate Change Act sets a long term emissions reduction target for the State, which is "*an amount of net zero greenhouse gas emissions by the year 2050*".

The EPA decisions on the works approval and discharge licence under the EP Act 1970 will need to accord with the Climate Change Act, as the EP Act 1970 is a scheduled Act (see Chapter 3.3(i) for more detail). Section 17 of the Climate Change Act provides directions to decision-makers responsible for decisions under scheduled Acts. The EPA will need to consider the potential impacts of climate change relevant to the decision as well as the potential contribution to the State's greenhouse gas emissions.

Further, section 17(4) makes it clear that short term and long term emissions are to be considered, as well as direct and indirect emissions. The Climate Change Act does not define

direct and indirect emissions. The Inquiry has applied the definitions in the Greenhouse Protocol. It considers that Scope 3 end use emissions are relevant considerations.

Section 17(6) of the Climate Change Act has implications for other approvals required for the Project, including the pipeline licence and the OPGGS Act approvals:

Nothing in this Part limits the power of a person making a decision or taking an action not referred to in subsection (1) to consider any potential impacts of climate change or potential contributions to the State's greenhouse gas emissions in making any other decision or taking any other action under any other Act or subordinate instrument.

The Commonwealth *National Greenhouse and Energy Reporting Act 2007* establishes the national reporting framework for facilities required to report their energy use and greenhouse gas emissions. A report is required if a facility consumes more than 100 terajoules (TJ) of energy annually or emits over 25,000 tonnes of carbon dioxide equivalent (tCO₂-e) annually. Scope 1 and Scope 2 emissions are required to be reported annually under this Act. It does not require reporting of Scope 3 emissions.

11.4 The EES

The EES deals with greenhouse gas emissions in Chapter 14 and Technical Report H *Greenhouse gas emissions* prepared by AECOM dated October 2020.

The EES assesses the likely greenhouse gas emissions from the construction, operation and decommissioning of the Project. The assessment focuses on project emissions, not end use emissions. The methodology follows the Greenhouse Protocol.

According to the EES, key sources of greenhouse gas emissions during construction would include:

- fuel consumed by onshore equipment and offshore vessels (direct Scope 1 emissions)
- loss of carbon sequestration as a result of vegetation clearance (direct Scope 1 emissions)
- embodied energy in steel and concrete used for construction (indirect Scope 3 emissions).

Total emissions of 95,320 tonnes of carbon dioxide equivalent are estimated, not taking account of potential EMMs.

Emissions during both the production and storage phases of project operations would largely be due to operations at the gas compressor station:

- direct combustion of natural gas in the compressors (direct Scope 1)
- flaring of excess gas and fugitive emissions (direct Scope 1)
- consumption of grid electricity (indirect Scope 2).

The estimated annual emissions during the production and storage phases would be 53,190 tonnes per year and 53,130 tonnes per year respectively.

As the pipeline would be left in the ground when operations cease, nearly 90 percent of the 19,480 tonnes of emissions from the decommissioning phase would be due to fuel combustion by offshore vessels.

Table 2 below (sourced from Table 6-5 in Technical Report H) summarises the estimated total emissions over the Project's life. Seventy percent of these submissions would come from the storage phase (ktCO₂-e refers to kilo-tonnes of carbon dioxide equivalent).

Table 2 Summary of total emissions over the Project life

Stage	Years	Direct	Indirect	
		Scope 1	Scope 2	Scope 3
		ktCO ₂ -e	ktCO ₂ -e	ktCO ₂ -e
Construction	NA	60.97	0.00	34.35
Operation - production phase	2	92.72	12.34	1.32
Operation - storage phase	38	1,570.92	405.84	42.18
Decommissioning	NA	18.06	0.00	1.42
Total		1,742.67	418.18	79.27

Scope 3 emissions associated with end use of gas are not included in the EES assessment of operational impacts on the basis that *“the Project is unable to influence gas demand and the end use consumption of the gas”*.

The EES does however provide an estimate emissions from the end use of project gas. It estimates 2.4 mega-tonnes of aggregate emissions from commercial and residential use of gas extracted during the two-year production period. Another 1.3 mega-tonnes could result from the eventual extraction of ‘cushion gas’ (residual gas in the reservoir after the initial production phase), prior to decommissioning of the Project. These emissions do not include those from use of third party gas stored in the Golden Beach field.

The EES assessment of greenhouse gas impacts compares the Project’s emissions with Victoria’s total emissions, estimated to be 102.2 mega-tonnes in 2018.³ On an annual basis, the Project would emit:

- 0.09 percent of Victoria’s 2018 emissions during construction activities
- 0.05 percent of Victoria’s 2018 emissions during the production and storage phases.

The total of Scope 1, 2 and 3 emissions – excluding end use emissions – over the Project’s life would be 2.2 mega-tonnes, equivalent to approximately 2.15 percent of Victoria’s 2018 annual emissions. The EES describes this contribution as *“very small”* – and as *“negligible”* in Technical Report H.

Adding the 3.7 mega-tonnes of emissions from the end use of project gas to the 2.2 mega-tonnes of Scope 1, 2 and 3 emissions associated with the construction, operation and decommissioning of the Project makes a total of 5.9 mega-tonnes of project emissions (4.0 mega-tonnes before 2050, and mega-tonnes after 2050).

Technical Report H placed these aggregate emissions in the context of the target of net zero greenhouse gas emissions in Victoria by 2050, comparing them with carbon budgets for aggregate Victorian emissions from 2017 to 2050 in the report by the Independent Expert Panel on Interim Emissions Reduction Targets for Victoria.⁴ Aggregate Victorian emissions from 2017 to 2050 would need to be limited to:

- 1.25 giga-tonnes if a global warming target of 1.5^oC is to be achievable
- 1.85 giga-tonnes for a target of 2.0^oC.

³ This Victorian estimate was sourced from 2018 data in the ‘Australian National Greenhouse Accounts: State and Territory Greenhouse Gas Inventories, 2020 report’, Australian Government Department of Industry, Science, Energy and Resources.

⁴ Independent Expert Panel ‘Interim Emissions Reduction Targets for Victoria (2021-2030)’, 2019.

The 4.0 mega-tonnes associated with the Project up to 2050 would represent 0.32 percent of the 1.5^{oC} budget and 0.22 percent of the 2^{oC} budget.

The estimated greenhouse gas emissions presented in Chapter 14 of the EES have assumed no implementation of proposed EMMs. The EMMs put forward in the EES comprise broad strategies to reduce emissions “*up to the point where the gas enters the market for onward distribution to the end user*”. No quantification is provided of the potential reductions in emissions.

The proposed EMMs largely focus on the construction phase, including to:

- reduce vegetation removal by optimising the pipeline alignment and reducing the right of way where possible
- apply energy efficiency criteria in selecting equipment, plant and machinery
- optimise the design to reduce the total quantum of materials required
- use low embodied energy materials and local materials where practicable.

The one EMM focussed on operational activities (MM-GG09) identifies the need for the compressor station to comply with the Greenhouse PEM. Although the EES does not provide further detail, Technical Report H states at page 21 that:

As the storage phase lasts for the longest period (38 years), efficiency measures to reduce emissions during this operational phase will have the largest impact over the life of the asset.

11.5 Submissions

No evidence was presented in submissions to contest the EES assessment of greenhouse gas emissions.

Six submissions (Submissions 1, 2, 3, 6, 7 and 11) challenge the Project on the basis of its contribution to the ongoing use of fossil fuels and consequences for climate change.

Submission 7 from the East Gippsland Climate Action Network provides a perspective from “*a large diverse group of people in rural eastern Victoria which has been heavily impacted by years of drought followed by extensive bushfires over the last summer*”:

We advocate for affordable green technologies right now, with benefits of job opportunities and a safer future. Four decades of reliance on gas is the outcome of the Golden Beach Gas project proceeding. Such a time frame for continued burning of fossil fuels is simply not compatible with global requirements for zero emissions.

Submission 11 put a similar view:

... it seems a bit silly to plan to continue releasing these gases beyond 2050 when most of the world expects to have reached net Zero Emissions.

These public submissions mostly stated broad concerns. Two submissions (6 and 11) identified fugitive emissions (emissions lost to the atmosphere during coal mining and gas extraction) as a specific concern. Submission 11 also recommended that:

Actual monitoring of CO₂ and methane emissions should be conducted for at least the first year of operation and subsequently if further turbines are installed.

The submission from the EPA (Submission 5) noted its obligation under the Climate Change Act and specifically that its “*assessment of the WAA will consider whether best practice management of greenhouse gas emissions and climate change risks has been adopted*”.

Note that the Inquiry did not receive a submission or advice from DELWP on the implications of the Climate Change Act and related policy for the Project.

Submission 8 from the CarbonNet Project flagged a concern that the Golden Beach Project should not compromise the future development of commercial scale carbon capture and storage of carbon dioxide within the underlying Pelican geological gas trap. The submission noted that:

CarbonNet has the potential to play an important role in decarbonisation and helping the State reach its emission reduction target of net zero by 2050.

The submission did not identify specific concerns regarding potential conflicts between the Golden Beach and CarbonNet projects.

11.6 Discussion

The Inquiry has identified three key issues arising from the EES's greenhouse assessment:

- the limitations associated with focusing on mitigating project emissions (as the EES has done)
- consistency of the Project with the long term net zero emissions target
- the role the Project can play in Victoria's transition to a net zero carbon economy, including supporting renewable energy generation.

(i) Limitations of a mitigation focus

The EES recognised the need for the Project to be implemented in accordance with the Greenhouse PEM. At the same time, no detail is provided on the actions that would be taken to comply with this PEM, other than highlighting the choice of gas-fired compressors as involving lower emissions than the alternative powered by electricity from the grid.

At a broader level, there are two key problems in focussing on obligations under the Greenhouse PEM:

- The PEM's focus on the energy efficiency of plant and equipment that is subject to approval under the EP Act (ie the compressor station) does not address the larger issue of the acceptability of the long term emissions from the Project as a whole.
- Further accountabilities will arise under the EP Act 2017 when the 2018 amendment comes into effect on 1 July 2021. In particular, the Proponent (and the EPA) will need to consider the implications of the general environmental duty, and take reasonably practicable actions to minimise risks associated with greenhouse gas emissions from the Project as a whole – not just the compressor station. These will likely evolve over time.

The Inquiry considers that, if the Project is approved, specific conditions are required on the works approval to ensure that the obligation to minimise greenhouse gas emissions from the compressor station in accordance with the Greenhouse PEM is implemented, including the obligation to implement best practicable measures to reduce greenhouse gas emissions. Similar obligations should apply under approvals under the Pipelines Act and the OPGGS Act, should they issue. This is consistent with the Climate Change Act, the sustainable development principles that apply under the Pipelines Act and the OPGGS Act, and the general environmental duty.

The analysis of greenhouse gas emissions in the EES is relatively coarse, being based on generic desktop sources and with a somewhat unclear accounting logic. For example, the potential emissions from flaring and fugitive sources could be quite large, but there is no specific commitment to monitor and reduce actual emissions. The requirement in the Greenhouse PEM for auditing and efficiency improvements may lead to this outcome for the compressor station, but specific conditions addressing these obligations should be included in the other key Project approvals.

(ii) The net zero emissions by 2050 target

The EES did not assess the compatibility of the Project with the target of net zero greenhouse gas emissions by 2050. While this was not explicitly called for by the Scoping Requirements, the Climate Change Act applies to decision making on Project approvals. The target appears to be a relevant consideration in decision making about Project approvals under both scheduled and non-scheduled Acts, though the Climate Change Act is not explicit on this.

A key difficulty in assessing the acceptability of greenhouse gas emissions associated with the Project is that the current statutory framework provides limited guidance. The long term target, decision considerations, policy objectives and guiding principles under the Climate Change Act provide broad criteria to inform decision making, but these are not particularly helpful in evaluating the consistency of the Project with these provisions. In particular, interim emissions reduction targets and Ministerial guidelines have not yet been made under the Act.

As noted above, the EES contends that the Project's contribution to greenhouse gas emissions in Victoria would be "*very small*" or "*negligible*". Such a characterisation may be reasonable in the context of the 2018 Victorian emissions, which were used as a baseline for the assessment. However the design life of 40 years places the Project in a somewhat different context. They are less acceptable in the 2050 context, when Victoria is set to achieve net zero emissions.

The Project might be deemed compatible with the target of net zero greenhouse gas emissions in Victoria by 2050 in the following circumstances:

- Natural gas continues to be supported by government policy and a legally sanctioned source of energy supply for some decades, though potentially subject to further limitations on greenhouse gas emissions.
- Emissions from the Project would be broadly similar to emissions from other potential gas development projects, while emissions from the end use of gas produced from different sources would be similar.
- Project emissions, including end use emissions, would either decline in broad alignment with interim emission reduction targets and the 2050 net zero emissions target, or be offset by greater declines in other sectors or the equivalent capture of greenhouse gases.
- It supports the transition to a net zero emissions economy (dealt with in the following section).

(iii) The Project's role within the transition to a net zero emissions economy

The Inquiry's Request for Information asked the Proponent to explain the expected demand over the Project's design life for use of the gas field as a gas storage facility, in the context of the expected transition to renewable energy production among other matters.

The Proponent responded that firstly, the capacity of the proposed storage facility to respond to fluctuating market demands on a seasonal and daily basis could help to balance variations in the capacity of both competing sources of gas supply and renewable energy flows. It therefore could be an efficient source of natural gas supply to support overall energy demands. The Proponent's response to the Inquiry's Request for Information stated:

There will be a role for some time for even modest amounts of gas to service the intermittent generation of power from gas fired power stations in support of renewable energy. The lack of wind, sun or water flow can impact renewable power generation and existing gas fired power stations may run occasionally requiring high rates of supply for short periods – ideally suited to the Facility supply.

Secondly, the Proponent stated in its response to the Inquiry's Request for Information that it may be possible to store greenhouse gases in the Golden Beach geological structure, as this is "*a proven gas trap*". Further:

Should the market move to a Hydrogen economy, it is GB Energy's view that the field could over time transition to hydrogen storage services. GB Energy is also of the view that it may be possible to store and either sell comingled, or natural gas and hydrogen separately – facilitating the move to a hydrogen economy.

As the Project has a bi-directional pipeline, and an adaptable reservoir capacity (in the storage phase), it should be technically feasible to use the Golden Beach field for greenhouse gas capture and storage or hydrogen storage in future. Further, as the Golden Beach field overlies the Pelican structure (the focus of the CarbonNet project), such storage could potentially occur in cooperation with the use of the Pelican field for same purpose.

These considerations are outside the scope of this Inquiry but do at some level give the Inquiry comfort that the Project potentially could have an active role in the transition to a low emissions future.

(iv) Overall assessment

Several significant points emerge from the discussion above.

- The regulatory and policy frameworks clearly encourage a downward trajectory in greenhouse gas emissions, but how we get to net zero emissions by 2050 is not clear.
- There is a clear policy gap in considering projects such as this against a 2050 benchmark when their short to medium term emissions are not insignificant. Greater guidance on considering the interim and long term greenhouse gas targets in relevant statutory decision making would assist. This could include interim targets and guidelines under section 18 of the Climate Change Act.
- The Climate Change Act requires consideration of direct and indirect greenhouse gas emissions. In the Inquiry's view, this would include not just the project emissions (Scope 1 and Scope 2), but also the Scope 3 emissions from the end use of both project gas and third party gas stored in the Golden Beach gas field.
- The EES does not clearly establish the extent to which the Project could mitigate its Scope 1 and Scope 2 project emissions. Conditions should be included in the key Project approvals (should they issue) to ensure this occurs.
- While some attempts have been made in the EES to quantify the Scope 3 emissions from the end use of project gas, no attempt has been made to quantify the Scope 3 emissions from the end use of third party gas.

In light of the above, it is difficult to see how the Project is consistent with the net zero emissions target by 2050 in its current form. That said, there may be pathways to reduce or offset emissions in future. Emissions and mitigation could potentially change during the operational phase of the Project, for example by switching to 'greenhouse friendly' storage options (carbon capture and storage or hydrogen for example).

The Inquiry cannot speculate on how the Project will operate or its positive or negative contribution to emissions reduction as we approach 2050. Mechanisms exist under some of the legislation under which Project approvals are required that enable the review or amendment of conditions of approval, for example to achieve continuous improvement in environmental performance or to align with changes in the policy and regulatory framework. The general environmental duty is an example. It may be appropriate to consider adjustments to the operating conditions of the Project over the 40 year life of the Project where the relevant legislation allows. However, it is beyond the scope of this Inquiry to consider whether or how this might be done.

11.7 Conclusions and recommendations

The Inquiry concludes:

- The EES provided only a preliminary outline of measures to avoid and minimise project emissions.
- Project approvals, if granted, should require minimisation of greenhouse gas emissions, monitoring and auditing of emissions, and implementation of best practicable mitigation measures to reduce greenhouse gas emissions.
- As policy and regulation changes to meet the net zero emissions target for Victoria in 2050, the Project itself may need to evolve over time to meet these new requirements.

The Inquiry recommends that if the Project is approved:

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.

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) ongoing implementation of best practice measures to mitigate greenhouse gas emissions, to the extent reasonably practicable.

Include conditions in the operational Environmental Management Plans under the *Pipelines Act 2005* and the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* and the that require:

- a) monitoring and independent auditing of greenhouse gas emissions from the relevant project infrastructure

- b) ongoing implementation of best practice measures to mitigate greenhouse gas emissions, to the extent reasonably practicable.**

12 Traffic

12.1 The issues

The issue is:

- Will the Project meet the traffic evaluation objective?

12.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Land use, socioeconomic, roads and transport – 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.

(ii) Relevant policy and legislation

The main legislation regulating amenity impacts arising from traffic associated with a development proposal is the PE Act and the Planning Scheme. Impacts are usually managed through planning permit conditions, but the Project will not require a permit by virtue of section 85 of the Pipelines Act.

Road upgrades or works planned on a road, lane, street or footpath may require road works permits under the Road Management Act and Road Safety Act. The Road Management Act sets out general principles and obligations for which the road management authority is responsible, and requires approval for any construction works that may impact or change access to a controlled road including temporary road closures.

Temporary road closures and any works to a road (such as upgrades) will require approval of the relevant road management authority (Department of Transport for declared arterial roads, and Wellington Shire Council for local roads). Oversize vehicle permits may be required from the Department of Transport for the use of oversize vehicles (B Doubles) on Longford-Loch Sport Road, Seaspray Road and Garrett's Road.

Australian Standard 1742.3 2009 – Traffic control for works on road sets out matters to be considered for a Traffic Management Plan, including traffic routing, traffic control, special vehicle requirements and over dimensional vehicles. *Austrroads – Guide to Road Design Part 4: Intersections and Crossings* provides guidance on intersection design and road access.

12.3 The EES

The EES deals with traffic impacts in Chapter 15 and Technical Report I *Traffic Impact Assessment, Golden Beach Gas Project EES* prepared by AECOM dated 7 October 2020.

The Traffic Impact Assessment assessed the capacity of the road network likely to be used by construction, operational and decommissioning vehicles, and considered the impact Project generated traffic would have on the road network including safety impacts and the need for road upgrades. It also considered the suitability of various intersections to cater for large vehicles (semi-trailers) which will be transporting long sections of pipeline to the Project site, using a swept path analysis.

The Assessment found that the primary impacts on traffic will be during the construction phase. Key findings were:

- **Road link and Intersection capacity assessment** – the Project will have negligible impact on roads and intersections in terms of congestion.
- **Intersection swept path assessment** – several intersections require improvement or management measures for a 25 metre semi-trailer to operate safely on required turns. Some vegetation removal may be required.
- **Sight distance and crests** – several intersections do not meet sight distance requirements and require management and EMMs to improve sightlines. Some road links have crests which need to be appropriately identified and managed.
- **Lighting** – most of the roads in the study area are rural and do not have lighting. This can impact road users at intersections with sight distance issues, and will need to be managed if and when vehicles are travelling in low light conditions.
- **Road network infrastructure** – Shell Back Way and Sandy Camp Road are in poor condition and will need to be upgraded with localised road or shoulder improvements before construction traffic uses those roads. Upgrades may require some vegetation removal.
- **Road closures** – up to five road closures may be required for short periods during pipeline construction. One of these roads does not have an alternative route and the closure will have moderate impacts for the affected landowners. Resident and emergency vehicle access will be maintained during all the road closures through traffic management measures.
- **Sustainable transport impacts** – the Project will have minor impacts on public transport, pedestrians and cyclists.
- **Over dimensional loads** – if over dimensional loads are required, there will be moderate impacts on the road network and a route audit will need to be undertaken prior to travel.
- **Debris and dirt on public roads** – there is potential for dirt and debris from heavy vehicles to spill out onto the road network causing moderate impacts. To ensure the safe function of the roads, dirt and dust generation needs to be managed.

During the operational phase, traffic impacts are expected to be negligible due to the relatively low existing traffic volumes and minor traffic generated during operational stage. The Assessment concluded that the use of chemical delivery trucks will need to be managed to ensure safety is maintained. Upgrade of Sandy Camp Road may be required to ensure safe and efficient operation of the transport network during the operational phase of the Project.

The Traffic Impact Assessment recommended EMMs to minimise risk during construction, which include:

- developing a Traffic Management Plan
- consulting with stakeholders on transport changes
- completing a road safety audit and an over dimensional route audit prior to construction commencing
- investigating access track alignment
- providing lighting where required to address safety issues
- providing temporary alternative detours and traffic management measures during road closures.

12.4 Submissions

Wellington Shire Council requested that the Proponent prepare a Traffic Management Plan in consultation with Council to consider the existing condition and integrity of roads impacted though the construction, operation and decommissioning of the Project, and how appropriate reinstatement (and financial security) is managed to the satisfaction of Council. It submitted that appropriate agreements should be entered into with Council to ensure that traffic management arrangements are satisfactory.

12.5 Discussion

Consistent with accepted industry methodology, the Traffic Impact Assessment identified likely routes for construction vehicles, analysed the baseline condition of the road network on those routes, identified peak construction traffic based on the 18 month construction program provided by the Proponent, assessed the impacts of construction traffic on the network and recommended EMMs to manage those impacts.

No traffic counts were undertaken by AECOM to establish baseline conditions. Instead, AECOM used VicRoads traffic volume data for Longford-Loch Sport Road, Seaspray Road and Garretts Road, and made assumptions about likely volumes on other roads based on observations during a one hour site visit, and the classification of the roads by Council (the relevant road management authority). This is considered an acceptable approach in a rural area where traffic volumes are low.

AECOM's swept path analyses for intersections along the likely construction vehicle routes was based on information provided by the Proponent about the size and dimensions of likely construction vehicles. The Project will use semi-trailers with 18.3 metre long trailers for pipeline delivery and construction. The Traffic Impact Assessment explains that the closest design vehicle in the Australian Standard is a (slightly larger) 25-metre long single articulated vehicle with a 19.7 metre long trailer. The swept path analysis is therefore conservative.

The traffic EMMs outlined in the EES accord with what the Inquiry would expect for a project of this nature, in an area like that of the study area. In particular, MM-TP01 requires a Traffic Management Plan that outlines measures to minimise disruption (to the extent practicable) to affected local land uses, traffic, car parking, on-road public transport, pedestrian and bicycle movements and existing public facilities during all stages of construction. The Traffic Management Plan must be developed in consultation with the relevant road management authorities (including Council), and must address (among other things):

- a program to monitor impacts of construction activities to all modes of active and passive transport, and measures to mitigate adverse effects
- cumulative impacts of other major projects operating concurrently in the local area
- route options for construction vehicles, recognising sensitive receptors and minimising the use of local streets where practicable
- road integrity surveillance during the construction and operation phases, comprising regular meetings with road authorities
- pavement dilapidation survey to provide a structural assessment of pavement conditions, culverts and roadside infrastructure and assets prior to construction work commencing
- restoration of pavements to existing condition or better after construction

- further assessment of intersection capability for turning movements of B-Double, oversize and over dimensional vehicles on roads that are not approved for B-Double vehicles
- temporary reduced speed limits in the vicinity of the Project construction sites, including to minimise dust generation from vehicles
- management of pipeline crossings of all sealed and unsealed roads (sealed road crossings must use trenchless construction techniques such as HDD)
- management of temporary road closures during construction, which should minimise disruption to road users, maintain access to private property and provide alternative routes
- consultation with bus operators to inform them about anticipated Project routes
- measures to ensure emergency service access is not inhibited
- measures to minimise dirt and debris on the roads from construction activities, including street sweeping, covering vehicle loads and vehicle cleaning.

A separate Traffic Management Plan is required for the decommissioning phase.

Other EMMs are:

- MM-TP02 (Stakeholder consultation on transport changes)
- MM-TP03 (Road safety audit), which requires consultation with Council
- MM-TP04 (which requires an investigation to ensure the location and detailed design of the connection between all the internal access tracks and the public roads provide safe sight distances)
- MM-TP05 (which requires a pavement strength survey before construction commences)
- MM-TOP8 (which requires road upgrades prior to construction commencing).

The Inquiry is satisfied that the EMMs are suitable to manage the potential traffic impacts of the Project, and to address Council's concerns.

12.6 Conclusions

The Panel concludes:

- Some upgrades to roads and intersections will be required, as will temporary road closures on some roads. While these will impact the local community, the affected roads and intersections generally have low traffic volumes, and the EMMs are appropriate to ensure that these impacts will be minimised.
- The evaluation objective – namely to avoid and minimise adverse effects on traffic and road infrastructure during construction, operation and decommissioning of the project – can be achieved.

Normally, the traffic management measures contemplated in the EMMs would be implemented via a planning permit. If a pipeline licence is granted, no permit is required. The EMMs will therefore need to be implemented through the pipeline licence. The Traffic Management Plan could be a sub-plan required under the statutory CEMP.

13 Land use planning

13.1 The issues

The issues are:

- Will the Project have a significant effect on the land use planning of the area?
- Will the Project meet the land use planning evaluation objective?

13.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Land use, socioeconomic, roads and transport – 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.

(ii) Relevant policy and legislation

Land use planning and development in Victoria are primarily guided and regulated by the PE Act and planning schemes. As noted in previous chapters, if a pipeline licence issues the Project will not require a planning permit by virtue of section 85 of the Pipelines Act.

13.3 The EES

The EES deals with land use and planning impacts in Chapter 16 and Technical Report J *Land Use and Planning Impact Assessment, Golden Beach Gas Project EES* prepared by AECOM dated 7 October 2020.

The Land Use and Planning Assessment defined a study area of 2.5 kilometres either side of the proposed pipeline. It assessed the regional and local context for the study area, and described relevant planning policy, strategy, planning controls and current land uses within it to enable impacts to be assessed.

The Assessment considered the implications of the Project for:

- strategic land use planning for Victoria and the Gippsland region
- existing and reasonably foreseeable land uses occupying land to be traversed by, or adjacent to the Project.

It included a review of the conclusions of other Technical Reports, a review of existing and seriously entertained policies and strategies applicable to land affected by the Project, and consideration of potential land use changes into the future. The Assessment involved stakeholder consultation with Council, affected landholders, the Technical Reference Group for the EES and the community.

The Assessment identified the main land uses within the study area, namely conservation, mixed farming, grazing, services and utilities, rural residential, industrial and roads. It assessed the risk of the Project impacting land use within the study area during the construction, operation and decommissioning phases. The risk of impact was assessed as low in all phases.

The Assessment assessed the Project for consistency with the land use planning policy framework, and concluded that the Project supports the policy direction in:

- the State Government’s Renewable Energy Action Plan (by enabling energy storage that integrates with renewable generation and assisting with the aim of delivering on renewable energy targets)
- the Gippsland Regional Growth Plan (by strengthening the energy sector subject to best practice environmental standards)
- Victoria’s Regional Statement (through supporting the Gippsland region in its delivery of natural resources).

It also concluded that the Project is consistent with and supported by existing and future land use identified in the Planning Scheme:

- Clause 21.02 (Key Issues and Influences) – by locating infrastructure underground where possible, the Project has had due regard to the policy that seeks to protect the Shire’s coastal and riverine environments from inappropriate development, particularly visible changes
- Clause 21.13 (Environment and Landscape Values) – by locating key infrastructure away from visually prominent and ecologically significant locations where possible and utilising appropriate construction methods where these locations cannot be avoided (such as the shore crossing to Ninety Mile Beach)
- Clause 21.17 (Economic Development) – by assisting to expand and diversify the regional economy and increase employment.

The Assessment highlighted the following measures that were adopted to minimise impacts on surrounding land use and development:

- selection of a pipeline alignment that avoided or reduced impacts on existing and potential future uses, including selecting a corridor that follows existing fence lines or cleared road reserves where possible through an already highly disturbed onshore footprint
- siting the pipeline alongside existing pipeline infrastructure in the region, namely the Dutson Downs ocean outfall pipeline
- identifying (in the various EES Technical Reports) suitable EMMs to mitigate amenity impacts of the construction and operation of the Project.

It concluded that the Project would have minor land use and amenity impacts during the construction phase, negligible impacts during the operation phase (except at the compressor station where impacts will be minor), and negligible impacts during the decommissioning phase. It concluded:

The Project will not result in unacceptable or long-term impacts to the existing composition of land uses within the study area and will not diminish the long-term vision for growth and land use planning in the broader Gippsland region. Rather, the Project will support a variety of state, regional and local land use objectives.

13.4 Submissions

Council (who is the responsible authority under the Planning Scheme) made general comments in its submission about mitigating the impacts of the Project and optimising economic and community outcomes. These are considered in Chapter 16.

13.5 Discussion

While the Project will inevitably impact on surrounding land uses during the construction phase, the Inquiry is satisfied that those impacts are relatively minor. Most impacts will be experienced during the construction phase, which is temporary. Once the Project enters the operational phase, impacts will be negligible other than some potential amenity impacts around the compressor station (these are discussed in other Chapters). The Inquiry is satisfied that the Project design, mainly through the pipeline alignment, has sought to avoid (where possible) or minimise impacts on surrounding land uses.

The Inquiry notes that the EES does not undertake a detailed analysis of the impacts of the Project on the key land use in the study area, namely agriculture. There is a strong theme of protecting productive agricultural land through the planning policy framework. That said, the Inquiry accepts that the Project is not likely to have a significant long term impact on agricultural land use given the construction period is relatively limited, the pipeline will be underground, and the corridor alignment tracks fence lines and road reserves and existing pipeline infrastructure.

The EES did not specify any EMMs to deal with land use planning impacts. Given the nature of the impacts the Inquiry regards this as acceptable.

In terms of written comments that the Planning Minister may wish to provide to the Pipelines Minister for consideration under section 49(g) of the Pipelines Act, the Inquiry is satisfied that the pipeline will have limited effect on the planning of the area through which it is to pass. The pipeline is broadly consistent with the relevant parts of the planning policy framework and is compatible with the surrounding land uses. On the basis of the information before the Inquiry, there are no proposed policy or land use changes that would alter this position.

13.6 Conclusions and recommendation

The Panel concludes:

- While the Project will have some amenity impacts, particularly during the construction phase, on surrounding land uses, suitable EMMs can be put in place to manage these impacts (as discussed in other Chapters).
- Subject to the EMMs being properly implemented, the Project will deliver an acceptable planning outcome.
- For the purposes of section 49(g) of the Pipelines Act, the pipeline will have limited effect on the planning of the area through which it is to pass.
- The evaluation objective – namely to avoid and minimise adverse effects on land use, local infrastructure and to neighbouring landowners during construction, operation and decommissioning of the Project – can be achieved.

The Panel recommends:

The Planning Minister's comments to the Pipelines Minister under section 49(g) of the *Pipelines Act 2005* 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 it is to pass.

14 Surface water

14.1 The issues

The issues are:

- Is construction of the onshore pipeline waterway crossings likely to have adverse effects on Lake Reeve or other waterways?
- Are there other risks to surface water quality?
- Does the Project adequately address floodplain management requirements?
- Can the surface water evaluation objective be met?

14.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements include the following draft evaluation objective related to surface water:

Catchment values and hydrology – 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.

(ii) Relevant policy and legislation

The Victorian legislative and policy framework for managing surface water is based on principles of integrated catchment management and integrated coastal zone management.

The *Victorian Waterway Management Strategy 2013* sets out an integrated waterway management framework for Victoria that addresses the following vision (at page 4):

Victoria's rivers, estuaries and wetlands are healthy and well-managed; supporting environmental, social, cultural and economic values that are able to be enjoyed by all communities.

The Strategy is implemented at the regional level through the *West Gippsland Waterway Strategy 2014-2022*, which also reflects strategic priorities established by the *West Gippsland Regional Catchment Strategy 2013-2019* (prepared by West Gippsland CMA pursuant to the *Catchment and Land Protection Act 1994*).

The *Marine and Coastal Policy 2020* establishes an additional policy overlay that applies to all land, water and biodiversity up to 5 kilometres inland from the high water mark of the sea, whether in public or private ownership. It is based on the following vision:

... a healthy, dynamic and biodiverse marine and coastal environment that is valued in its own right, and that benefits the Victorian community, now and in the future.

The *Victorian Coastal Strategy 2014* provides guidance on allowances to be made for potential sea level rise when designing facilities near coastal environments.

Beneficial uses of surface water are currently protected and managed under SEPP (Waters). SEPP (Waters) includes a requirement for all new development to meet the objectives set out in the *Urban stormwater best practice environmental management guidelines (1999)*, with the aim of minimising both the quantity of stormwater leaving the property boundary and the pollution of stormwater.

The *Victorian Floodplain Management Strategy* sets the direction for floodplain management in Victoria. It helps integrate floodplain management with the Victorian Waterway Management Strategy and the Victorian Coastal Strategy.

The Water Act makes provision for integrated management of all elements of the terrestrial phase of the water cycle. Specifically, in relation to waterways, the purpose of the Act is to provide (at section 1(j)):

... formal means for the protection and enhancement of the environmental qualities of waterways and their in-stream uses;

The Water Act requires permissions to be obtained for works on waterways and within declared floodplains. The West Gippsland CMA is the relevant authority for the Project area.

The EP Act establishes the statutory framework for managing pollution and impacts on water quality, including a system of licences and approvals for managing wastewater. SEPP (Waters) sets environmental quality objectives for surface water and groundwater.

The Marine and Coastal Act requires consent for works on Coastal Crown land, which extends up to 200 metres inland from the high water mark.

The APGA Code of Environmental Practice states (at page 46):

Watercourses are of major environmental, social and economic value to Australia ...

The pipeline industry should strive to manage watercourses in order to maximise benefits and minimise risks to the environment, community and the business.

The Code includes specific guidance in relation to watercourse crossings (at Section 7.9) and more general recommendations in relation to water quality.

14.3 The EES

The EES provides an assessment of the effects of the Project on surface water in Chapter 17 and Technical Report K *Surface Water Impact Assessment* prepared by AECOM. Risk ratings for effects on surface water are assessed as 'low' to 'very low'. The EMF includes mitigation measures MM-SW01 to MM-SW09 to address potential impacts on surface water. Some of the mitigation measures for contamination and acid sulfate soils (MM-CO02, MM-CO03, MM-CO05, MM-CO09 and MM-CO10) and flora and fauna (MM-FF17, MM-FF21, MM-FF22 and MM-FF23) are also relevant to surface water.

(i) Onshore pipeline waterway crossings

The EES states that construction of the onshore pipeline requires seven waterway crossings, but additional information subsequently provided by the Proponent (Document 11) indicates that only six waterway crossings are required. This includes two crossings of Lake Reeve, which is divided into two arms along the pipeline alignment. Only the northern arm of Lake Reeve is part of the Gippsland Lakes Ramsar site but both arms are hydraulically connected when Lake Reeve is inundated. Apart from Lake Reeve, the other waterways that would be crossed are ephemeral shallow depressions that only flow after significant rainfall events.

The EES indicates that the waterway crossings would be constructed by open trenching, which will be undertaken in accordance with the APGA Code of Environmental Practice. Construction will be undertaken when the waterways are not inundated or flowing, and timed to avoid high rainfall events. The duration of construction would be minimised and

immediately followed by reinstatement and stabilisation measures undertaken in consultation with the West Gippsland CMA. In response to the Inquiry's Request for Further Information, the Proponent stated that the construction techniques proposed are in accordance with International Erosion Control Association (IECA) (2008) *Best Practice Erosion and Sediment Control, Appendix P. Land-based Pipeline Construction*.

The EES provides more detailed information about the Lake Reeve Crossing than the other crossings because of potential direct effects on the Gippsland Lakes Ramsar site. The Lake Reeve crossing will be constructed when Lake Reeve is not inundated, using a wet trenching method to remove the need for dewatering and assist in managing ASS. A construction window of 2 to 7 days is proposed to minimise impacts on waterbirds and shorebirds. The short construction period will also assist in minimising the risk of a significant rainfall event during construction causing sediment movement and trench water dispersal. After construction, the lake surface and coastal saltmarsh communities will be reinstated to their pre-construction condition.

Works on Waterways permits from the CMA are required for all the waterway crossings. The Proponent confirmed in its response to the Inquiry's Request for Further Information (Document 11) that in addition, in the case of the Lake Reeve crossing it will also consult with the Commonwealth Department of Agriculture, Water and the Environment (MM-FF23) and DELWP/Parks Victoria as the Crown Land Manager.

The following EMMs address the effects on onshore pipeline waterway crossings:

- MM-SW02 (Trenching across waterways), which applies to all waterways including Lake Reeve
- MM-FF23 (EPBC Act Subtropical and Temperate Coastal Saltmarsh), which includes a requirement for a Subtropical and Temperate Coastal Saltmarsh Management Plan). This EMM applies to the Lake Reeve crossings only.

(ii) Other potential risks to surface water quality

The EES identifies the following other potential sources of pollution to surface waters associated with the Project:

- trench dewatering during construction
- land disturbance during construction (and decommissioning) of the compressor station, shore crossing facility and metering facility
- spills during construction and operation.

The EES states that trench dewatering will generally be avoided through the use of wet trenching in areas where high groundwater is likely to be encountered. However, dewatering of otherwise dry trenches may be required if a rainfall event occurs during pipeline construction. Trench water is not intended to be discharged into the waterway system but will be treated to remove suspended soils and then discharged to low gradient, stable grassed areas of land. It will be removed to an EPA licensed facility if it does not meet relevant discharge criteria.

Effects on surface water quality associated with construction and decommissioning of Project facilities will be managed by using diversion drains to minimise flow over disturbed areas and temporary sediment basins if necessary, to prevent runoff from being discharged into the waterway system.

Fuel and chemical leaks and spills will be managed through MM-CO09 in relation to storage and handling of hazardous materials and dangerous goods. MM-CO09 includes a requirement that refuelling or maintenance of equipment is to be conducted at least 50 metres from Ramsar wetlands and at least 20 metres (or as far away as is reasonably practical) from any other waterway.

The following EMMs address risks to surface water quality:

- MM-SW01 (Trench dewatering)
- MM-SW02 (Hazardous spill management)
- MM-SW04 (Works near waterways)
- MM-SW05 (Runoff)
- MM-SW06 (Acid sulfate soils)
- MM-SW09 (Water quality)
- MM-CO02 (Contaminated groundwater)
- MM-CO03 (Contaminant migration)
- MM-CO08 (Hydrotest water)
- MM-CO09 (Fuel and chemical leaks and spills)
- MM-CO10 (Waste management)
- MM-FF21 (Management of water discharge).

(iii) Implications in relation to floodplain management

The pipeline will pass through land in the vicinity of Lake Reeve that is subject to flooding overlays under the Wellington Planning Scheme. The pipeline will be laid underground and finished surface levels of structures and infrastructure will be designed and implemented in accordance with the CMA's Flood Guidelines and will ensure that flood flows or flood levels to neighbouring properties will not be increased.

The shore crossing facility will be situated adjacent to Lake Reeve and abutting the current Land Subject to Inundation Overlay (but not within current mapped 1 percent annual exceedance probability flood extents). Based on the proposed 40 year operational timeframe of the Project, the EES proposes that future flooding impacts could be mitigated by use of an elevated pad or retaining walls, to be considered in the detailed design.

The EES includes an EMM in relation to floodplain management – MM-SW07 (Waterway or floodplain function).

14.4 Submissions

West Gippsland CMA (Submission 13) noted that the onshore pipeline route requires seven crossings of waterways designated under the Water Act. It has no objection to these proposed waterway crossings (including the Lake Reeve crossing), noting that each of the crossings will require approval from the CMA through a Works on Waterways permit. It submitted that while most of the waterways are of limited ecological value, they are important for the natural drainage of the surrounding land.

The EPA (Submission 5) and the CMA both indicated that the proposed construction methods and EMMs for the Lake Reeve Crossing were acceptable to them. The CMA noted the importance of a short construction window for the Lake Reeve Crossing to minimise any

impacts on fauna, particularly waterbirds and shorebirds, and an expectation that following construction, the lake surface will be reinstated to its current condition.

The EPA drew attention to the importance of appropriate rehabilitation or revegetation of the pipeline corridor at waterway crossings. It submitted that the Site Rehabilitation Plans for the Project should include a commitment for at least 3 years of post-construction monitoring and maintenance along the length of the pipeline.

The EPA submitted that:

... management measures be strengthened for wet trenching to establish baseline conditions of surface water and groundwater, monitoring for deterioration in water quality and subsequent remedial action if appropriate

The EPA also submitted that the *Urban stormwater best practice environmental management guidelines* are expected to soon to be replaced by *EPA Publication 1739: Draft urban stormwater management guidance*, which will contain new stormwater flow targets (in addition to the existing water quality targets) which would be applicable to the Project.

The CMA submitted that the Shore Crossing Facility should be situated above the 2.7 metre Australian Height Datum (AHD) contour. The declared 1 percent annual exceedance probability flood level for Lake Reeve is 1.9 metres AHD but this is predicted increase to 2.7 metres AHD under future climatic conditions. Because the Project has an expected operational life of approximately 40 years, it is required to plan for future conditions.

14.5 Discussion

The Inquiry is generally satisfied that the EES presents an adequate assessment of impacts on surface water, and accepts the EES conclusion that the residual risk to surface water will be low if appropriate mitigations are applied. However, it notes a number of issues with the details of the assessment and mitigation measures, which are discussed below.

(i) The onshore pipeline

The EES states that the construction of the onshore pipeline crossings will not have any long term effects on Lake Reeve or other waterways. The CMA's submission confirms that the construction of the waterway crossings can be appropriately managed through Works on Waterways permits.

There appears to be some confusion about the number of waterway crossings required for the onshore pipeline – the EES states there are seven crossings, but the Proponent later clarified that one of the numbered crossings is the Gippsland Water outfall channel, which is not proposed to be crossed, reducing the number of crossings to six. There should be a requirement for the location of all proposed waterway crossings to be clearly mapped to the satisfaction the CMA prior to the commencement of pipeline construction.

The EMF includes a number of mitigation measures that set out specific requirements relating to Lake Reeve. The Inquiry notes that only the northern arm of Lake Reeve is part of the Gippsland Lakes Ramsar site, but the southern arm has a close hydraulic connection to the Ramsar site. The Inquiry recommends 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.

The EES proposes monitoring the waterways in the first flow event after the construction of the crossings, with further monitoring only proposed if there is acidification and sedimentation identified in the initial monitoring (MM-SW02). The EPA submitted that this is inadequate, and a minimum monitoring period of 3 years is required. In response to the Inquiry's request for Further Information, the Proponent stated that regular patrols will be undertaken in accordance with the APGA Code of Environmental Practice to identify and rectify any issues that may inadvertently impact the rehabilitated pipeline.

The Inquiry recommends that a minimum monitoring period of three years be required following construction of the waterway crossings, to ensure the stability of the waterway and effectiveness of vegetation rehabilitation, noting that this monitoring may be undertaken in conjunction with regular patrols.

(ii) Other risks to surface water quality

The Inquiry agrees with the EPA's submission that the EMMs in relation to wet trenching need strengthening, including in regard to effects on surface water quality.

The Inquiry notes that several of the EMMs relating to surface water quality (including MM-SW01, MM-SW03, MM-CO09) are based on polluted runoff or contaminants not entering the waterway system. None of these measures provide for onsite storage or retention.

MM-SW01, MM-GW01 and MM-CO03 all both address trench dewatering, and MM-GW02 addresses shore crossing dewatering. The EES appears to assume that "*low gradient stable grassed areas*" will have sufficient capacity to retain water from trench dewatering (MM-SW01). MM-GW01 and MM-GW02 state that if more than two days of continuous dewatering is required for a trenched section, a Dewatering Plan will be included in the CEMP. However, no evidence is presented in the EES to demonstrate that the capacity of the low gradient stable grassed areas is sufficient to store, infiltrate and/or evaporate the trench water generated by two days of continuous dewatering. Water balance assessments should be undertaken to determine the two-day threshold is appropriate for requiring a Dewatering Plan.

The Inquiry recommends that the Dewatering Plan should be referenced in MM-SW01 and MM-CO03 as well as MM-GW01 and MM-GW02. The Dewatering Plan should be prepared prior to the commencement of trenching, and address matters relating to both surface water and groundwater, including a water balance assessment of adequacy of proposed storage/disposal sites and measures for ensuring that excess trench water does not overflow to nearby watercourses.

Similarly, the proposed disposal of hydrotest water and produced water by land irrigation (MM-CO08 and MM-CO10) should be subject to demonstration of the capacity of the land to receive the water without overflow to nearby watercourses.

The EES appears to assume that that a setback distance of 20 metres or 50 metres is sufficient to protect adjacent waterways including Lake Reeve from hazardous spills (MM-SW03, MM-CO09), even though distance alone does not determine the speed of hydraulic transmission. The Inquiry recommends that:

- MM-SW03 and MM-CO09 be amended to require that in areas with a direct hydraulic connection to Lake Reeve, especially the shore crossing facility, provision should be made to enable hydraulic isolation of Lake Reeve (for example by bunding) in the

event of a spill, rather than relying on distance from the spill site to Lake Reeve to reduce the risk of pollution.

- In MM-CO09, the statement that *“The refuelling or maintenance of equipment, machinery and vehicles is to be conducted at least 20 m or as far away as is reasonably practical from any waterway”* should be amended to make it clear that the minimum setback is 20 metres. These activities should take place as far as reasonably practicable from waterways.

(iii) Implications in relation to floodplain management

The pipeline will extend across land that is subject to flooding overlays in the Wellington Planning Scheme but will have minimal implications for floodplain management as the pipeline will be laid underground and no change to finished surface levels is proposed.

The shore crossing facility will be situated adjacent to land covered by the Land Subject to Inundation Overlay. The Scoping Requirements required the EES surface water assessment to address climate change. The Victorian Coastal Strategy requires an allowance for sea level rise of 0.8 to be applied in coastal areas. The Inquiry recommends that the Shore Crossing Facility be required to be constructed at least 0.8 metres above the declared 1 percent annual exceedance probability flood level to allow for sea level rise, as submitted by the CMA.

The EES states that the shore crossing facility will include storage and handling of chemicals and hazardous materials, and it is important that these are stored above the flood level, particularly in such a sensitive location. The Inquiry notes that although the southern arm of Lake Reeve is not part of the Gippsland Lakes Ramsar site, it has a direct hydraulic connection to other parts of Lake Reeve, particular in times in flood.

14.6 Conclusions and recommendations

The Inquiry concludes:

- The effects of the Project on surface water are acceptable if managed with the EMMs proposed in the EES, subject to the Inquiry’s recommended amendments to the EMMs.
- The surface water aspects of the evaluation objective – namely to maintain the functions and values of aquatic environments, stream flows and water quality – can be achieved.

The Inquiry recommends that if the Project is approved:

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.

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-SW01 (Trench dewatering) and MM-CO03 (Contaminant migration) to reference the Dewatering Plan required by MM-GW01 and MM-GW02. The Dewatering Plan should:

- a) be prepared prior to the commencement of trenching (not conditional on two days of continuous dewatering)
- b) address matters relating to both surface water and groundwater, including a water balance assessment of the adequacy of proposed storage and disposal sites
- c) include measures for ensuring that excess trench water does not overflow to nearby watercourses.

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.

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-CO09 (Fuel and chemical leaks and spills) to replace the first sentence of the second clause with:

The refuelling or maintenance of equipment, machinery and vehicles is to be conducted as far away as is reasonably practical but no less than 20 metres away from any waterway.

Amend MM-SW07 (Waterways or floodplain function) to include a requirement for the shore crossing facility to be constructed a minimum of 0.8 metres above the declared 1 percent annual exceedance probability flood level (to allow for sea level change).

15 Air quality

15.1 The issues

The issues are:

- Are air emissions from the compressor station likely to pose a significant risk to the health or amenity of residents in the area?
- Have sufficient measures to mitigate air emissions from land-based construction activities been specified?
- Will the Project meet the air quality evaluation objective?

15.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft Evaluation Objective for:

Community amenity and greenhouse gas emissions – 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. (emphasis added)

Greenhouse gas emissions are dealt with separately in Chapter 11.

(ii) Relevant policy and legislation

A well-defined regulatory and policy framework for air quality exists under the EP Act 1970. This includes SEPP (AQM) and SEPP (Ambient Air Quality). The aims of SEPP (AQM) include to:

- ensure that the environmental quality objectives of SEPP (Ambient Air Quality) are met
- drive continuous improvement in air quality and achieve the cleanest air possible having regard to the social and economic development of Victoria.

SEPP (AQM) provides design criteria (as ambient ground level concentrations) which apply to stationary sources of emissions such as industrial premises.

The pipeline licence (if granted) will be the primary approval regulating dust and other air emissions from the pipeline. Emissions from construction of the offshore facilities will be regulated by approvals granted under the OPGGS Act.

The APGA Code of Environmental Practice provides generic guidance on relevant risks and management methods for construction, operation and decommissioning of onshore pipelines.

15.3 The EES

The EES deals with air quality in Chapter 10 and in Technical Report L *Air Quality Impact Assessment*, prepared by AECOM dated 7 October 2020.

The EES identifies two main air emission risks associated with the Project:

- dust generated by the pipeline construction and other earthworks, which could affect some residences located within a 350 metre buffer, as well as nearby significant ecological receptors including the Lake Reeve Ramsar area

- emissions from the gas-fired turbines and low-pressure flare at the compressor station on proximate residences, the closest of which is 2.2 kilometres away.

Dust

A semi-quantitative approach was adopted to assess the risks from dust emissions generated by construction works. The EES concludes that good practice dust suppression techniques, complemented by constraints on vehicle movements, observational monitoring and triggering of any further necessary mitigation responses, would effectively address these risks.

Emissions from the compressor station

The operation of the gas compressor station would emit various products such as nitrogen dioxide (NO₂), carbon monoxide (CO) and volatile organic compounds (VOC) (benzene and formaldehyde). Quantitative modelling of the dispersion of these emissions was undertaken for three scenarios:

- **Scenario 1:** production phase emissions – during initial gas withdrawal from the Golden Beach gas field, using one gas turbine
- **Scenario 2:** typical storage phase emissions – operating at partial capacity (one gas turbine operating for 77 percent of the time, four turbines operating for 3 percent of the time, no turbine or flare for 20 percent of the time)
- **Scenario 3:** peak storage phase emissions – continuous operation of all four gas turbines and the low-pressure flare during withdrawal/injection of gas to/from the gas field. This scenario is expected to occur only 3 percent of operational time and represents a worst case.

In the absence of local air quality monitoring data, the modelling used conservative assumptions about the background air quality. This approach acknowledged that emissions from both the Longford gas plants and from the surrounding rural environment would affect current air quality, and hence would have cumulative impacts on sensitive receptors.

The air quality modelling considered the use of both low (15 ppm) and standard (38 ppm) NO_x ignition systems. The modelling indicates that a works approval is triggered because the emission threshold for NO_x would be exceeded during both the production phase and peak storage operations if a standard NO_x ignition system was used. A further trigger applies since emissions of benzene (a Class 3 indicator under the SEPP (AQM)) are predicted.

The modelling predicted compliance with all relevant SEPP (AQM) criteria. The EES states at page 18-12, 13 that:

All modelled scenarios demonstrated there are no exceedances of SEPP (AQM) design criteria at any of the sensitive receptor locations, with all cumulative predicted concentrations well below the design criteria for compressors with low or standard NO_x ignition systems. The quantitative air dispersion assessment demonstrates that impacts from the combustion emissions of the compressor station are unlikely to have regional or state significant effects on the air environment.

Compliance is predicted with respect to both the current SEPP (AQM) criteria and the proposed Environment Reference Standards objective to be made under the EP Act 2017, even when a conservative allowance is made for background concentrations.

The EPA will consider the adequacy of the air quality modelling for the compressor station as part of its assessment of the WAA. The EPA will also consider the facility design, including whether the technology choice, stack heights and air pollutant discharge rates are consistent

with the best practice requirement of SEPP (AQM). It has not been feasible for this Inquiry to draw specific conclusions about these aspects on the information before it.

15.4 Submissions

Ms McCubbin (Submission 11) had concerns regarding the limited availability of background air quality data, in particular the EES reliance on EPA monitoring from Traralgon and Alphington to characterise the background air quality. She called for 12 months of baseline monitoring in the local area, having regard to the contributions of emissions from both the Longford gas plant and smoke from bushfires and planned burns.

The submission from EPA (Submission 5) noted that the EPA had advised on the preparation of the EES through the Technical Reference Group. The submission stated that the EPA has reviewed Technical Report L but did not provide detailed comment on the EES assessment of potential air quality impacts. Rather the submission briefly outlines the air quality aspects that the EPA will consider for the WAA (at page 25):

EPA will assess the likely air impact, including the completeness of air pollutant indicators, of the operation of the gas compressor station and low-pressure flare, to determine whether the design can achieve compliance with SEPP (AQM).

In addition to the above, this includes:

- The applied background concentrations of ambient air quality and prevailing meteorology (allowing for other sources);
- The contribution of the gas compressor station and low-pressure flare emissions relative to background conditions; and
- Comparing the compressor gas station design and operation with international best practice, where possible.

15.5 Discussion

While the Inquiry notes Ms McCubbin's concerns, it considers that a conservative approach to characterising background air quality has been adopted in the EES. Extended baseline monitoring is not warranted. This would not be a proportionate requirement considering both the predicted levels of emissions from the compressor station and predicted concentrations of indicators at receptors.

In terms of the predictive modelling in the EES, the Inquiry notes that the AERMOD model used for atmospheric dispersion modelling of emissions from the compressor station is endorsed by the EPA. Appropriate proxy meteorological data has been used as an input to the modelling.

In light of the separation distance of the offshore construction works, any emissions from marine vessels and other equipment would not affect onshore receptors.

The Inquiry notes that the EPA's statutory responsibility to consider the WAA has meant that it has only been able to provide "*preliminary observations*" on the adequacy of the EES assessment of air quality (and other matters). At the same time, the Inquiry considers that the EPA has had an opportunity to identify any critical deficiencies in the EES documentation regarding air quality. It is reasonable to infer that the EPA has not identified any critical deficiencies of which the Inquiry should be appraised.

15.6 Conclusions

The Inquiry concludes:

- The EES has provided an adequate assessment of potential air quality impacts.
- Dust emissions generated by construction works could have localised air quality impacts but are likely to be effectively managed by proposed EMMs, provided they are properly implemented.
- Operation of the compressor station is unlikely to have regionally or State significant effects on the air environment, subject to appropriate requirements for facility design and operational management to be set under the EP Act 1970.
- Atmospheric emissions from offshore activities are unlikely to have significant effects on air quality.
- Overall, the Project's proposed siting and concept design has appropriately avoided and minimised potential air quality impacts.
- The evaluation objective – namely to avoid or minimise adverse effects for community amenity and well-being from air emissions – can be met.

16 Social impact

The issue is:

- Will the Project meet the social impact evaluation objective?

16.1 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Land use, socioeconomic, roads and transport – 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.

(ii) Relevant legislation

The Pipelines Act requires the Pipelines Minister to consider (among other things) the potential social, economic and safety impacts of the proposed pipeline and the benefit of the proposed pipeline to Victoria relative to its potential impacts.

16.2 The EES

The EES deals with social impacts in Chapter 19 and Technical Report M *Social Impact Assessment, Golden Beach Gas Project* prepared by Public Place dated October 2020.

The Golden Beach settlement is north-east of the Project, with the closest point being about 160 metres from the Project area. This part of Golden Beach is sparsely populated, and there are only five dwellings within 500 metres of the Project. Most dwellings in Golden Beach are north of Marine Drive, around 1.5 kilometres north of the Project. The commercial centre is around 3.8 kilometres north of the Project.

The Project traverses 109 land holdings, 47 of which are privately owned. Large parts of the Ninety Mile Beach subdivision (along the coast) have been deemed unsuitable for development, including all lots traversed by the Project. Development of these lots is now prohibited. Council has implemented a voluntary buyback scheme in relation to the old and inappropriate subdivision, and now owns 20 of the lots directly affected by the Project. Central Gippsland Region Water Corporation owns another 27 lots in the old and inappropriate subdivision which were purchased to enable construction and maintenance of the Dutson Downs outfall pipeline.

The Ratepayers Association holds the annual Golden Beach End of Summer Surf Festival each Easter. The festival is a three day event including a hole in one competition at the Golden Beach Golf Club, an Easter egg hunt, a Saturday market and the Golden Beach Surf Fishing Competition. It has been running annually for over 60 years. Festival attendance ranges from 2,000 to 4,000 people, and entries to the fishing competition range from 700 to 900.

The Social Impact Assessment analyses the impacts of the Project during the construction, operation and decommissioning phases. Affected landholders were contacted and given the opportunity to outline any concerns they have about the Project. Only one landholder took up this opportunity.

The Social Impact Assessment found that most impacts are likely to be felt during the construction phase. Impacts can arise from:

- occupation of land (alienating current beneficial uses)
- alterations to amenity (potentially interfering with current beneficial uses)
- changes to socioeconomic conditions.

The Assessment concluded:

Due to its location and the nature of the land it traverses, the Project's potential to generate negative social impacts is limited. Notwithstanding, a number of minor negative social impacts would arise in association with the Project (see Table E-1).

While the impacts identified in Table E-1 may be considered acceptable, it would be possible to mitigate the impacts and this should occur where it does not place unreasonable demands on the proponent. Table E-2 includes potential EMMs. If these are implemented, the significance of the impacts outlined in Table E-1 would be reduced.

The Assessment found that the five dwellings and two campgrounds located close to the Project are likely to experience intermittent construction noise, night-time lighting and traffic which may be a source of minor irritation. Outside of peak periods (Christmas through January, as well as Easter), campers could likely make use of an alternative campground along Shoreline Drive but local alternatives may not be possible in the peak periods. The Assessment found that construction has the potential to reduce the enjoyment of these holiday makers.

Other findings were:

- Depending on scheduling, construction has the potential to interfere with the Golden Beach End of Summer Surf Festival, and may create tensions in the local community.
- Offshore drilling (likely to be completed within 90 to 120 days) would likely occur outside peak holiday periods and would have negligible impacts on visitors to and users of Golden Beach.
- The shore crossing construction would have negligible impact on users of the Gippsland Lakes National Park, as the main disturbance and interference with access would only be in place for between 2 and 7 days. The completed shore crossing facility will not be visible from dwellings, campsites or the road.
- The amenity of the Golden Beach town centre and Ninety Mile Beach would be unaffected by construction (presumably due to distance).
- Explosions, or other extreme failures of the proposed pipeline infrastructure are possible, but the likelihood is very low. In the short term, some individuals may avoid locations near the pipeline. However, concerns would diminish over time.

The EES also considered offshore impacts, including on fisheries in the area. Fishing intensity in the area is low. Recreational fishing and boating are largely confined to the Gippsland Lakes and nearshore coastal waters, with some surf fishing along the nearby beaches. Little to no commercial shipping activity occurs through the Project area.

Up to two commercial fisheries would potentially be affected, although impacts were assessed as minor due to the temporary nature of the drilling mud plumes, the rapid settling of cuttings and fishing being excluded within the 500-metre petroleum safety zone around the mobile offshore drilling unit.

The 500-metre petroleum safety zone will remain around the sub-sea wellheads during operation of the Project (up to 40 years). The Inquiry asked the Proponent whether impacts

of this on fisheries had been considered. The Proponent indicated that the fishery licencing authorities had been consulted in relation to the Project and had not raised any concerns.

The Social Impact Assessment recommended measures to mitigate the (albeit minor) negative impacts:

- to the extent practicable:
 - avoid onshore construction near the beach from Christmas to the end of January and during the festival, and/or program noisy works outside of these periods
 - restrict or avoid offshore construction during the festival
- make construction programming information available to potentially affected stakeholders including nearby residents and potential users of campsites C6 and C7
- consult with directly affected landholders to ensure impacts are minimised and/or that compensation takes into account the specific impacts on each landholder
- develop Property Management Plans in consultation with landholders and occupiers of affected properties (which are currently used) to minimise physical impacts during the construction and reinstatement works
- improve community benefits associated with generation of local employment through development of a recruitment plan which seeks to maximise local employment
- resolve detailed arrangements with respect to the proposed Community Benefit Fund in partnership with relevant community stakeholders.

These are largely reflected in MM-SE01 to MM-SE05 in the EMF.

16.3 Submissions

Council requested that the Proponent continue to engage with Council and the community on the establishment and operation of a Community Fund, so that Project benefits flow back to the local community. It also requested that the Proponent continue to work with Council to maximise local workforce and procurement opportunities during construction and operation:

Given that Wellington Shire already has a well-developed oil and gas industry, its business community is well placed to support delivery and operation of the Project. Measures such as use of local content clauses in contract tenders should be used as far as practicable. Council would also encourage GB Energy to consider local training and cadetship opportunities in constructing and operating the Project.

Ms Hildebrandt's submission raised concerns in relation to the social impacts of yet another project in the region:

The citizens of Gippsland are fed up with having to defend their rights to live peacefully in a clean and healthy environment; to defend their homes, businesses, health and wellbeing from the predation of alien companies only interested in profit for themselves with absolutely no interest in local people. We Gippslanders are under constant onslaught from inappropriate developments, such the Hazelwood mine fire, onshore gas, a gold licence stretching from Toongabbie to the high country, the Kalbar mine, and now this.

She referred to the local residents and farming community being "*haunted by the spectre of renewed onshore gas exploration*" now that the moratorium on fracking has been lifted, and submitted that "*affected residents and farmers are in an ongoing state of anxiety and psychological distress*". She submitted:

The endless voicing of objections and submission-writing takes a heavy toll on people's mental health, exacerbated by the Covid19 pandemic. "Rural Australians experience a range of health inequities—including higher rates of suicide—when

compared to the general population” [source provided]. Yet, mental health impacts are never factored into decision-making. The exponential effect on health and morale inside rural communities, already classified as disadvantaged, exceeds ANY perceived economic benefits. It is extremely galling that any benefits are inevitably bestowed on others living far away, while all the environmental and socioeconomic disbenefits fall on country people.

Other submitters raised concerns about the approval of another fossil fuel project and impacts on intergenerational equity, given the state of the climate. For example, the East Gippsland Climate Action Network submitted:

There is no place for fossil fuels - COAL, OIL OR GAS - in our economy. We must transition to renewables and a low carbon economy as a matter of extreme urgency. If we are tardy in our transition to renewable energy, the costs will be many fold.

Submitter 1 stated:

Our planet is undergoing significant changes as a result of our use of fossil fuels, such as the gas you propose to mine off Golden Beach. It is no longer viable to draw gas from the ground, as continued use of fossil fuels will result in the destruction of the ecosystems that we humans rely on for a comfortable existence and my future children will rely on to enjoy the same quality of life that you and I have. I am strongly opposed to this project and would request that you not proceed.

Submitter 2 stated:

We urgently must transition away from all fossil fuel projects to protect our natural world and mitigate further warming. Currently we are on track to 3 degree heating which will see our society become possibly uninhabitable. State Government should be investing only in renewables, and aiming for more ambitious targets and greenhouse gas reduction,

16.4 Discussion

The main ways in which an infrastructure project can generate direct social impacts are:

- causing changes to land occupation, land severance, or changes to amenity which affect social activity
- changing the social profile of a community.

Infrastructure projects can also have positive social benefits by creating jobs in the local region, or stimulating the local or regional economy.

The Inquiry agrees with the findings in the EES that social impacts arising from land occupation and land severance are likely to be negligible. To the extent that the pipeline alignment traverses smaller residential blocks, those blocks are in the Ninety Mile Beach old and inappropriate subdivision and cannot be developed. Much of that land is now owned by either Council or Gippsland Water. Impacts are therefore expected to be minimal. The pipeline alignment crossing farmland has been carefully selected to run along fence lines and/or existing underground pipe infrastructure where practicable, and once the pipe is installed, normal farming operations can resume with little interference from the pipe.

As outlined in other chapters in this report, there will be amenity impacts at nearby dwellings and for beach users during construction, but those impacts are considered minor and manageable for the reasons set out in those chapters. The Inquiry supports the recommendations of the Social Impact Assessment to avoid construction during holiday periods or the period of the Golden Beach End of Summer Surf Festival, as this will further

mitigate construction impacts on the local community. Some strengthening of MM-SE04 is recommended in this regard.

The Inquiry agrees that a Community and Stakeholder Engagement Management Plan and Property Management Plans will be useful tools in managing the minor impacts that will potentially be felt during the construction and operation of the Project. These plans will provide a formal structure for the Proponent to engage with the community and relevant stakeholders, including Council. MM-SE01 and MM-SE03 already provide for these plans to be prepared and implemented, although the Inquiry considers that the Community Engagement and Stakeholder Plan (MM-SE01) should be developed in consultation with Council.

The Inquiry supports MM-SE02 (relating to the complaints management process), subject to minor adjustments to require the Project to take prompt action in response to complaints. It also supports MM-SE05, providing for a recruitment plan that seeks to maximise local employment and development of a Community Benefit Fund. It considers that MM-SE05 addresses the concerns of Council.

Broader social impacts, such as community concern about the state of the climate and the fatigue felt by some parts of the community in defending the local environment against what it perceives as damaging or inappropriate development or industrialisation, are more difficult to address. These concerns are deeply and genuinely felt, causing real distress for some in the community. However these are not impacts that are directly generated by this Project. It would not be appropriate (or even possible) to seek that this Project try to mitigate those broader impacts.

16.5 Conclusions and recommendations

The Inquiry concludes:

- Subject to proper implementation of the EMMs, the Project will have an acceptable social impact.
- The Inquiry supports the measures recommended in the Social Impact Assessment, and has recommended minor changes to the EMMs accordingly.
- The evaluation objective – namely to avoid and minimise adverse effects on social fabric of the community during construction, operation and decommissioning of the Project – can be achieved.

The Inquiry recommends that if the Project is approved:

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.

Replace MM-SE04 (construction scheduling) with the following:

To the extent practicable, avoid offshore construction and onshore 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).

Consult with the organisers of the Golden Beach End of Summer Surf Festival if scheduling offshore construction or onshore construction in the vicinity of Golden Beach within a month prior to the Festival.

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).

17 Historic heritage

17.1 The issues

The issue is:

- Will the Project meet the heritage evaluation objective?

17.2 Relevant considerations

(i) Evaluation objective

The EES Scoping Requirements provided the following draft evaluation objective:

Cultural heritage – Avoid or minimise adverse effects on Aboriginal and historic cultural heritage and associated values.

(ii) Relevant policy and legislation

The protection and conservation of places and objects of State heritage significance (post-contact heritage) is regulated under the *Heritage Act 2017*. Indigenous cultural heritage is regulated and protected under the *Aboriginal Heritage Act 2006* – see Chapter 5.1.

Two registers are maintained under the Heritage Act – the Victorian Heritage Register and the Victorian Heritage Inventory. Approvals and consents are required from Heritage Victoria where subdivision, physical works or ground disturbance are proposed which might affect a place or object registered on either of the registers.

Places and buildings of local heritage significance are regulated and protected under planning schemes, through the application of a Heritage Overlay. A planning permit is generally required to demolish or carry out works on land subject to the Heritage Overlay.

The APGA Code of Environmental Practice states:

Pipeline activities should apply all reasonable and practical measures to avoid disturbing natural and built heritage and work in partnership with relevant stakeholders to achieve this.

The Code recognises the importance of heritage surveys to identify areas of potential heritage impact, and management options to avoid and minimise impacts.

17.3 The EES

The EES deals with post-contact heritage in Chapter 20 and Technical Report N *Historic Heritage Impact Assessment Golden Beach Gas Project* prepared by AECOM dated 7 October 2020.

The historic heritage impact assessment conducted a desktop review of the heritage registers under the Heritage Act and the Heritage Overlays under the Wellington Planning Scheme for an area within 10 kilometres of the Project area. It found:

- one place listed on the Victorian Heritage Register
- eleven places listed on the Victorian Heritage Inventory
- two places protected under the Heritage Overlay.

The closest recorded heritage place (the Esso Ruin at 154 Garretts Road, Longford) is more than one kilometre from both the onshore and offshore construction works and would not be impacted by the Project.

The Assessment also found that encountering an unidentified heritage place or object is unlikely given the historic land use of the area is low-intensity agricultural activities. Nevertheless, it recommended that an unexpected finds protocol be integrated into the CEMP as a contingency measure.

Specialist maritime archaeologists, Cosmos Archaeology, were retained to undertake a maritime archaeology search in the Project area using side scan sonar data and magnetometer results from a marine geophysical survey. The survey found no shipwrecks within the offshore study area. The closest known shipwreck is the 'Tricolor' located about 1.7 kilometres south of the proposed shore crossing. The assessment concluded that the likelihood of impact to culturally significant maritime archaeology is very low, if not remote. Nevertheless, as for land-based finds, the Assessment recommended an unexpected maritime archaeology finds protocol be integrated into the Environment Plan(s) for offshore activities required under the OPGGS Act.

17.4 Submissions

No submissions raised concerns in relation to post-contact heritage.

17.5 Discussion

The Inquiry is satisfied that impacts on post-contact heritage are unlikely. The onshore heritage assessment consisted largely of desktop studies and targeted consultation with Council, landowners and Jem Archaeology (who undertook the Aboriginal cultural heritage assessment and prepared the CHMP). This is considered appropriate given the historic land use in the area, and that an archaeological survey had already been conducted in relation to Aboriginal cultural heritage. The maritime assessment was based on an archaeological survey. No places or shipwrecks of heritage significance were found within the Project area, or within some distance of it.

Protocols are recommended for inclusion in the statutory EMPs for both onshore and offshore works that will enable unexpected heritage finds to be appropriately managed (MM-HH01 and MM-HH02).

A protocol for onshore works is contained in Appendix C of the historic heritage impact assessment. The Inquiry has reviewed the protocol, and is satisfied that it is appropriate and consistent with relevant policy and legislative requirements, and consistent with MM-HH01.

Annexure A of the Cosmos report appears to contain a sample protocol for maritime finds. The Inquiry has reviewed the sample protocol, and considers that it provides a suitable basis for developing a Project specific protocol that would satisfy MM-HH02 and relevant legislative and policy requirements.

17.6 Conclusions

The Panel concludes:

- The Project is unlikely to impact post-contact heritage.

- 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. This is provided for in MM-HH01 and MM-HH02.
- The protocols in Appendix C of the historic heritage impact assessment and Annex A of the Cosmos Report provide a suitable basis for the protocols, consistent with MM-HH01 and MM-HH02, and relevant legislative and policy requirements.
- The evaluation objective – namely that the Project should avoid or minimise adverse effects on historic cultural heritage and associated values – can be met.

18 Safety, hazard and risk

The EES notes that the consideration of Project risks to public safety and nearby operations is distinct from Project risks to the environment more generally.

The key issues are:

- Would the construction, operation and decommissioning of the Project pose an acceptable level of risk for public safety and nearby operations, including in the context of external threats such as bushfires?
- Will the Project meet the safety, hazard and risk evaluation objective?

18.1 Relevant considerations

(i) Evaluation objective

The following draft evaluation objective in the scoping requirements addresses safety, in part:

Energy efficiency, security, affordability and safety – Provide for safe and cost-effective augmentation of Victoria's natural gas supply in the medium to longer term.

(ii) Relevant policy and legislation

The basic framework for project approvals including safety aspects was summarised in Chapter 1.2 of this report. Some further detail follows here.

Offshore works

Safety aspects of the offshore works would be regulated under the OPGGS Act and OPGGS Regulations. Safety cases, well operation management plans and associated safety management plans would need to be developed and approved before works commence. These safety requirements are regulated by the Commonwealth's National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The OPGGS Regulations require that a safety case addresses risks associated with potential emergency events as well as planned activities. It must:

- identify all hazards having the potential to cause a major accident event, assess associated risks, and specify control measures needed to reduce the risks to a level that is 'as low as reasonably practicable' (ALARP)
- contain a safety management system providing for all expected activities, including for the ongoing and systematic identification of health and safety hazards.

NOPSEMA has published extensive guidance on the preparation of safety cases.⁵ This guidance is not referenced in the preliminary assessment of safety risks in the EES.

Onshore works

Safety aspects of the onshore works, including the shore crossing, would be regulated through the pipeline licence. Under section 124 of the Pipelines Act, the licensee has duties for safety and environment protection. They must manage pipeline operations to minimise, as far as is reasonably practicable, hazards and risks to the safety of the public and to the environment. Section 126 requires that before carrying out any pipeline operation, a safety management

⁵ <https://www.nopsema.gov.au/safety/safety-case/safety-case-guidance-notes/>

plan must be submitted to and accepted by Energy Safe Victoria. The Act, supported by the Pipelines Regulations 2017, also requires that pipelines are constructed and operated in accordance with AS2885.

The EES cites the need for the onshore pipeline to comply with AS2885.

The APGA Code of Environmental Practice also highlights the need for compliance with AS2885, while providing generic guidance on relevant risks and management methods for construction, operation and decommissioning of onshore pipelines.

18.2 The EES

The EES deals with safety, hazard and risk in Chapter 21 and in Technical Report O *Safety, hazard and risk* prepared by the Proponent.

The EES assesses the safety, hazard and risks of the Project on the basis of a preliminary hazard identification (HAZID) workshop and a preliminary design Safety Management Study, both conducted by project team members. The HAZID workshop considered both offshore and onshore works to determine the potential safety and project planning issues associated with construction, operation and decommissioning. The Safety Management Study focussed on the onshore pipeline system as part of the front-end engineering design. It conformed with AS2885, including its risk assessment process.

The EES concluded that offshore activities would not pose a significant risk to the safety of the public or other nearby operations, due to factors including separation distance, the requirement for a well operations management plan, and stabilisation of the sub-sea pipeline.

In contrast, the EES identifies several credible hazards and risks associated with the onshore works that would need to be managed in accordance with the ALARP criterion (at page 21-6):

- potential loss of containment of hydrocarbons from an external threat and impact to the onshore pipeline and facilities with the potential for a gas release (or fire) that could fatally injure a member of the public
- potential for a road accident involving a member of the public due to an increase in traffic during construction
- potential for bushfires because of Project construction and operations.

The first of these risks would be mitigated by several factors, including the separation distance from dwellings, underground placement of the pipeline and the need for pipeline construction and operation in accordance with AS2885, as well as specific EMMs. Several emergency response plans would be required as part of project implementation, including shutdown procedures and contingency planning for foreseeable incidents.

The EES recognises the significance of road accident and bushfire risks, and that they will require effective mitigation. A traffic management plan is to be developed (see Chapter 12), while the management of bushfire risk will involve setting an appropriate buffer distance for each facility, clearing each site of vegetation, and documenting required fire protections systems as part of the EMP.

Various EMMs would be tied to the safety management plans or regulatory requirements outlined above.

The EES concludes at page 21-9 that:

Based on the results from the risk assessments undertaken, the drilling and offshore construction and operations of the offshore infrastructure, onshore pipeline operation and all construction activities represent an acceptably low risk to the local community and general public.

The EES identifies the gas pipeline's proximity to the Dutson Downs ocean outfall pipeline and waste treatment facilities, as well as to the Esso pipelines, as the only specific risks relating to the interface of Project infrastructure and nearby facilities that will need attention. Design and construction protocols are expected to avoid potential difficulties.

18.3 Submissions

No submissions addressed risks to public safety or nearby operations.

18.4 Discussion

The assessment of safety-related hazards and risks in the EES has some limitations:

- it was largely conducted at an early stage of project design
- it was conducted by a project team without external stakeholder involvement
- the matrix framework for evaluating risk consequences gives ratings to categories of consequences that are strongly dependent on the Proponent's risk priorities (see Table 4-1 in Technical Report O).

Notwithstanding these reservations about the risk assessment, the various regulatory requirements applying to safety aspects of the Project would ensure a high level of accountability during project implementation. The Proponent/operator will be obliged to undertake further safety assessments, as well as to monitor and manage hazards and risks within an ongoing management system. Both NOPSEMA and Energy Safe Victoria have focussed mandates for regulatory oversight.

While construction traffic and bushfire-related risks will need further attention, the Inquiry considers that these unavoidable risks can be effectively managed. Construction traffic will be managed through the Traffic Management Plan and the other EMMs relating to traffic (see Chapter 12 for more detail).

18.5 Conclusions

The Panel concludes:

- The construction, operation and decommissioning of the Project would pose an acceptable level of risk for public safety and nearby operations, subject to the proposed EMMs and the applicable regulatory regime.
- The evaluation objective – namely to provide for safe augmentation of Victoria's natural gas supply – can be achieved.

PART C: INTEGRATED ASSESSMENT

19 Integrated assessment

19.1 The legislative and policy context

(i) Environment Effects Act

A key part of the EES process is to undertake an integrated assessment of a project's environmental, social and economic impacts. This is reflected in the EES Guidelines, which state at page 3 (emphasis added):

The general objective of the assessment process is:

- To provide for the transparent, integrated and timely assessment of the environmental effects of projects capable of having a significant effect on the environment.

It is also reflected in the Scoping Requirements, and the inter-related nature of the draft evaluation objectives for the Project.

(ii) Climate Change Act

The Climate Change Act expressly requires climate change considerations to be taken into account in assessing the WAA for the compressor station. It encourages climate change considerations to be taken into account in decisions relating to other Project approvals. See Chapters 3.3(i) and 11 for more detail.

(iii) Sustainable development principles

Several of the Acts under which project approvals are required call for an integrated assessment having regard to principles of sustainable development. Particularly relevant principles include (paraphrased):

- decision-making should be based on an integrated assessment of long and short term environmental, social and economic considerations
- individual and community well-being and welfare should be enhanced by following a path of economic development that safeguards the welfare of future generations
- intergenerational equity
- recognition of the need to develop a strong, growing, diversified and internationally competitive economy that can enhance the capacity for environment protection
- an evidence based and risk based approach to decision-making
- the precautionary principle (if there are threats of serious or irreversible environmental and other damage, lack of full certainty should not be used as a reason for postponing measures to prevent environmental or other degradation)
- development should make a positive contribution to regional development and respect the aspirations of the community and of Indigenous peoples
- decisions and actions should provide for community involvement in issues that affect them.

See Chapter 3.4 for more detail.

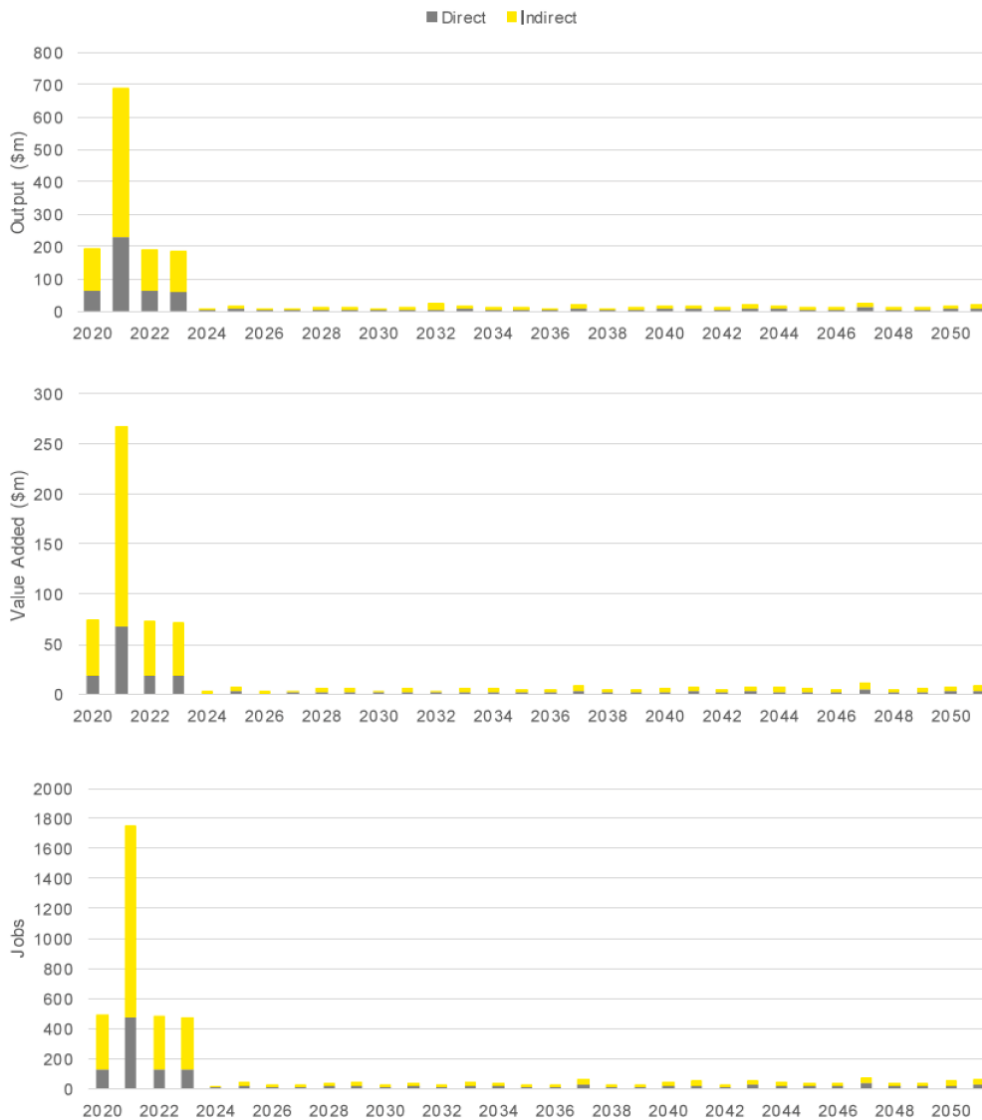
19.2 The Project rationale

The rationale for the Project is described in Chapter 2 of the EES. Chapter 2 states that the Project would materially benefit the Victorian energy market by providing a critical new gas supply into the market, and strategic storage infrastructure. It states that *“a reliable and economically efficient means of storing energy would also enhance grid reliability and renewable energy initiatives”*.

The EES asserts that gas (including gas storage) is a key component of the transition to a low emissions economy underpinned by renewable energy. It asserts that gas *“will play a critical role by efficiently supporting the intermittency of solar and wind energy”*, helping to provide a stable and secure energy supply while other technologies such as hydrogen and batteries are being scaled up (citing former Chief Scientist Alan Finkel in support).

Ernst & Young were retained to undertake an analysis of the economic benefits likely to be delivered by the Project. Their findings are summarised in Figure 2.

Figure 2 Ernst & Young findings on the economic benefits of the Project



The EES concludes at page 2-8:

The Project would contribute, along with other projects and initiatives, to helping the region of East Gippsland transition from the coal industry and would assist in keeping the region thriving as an energy hub. Importantly, should the Project not go ahead, the opportunity to support a project with the potential to assist the Victorian Government to fulfil the Victorian Renewable Energy Target of 50 per cent renewable generation by 2050 would be lost.

19.3 Discussion

An integrated assessment requires a careful balance between the environmental, social and economic impacts of the Project. Key considerations are the need to drive down greenhouse gas emissions and work toward Victoria's long term target of net zero emissions by 2050, balanced with the need to maintain a safe, secure and reliable energy supply. Short, medium and long term impacts must all be considered, including the need to safeguard the welfare of future generations.

The most significant environmental risks associated with the onshore pipeline are associated with the Lake Reeve Crossing, which intersects the Gippsland Lakes Ramsar site. Key issues include the removal of Subtropical and Temperate Coastal Saltmarsh (a threatened ecological community listed as vulnerable under the EPBC Act) and potential disturbance of acid sulfate soils. The construction of the onshore pipeline also presents risks to several threatened species of flora and fauna, including direct impacts from construction activities and indirect impacts through disturbance to habitat. With the proper implementation of the proposed EMMs (including the amendments recommended by the Inquiry), these risks are manageable.

The scale of offshore gas extraction is small compared to historical and existing development. Incremental additional depressurisation of the Lower Aquifer System is expected to occur, but is not expected to have significant effects on consumptive groundwater users or GDEs. That said, an important limitation of the EES assessment of groundwater is that it only examines a single groundwater scenario, which is based on initial extraction of gas, then cycles of reinjection and re-extraction. The reinjection would counterbalance the groundwater drawdown caused by extraction. If reinjection were not to occur, groundwater impacts could be more significant than the EES assessed.

The most significant risk to the marine environment is the potential introduction of invasive marine species by the offshore jack-up drilling rig, vessels and other equipment used for construction and operation of the offshore gas wells and pipeline. The EES concluded that the residual risk is medium, after application of the proposed EMMs in the EES. No opportunities have been identified to further reduce this risk.

There is also the possibility of a marine diesel oil spill which, if it were to occur, could have significant consequences for the marine environment and nearby sandy shorelines. However for the reasons set out in Chapter 5, the Inquiry is satisfied that (local impacts aside) the overall residual risk (with EMMs) associated with a marine diesel oil spill is low, primarily because of the rare likelihood of a spill. Risks to interconnected Ramsar wetlands are low, primarily due to their distance from the offshore facilities.

Other construction related risks to the environment include the possibility that contaminated or acid sulfate soils may be disturbed, or that sediments may escape into surface waters, or spills may occur which result in pollution of the soil, surface water or groundwater. The

Inquiry is satisfied that the proposed EMMs (with some adjustments recommended by the Inquiry) will, if properly implemented, manage these risks appropriately.

Amenity impacts will be felt during the construction and to a lesser extent the operation and decommissioning phases of the Project. Construction impacts are likely to include dust, noise and light spill, including for short periods during unavoidable night works. Construction traffic will also have some impacts, particularly for the surrounding community. The compressor station will generate noise and air emissions during the operational phase. However, with the application of the proposed EMMs (including the amendments recommended by the Inquiry), these risks are manageable.

In short, the Inquiry is satisfied that the non-greenhouse environmental effects of the Project can be avoided and minimised.

The Inquiry is satisfied that the Project could contribute to a safe and reliable energy supply for Victoria over the short to medium term, through both the production and storage of natural gas. Current policy and legislative settings at both State and Federal levels recognise the role that natural gas can play in supporting the transition to a renewables based economy, in particular in meeting peak demands and seasonal demands that renewable sources are currently unable to reliably meet. See for example Action 18 in the Renewable Energy Action Plan, discussed in Chapter 3.2(iii).

The gas to be extracted from the Golden Beach gas field appears to be high quality and suitable for supply into the domestic market. The gas field as a source of supply is well located to existing gas supply infrastructure. As a storage facility, the basin has advantages in terms of proximity to the shore and to the Longford Gas Hub, proximity to strategic transmission infrastructure and proximity to the key markets of Victoria and to a lesser extent New South Wales.

One of the draft evaluation objectives is to “*provide for safe and cost-effective augmentation of Victoria’s natural gas supply in the medium to longer term*” (Inquiry’s emphasis). In the absence of any independent expert evidence or commentary in relation to the cost of extracting or storing natural gas from the gas field, the cost of processing the gas or the likely prices at which that gas will be delivered into the market, the Inquiry is unable to provide any findings in relation to whether the Project will provide a cost effective augmentation of Victoria’s energy supply. That said, by supplementing the local supply of gas, the Project will presumably contribute to keeping energy prices affordable, although it is difficult to conclude by how much.

Figure 2 indicates that while the Project may make a significant economic contribution over the first two to four years (presumably during the construction and production phases), the longer term economic benefits are less clear. The EES states that the Project will further support the Victorian economy through royalties and taxes, which it estimates to be in the order of \$500 million to \$550 million.

In terms of more local economic and social benefits, the Inquiry accepts that as a matter of principle, infrastructure projects can have economic and positive social benefits by creating jobs in the local region, or stimulating the economy. The EMMs for the Project include development of a recruitment plan which seeks to maximise local employment. This has the potential to provide social benefits to the Gippsland Region and aid in the transition of the Latrobe Valley from a historically coal based job market.

The aspect of the Project that is most troubling to the Inquiry is its greenhouse gas impacts. It is difficult to reconcile the approval of a fossil fuel based project with a policy context that is clearly seeking a downward trajectory in greenhouse gas emissions. Given its 40 year design life, the Project will continue to contribute to greenhouse gas emissions well beyond 2050 when, according to current policy and legislative settings, Victoria is to achieve net zero emissions.

As set out in Chapter 11, the Inquiry accepts that the Scope 1 and Scope 2 emissions directly attributable to the Project, while by no means insignificant, are likely to represent a relatively small contribution to the State's total greenhouse gas emissions generated over the life of the Project. Further, the Inquiry recommends that Project approvals include conditions that require the Proponent/operator to:

- install and effectively manage best practice, energy efficient plant and equipment that will reduce greenhouse gas emissions to the extent practicable
- monitor and manage its energy consumption and greenhouse gas emissions.

The Proponent will also be required to report its energy consumption and greenhouse gas emissions in accordance with reporting requirements under the National Greenhouse and Energy Reporting Act.

These requirements should ensure that greenhouse gas emissions directly attributable to the construction and operation of the Project are managed and reduced wherever practicable.

More broadly, the Inquiry cannot speculate on how the Project will operate or its positive or negative contribution to emissions reduction as we approach 2050. As discussed in Chapter 11, there may be pathways for the Project to achieve greater consistency with the net zero emissions by 2050 target, for example by switching to 'greenhouse friendly' storage options (carbon capture and storage or hydrogen for example). It may be appropriate to review the conditions of relevant Project approvals where the relevant legislation allows, to confirm that the operation of the Project continues to be consistent with the State's transition to net zero emissions. However, it is beyond the scope of this Inquiry to consider whether or how this might be done.

On balance, the Inquiry is satisfied that provided the EMMs (with the Inquiry's recommended amendments) are properly implemented, the draft evaluation objectives in the Scoping Requirements can be met and the Project's environmental effects can be avoided or minimised. The Project is broadly consistent with the current policy and legislative framework, and should be approved.

Finally, the Inquiry notes that the EMMs have no statutory effect. They must be implemented through conditions on the Project approvals, or through the environmental documentation required under those approvals (discussed in more detail in Chapter 20). The Inquiry has made a general recommendation below that provides for the implementation of the EMMs through project approvals and/or statutory EMPs required under the Pipelines Act and the OPGGS Act.

19.4 Conclusions and recommendations

The Inquiry concludes:

- The Project is capable of contributing to a safe, affordable and environmentally acceptable energy supply for Victoria over the short to medium term.

- The environmental effects of the Project can be managed to an acceptable level, subject to some modifications and additions to the EMMs and certain conditions being applied to the Project approvals.
- The relevant project approvals should be granted, subject to the recommendations in this report.

The Inquiry recommends:

The environment effects of the Golden Beach Gas Project can generally be managed to an acceptable level and the Project approvals should be granted.

The environmental mitigation measures (amended in accordance with the other 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.

20 Environmental Management Framework

The EMF provides integrated measures for mitigating and managing the potential environmental effects of the Project. Among other things, it informs the assessment of the Project under the EE Act. This chapter addresses overarching aspects of the EMF. Specific EMMs are addressed in the relevant chapter in Part B.

20.1 The issues

The issues are:

- Is it clear what outcomes the EMF is intended to achieve?
- Is the EMF sufficiently responsive to any changes in circumstances?
- Does the EMF provide sufficient accountability?

20.2 Relevant considerations

(i) Terms of Reference

Clause 35 sets out the matters that must be included in the Inquiry's report, including:

- e. recommendations to the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects, contingency plans and site rehabilitation;

(ii) Scoping Requirements

The Scoping Requirements indicate that the EMF should include:

- clear accountabilities for managing and monitoring the environmental effects and risks associated with the construction, operation and decommissioning phases of the Project
- baseline environmental conditions
- the context of required approvals and consents
- a proposed environmental management system and environmental risk register
- EMMs to address specific issues.

The EMMs are to include commitments to mitigate adverse effects and enhance environmental outcomes. As noted in the previous Chapter, the EMMs will need to be given statutory effect through conditions on Project approvals, the statutory EMPs that will be required for the Project.

(iii) Legislation

Both the Pipelines Regulations 2017 and the OPGGS Regulations 2011 take a performance based approach in relation to statutory EMPs. For example, regulation 15(5) of the OPGGS Regulations, which sets out the requirements for statutory EMPs for offshore construction and operations, states (Inquiry's emphasis):

- (a) set environmental performance standards for the control measures ... ; and
- (b) set out the environmental performance outcomes against which the performance of the titleholder in protecting the environment is to be measured; and

- (c) include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and environmental performance standard is being met.

Similarly, Regulation 46(a) of the Pipelines Regulations 2017 states that the statutory EMP for the onshore pipeline and allied facilities (including the compressor station) must contain:

... environmental performance objectives and standards, against which the performance by the licensee to eliminate or minimise the risks identified ... so far as reasonably practicable are to be measured.

20.3 Discussion

No submissions directly addressed the EMF, other than the EPA's submission (Submission 5) which recommended that the EMF should be updated within 12 months to recognise the applicability of the general environmental duty and relevant instruments that will be prepared under the amended EP Act 2017 once it commences.

(i) Is it clear what outcomes the EMF is intended to achieve?

The Scoping Requirements require the EMF to "*describe proposed objectives, indicators and monitoring requirements*" (Inquiry's emphasis). While Table 23-4 of the EMF cites the relevant draft evaluation objective for each subset of EMMs, it does not articulate more specific objectives that it is intended to deliver.

The Proponent was asked as part of the Inquiry's Request for Information:

What environmental performance outcomes, standards and measurement criteria does the Proponent propose to apply to address the different categories of environmental risk associated with the project?

The Proponent's response directed the Inquiry to the draft 'proof of concept' EMP attached to the Pipeline Licence Application as well as to Technical Report B: Marine Environment.

Section 8 of the draft EMP presents a series of tables showing environmental management controls and related standards for the various onshore activities associated with the Project. The objectives, metrics/measures and targets for different activities in the draft EMP provide a more grounded, though still high level, framework.

Technical Report B provides an extensive set of proposed performance outcomes and associated performance standards or controls, as well as measurement criteria, for environmental aspects of the offshore works and operations. These are summarised in the marine EMMs (MM-ME01 to ME67) as part of the EMF. The proposed performance outcomes are a mix of intended environmental outcomes and direct inputs or outputs of environmental management, which are measurable.

The Inquiry considers that the draft statutory EMP under the Pipelines Act and the EMMs derived from Technical Report B provide a suitable performance based approach to managing environmental performance in relation to both the onshore and offshore aspects of the Project. While the EMF itself may not provide clear performance measures in all other areas, this not an obstacle to the Project proceeding, as the EMF has no statutory force. Conditions or requirements that seek to implement those EMMs should, however, reflect clear, measurable performance criteria.

As a general principle, clear and measurable performance criteria specified through approval conditions or environmental documentation will better support a clear, transparent and enforceable environmental management system. Regulators should seek to ensure that conditions on approvals and/or other environmental documentation such as the statutory EMPs contain:

- quantitative limits (for example, noise limits or air quality limits at receptors), or
- explicit measures to minimise impacts or risks (for example, through Fauna Management Plans).

(ii) Is the EMF sufficiently responsive to any changes in circumstances?

Changes in circumstances over the 40 year life of the Project may require an adaptive response. For example, there may be:

- unexpected discoveries or events
- a shift in what it is 'reasonably practicable' to do in response to a risk
- a relevant change in regulatory requirements
- changes to the Project.

The EMF notes that both the Proponent and its contractors will have contingency measures in place. Further, the statutory EMPs and Safety Management Plans will be required to include appropriate contingency measures to address identified risks.

Various matters will require further investigation or monitoring during construction and operation of the Project. The Inquiry is satisfied that the environmental risk register for the Project (Attachment V to the EES) has adequately identified these and other risks that may warrant a contingency response. The Inquiry supports the Proponent's intention stated at page 23-10 that:

The environmental risk register will be maintained and reviewed on a regular basis to ensure it remains relevant and adequately considers risks throughout Project implementation.

The Inquiry considers that this should be required as a condition of the relevant approvals under the OPGGS Act, the Pipelines Act and the EP Act. These conditions should reflect a consistent approach.

The general environmental duty will take effect when the EP Act 2017 comes into force on 1 July 2021. It is an example of the changing regulatory requirements that the Project may need to respond to. The general environmental duty will include an obligation to take proactive measures to identify and minimise risks of harm to human health or the environment from pollution or waste, so far as reasonably practicable. A similar duty will exist for contaminated land. The general environmental duty will overlap with the duties under section 124 of the Pipelines Act in relation to safety and environment protection.

These general duties involve ongoing responsibilities to do what is 'reasonably practicable'. As the EPA noted in its submission, the general environmental duty means that:

Persons constructing and operating the Project will need to actively consider new instruments prepared under the New EP Act, as well as developments in the state of knowledge relevant to determining what is reasonably practicable to minimise risks of harm to the environment or human health from pollution or waste.

The EPA recommended in its submission that the EMF be amended to state:

The approach described in this EMF has been prepared to address [the general environmental duty] requirement and will be updated and revised as further guidance is provided on enactment of the new Act. The new Act will apply to those involved in the Project in addition to any specific approvals.

The EMF will be updated and revised in consultation with the Environment Protection Authority within 12 months of the commencement of the Environment Protection Amendment Act 2018 as further guidance is provided on enactment of the new Act.

While the Inquiry notes the EPA's submission, the EMF does not have statutory effect. The Inquiry therefore does not consider it appropriate to formally recommend that it be updated as the EPA proposed.

This is not to say that the EMF will not retain value as an integrated framework, at least in the short term. The EMF can assist in:

- achieving consistency across the different statutory EMPs and approval conditions
- providing a focus for EPA input on compliance with the general environmental duty
- aligning common elements such as the environmental management system across the different approvals.

The Proponent/operator may well choose to update the EMF from time to time, including when the EP Act 2017 becomes operational.

(iii) Will the EMF support adequate accountability?

One of the two objectives of the EMF as stated in Chapter 23 of the EES is to (Inquiry's emphasis):

... ensure clear accountabilities are identified for implementing the environmental management requirements of the Project and monitoring the implementation of the statutory approval conditions.

The EES states at page 23-92 that:

... environmental management documentation must comply with this EMF and address relevant legislation, approval conditions and contractual requirements.

The Inquiry presumes that not only the Proponent but all contractors engaged to prepare environmental documentation will be directed to prepare documents that comply with the EMF and relevant requirements.

Table 23-6 in the EMF outlines the environmental management documentation that the Proponent and its contractors will prepare and implement. This includes the statutory EMPs under the Pipelines Act and the OPGGS Act, the various specific-issue plans that will form part of the statutory EMPs, the Safety Management Plans and Safety Cases required under the OPGGS Act and the CHMP. Since these plans are all subject to statutory approval, they should provide a strong basis for accountability.

That said, the environmental documentation needs to specify:

- clear performance criteria, as discussed above
- clear responsibilities for compliance – this will require:
 - a clearly specified organisational chain of responsibility for environmental compliance
 - environmental compliance to be reflected in contractual obligations, and
 - appropriate management systems to be implemented
- adequate monitoring and independent auditing of performance and compliance.

The Inquiry considers that the EMF as currently drafted does not provide sufficient clarity in relation to monitoring and auditing. The EMMs provide only high level commitments to undertake monitoring for air quality, noise, ASS, groundwater, and so on. Further, apart from two specific EMMs, the EMF only provides a high level statement of the Proponent's intentions in regard to auditing. (The specific EMMs are MM-GG09, which requires annual audits of compliance with the Greenhouse PEM, and MM-TP03, which requires a road safety audit).

The Inquiry considers that approvals under the OPGGS Act, Pipelines Act and EP Act should specify that audits of environmental performance and compliance are to be conducted by a suitably qualified person approved by the relevant regulator. The scope and timing of audits should also be approved by the relevant regulator.

20.4 Conclusions and recommendations

The Inquiry concludes:

- 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.
- Approval conditions and environmental documentation should specify clear performance objectives underpinned by measurable quantitative limits or explicit measures to minimise impacts or risks.
- Project approvals should include conditions requiring consistent environmental management systems, audits and monitoring programs that are approved by the relevant regulator.

The Inquiry recommends:

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.

Include conditions in the works approval, pipeline licence under the *Pipelines Act 2005* and approvals under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010* 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.**

21 Matters of national environmental significance

21.1 Introduction and context

As noted in Chapter 1.5, the Project has been deemed a ‘controlled action’ under the EPBC Act as it is likely to have a significant impact on the following MNES:

- Ramsar wetlands (sections 16 and 17B)
- listed threatened species and communities (sections 18 and 18a)
- listed migratory species (sections 20 and 20A).

The Commonwealth Minister for the Environment or delegate will receive the Environment Effects Minister’s Assessment under the EE Act at the conclusion of the EES process and use it as the basis for deciding on the approval of the Project under the EPBC Act, including any conditions that the Commonwealth Minister may deem appropriate.

21.2 The issues

The issues are:

- Are there any critical matters that would warrant refusal of the Project under the EPBC Act?
- What matters warrant specific conditions to be applied to any approval under the EPBC Act?

21.3 Relevant considerations

(i) Terms of Reference

Clause 35 sets out the matters that must be included in the Inquiry’s report, including:

- g. specific findings and recommendations about the predicted impacts and residual risks for matters of national environmental significance and their acceptability, including appropriate controls and environmental management.

(ii) Evaluation objective

MNES are incorporated in the draft evaluation objective relating to biodiversity and habitat:

Biodiversity and habitat - 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.

The Scoping Requirements for the EES included the following performance objective relating to the above draft evaluation objective:

Describe and evaluate proposed commitments to manage residual effects of the project on biodiversity values and MNES, including an outline of an offset strategy and offset management plan to secure appropriate offsets to satisfy both Commonwealth and state offset policy requirements.

(iii) Relevant legislation and policy

The EPBC Act is based on the principles of ecologically sustainable development and provides for the protection of the environment and biodiversity, and implementation of Australia’s international environmental responsibilities.

The *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* provide guidance on whether an action is likely to have a significant impact on a MNES.

21.4 The EES

The EES provides an integrated assessment of the implications of the Project for MNES in Chapter 22, which summarises potential impacts identified in five relevant technical reports:

- Technical Report A: Terrestrial and freshwater biodiversity
- Technical Report B: Marine environment
- Technical Report D: Contamination and acid sulfate soils
- Technical Report G: Groundwater
- Technical Report K: Surface water.

Technical Reports A and B provide reviews of relevant databases and literature that were used to prepare detailed lists of threatened flora and fauna species, ecological communities, migratory species and any significant habitat previously recorded within the study area. These are summarised in Table 3 to Table 6 below.

The following surveys relevant to MNES were undertaken as part of the EES (Technical Report A):

- vegetation and habitat surveys (April and May 2019)
- targeted flora surveys (June, October, November, December 2019)
- incidental fauna and habitat assessment
- targeted fauna surveys for mammals and reptiles, shorebirds and waterbirds, Dwarf Galaxias *Galaxiella pusilla*, amphibians (Growling Grass Frog, Green and Golden Bell Frog).

Following the completion of the EES, additional targeted flora surveys were undertaken in Spring 2020 (Document 6).

Assessments of 'significant impacts' on MNES were undertaken as part of the EES in accordance with the Significant Impact Guidelines. Separate assessments were made for terrestrial and freshwater biodiversity (Technical Report A) and marine environments (Technical Report B).

21.5 Discussion

Overall, the Inquiry has found the assessment of impacts on MNES in the EES was adequate. The Inquiry has not found deficiencies in the various Technical Reports referred to above that indicate the need for further assessment by the Proponent to inform a decision on whether the Project should be approved under the EPBC Act. This section provides an overview of the Inquiry's findings in relation to impacts on MNES.

(i) Possible impacts of the Project

MNES could potentially be impacted by the construction, operation and decommissioning of the:

- onshore components of the Project by:
 - vegetation removal
 - habitat loss and fragmentation
 - introduction of weeds and pathogens

- disturbance of ASS and contaminated soils
- general disturbance associated with construction (for example noise, dust and light)
- offshore components of the Project by:
 - marine diesel oil spill
 - other spills and discharges to the marine environment
 - introduction of invasive marine species
 - light emissions from construction and operation activities
 - generation of underwater sound during pipeline installation and operation
 - other disturbances to the marine environment from offshore works and operations.

(ii) Impacts on Ramsar wetlands

The EES considers two Ramsar wetlands, the Gippsland Lakes Ramsar site and Corner Inlet Ramsar site.

The Gippsland Lakes Ramsar site

Lake Reeve is part of the Gippsland Lakes Ramsar site and is a coastal hypersaline wetland subject to periodic inundation by fresh and saline water. Subtropical and Temperate Coastal Saltmarsh, a threatened ecological community listed as ‘vulnerable’ under the EPBC Act, occurs along the alignment of the onshore pipeline in the vicinity of Lake Reeve. As outlined in Chapter 4.6, Lake Reeve has two arms. The onshore pipeline traverses both arms. Only the northern arm is part of the Gippsland Lakes Ramsar site, but the southern arm is hydraulically connected to the Ramsar site when Lake Reeve is inundated.

The broader Ramsar site supports 86 waterbird and shorebird species, including migratory species. It supports threatened plants (including the ‘endangered’ Dwarf Kerrawang and Metallic Sun-orchid, and ‘vulnerable’ Swamp Everlasting) and animals (including the ‘endangered’ Australian Bittern and ‘vulnerable’ Australian Grayling, Growling Grass Frog, Green and Golden Bell Frog and Fairy Tern) (conservation status based on EPBC Act listing).

The pipeline will cross the Gippsland Lakes Ramsar site at Lake Reeve. The primary source of potential impacts on the Ramsar site is disturbance during construction, in particular vegetation removal and the wet trenching needed to lay the pipeline through the lake. This could result in impacts to surface water including through the disturbance of ASS and sediment from construction and trenching activities entering the water. Other sources of potential impact are hazardous material spills that enter the waterway.

The *Gippsland Lakes Ramsar Site Ecological Character Description*⁶ defined Limits of Acceptable Change for twelve Components, Processes and Services (CPS), including:

- the ‘Saltmarsh/ hypersaline wetlands’ CPS
- the ‘abundance and diversity of waterbirds’ CPS.

The EES presents an assessment of potential impacts of the Project on the Gippsland Lakes Ramsar site and concludes that the LAC will not be breached:

- the Project will affect the ‘Saltmarsh/ hypersaline wetlands’ CPS, but will have limited, short term impact on this habitat (less than 2.56 hectares will be impacted,

⁶ BMT WBM, 2011a

and habitat restoration EMMs will ameliorate any physical losses in the medium to long term)

- the Project may have short term impacts on waterbirds during the construction of the Lake Reeve Crossing, but long term impacts would be negligible and the LAC for the 'abundance and diversity of waterbirds' CPS will not be breached
- the Project will not impact on known habitat for threatened frogs, or known populations or important habitat for threatened flora species within the Ramsar site itself, therefore the LAC will not be breached.

On the basis of the material before it, the Inquiry has no reason to question the EES's assessment that the impacts on the Gippsland Lakes Ramsar site will be within the Limits of Acceptable Change. It generally accords with the findings in Technical Report A. The EMF includes a number of specific EMMs that, provided they are properly implemented, will assist in ensuring that the Project keeps impacts on the Gippsland Lakes Ramsar site within an acceptable level of change. These include:

- MM-FF23 (which requires a Subtropical and Temperate Coastal Saltmarsh Management Plan to be prepared and implemented, including rehabilitation of the vegetation once construction is complete)
- MM-FF14 (which requires a Fauna Management Plan dealing with waders and with waterbirds and migratory birds)
- MM-FF17 (which deals specifically with impacts to the Gippsland Lakes Ramsar site).

In terms of the more direct potential impacts of construction and hazardous material spills on Lake Reeve, the Inquiry is satisfied that these can generally be managed, for the reasons set out in the relevant chapters in Part B. Specifically:

- Construction through Lake Reeve is for a limited 2 to 7 day period, and will be scheduled when the lake is not inundated. Construction access will be via the existing causeway, and no new construction tracks are needed. See Chapter 4.6 for more detail.
- Construction methods will be developed to minimise the risk of mobilising contaminants or sediments in surface waters or disturbing ASS (including an ASS Management Plan). See Chapters 7 and 14 for more detail.
- The Inquiry has recommended some modifications to the EMMs dealing with the protection of waterways including Lake Reeve from hazardous spills, including requiring greater setbacks to activities involving the handling of fuels or hazardous materials, and ensuring that measures are put in place to hydraulically isolate Lake Reeve. See Chapter 14 for more detail.

Corner Inlet

The Corner Inlet Ramsar site is a substantially unmodified wetland that supports a range of estuarine habitats. It includes the Corner Inlet and Nooramunga Marine and Coastal Parks and the Corner Inlet Marine National Park. It provides important habitat for resident and migratory birds, including:

- 22 waterbirds listed under the Japan-Australia Migratory Birds Agreement
- 17 waterbird species listed under the China-Australia Migratory Birds Agreement
- a wide variety of cetaceans and pinnipeds.

Corner Inlet is situated outside the Project area, approximately 55 kilometres to the west, but intersects the marine study area as it is situated within the range that could potentially be affected by a marine diesel oil spill associated with the Project. The EES states that based on the distance from the Project area to the Corner Inlet Ramsar site, there is a low risk of potential impacts, and any potential impacts would not be significant.

As discussed in Chapter 5, the Inquiry questions whether the EES risk rating of 'low' understates the overall level of risk associated with a marine diesel oil spill, due to potentially more significant consequences for local receptors such as sandy beaches close to the Project area. However, in the case of Ramsar Wetlands, it agrees with the EES assessment that the residual risk is low. This is due to the distance (by sea) from the Project area to the nearest Ramsar sites.

Based on the information before it, the Inquiry's overall finding is that providing the proposed EMMs (with the amendments recommended by the Inquiry) are effectively implemented, potential impacts of the Project on Ramsar sites can be managed to produce acceptable outcomes.

(iii) Impacts on listed threatened species and communities

According to the EES and related material including the targeted flora surveys conducted by Arcadis in October and November 2020, there is a likelihood that listed threatened species and communities may be present in or near the Project area, or in marine waters near the Project.

Terrestrial flora and fauna species

The EES identifies five threatened flora species and eight threatened fauna species that have a moderate or higher likelihood of occurrence in the Project area (see Table 3 and

Table 4 below). These findings were generally supported by the additional targeted surveys carried out by Arcadis in October-November 2020 (Document 6).

Table 3 Threatened terrestrial flora species with a moderate of higher likelihood of occurrence in the Project area¹

Species name	Common name	EPBC Act conservation status	Likelihood of occurrence in Project area
<i>Prasophyllum frenchii</i>	Maroon Leek-orchid	Endangered	High
<i>Thelymitra epipactoides</i>	Metallic Sun-orchid	Endangered	High
<i>Caladenia tessellate</i>	Thick-lip Spider-orchid	Vulnerable	Moderate
<i>Commersonia prostrata</i>	Trailing Hop-bush	Vulnerable	High
<i>Prostanthera galbraithiae</i>	Wellington Mint-bush	Vulnerable	High

1 – the Arcadis survey also included Dwarf Kerrawang *Commersonia prostrata*, which has a low likelihood of occurring in the Project area (EES Technical Report B)

Table 4 Threatened terrestrial fauna species with a moderate of higher likelihood of occurrence in the Project area

Common name	EPBC Act conservation status	Likelihood of occurrence in the Project area
Amphibians		
Green and Golden Bell Frog	Vulnerable	High
Growling Grass Frog	Vulnerable	High
Birds		
Hooded Plover	Vulnerable	Moderate – Golden Beach (coastal species)
Red Knot	Endangered	Moderate
Mammals		
Grey-headed Flying fox	Vulnerable	Moderate
New Holland Mouse	Vulnerable	High
Southern Brown Bandicoot	Endangered	Moderate
Spot-tailed Quoll	Endangered	Moderate

As discussed in Chapter 4.4, Arcadis concluded that significant impacts to listed threatened flora species will be avoided provided that all relevant EMMs are implemented, including the additional measures recommended in the Arcadis report. The Inquiry accepts these findings, for the reasons set out in Chapter 4.4. The Inquiry has recommended that the additional EMMs recommended by Arcadis be included in the EMF.

The Inquiry accepts the EES's conclusion that the Project (with EMMs) poses low overall risk to threatened fauna species. At a local level there may be possible short term impacts on the Southern Brown Bandicoot and New Holland Mouse although these impacts are expected to be reduced to low in the longer term with habitat restoration of the Project area. The EMF includes many EMMs that, properly implemented, will minimise impacts on threatened fauna species. Specific Fauna Management Plans are required for the Growling Grass Frog and Green and Golden Bell Frog (MM-FF11), Southern Toadlet and Martin's Toadlet (MM-FF12) and the New Holland Mouse and Eastern Pygmy Possum (MM-FF13). Other general EMMs aimed at protecting fauna include:

- MM-FF01 (Avoid and minimise areas of impact)
- MM-FF02 (Unplanned loss of native vegetation and significant habitat)
- MM-FF03 (Contractor/staff awareness)
- MM-FF04 (Invasive weeds, pests and pathogens), which includes a requirement for a Biosecurity Management Plan
- MM-FF09 (Trench entrapment)
- MM-FF10 (Fauna injury and mortality)
- MM-FF18 (Noise and vibration impact on fauna)
- MM-FF19 (Lighting disturbance to native fauna)
- MM-FF20 (Dust impacts to native flora and fauna).

See Chapter 4.5 for more detail.

Marine fauna species

The EES identifies 17 threatened marine fauna species that may be present in the Project area or wider marine study area (Table 5). Technical Report B presents a detailed assessment of

the potential impacts of the Project on these species, which shows that impacts on threatened marine species will not be 'significant' as assessed against the EPBC Act Policy Statement 3.2.

Table 5 Threatened and/or migratory marine fauna species that may be present in the Project area or study area

Common name	EPBC Act conservation status	Treaty (Migratory Species)	Likelihood of occurrence
Fish			
Australian Grayling	Vulnerable		Diadromous – may be present in the marine study area In the event that river/creek mouths and the species is spawning
Black Rock-cod	Vulnerable		May occur in the far eastern part of the study area, north of Mallacoota
Great White Shark	Vulnerable	Bonn A1, A2S	May occur within study are and Project area, particularly in early summer. A Biologically Important Area (BIA) for breeding intersects the Project area
Grey Nurse Shark	Critically endangered		No known aggregation sites off the Victorian coast. Unlikely to occur in the study area in significant numbers
Giant Manta Ray		Bonn A1, A2S	May travel through furthest eastern extent of study area, unlikely to occur in Project area
Shortfin Mako		Bonn A2S	Widespread in Australian waters, may be present in low numbers in Project area and study area
Porbeagle Sharks		Bonn A2S	Widespread in Australian water, may be present in low numbers in Project area and study area
Reptiles			
Loggerhead Turtle	Endangered	Bonn A1, A2H	Unlikely to occur in study area
Leatherback Turtle	Endangered	Bonn A1, A2H	Study area does not present critical habitat, may occur in low numbers during migration
Green Turtle	Vulnerable	Bonn A1, A2H	May occur as a vagrant in the Project area and study area
Hawksbill Turtle	Vulnerable	Bonn A1, A2H	May occur as a vagrant in the Project area and study area
Flatback Turtle	Vulnerable	Bonn A2H	Unlikely to occur in study area
Mammals			
Blue Whale (Pygmy)	Threatened	Bonn A1	Migrates through Bass Strait. Foraging BIA intersects the Project area. Sighting most likely in autumn
Humpback Whale	Threatened	Bonn A1	Project area and study area are a core area for migration, however, the whales prefer migrating along the continental shelf. Encounters most likely in April, May, November, December
Southern Right Whale	Endangered	Bonn A1	BIA for migration and resting through all Victorian coastal waters, although migratory paths in eastern Bass Strait are uncertain. Low potential for encounters in Project area and study area between May and October
Sei Whale	Vulnerable	?	Unlikely to occur in study area
Fin Whale	Vulnerable	?	Unlikely to occur in study area

The Inquiry accepts the findings in the EES and Technical Report B that the most significant risks to the marine environment are the potential introduction of invasive marine species and discharge of drilling cuttings and muds during drilling and wellhead installation, which both have a ‘medium’ residual risk. It is satisfied that the mitigation measures proposed will address these risks if properly implemented. While the consequences of a marine diesel oil spill would be moderate, the overall risk is low due to the mobility of the EPBC-listed marine fauna species, most of which are migratory species, and distance from known habitat for the Black Rock-cod and known aggregation sites for the Grey Nurse Shark. Technical Report B states that there is no habitat critical to any threatened or migratory marine species restricted to the environment that may be affected by a spill. See Chapter 5 for more detail.

Ecological communities

The EES concluded that endangered and critically endangered ecological communities are not present in the Project area, and would not be significantly impacted by the Project.

The ‘endangered’ Giant Kelp Marine Forests of South East Australia ecological community is mapped as occurring in the marine study area but is not recorded in the Project area. This community is situated within the area potentially at risk from a diesel marine oil spill associated with the Project but Technical Report B states that the impact of the Project on this community will not be significant.

The Subtropical and Temperate Coastal Saltmarsh ecological community that is present at Lake Reeve is listed as ‘vulnerable’ under the EPBC Act. It is a critical component of the Gippsland Lakes Ramsar site but not a MNES under the listed threatened communities provision, which only covers endangered and critically endangered communities.

Based on the information before it, the Inquiry’s overall finding is that providing the proposed EMMs are effectively implemented, potential impacts of the Project on listed threatened species and communities can be managed to produce acceptable outcomes.

(iv) Impacts on listed migratory species

The EES identifies listed migratory bird species that have a moderate or higher likelihood of occurrence in the Project area (Table 6). Technical Report B presents a detailed assessment that shows that impacts on migratory species will not be ‘significant’ as assessed against the EPBC Act Policy Statement 3.2.

Table 6 Listed migratory birds with a moderate or greater likelihood of occurrence in the Project area

Common name	EPBC Act conservation status
Red-necked Stint	
Sharp-tailed Sandpiper	
Red Knot	Endangered
White-throated Needletail	Vulnerable
White-winged Black Tern	
Cattle Egret	
Great Egret	
Latham’s Snipe	
Pacific Golden Plover	
Albatross	Vulnerable/ Endangered

Common Noddy	
Fork-tailed Swift	
Shearwaters	
Eastern Osprey	

As discussed in Chapter 5, the Inquiry considers that the methodology behind Technical Report B is generally robust. No material was put to the Inquiry which challenged the findings of Technical Report B or the EES's conclusion that impacts on migratory species will not be significant. The EMF includes a specific EMM requiring a Fauna Management Plan dealing with migratory birds (MM-FF14). The Inquiry is satisfied that MM-FF14 is appropriately worded. Provided it is properly implemented, the Fauna Management Plan will, in combination with other EMMs (particularly those discussed in the previous sections) assist in managing any impacts on migratory species to an acceptable level.

For these reasons, the Inquiry finds that based on the information before it and providing the proposed EMMs (with the amendments recommended by the Inquiry) are effectively implemented, potential impacts of the Project on migratory species can be managed to produce acceptable outcomes.

21.6 Conclusions

The Inquiry concludes:

- Potential significant impacts of the Project on MNES can be appropriately managed, provided the EMMs (with the amendments recommended by the Inquiry) are effectively implemented.
- The Inquiry sees no impediment to approving the Project under the EPBC Act.

Consolidated recommendations 2 and 3 relate to conditions that the Inquiry considers should be applied to the EPBC Act approval. Consolidated recommendations 4 to 17 and 20 to 23 will provide further protection to MNES.

22 Works approval application

22.1 Introduction and context

The gas compressor station is the only component of the Project requiring a works approval under the EP Act.

The bi-directional capability of the compressor station would enable it to:

- dry and compress raw gas extracted from the Golden Beach gas field to deliver sales-quality gas into the Victorian Transmission System and Eastern Gas Pipeline
- inject gas back into the Golden Beach gas field for storage, when there is an oversupply or low demand of gas in the market.

The compressor station will include the following processes:

- inlet separation to collect free liquid from the pipeline input of raw gas
- compression of the raw gas to sales gas pipeline pressure
- cooling of the hot compressed gas
- dehydration of the sales gas using triethylene glycol (TEG)
- quality monitoring and metering of the sales gas.

While one compressor unit and one TEG dehydration unit would suffice during the initial production phase, the subsequent storage phase would require the addition of up to three compressor units and associated equipment.

22.2 The issues

The issues are:

- Are there any critical matters that would warrant refusal of the WAA for the compressor station?
- What matters warrant specific conditions to be applied to any works approval granted by the EPA?

22.3 Relevant considerations

(i) Terms of Reference

Clause 18 of the Terms of Reference states:

18. The inquiry is to provide advice that can be used to inform the EPA's consideration of the WAA prepared by the proponent. The advice should recommend avoidance, mitigation or management measures that the inquiry considers are necessary to ensure compliance with any relevant legislation and/or policy.

Clause 35 sets out the matters that must be included in the Inquiry's report, including:

- f. recommendations with respect to the WAA, including recommendations about conditions that might appropriately be attached to a works approval if issued; and

(ii) Relevant legislation

As noted in Chapter 1.2, a works approval under the EP Act 1970 will be required to construct the compressor station, and a Discharge Licence will be required under the same Act to operate the compressor station. The specific triggers for these approvals under the

Environment Protection (Scheduled Premises) Regulations 2017 are the predicted emissions of nitrogen oxides and benzene from operation of the compressor station.

The EPA's decision on the WAA under section 19B will need to consider:

- whether it is consistent with SEPPs and waste management policies made under the EP Act
- likely implications for pollution, environmental hazards and public health.
- the Minister's Assessment under the EE Act
- the principles of environment protection under the EP Act.

EPA Publication 1565 (2014) provides guidance to both proponents and the EPA on the application of the principles to EPA's approvals process.

In accordance with the Climate Change Act, the EPA's decision will also need to consider:

- the potential impacts of climate change
- the potential contribution to the State's greenhouse gas emissions.

When the amended EP Act 2017 comes into effect on 1 July 2021, there will be a transition to the regulatory regime under the new Act. As this shift is imminent, the Inquiry has given some attention to the future regime, including the new general environmental duty.

22.4 Submissions

Section 19B(3)(b) of the EP Act provides that if an application for a works approval is jointly advertised with an EES, comments by any person or body interested in the application must be made as a submission on the EES or be included in any submission on the EES. The EPA will determine the WAA having regard to submissions.

The only submission received that explicitly addressed the WAA was that from the EPA itself. However several submissions on the EES made comments on environmental concerns related to the compressor station.

22.5 Discussion

On a general note, the proposed site for the compressor station has limited constraints on its suitability in terms of topography and drainage, depth to the water table, evidence of contamination or potential ASS, existing and adjoining land use, as well as separation from sensitive receptors. While climate change is expected to lead to more intense rainfall events, stormwater management at the site should be unproblematic.

The potential impacts of the Project with respect to noise, air quality, soil contamination, surface water and groundwater quality, as well as greenhouse gas emissions, have been considered in previous chapters. Following is a high level summary of those issues and the Inquiry's overall findings and conclusions insofar as they relate to the compressor station and the WAA. This should be read in conjunction with the relevant chapters in Part B.

(i) Noise

The assessment of noise impacts in the EES was adequate to assess the potential for significant effects associated with the compressor station. Specifically:

- Noise from construction and decommissioning of the compressor station is unlikely to affect sensitive receptors, the nearest of which is a residence 2.2 kilometres away.

- Noise from its operation could have a marginal impact on the nearest sensitive receptor – in terms of compliance with NIRV – at night under emergency conditions, if there is a cumulative impact in combination with noise from the Longford gas plants.

The Inquiry has not found deficiencies in the EES noise assessment that indicate the need for further assessment by the Proponent to inform the EPA’s decision on the works approval. However it has recommended conditions requiring further assessment of noise as the detailed design of the compressor station progresses. Consolidated recommendations 18 and 19 are relevant in this regard.

(ii) Air quality

The assessment of air quality impacts in the EES was adequate to assess the potential for significant effects associated with the compressor station. Specifically:

- Dust emissions from construction and decommissioning of the compressor station are unlikely to affect local residents.
- As discussed in Chapter 15.3, the EES air quality modelling predicted that emissions from the compressor station would comply with design criteria under the SEPP (AQM) and the proposed objective under the new Environment Reference Standards.

In the absence of expert evidence, the Inquiry is unable to offer findings on whether the compressor station’s concept design is consistent with best practice. The Inquiry accepts that gas-fired compressors will generate much lower levels of air pollutants (such as particulate matter, sulphur oxides and polycyclic aromatic hydrocarbons) than diesel-fired equipment.

(iii) Greenhouse gas emissions

The limitations of the EES assessment of greenhouse gas emissions have been considered in Chapter 11. To the extent that it is within the scope of the Inquiry, recommendations have been made to address these limitations. See consolidated recommendations 29 and 30.

The regulatory and policy frameworks clearly encourage a downward trajectory in greenhouse gas emissions, but how we get to net zero emissions by 2050 is not clear. In this context, it is difficult to see how the Project is consistent with the net zero emissions target by 2050 in its current form. That said, there may be pathways to reduce or offset emissions in future. For example, the Project may switch to ‘greenhouse friendly’ storage options (carbon capture and storage or hydrogen for example).

It may be appropriate to review the conditions of relevant Project approvals where the relevant legislation allows, to confirm that the operation of the Project continues to be consistent with the State’s transition to net zero emissions over the 40 year life of the Project. However, it is beyond the scope of this Inquiry to consider whether or how this might be done.

(iv) Soil contamination and ASS

The Inquiry has concluded in Chapter 7 that while disturbance of contaminated soil or groundwater or ASS by construction activities is unlikely to pose an unacceptable level of risk if appropriate EMMs are applied, further site assessment is needed to identify any contamination or ASS, including at the compressor station site. Consolidated recommendation 28 is relevant in this regard.

(v) Wastes

Waste production during operation of the compressor station is unlikely to pose major challenges. Other than emissions to air, a key waste will be the produced water that is separated from the raw gas stream. If this water is not suitable for irrigation onsite or adjoining pastures, suitable alternatives for its treatment and disposal should be feasible. Other solid and liquid wastes are likely to be small in volume and able to be managed using well-established management practices. Consolidated recommendation 16 is relevant in this regard.

(vi) Environmental and health hazards

As discussed in Chapter 18, the EES has provided a generally sound preliminary assessment of hazards and risks to public safety and nearby operations. The EES also provides a satisfactory preliminary assessment of hazards that could affect the environment or public health. A more refined and ongoing assessment of these various hazards within a systems management framework will be needed as the Project design, construction and operation proceeds. In particular, credible risks of ‘loss of containment’ at the compressor station as well as bushfire risks will need to be further assessed and managed. For the purposes of assessing the WAA, the EPA will need to consider the suitability of the proposed process design and site layout in minimising risks of harm.

(vii) Management system

The EP Act defines an environmental management system as comprising:

... the organisational structure, policies, practices, processes and procedures for implementing environmental management, including systems for designating responsibility for and allocating resources to, environmental management.

Under the heading ‘Management system’, Section 15.3 of the WAA notes that both an EMP and a Safety Management Plan will be required under the Pipelines Act for construction and operation of the onshore works including the compressor station. The WAA does not indicate that the Proponent intends to develop and implement an environmental management system as defined under the EP Act. However, the Environmental Management Framework presented in Chapter 23 of the EES states that:

The construction and operation of the Project will be in accordance with environmental management systems that are consistent with AS/NZS ISO 14001:2015 (Environmental Management Systems – requirements with guidance for use).

This commitment is discussed in Chapter 20 dealing with the EMF.

The Inquiry considers that while an environmental management system *may* not be essential for the compressor station alone, such a system would provide a desirable framework for implementing the proposed construction and operational statutory EMPs for the Project.

The EPA will need to consider conditions to be applied to any works approval to provide accountability and assurance that the necessary environmental performance outcomes will be met. Such conditions may include a requirement to implement a suitable environmental management system. The EPA’s decision might have regard to the imminent introduction of the general environmental duty under the amended EP Act 2017. Under section 25(4)(b) and (c) of this Act, a business or undertaking will be required to (Inquiry’s emphasis):

- (b) use and maintain systems for identification, assessment and control of risks of harm to human health and the environment from pollution and waste that may arise in connection with the activity, and for the evaluation of the effectiveness of controls;
- (c) use and maintain adequate systems to ensure that if a risk of harm to human health or the environment from pollution or waste were to eventuate, its harmful effects would be minimised.

Consolidated recommendation 32 is relevant in this regard.

The EPA will also need to consider whether, and if so how, to recognise the two onshore EMPs under the conditions of any works approval or discharge licence for the compressor station, recognising that this would overlap with a requirement under the Pipelines Act. An EMP for the construction and operation of the compressor station, for which the EPA would have primary regulatory oversight, may be appropriate.

22.6 Conclusions and recommendations

The Inquiry concludes:

- The proposed site for the compressor station is suitable.
- In the absence of expert evidence in response to the EES's assessment, the Inquiry is unable to offer findings on the consistency of the compressor station's concept design with best practice.
- No matters have been identified that warrant refusal of the WAA for the compressor station, if appropriate conditions are applied. Key matters that should be addressed by conditions are facility design and installation to optimise air emissions, energy efficiency and noise performance. An EMP for the compressor station would support an integrated approach, with oversight of compliance by the EPA.

In addition to the specific recommendations elsewhere in this report in relation to the works approval, the Inquiry recommends:

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.

23 Pipeline licence application

The letter appointing the Panel under the Pipelines Act included the following requirement:

After conducting the public hearing, the panel must, in accordance with s 47(1) of the Pipelines Act:

- (a) report to the Minister on the submissions; and
- (b) make a recommendation to the Minister as to the action that it believes should be taken with respect to the Pipeline Licence Application.

23.1 The issues

The issues are:

- Are there any critical matters that would warrant refusal of the pipeline licence application?
- What matters warrant specific conditions to be applied to the pipeline licence, or the statutory EMPs required under the Pipelines Act?

23.2 Relevant legislation

Section 49 of the Pipelines Act sets out what the Pipelines Minister must consider before granting a pipeline licence. See Chapter 3.3(vi).

Section 54 sets out what conditions can be included on a pipeline licence. Conditions can relate to:

- pipeline operations
- protection of cultural heritage (including Indigenous cultural heritage)
- protection of the environment
- maintenance of land in the pipeline area and the control of noxious weeds and pest animals
- public safety
- requirements to provide information.

Section 56 sets out requirements that must be met before a licence is issued. They include:

- any necessary interests in private land have been acquired
- relevant procedure under the Native Title Act has been followed (if applicable).

Section 135 deals with the statutory EMPs required for construction and operation of the onshore pipeline. It sets out consultation requirements that must be met before the EMPs are approved. The Pipelines Regulations 2017 set out detailed requirements for EMPs and Safety Management Plans.

23.3 Discussion

The potential impacts of the pipeline with respect to biodiversity, Aboriginal cultural heritage, construction noise, soil contamination, surface water quality, greenhouse gas emissions, land use planning and safety have been considered in previous chapters. This chapter summarises those issues and the Panel's overall findings and conclusions insofar as they relate to the pipeline licence application.

(i) Biodiversity

Biodiversity could potentially be impacted by the construction, operation and decommissioning of the onshore pipeline by:

- vegetation removal
- habitat loss and fragmentation
- introduction of weeds and pathogens
- disturbance of ASS and contaminated soils
- general disturbance associated with construction (for example noise, dust and light).

The main impact on biodiversity from construction and operation of the pipeline will be the loss of vegetation. Some vegetation loss is inevitable, and the Panel is satisfied that the Project has been designed to avoid (where practicable) and minimise vegetation loss, in accordance with policy requirements including the Native Vegetation Guidelines. Any opportunities that may arise during the detailed design stage to further avoid the loss of native vegetation should be pursued. The Panel has recommended changes to the EMMs to ensure this occurs.

The Panel has concluded that while the construction of the pipeline across Lake Reeve and the coastal dunes will have impacts, the proposed construction techniques (including wet trenching and HDD) and scheduling of construction works (when the lake is not inundated) will minimise impacts to the extent practicable. The Panel has recommended extending the monitoring period following the completion of site rehabilitation works to 3 years.

For the reasons set out in Chapters 4 and 21, the Panel is satisfied that impacts of the pipeline on biodiversity can be satisfactorily managed with the proper implementation of the EMMs as amended by the Inquiry. Many of the consolidated recommendations are relevant in this regard.

(ii) Aboriginal cultural heritage

The pipeline will not affect any areas of high scientific or cultural significance. Some areas of low and moderate significance will be impacted, but the CHMP contains comprehensive conditions designed to minimise and mitigate those impacts where they can be mitigated. The Gunaikurnai Land and Waters Aboriginal Corporation regards those impacts as acceptable, subject to the EMMs being applied. The conditions of the CHMP will ensure that Aboriginal cultural heritage values are appropriately protected.

(iii) Noise and vibration

The Panel is satisfied that potential noise impacts from the construction of the pipeline have been appropriately assessed, and that (subject to consolidated recommendations 18 and 19) noise and vibration impacts can be appropriately managed.

The Panel is satisfied that there is a justification for unavoidable night-time work in relation to the construction of the shore crossing, and that feasible EMMs to address impacts are available. That said, the Panel has recommended the appointment of an independent person to receive and advise on complaints about the noise impacts of construction (particularly unavoidable night work).

The Panel found in Chapter 9 that the pipeline licence should include clear accountabilities for noise performance, including processes to ensure the adoption of reasonably practicable measures to reduce noise. Suitable conditions are recommended in consolidated

recommendations 3, 19, 36 and 38. Further, those potentially affected by scheduled works should be informed of the works program and noisy activities in a timely manner. This is discussed in more detail in Chapter 16 dealing with social impacts.

The Panel found in Chapter 9 that vibration from Project activities is unlikely to cause human disturbance or damage to buildings or structures, subject to appropriate protections for the Dutson Downs Outfall Pipeline which have been agreed with Gippsland Water.

(iv) Greenhouse gas emissions

The Panel has recommended that conditions be included in the statutory EMPs under the Pipelines Act and the Offshore Petroleum and Greenhouse Gas Storage Act requiring the monitoring and independent auditing of greenhouse gas emissions from the pipeline. The EMPs should also contain requirements for the ongoing implementation of best practice measures to mitigate greenhouse gas emissions, to the extent reasonably practicable. Refer to consolidated recommendation 39.

(v) Soil contamination and ASS

The Inquiry has concluded in Chapter 7 that while disturbance of contaminated soil or groundwater or ASS by construction activities is unlikely to pose an unacceptable level of risk if appropriate EMMs are applied, further site assessment is needed to identify any contamination or ASS, including along the pipeline route. Consolidated recommendation 37 is relevant in this regard.

(vi) Land use planning

While the Project will have some amenity impacts, particularly during the construction phase, on surrounding land uses, suitable EMMs can be put in place to manage these impacts (as discussed in other Chapters). Subject to the EMMs being properly implemented, the Project will deliver an acceptable planning outcome. For the purposes of section 49(g) of the Pipelines Act, the pipeline will have limited effect on the planning of the area through which it is to pass. The Planning Minister should provide comments to the Pipelines Minister to this effect. Refer to consolidated recommendation 33.

(vii) Safety and environmental management

As discussed in Chapter 18, the EES has provided a generally sound preliminary assessment of hazards and risks to public safety and nearby operations. A more refined and ongoing assessment of the hazards associated with the operation of the pipeline will be required, and the Panel has recommended a systems management framework to address this. Refer to consolidated recommendation 36.

As noted in Chapter 20, the EES indicates that the Project will be constructed and operated in accordance with environmental management systems that are consistent with the relevant Australian and New Zealand standards. This will extend to the construction and operation of the pipeline.

23.4 Conclusions

The Panel concludes:

- The pipeline alignment has been designed to avoid (where practicable) and minimise vegetation loss in accordance with the Native Vegetation Guidelines. Opportunities may arise during the detailed design stage to further avoid the loss of native vegetation. These opportunities should be pursued to the extent reasonably practicable.
- Construction of the pipeline will impact the sensitive environments of Lake Reeve and the coastal dunes. However the proposed construction techniques and scheduling will minimise impacts to the extent reasonably practicable.
- While some Aboriginal cultural heritage values will be impacted by the construction of the pipeline, those impacts are considered acceptable by the Gunaikurnai Land and Waters Aboriginal Corporation. The conditions of the CHMP will ensure that Aboriginal cultural heritage values are appropriately protected.
- No matters have been identified that warrant refusal of the pipeline licence, if appropriate conditions are applied. Key matters that should be addressed by conditions and/or the statutory EMPs required under the Pipelines Act are:
 - implementation of the EMMs
 - further opportunities to avoid vegetation loss
 - further investigation of contamination and ASS along the pipeline route
 - independent monitoring of noise during unavoidable night-time works associated with the construction of the pipeline
 - prohibition on 'pipe pull' over the dunes except with the consent of the regulator
 - environmental management systems and monitoring and independent auditing of environmental performance
 - monitoring and independent auditing of greenhouse gas emissions, and ongoing implementation of best practice measures to reduce greenhouse gas emissions.

Appendix A Inquiry Terms of Reference

Terms of Reference

Golden Beach Gas Project Inquiry

Version: October 2020

The Golden Beach Gas Project Inquiry is appointed to inquire into, and report on, the proposed Golden Beach Gas Project (the project) and its environmental effects in accordance with these Terms of Reference.

The inquiry is appointed pursuant to section 9(1) of the *Environment Effects Act 1978* (EE Act) as an inquiry.

The inquiry will provide advice that can be used to inform the Environment Protection Authority's (EPA) consideration of the works approval application (WAA) prepared by the proponent for the project.

The inquiry may separately be appointed by the Minister for Energy, Environment and Climate Change as a panel under section 40 of the *Pipelines Act 2005*.

Name

1. The inquiry is to be known as the 'Golden Beach Gas Project Inquiry'.

Skills

2. The inquiry members should have following expertise:
 - a. biodiversity (marine and terrestrial/freshwater);
 - b. Aboriginal cultural heritage;
 - c. surface water, groundwater and contaminated land; and
 - d. amenity and statutory planning.
3. The inquiry will comprise an appointed Chair (Inquiry Chair), a Deputy Chair and other members.

Purpose of the inquiry

4. The inquiry is appointed by the Minister for Planning under section 9(1) of the EE Act to hold an inquiry into the environmental effects of the project. The inquiry is to:
 - a. review and consider the environment effects statement (EES), submissions received in relation to the project, the predicted environmental effects, and the other exhibited documents;
 - b. consider and report on the potential environmental effects of the project, their significance and acceptability, and in doing so have regard to the draft evaluation objectives in the EES scoping requirements and relevant policy and legislation;
 - c. identify any measures it considers necessary and effective to avoid, mitigate or manage the environmental effects of the project within acceptable limits, including any necessary project modifications;
 - d. advise on how this relates to relevant conditions, controls and requirements that could form part of the necessary approvals and consent for the project;
 - e. report its findings and recommendations to the Minister for Planning to inform his assessment under the EE Act.
5. The inquiry will provide advice to inform the EPA's consideration of the WAA prepared by the proponent for the project.
6. The inquiry may separately be appointed by the Minister for Energy, Environment and Climate Change as a panel under section 40 of the *Pipelines Act 2005*.

Terms of Reference
Golden Beach Gas Project Inquiry

Background

Project outline

7. The project encompasses construction and operation of a pipeline and gas plant to produce gas from the Golden Beach gas field (in Victorian waters) for provision to the Victorian Transmission System. The gas pipeline would be designed to be bi-directional, allowing for the Golden Beach gas field, when depleted after 2 to 4 years, to be used as a gas reservoir or storage facility with a 40-year design life. The proposed project includes:
 - a. offshore drilling, testing and completion of two sub-sea wells;
 - b. laying of a sub-sea pipeline and sub-sea infrastructure;
 - c. a 1.5 kilometre shoreline crossing, approximately 3.8 kilometres south-west of the Golden Beach township, by horizontal directional drilling;
 - d. construction of an 18.5 kilometre buried pipeline in a 30 metres right of way; and
 - e. a gas plant with export metering and connection to the existing transmission pipelines.
8. The project's proponent is GB Energy (VIC) Pty. Ltd, who is responsible for preparing technical studies, consulting with the public and stakeholders and preparing an EES.

EES assessment process

9. In response to a referral under the EE Act from the proponent, the Minister for Planning determined on 8 September 2019 that an EES was required for the project and issued his decision with procedures and requirements for the preparation of the EES as specified in **Attachment 1**.
10. In response to the coronavirus pandemic emergency, the Minister issued amended procedures and requirements on 13 September 2020, specified in **Attachment 2**.
11. The EES was prepared by the proponent in response to the EES scoping requirements (April 2020) issued by the Minister for Planning in May 2020.
12. The EES will be placed on public exhibition for thirty (30) business days, together with the WAA and pipeline licence application. DELWP will be responsible for giving notice.
13. The Department of Environment, Land, Water and Planning (DELWP) Impact Assessment Unit must liaise with the office of Planning Panels Victoria (PPV) to agree on the submitter conference dates.

Commonwealth assessment process

14. Because of its potential impacts on matters of national environmental significance, the project was determined to be a controlled action for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) on 22 November 2019. The relevant controlling provisions under the EPBC Act relate to Ramsar wetlands (sections 16 and 17B); listed threatened species and communities (sections 18 and 18A); and listed migratory species (sections 20 and 20A).
15. Under the bilateral agreement between the Australian and Victorian Governments, the Victorian EES process is serving as the accredited process for the assessment purposes of the EPBC Act. The assessment of environmental effects to be made by the Victorian Minister for Planning will be provided to the Commonwealth Minister for the Environment to inform the approvals decision under the EPBC Act. To assist the Minister for Planning in making his assessment, the inquiry should specifically identify its advice relevant to matters of national environmental significance that may be affected respectively by the project.

Works approval process

16. A WAA for the project was prepared in accordance with the provisions of the *Environment Protection Act 1970* (EP Act). The works approval application will be jointly advertised with the EES, in accordance with section 20AA of the EP Act.

Terms of Reference
Golden Beach Gas Project Inquiry

17. Section 19B(3)(b) of the EP Act provides that: *if an application for a works approval is to be jointly advertised under section 20AA with a notice relating to the same proposal under the Environment Effects Act 1978... comments by any person or body interested in the application must be made as a submission on the environment effects statement or be included in any submission on the environment effects statement.* In addition, the EPA can no longer decide under section 19B(6) to hold a section 20B conference.
18. The inquiry is to provide advice that can be used to inform the EPA's consideration of the WAA prepared by the proponent. The advice should recommend avoidance, mitigation or management measures that the inquiry considers are necessary to ensure compliance with any relevant legislation and/or policy.

Pipeline licence application process

19. The inquiry may separately be appointed by the Minister for Energy, Environment and Climate Change as a panel under section 40 of the *Pipelines Act 2005*. If so, it must act in accordance with the requirements of the *Pipelines Act* and any specifications in its instrument of appointment.

Other approvals

20. The project may require other statutory approvals and/or consents, as outlined in the EES, including:
- a. an approved Cultural Heritage Management Plans under the *Aboriginal Heritage Act 2006* to manage works in areas of cultural heritage sensitivity;
 - b. consent under the *Marine and Coastal Act 2018*;
 - c. approved plans under the *Offshore Petroleum and Greenhouse Gas Storage Act 2010*;
 - d. a permit to remove listed flora and fauna under the *Flora and Fauna Guarantee Act 1988*;
 - e. an authority to take or disturb wildlife under the *Wildlife Act 1975*; and
 - f. approvals under the *Water Act 1989* for works on, over or under waterways and potential extraction of groundwater.

Process

Stage 1 – submissions

21. Submissions, to be provided in writing on or before the close of submissions, on the EES, WAA and pipeline licence application will be collected by the office of Planning Panels Victoria in accordance with the 'Guide to Privacy at PPV' and collected through the Engage Victoria platform. All submissions must state the name and address of the person making the submission.
22. Petitions and Pro-forma responses will be treated as a single submission, and only the first name to appear on the first page of the submission should receive correspondence in relation to the inquiry.
23. All written submissions and other supporting documentation received through the course of the inquiry must be published on-line, unless submitters request that their submission not be publicly available, or where the inquiry specifically directs that the submission or part of it is to remain confidential.
24. Electronic copies of submissions on the EES, WAA and pipeline licence application should be provided to the proponent, Wellington Shire Council, DELWP (Impact Assessment Unit and Pipelines Unit), EPA and Gunaikurnai Land and Waters Aboriginal Corporation.
25. Planning Panels Victoria will retain any written submissions and other documentation provided to the inquiry for a period of five years after the time of the appointment of the inquiry.

Stage 2 – submitter conference

26. The inquiry will conduct its proceedings through a submitter conference and may make other such enquiries as are relevant to undertaking its role.

Terms of Reference
Golden Beach Gas Project Inquiry

27. The inquiry may write to the Minister for Planning to request an alternative form of inquiry if it believes that a submitter conference is not practical after consideration of the submissions.
28. Prior to commencement of a submitter conference, the inquiry may hold a directions hearing and make any directions it considers necessary or appropriate as to the conduct, scope or scheduling of the submitter conference.
29. The inquiry may inform itself in any way it sees fit, but must review and consider:
 - a. the exhibited EES, pipeline licence application and WAA;
 - b. all submissions and any evidence provided to it by the proponent, state agencies, local council and submitters;
 - c. any information provided by the proponent and parties that responds to either submissions or directions of the inquiry; and
 - d. any other relevant information that is provided to, or obtained by, the inquiry.
30. The inquiry must conduct its submitter conference in accordance with the following principles:
 - a. the submitter conference will be conducted in an open, orderly and equitable manner, in accordance with the principles of natural justice, with a minimum of formality and without legal representation being necessary for parties to be effective participants; and
 - b. the inquiry process is to be exploratory and constructive with adversarial behaviour minimised and with cross-examination regulated by the Inquiry Chair.
31. The inquiry may limit the time of parties appearing before it.
32. The inquiry may conduct its processes when there is a quorum of at least two members, one of whom must be the Inquiry Chair or Deputy Chair.
33. Recording of the conference must be undertaken by the proponent as directed by the Inquiry Chair. If the conference is recorded, the proponent must post links to the recordings on its project website as soon as practicable after each day of the conference or otherwise as directed by the Inquiry Chair.
34. Any other audio or video recording of the conference by any other person or organisation may only occur with the prior consent of, and in accordance with, the directions of the Inquiry Chair.

Stage 3 – report

35. The inquiry must produce a written report for the Minister for Planning containing the inquiry's:
 - a. analysis and conclusions with respect to the environmental effects of the project and its significance and acceptability;
 - b. findings on whether acceptable environmental outcomes can be achieved, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;
 - c. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects to acceptable environmental outcomes, having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;
 - d. recommendations to any feasible modifications to the project (e.g. design, alternative configurations, or environmental management) that would enable beneficial outcomes;
 - e. recommendations to the structure and content of the proposed environmental management framework, including with respect to monitoring of environmental effects, contingency plans and site rehabilitation;
 - f. recommendations with respect to the WAA, including recommendations about conditions that might appropriately be attached to a works approval if issued; and
 - g. specific findings and recommendations about the predicted impacts and residual risks for matters of national environmental significance and their acceptability, including appropriate controls and environmental management.

Terms of Reference
Golden Beach Gas Project Inquiry

36. The report should include:
- a. information and analysis in support of the inquiry's findings and recommendations;
 - b. a list of all recommendations, including cross-references to relevant discussions in the report;
 - c. a description of the submitter conference conducted by the inquiry, and a list of those persons consulted with or heard by the inquiry;
 - d. a list of all submitters in response to the exhibited EES; and
 - e. a list of the documents tabled during the submitter conference.

Timing

37. The inquiry should commence the submitter conference or hold a directions hearing within 20 business days from the final date of the exhibition period, or as otherwise agreed by the Minister for Planning.
38. The inquiry must submit its report in writing to the Minister for Planning within 30 business days from the last date of the submitter conference. This period can be extended by 10 business days if the write up period occurs over the Christmas/New Year period.

Minister's assessment

39. The Minister for Planning will make his assessment of the environmental effects of the project after considering the inquiry's report as well as the EES, submissions and any other relevant matters.
40. Planning Panels Victoria will notify submitters of the release of the Minister for Planning's assessment and inquiry report.

Fee

41. The fees for the members of the inquiry will be set at the current rate for a panel appointed under part 8 of the P&E Act.
42. All costs of the inquiry, including the costs of obtaining any expert advice, technical administration and legal support, venue hire, accommodation, recording proceedings and other costs must be met by the proponent.

Miscellaneous

43. The inquiry may apply to the Minister for Planning to vary these terms of reference in writing, at any time prior to submission of its report.
44. The inquiry may retain legal counsel to assist it in undertaking its role.
45. Where it considers it necessary, the inquiry may engage additional technical support as required to assist it in undertaking its role.
46. Planning Panels Victoria is to provide any necessary administrative support to the inquiry.



Richard Wynne MP
Minister for Planning

Date: 18 / 10 / 2020

Terms of Reference
Golden Beach Gas Project Inquiry

The following information does not form part the Terms of Reference.

Project Management

1. For matters regarding the inquiry process, please contact Amy Selvaraj, Senior Project Officer, of Planning Panels Victoria, by phone (03) 8624 5714 or email Planning.Panels@delwp.vic.gov.au.
2. For matters regarding the EES process please contact the Impact Assessment Unit in DELWP by phone (03) 8392 5503 or email environment.assessment@delwp.vic.gov.au.

REFERRAL NUMBER 2019-06

DECISION ON PROJECT: Golden Beach Gas Project**Decision under section 8B(3)(a) of the *Environment Effects Act 1978***

Assessment through an Environment Effects Statement (EES) under the *Environment Effects Act 1978* **is required** for the reasons set out in the attached Reasons for Decision.

Procedures and requirements under section 8B(5) of the *Environment Effects Act 1978*

The procedures and requirements applying to the EES process, in accordance with both section 8B(5) and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Ministerial Guidelines), are as follows:

- (i) The EES is to document the investigation and avoidance of potential environmental effects of the proposed project, including for any relevant alternatives, as well as associated environmental avoidance, mitigation and management measures. In particular the EES should address:
 - a. Effects on the offshore marine environment and ecology;
 - b. Effects on Aboriginal cultural heritage values;
 - c. Effects on 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;
 - d. Effects on landscapes and soils;
 - e. Effects of project construction and operation on air quality (including greenhouse gas emissions), noise and visual amenity of nearby sensitive receptors (particularly residences);
 - f. Both positive and adverse socio-economic effects and land-use effects; and
 - g. Effects on surface water environments, including local waterways and the broader catchment, as well as groundwater (hydrology, quality, uses and dependent ecosystems).
- (ii) The matters to be investigated and documented in the EES will be set out in detail in scoping requirements prepared by the Department of Environment, Land, Water and Planning (the department). Draft scoping requirements will be exhibited for 15 business days for public comment, before being finalised and then issued by the Minister for Planning.
- (iii) The level of detail of investigation for the EES studies should be consistent with the scoping requirements issued for this project and be adequate to inform an assessment of the potential environmental effects (and their acceptability) of the project and any relevant alternatives, in the context of the Ministerial Guidelines.
- (iv) The proponent is to prepare and submit to the department a draft EES study program to inform the preparation of scoping requirements.
- (v) The department is to convene an inter-agency Technical Reference Group (TRG) to advise the proponent and the department, as appropriate, on scoping and adequacy of the EES studies during the preparation of the EES, as well as coordination with statutory approval processes.
- (vi) The proponent is to prepare and submit to the department its' proposed EES Consultation Plan for consulting the public and engaging with stakeholders during the preparation of the EES. Once completed to the satisfaction of the department, the EES Consultation Plan is to be implemented by the proponent, having regard to advice from the department and the TRG.
- (vii) The proponent is also to prepare and submit to the department its proposed schedule for the studies, preparation and exhibition of the EES, following confirmation of draft scoping requirements. This is to enable effective management of the EES process on the basis of an agreed alignment of the proponent's and department's schedules, including for TRG review of technical investigations and the EES documentation.

REFERRAL NUMBER 2019-06

- (viii) The proponent is to apply appropriate peer review and quality management procedures to enable the completion of EES studies and documentation to an acceptable standard.
- (ix) The EES is to be exhibited for a period of 30 business days for public comment, unless the exhibition period spans the Christmas–New Year period, in which case 40 business days will apply.
- (x) An inquiry will be appointed under the *Environment Effects Act 1978* to consider and report on the environmental effects of the proposal.

Notification

The following parties (proponent and relevant decision-makers) are to be notified of this decision in accordance with sections 8A and 8B(4)(a) of the *Environment Effects Act 1978*:

- GB Energy (Vic) Pty Ltd (proponent)
- Minister for Resources
- Minister for Energy, Environment and Climate Change
- Minister for Planning
- Secretary of Department of Jobs, Precincts and Regions
- Secretary of Department of Environment, Land, Water and Planning
- Executive Director of Aboriginal Victoria
- Gunaikurnai Traditional Owner Land Management Board
- Executive Director of Heritage Victoria
- Wellington Shire Council
- Environment Protection Authority
- West Gippsland Catchment Management Authority



RICHARD WYNNE MP
Minister for Planning

Date: 8/9/19

PROJECT NAME: Golden Beach Gas Project**Amended procedures and requirements under section 8B(5) of the *Environment Effects Act 1978*.**

Under the declared state of emergency in response to the coronavirus pandemic, conventional exhibition of environment effects statements (EES) is not possible. Physical display of printed copies of the EES in public places cannot occur. Similarly, arrangements with respect to hearings of inquiries under the Environment Effects Act will also differ, if restrictions are still in force at the time of an inquiry.

Accordingly, the procedures and requirements applying to the EES, issued on 8 September 2019 in accordance with section 8B(5) of the Act and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*, are amended as follows.

- (a) The EES is to be exhibited for a period of 30 business days for public comment, or such other period as the Minister may subsequently direct in writing.
- (b) No less than two weeks before the first day of the public exhibition period, the proponent must place notices in newspapers and on-line, or otherwise communicate with known interested parties, to:
 1. foreshadow the intention to commence formal exhibition;
 2. note the impossibility of providing exhibition copies for physical inspection at public exhibition places;
 3. describe intended on-line availability of the EES and related documentation for exhibition purposes; and
 4. invite potential submitters to register to receive EES documents on USB media, and for those who may have accessibility issues or, where electronic options are impracticable, in hard copy.
- (c) Where hard copy documents are reasonably requested, the proponent must provide hard copies of:
 1. the EES summary document and mapbook (if applicable) free of charge, and the EES Main Report for a modest charge aligned with postage costs, unless instructed otherwise by the Department of Environment, Land, Water and Planning's (DELWP) Director Impact Assessment; and
 2. other EES attachments or EES technical appendices, subject to payment of an appropriate fee, having regard to costs of printing and postage and the circumstances of the request, unless instructed otherwise by DELWP's Director Impact Assessment.
- (d) The proponent must dispatch requested USB media and hard copies to registered addresses within a week of receipt of each registration (and payment, where relevant) or in time for the commencement of the exhibition period, whichever is the later.
- (e) The inquiry that I will appoint under the Environment Effects Act, subject to its approval by the Governor in Council, to consider the environmental effects of the proposal is to be conducted by in the most practicable manner available under the prevailing circumstances. That might, if necessary, include the use of video conferencing or other comparable technology.
- (f) The proponent must arrange for recordings to be made of any hearings of the inquiry, whether held conventionally or remotely, subject to any directions from the inquiry chair, and must cause recordings to be posted on-line as quickly as practicable. The proponent must post links to the recordings on its project website as soon as practicable after each day of hearings. DELWP must post links to the recordings on its relevant web pages as soon as practicable after each day of hearings.

Notification

The following parties (proponent and relevant decision-makers) are to be notified of these amended procedures and requirements in accordance with section 8B(4)(a)(i) and 8B(5) of the Environment Effects Act:

- GB Energy (Vic) Pty Ltd (proponent);
- Minister for Resources;
- Minister for Energy, Environment and Climate Change;
- Minister for Planning;
- Secretary of Department of Environment, Land, Water and Planning;
- Executive Director and Aboriginal Victoria;
- Gunaikurnai Traditional Owner Land Management Board;
- Executive Director and Heritage Victoria;
- Wellington Shire Council;
- Environment Protection Authority; and
- West Gippsland Catchment Management Authority.



HON RICHARD WYNNE MP
Minister for Planning

Date: 13 / 09 / 2020

Appendix B Submitters

No.	Submitter
1	Keiran Deck
2	Erica Hunt
3	Robyn Hermans
4	Wellington Shire Council
5	Environment Protection Authority Victoria
6	Jane Hildebrant
7	East Gippsland Climate Action Network
8	The CarbonNet Project
9	Department of Environment, Land, Water and Planning – Forest Fire and Regions Gippsland
10	Australasian Native Orchid Society (Victorian Group) Inc
11	Joanna McCubbin
12	Tracey Anton
13	West Gippsland Catchment Management Authority

Appendix C Submitter conference agenda

Submitter Conference – Agenda

Golden Beach Gas Project Inquiry

version 2 dated 13 January 2021

Day 1: Monday 18 January 2021			
Venue: Join the Golden Beach Gas Project Inquiry submitter conference			
Time	Party	Sub No	Allocated
10.00am – 10.15am	Preliminary matters and introduction by Inquiry		15 mins
10.15am – 1.00pm	Discussion of key issues: <ul style="list-style-type: none"> - Victorian policy context around gas development and greenhouse gas emissions/mitigation - Cumulative impact of this and other projects in the area including potentially Carbon Net - The approach to native vegetation including avoidance, mitigation and offsets - How Ramsar Wetlands will be protected/managed through project implementation - The regulatory framework and planned response to marine spills Each issue above will be addressed as follows: <ul style="list-style-type: none"> - Brief comments from Golden Beach Energy - Submitter questions/comments - Inquiry questions 		3 hrs
1.00pm – 2.00pm	Lunch Break		1 hour
2.00pm – 2.30pm	Environment Protection Authority	5	30 mins
2.30pm-3.30pm	Submitters: <ul style="list-style-type: none"> Erica Hunt Jo McCubbin Jane Hildebrandt 	2 11 6	1 hr
3.30pm – 4.00pm	General discussion		
4.00pm – 4.30pm	Golden Beach Energy - reply		30 mins
4.30pm	Close		

Appendix D Tabled documents

No.	Date	Description	Presented by
1	1/12/20	Correspondence from Inquiry to Proponent on submitter conference	Mr Wimbush, Inquiry Chair
2	2/12/20	Letter from Proponent to Inquiry regarding change in dates	Ms Rowarth, General Counsel for GB Energy
3	4/12/20	Correspondence from Inquiry to Proponent in regard to Proponent's letter on submitter conference dates	Mr Wimbush, Inquiry Chair
4	9/12/20	Directions Hearing Notification Letter	Mr Wimbush, Inquiry Chair
5	14/12/20	Letter from Proponent to Inquiry regarding Targeted Spring Surveys 2020	Ms Rowarth, General Counsel for GB Energy
6	"	Proponent - Targeted Flora Surveys - Spring 2020 - Final	"
7	15/12/20	Golden Beach Gas Project Inquiry - Request for Information	Mr Wimbush, Inquiry Chair
8	16/12/20	Site Visit - Itinerary	Ms Rowarth, General Counsel for GB Energy
9	"	Site Visit - Strip maps setting out the pipeline route	"
10	"	Golden Beach Gas Project Inquiry - Correspondence to Resources Branch DJPR seeking written advice	Mr Wimbush, Inquiry Chair
11	17/12/20	Proponent Response to Inquiry Request for Information - 16 December 2020	Ms Rowarth, General Counsel for GB Energy
12	"	Attachment 1 - GB Energy - Map of Infrastructure in proximity	"
13	"	Attachment 2 - Clarification regarding application of OPGGS Act to injection and storage of hydrocarbon gas	"
14	21/12/20	Golden Beach Gas Project Inquiry - Correspondence to Southern Rural Water seeking written advice	Mr Wimbush, Inquiry Chair
15	"	Golden Beach Gas Project Inquiry - Correspondence to West Gippsland Catchment Management Authority seeking written advice	Mr Wimbush, Inquiry Chair
16	24/12/20	Golden Beach Gas Project Inquiry - Correspondence to DELWP request for advice	Mr Wimbush, Inquiry Chair
17	"	Inquiry Directions and submitter conference Agenda	"
18	23/12/20	Golden Beach Gas Project Inquiry - Correspondence to DELWP Pipeline Regulation regarding Pipeline Act Appointment	Mr Wimbush, Inquiry Chair
19	4/01/21	DELWP Pipeline Regulation unit response regarding Pipeline Act appointment	Mr Hough, DELWP Pipeline Regulation Unit
20	5/01/21	Proponent - Response to Submissions (Direction 2)	Ms Rowarth, General Counsel for GB Energy

No.	Date	Description	Presented by
21	6/01/21	Proponent - Further response to item 25 (cumulative effects) of the Request for Information	Ms Rowarth, General Counsel for GB Energy
22	8/01/21	Letter from Resources Branch DJPR (Earth Resources Regulation) to Inquiry - Response to Inquiry questions	Mr Krbaleski, Resources DJPR
23	11/01/21	Letter from DELWP to Inquiry - Response to Inquiry questions	Ms Simpson, DELWP Forest Fire and Regions Gippsland
24	12/01/21	Email to Parties in regard to request for the submitter conference to be recorded	Ms Selvaraj, PPV
25	13/01/21	Letter from Southern Rural Water to Inquiry - Response to Inquiry questions	Mr Christie, Southern Rural Water
26	"	Golden Beach Gas Project Inquiry - Final List of Issues and Agenda (v2)	Ms Carlisle, Inquiry Deputy Chair
27	18/01/21	Golden Beach - Vegetation Quality Assessment Sheets	Ms Rowarth, General Counsel for GB Energy