

Chapter 27

Conclusion



27.1 Overview

AGL Wholesale Gas Limited (AGL) and APA Transmission Pty Ltd (APA) are proposing to develop the Gas Import Jetty and Pipeline Project (the Project) to supply imported natural gas into the south eastern Australian gas market for industrial, commercial and residential gas customers. The Project would meet a projected gas supply shortfall and improve gas supply certainty from 2024 onwards.

The Project would help deliver on AGL's commitment to deliver gas supply certainty to the south eastern Australian market safely, within agreed timeframes and at competitive prices, while balancing economic, social and environmental factors.

The key objectives of the Project are to:

- provide security and stability of gas supply for south-eastern Australia
- expand AGL and the broader market's capacity to provide gas to where it is needed, helping to put downward pressure on prices
- allow the most competitive sources of gas, most likely from overseas, to be supplied to the Australian east coast gas market
- provide an additional source of supply to the Australian gas market over the short to medium term so the market is well supplied if additional gas reserves in Australia fail to be commercialised
- provide supply flexibility that can be ramped up to address and manage emergencies at critical infrastructure such as the Longford Pipeline or the South Eastern Australia Gas Pipeline
- provide additional capacity and reliability for new residential, commercial and industrial customers.

Through the EES process, AGL and APA as the joint proponents for the Project have sought to:

- address the EES scoping requirements, including requirements in relation to controlling provisions under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cth)
- evaluate the Project's risks and potential impacts
- undertake an integrated assessment of the potential environmental effects of the Project through detailed technical investigations presented in 17 technical reports
- develop an Environmental Management Framework (EMF) to outline a transparent framework with clear accountabilities for managing and monitoring environmental effects and hazards associated with construction and operation of the Project to achieve acceptable environmental outcomes
- involve and inform the public and stakeholders about the Project, its potential environmental, social and economic impacts and how these impacts would be avoided, minimised or managed.

The assessments undertaken for the EES demonstrate the Project would:

- meet the evaluation objectives set out in the EES scoping requirements
- meet the Project objectives
- be constructed and operated in accordance with relevant legislation and policy
- avoid, minimise or manage potential impacts to achieve acceptable environmental, social and economic outcomes with the adoption of the proposed mitigation measures (outlined in the EMF) and their integration into relevant statutory approvals and consents.

27.2 Project evaluation against the scoping requirements

The Project has been assessed against the draft evaluation objectives set out in the EES scoping requirements. The draft evaluation objectives identify the desired outcomes to be achieved in terms of identifying and managing the potential impacts of constructing and operating the Project.

A summary of the assessment of the Project against the draft evaluation objectives is provided in the following sections.

27.2.1 Energy efficiency, security, affordability and safety

Evaluation objective:

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

EES documents relevant to this draft evaluation objective:

- **Chapter 2** Project rationale
- **Chapter 16** Safety, hazard and risk and EES Technical Report K: Safety, hazard and risk impact assessment.

The Project would provide Victoria gas supply certainty and security for gas customers, and customers from other states that rely on Victoria's gas supply. It would put downward pressure on gas prices for residential customers as well as vulnerable industrial and commercial customers and provide a flexible source of gas for gas power generation so that customers have secure and stable electricity supply.

The operating timeframe of the FSRU is expected to be approximately 20 years, although this timeframe may be shortened or extended to address security and stability of gas supply to south-eastern Australia.

To assess the safety, hazard and risks of the Project, AGL and APA have undertaken and plan to undertake numerous formal safety studies and hazard assessment. To date, safety studies, hazard identification and risk assessments undertaken as part of the EES have demonstrated that with implementation of the identified mitigation measures, potential risks to people, property and the environment would be as low as reasonably practicable during construction and operation of the Project.

The current pipeline safety management studies identified potential threats to the Pipeline Works. Credible risks were further evaluated, and appropriate mitigation measures were incorporated into the design. Of the credible threats, one was evaluated as presenting an intermediate risk. This related to the risk of the pipeline being punctured by vertical auger boring (drilling) to install new power poles.

Mitigation measures were developed and incorporated into the pipeline design such as physical protective measures of wall thickness and depth of cover for the pipeline to meet the most conservative land use assigned for the study area (T1 – residential), therefore exceeding the requirements of AS/NZS 2885.1 Pipelines – Gas and liquid petroleum (Part 1: Design and construction) for the known threats to the pipeline.

The initial quantitative risk assessment results for the Gas Import Jetty Works show that fatality risk due to a potential major incident such as a fire or explosion at the Gas Import Jetty Works and the Pakenham Delivery Facility meet their respective adopted tolerable criteria for their surrounding land uses using the approach taken in the New South Wales *Hazardous Industry Planning Advisory Paper No.4 – Risk Criteria for Land Use Safety Planning*. Subsequently, these potential facilities do not present an unacceptable risk to any of the adjacent land uses.

The risk studies continue to be developed as the detailed design of the Project progresses. Approvals would be required from relevant authorities for the final design including various maritime and land-based approvals and the Project would be subject to rigorous safety requirements. Key safety approvals include the safety case and Safety Management Plan for the Pipeline Works, and the safety case for the land-based components of the Gas Import Jetty Works. A safety case for the FSRU component of the Gas Import Jetty Works is not currently required under Victorian Occupational Health and Safety laws, but a safety case is being prepared that is consistent with the Major Hazard Facility requirements as if they were applicable to the FSRU.

27.2.2 Biodiversity

Evaluation objective:

Biodiversity: To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities

EES documents relevant to this draft evaluation objective:

- **Chapter 2** Project rationale
- **Chapter 3** Project development
- **Chapter 6** Marine biodiversity and EES Technical Report A: Marine biodiversity impact assessment
- **Chapter 7** Terrestrial and freshwater biodiversity and EES Technical Report B: Terrestrial and freshwater biodiversity impact assessment.

Terrestrial Biodiversity

The initial selection of the pipeline route between Crib Point and Pakenham considered previous and existing land uses, opportunities for co-location with existing infrastructure and potential to use already disturbed areas that are cleared of native vegetation. The purpose of these high-level considerations was to avoid or minimise potential impacts on environmentally sensitive areas, current and proposed land uses and communities where possible.

The alignment of the pipeline was selected and refined to minimise loss of native vegetation (including but not limited to habitat for threatened and non-threatened flora and fauna) in accordance with relevant legislation, regulations, codes of practice and guidelines, including: AS2885.1-2012 Section 4.2; the Australian Pipelines and Gas Association Code of Environmental Practice: Onshore Pipelines; the Significant Impact Guidelines 1.1 (EPBC matters) and Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning (DELWP), 2017). Specific measures to avoid or minimise impacts include the use of horizontal directional drilling (HDD) in sensitive locations such as dense vegetation and at waterway crossings. HDD construction methods would be used for approximately eight kilometres of the total 57-kilometre approximate pipeline length.

Targeted surveys have formed part of a comprehensive field survey program carried out as part of EES investigations, which, along with a review of available literature, has enabled an understanding of existing values and threatened flora and fauna that are likely to be present in or to use the Project Area.

Targeted surveys resulted in pipeline design revisions to avoid habitat for the Southern Brown Bandicoot (such as at Cardinia Creek), which is listed as endangered under the EPBC Act. Design iterations have also resulted in the avoidance of habitat and individual species of Merran's Sun-orchid, Gaping Sun-orchid and Pallid Sun-orchid.

Open trenching during pipeline construction would occur through areas of suitable habitat for Dwarf Galaxias (Craigs Lane Drain, Tooradin Inlet Drain, Hagelthornes Drain and Western Outfall Creek), which may result in minor short-term impacts to this species. Mitigation measures to reduce potential impact on suitable habitat for this species include trenching of watercourse crossings during no or low flow conditions and installation of flow diversion measures.

Approximately 17 hectares (ha) of native vegetation would be removed during the construction of the Project, including scattered and large trees, and the removal of individual examples of significant flora species or their habitat. The removal of native vegetation also has the potential to fragment habitat for species such as Southern Brown Bandicoot. Rapid re-establishment of dense ground cover would minimise potential fragmentation and connectivity impacts after construction. The removal of any native vegetation would be offset in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017). The Project is anticipated to be able to satisfy all offset requirements.

Significant adverse impacts on terrestrial flora and fauna values during operation are unlikely. Potential impacts identified related to noise, lighting, spills and leaks. The assessments determined that these impacts would be highly localised to the area immediately adjacent to the FSRU. It is not anticipated potential impacts would occur to the adjacent secondary water and waterbird foraging habitats of Woolleys Beach, nearby seagrass beds and mangroves or impact the food chain such that effects would be felt to any of the nearby sensitive receptors. Primary foraging and roosting areas for waterbirds are some distance from the FSRU and are not expected to be impacted by lighting or noise from the FSRU or the Crib Point Receiving Facility, or changes to the marine environment associated with cooler or warmer water discharges containing chlorine-produced oxidants and products from the electrolysis of seawater. The level of entrainment of small marine biota into the FSRU water intakes is predicted to be small and unlikely to impact on waterbird food sources.

The EES found that there is a negligible risk that the Project would change the ecological character of the Western Port Ramsar site and no significant impacts were identified for listed threatened (nine EPBC Act listed threatened species and 13 Flora and Fauna Guarantee Act 1988 (FFG Act) listed species) and migratory species (25 EPBC Act-listed species) from the FSRU operation.

Marine biodiversity

During construction of the facilities on the Crib Point Jetty, spills and leaks of contaminants could occur. These types of spills and leaks would involve very small quantities in contained areas (bunded work areas, workshops, equipment operational areas) and be quickly identified and managed with documented standard operating procedures. Spills or leaks during construction of the facilities on the Crib Point Jetty would generally cause minimal damage to the surrounding environment.

A detailed investigation was made of the potential risks to the marine environment from the operation of the Project. The main risks to the marine environment are from the intake and discharge of seawater from the FSRU, including:

- entrainment of plankton and other small biota in seawater taken into the FSRU primarily for heating the liquefied natural gas (LNG) and other purposes
- discharge of residual chlorine from the electrolysis of seawater used to control biofouling in the piping network and heat exchangers on the FSRU
- discharge of seawater cooler than ambient seawater as well as discharge of seawater warmer than ambient seawater, from alternative modes of FSRU operation.

Entrainment of plankton and other small marine biota

During operation, the FSRU would take in seawater from Western Port for the heat transfer process associated with regasification, and for other purposes such as for ballast water, the firefighting system and freshwater production. The seawater is taken into the FSRU through sea chests on the sides of the FSRU and chlorinated by an electrolytic process before being used on the vessel and discharged through the discharge ports back to Western Port.

The potential adverse effect of drawing in water into the FSRU through the seawater intake is entrainment of smaller marine organisms (very small fish, zooplankton, phytoplankton, drifting eggs and larvae) in the central part of the water column adjacent to the intake.

The effect of entrainment on plankton and other small biota was modelled using a combined mathematic hydrodynamic and particle dispersion model. Model particles simulating planktonic biota were released from various ecological zones in Western Port and were tracked on a daily basis over a 28-day period to determine:

- percentage of particles that would be entrained in seawater taken into the FSRU
- percentage of particles that would be dispersed into other ecological zones in Western Port
- percentage of particles that would be flushed to Bass Strait
- percentage of particles that would remain in the ecological zone where they started.

Table 27-1 summarises the percentage of particles and, by inference, the percentage of biota that are predicted to be entrained from all ecological zones in the North Arm of Western Port over a period of up to 28 days for:

- various rates of gas production when the FSRU is operating in open loop regasification mode
- closed loop regasification mode (seawater flows do not change depending on the rate of gas production when the FSRU is operating in closed loop mode).

The seawater intake and discharge volumes for when the FSRU is operating in combined loop mode are the same as those for open loop regasification mode.

For the peak rate of gas production using open loop regasification mode (and therefore for when the largest volume of seawater is being drawn into the FSRU), the predicted rate of entrainment is 0.22 per cent of particles in all ecological zones in the North Arm of Western Port after 14 days or 0.40 per cent of particles in all ecological zones in the North Arm of Western Port after 28 days. This corresponds to an additional mortality rate of 0.014 per cent per day compared with natural mortality in the same environment.

Table 27-1: North Arm entrainment rate predictions for various production rate

Period (days)	Model Scenario			Losses to Bass Strait
	Peak production Open loop	Average production Open loop	Closed loop	
1	0.04%	0.03%	0.02%	0.4%
7	0.13%	0.08%	0.05%	2.7%
14	0.22%	0.14%	0.09%	7%
21	0.30%	0.20%	0.12%	18%
28	0.40%	0.26%	0.16%	26%

From a comparison of the rate of entrainment (in the first three columns in **Table 27-1**) with the rate of flushing to Bass Strait (in the final column), the predicted rate of entrainment is extremely small relative to the rate of flushing and unlikely to have significant implications on Western Port's ecosystem.

For phytoplankton, there is a small predicted decrease in primary productivity in North Arm when the FSRU is operating at peak production in open loop regasification. Predicted entrainment would be less when the FSRU is operating at lower gas production rates (compared with peak production) as less seawater would be drawn in to the FSRU for the regasification process (and therefore the risk of entrainment of organisms would be lower). There is no predicted loss of organic carbon or nutrients due to entrainment. The organic carbon and nutrients in the plankton entrained would remain in North Arm and be cycled by bacteria and infauna.

A wide range of fish eggs and larvae were collected in samples at Berth 2 and around North Arm over a 12-month period. Fish larvae numbers for most groups were strongly seasonal, with numbers increasing from spring (from September), peaking in November and December and reducing through summer as they transform into free swimming forms or recruit to preferred habitats away from the waters of the main shipping channel.

The potential effects of entrainment on fish larvae and fish eggs would be highest over spring and summer given the strong seasonal pattern in ichthyoplankton abundance. In addition, during spring and summer, larvae of most ecological importance are in the water column. The fish species that are present in North Arm are highly fertile and common throughout Western Port and elsewhere. Fish larvae and juvenile fish also enter Western Port from other breeding and nursery areas via Bass Strait.

To ensure there is not high entrainment in the peak season for larvae, a limit on seawater use for the regasification process (excluding intermittent flows such as ballast water and other minor uses) (over any 14-day period in spring and summer) has been adopted. Additional mitigation measures have also been defined for the location and size of the seawater intake, and for discharge of the seawater back to Western Port. Together these recommended mitigation measures would enable the FSRU to operate in open loop regasification mode all year with a residual risk of potential entrainment impacts on fish eggs and larvae not exceeding low.

Seawater discharges

The predicted extent of elevated chlorine and seawater temperature changes, in relation to the guideline limits/values, would be limited to a zone in the shipping basin and ship berthing areas within the Port of Hastings boundaries that was previously dredged and is regularly subject to sediment resuspension by propeller wash from existing shipping activities at Crib Point Jetty.

The modelling carried out for temperature and chlorine discharges from the FSRU identified that the intermittent presence of an LNG carrier moored alongside the FSRU when LNG is being delivered had the most substantial effect on the area that the relevant Guideline Values would be exceeded. LNG carriers would berth adjacent to the FSRU up to 40 times per year for up to 36 hours each time, meaning this scenario would not occur more than 60 days per year, and is likely to be less than this.

When there is no LNG carrier moored next to the FSRU, there is a small footprint (approximately 0.7 ha) where a pool of cooler seawater is predicted to form on the seabed for a short period at slack water. The pool of cooler seawater would last for less than an hour before the increase in tidal currents stimulates mixing.

Under the same scenario, the time-averaged chlorine level is less than the Guideline Value for chlorine of 6 µg/L at all sites in the regional model, with only a small zone in the discharge plumes (approximately 0.2 ha) predicted to have chlorine levels above the Guideline Value. The discharge plumes would be in the immediate vicinity of the FSRU, which corresponds with the Port of Hastings area at Berth 2 of the Crib Point Jetty.

When an LNG carrier is moored alongside the FSRU, there would be a larger footprint (of up to 20 ha) where a pool of cooler seawater forms on the seabed during each slack water, lasting for one to two hours. Under the same scenario, the time-averaged chlorine level is predicted to exceed the Guideline Value for chlorine (6 µg/L) over an area of approximately 5 ha.

In closed loop regasification operations there is a small footprint of 0.2 ha of chlorine above the Guideline Value predicted to occur at the rear of the FSRU.

This worst-case modelled scenario is not typical of expected operations. It is expected the FSRU would generally be operating in open loop regasification mode at a lower rate of gas production and so a lower volume of cooler water containing chlorine would be discharged. Where this is the case, the predicted area of the seabed where the temperature and chlorine Guideline Values would be exceeded decreases compared with the worst-case modelled scenario.

The area of North Arm at Western Port where the Guideline Values for temperature and chlorine is localised to the Port of Hastings area including the shipping basin and ship berthing areas within the Port of Hastings boundaries. The area where exceedances of the Guideline Values are predicted under worst case operations are well separated from the edges of North Arm, all seagrass and mangrove areas, all of the northern area of Western Port and all areas used by wading birds. Mangroves, saltmarsh, seagrasses, subtidal reefs and water birds would therefore not be impacted by the regasification processes under open loop and closed loop regasification modes operating up to peak production.

The EES outlines a program of monitoring to be implemented to verify that actual environmental impacts are not greater than predicted, and that if any unexpected circumstances are detected these are responded to appropriately to meet the environmental responsibilities of AGL and APA. The marine monitoring program would be required in relevant approvals such as the Works Approval and EPA Licence for the FSRU and the EPBC Act approval for the Gas Import Jetty Works.

Other possible impacts on the marine environment

Other risks and potential impacts from the Project are associated with activities that are common to normal shipping activities and which are occurring already within Port of Hastings waters.

Although there is a risk of leaks and spills occurring from the carrier vessels, FSRU, and works on the Crib Point Jetty and the Crib Point Receiving Facility, it is anticipated the proposed mitigation measures can readily manage any potential impacts. Mitigation measures require storage, handling, usage and disposal of hazardous substances, materials and wastes are undertaken in accordance with relevant standards and Operational Environmental Management Plans (OEMPs). In addition, these mitigation measures are industry-standard and already adopted for vessels operating in the Port of Hastings.

Ballast water for the FSRU would be managed in accordance with current Port of Hastings protocols and the *Australian Ballast Water Management Requirements* and the *Biosecurity Act 2015 (Cth)*. The FSRU would generally be taking on ballast water from Western Port so there is negligible risk of additional marine pests being introduced. The anti-fouling paints used on the FSRU would meet the requirements of the *International Convention for the Prevention of Pollution from Ships (MARPOL)* and the *Maritime Environment Protection Committee of the International Maritime Organization*.

Sewage, oily waste, debris and litter would be collected and stored on-board the FSRU and taken to a licenced treatment facility for treatment and disposal by licenced waste contractors as required. There would be dedicated containers on the vessel for generated waste streams.

The impacts from potential physical disturbance of the marine environment at Crib Point (such as seabed scour, vessel grounding and underwater noise) and potential biological disruption (such as marine pest introduction and whale strike) have been assessed as being low and able to be suitably managed through compliance with relevant requirements and regulations such as the *Port of Hastings Development Authority Safety and Environmental Management Plan* and *Port Operating Handbook*, and the Project OEMPs.

27.2.3 Water and catchment values

Evaluation objective:

Water and catchment values: *To minimise adverse effects on water (including groundwater, waterway, wetland, estuarine, intertidal and marine) quality and movement particularly as they might affect the ecological character of the Western Port Ramsar site*

EES documents relevant to this draft evaluation objective:

- **Chapter 6** Marine biodiversity and EES Technical Report A: Marine biodiversity impact assessment
- **Chapter 8** Surface water and EES Technical Report C: Surface water impact assessment
- **Chapter 9** Groundwater and EES Technical Report D: Groundwater impact assessment

The EES technical studies have identified that construction and operation of the Project poses limited risks to soils, groundwater and receiving surface waters (marine and freshwater). It was identified that overall there would be low to negligible risk of change in the ecological character of the Western Port Ramsar site and no significant impacts for listed threatened and migratory species from the FSRU operation.

Several of the potential groundwater impacts associated with construction of the Pipeline Works are related to the reduction of groundwater levels if dewatering activities are required. This has the potential to affect registered bore users, groundwater dependent ecosystems and induce saline intrusion. Other potential impacts identified are related to groundwater quality impacts from HDD drilling muds, poor quality runoff entering open trenches and interconnection of aquifers during auger drilling for piling.

Construction impacts on groundwater have been assessed and are considered to be low with implementation of additional mitigation measures including limiting the duration of dewatering activities, using non-toxic and biodegradable HDD drilling muds, conducting works in low or no flow conditions and minimising the time trench sections are open.

In relation to surface water, the potential construction impacts of the Pipeline Works would be temporary and readily managed by best practice industry mitigation measures. Potential impacts include runoff from disturbed areas containing sediment, trenching, stockpiling of material, the creation of disturbed areas and trenching across waterways, which all increase the potential for sediment to discharge to nearby waterways and be deposited in the Western Port Ramsar site. In addition, there may be an increase in flood levels which could impact neighbouring properties through stockpiling materials for significant lengths.

HDD has been adopted as the pipeline alignment construction method where there is a substantial risk for sediment to enter waterways that drain into Western Port Bay. This construction method reduces the risk of sedimentation exceeding EPA Victoria limits to low. Temporary changes in hydrological regimes may occur within a number of creeks, rivers or waterways during construction of the Pipeline Works, particularly at waterways where trenching is proposed. The assessment found there were no potentially unacceptable environmental impacts on surface water from construction activities associated with the Pipeline Works with appropriate industry accepted mitigation measures in place.

The EES found the potential environmental risk associated with acid sulfate soils (ASS) is limited by the shallow depth of trenching, selective use of HDD and the planned short duration of stockpiling and dewatering activities (where groundwater is intersected).

The potential for disturbance and inappropriate management of contaminated soils and ASS to affect the ecological character of the Western Port Ramsar Site during construction and operation of the Project is considered to be low or very low with the relevant mitigation measures in place.

The EES found the potential impacts to water and catchment values during operation include:

- reducing groundwater levels by creating a preferential flow path within the trench
- groundwater levels and flow due to the installation of piles at the Crib Point Receiving Facility
- spilling of hazardous chemicals or substances from machinery/plant, fuel and chemicals storage
- changes in floodplain function from the construction of permanent infrastructure
- maintenance activities such as firefighting system testing and operation
- receipt and addition of odorant and nitrogen and pigging activities.

Overall, the EES found the potential impacts on water and catchment values during operation to be minimal and that the potential impacts would be appropriately managed by the implementation of the mitigation measures identified.

27.2.4 Cultural heritage

Evaluation objective:

Cultural heritage: *To avoid or minimise adverse effects on Aboriginal and historic cultural heritage*

EES documents relevant to this draft evaluation objective:

- **Chapter 21** *Aboriginal cultural heritage* and EES Technical Report P: *Aboriginal cultural heritage impact assessment*
- **Chapter 22** *Historic heritage* and EES Technical Report Q: *Historic heritage impact assessment*

Three Cultural Heritage Management Plans (CHMPs) were prepared to comply with the EES process and to assess the likelihood of harming Aboriginal cultural heritage within the Project's construction and operation footprint.

The CHMPs for the Pipeline Works (CHMPs 15383 and 152384) and the Gas Import Jetty Works (CHMP 16300) identified 14 registered Aboriginal cultural heritage places within the construction and operation footprint. Four of these places were previously registered and an additional 10 were identified during investigations for the CHMPs. The Project's construction is expected to disturb some of these places. The study identified additional risks including the disturbance of not previously registered Aboriginal cultural heritage places.

Mitigation measures include implementing and complying with the CHMP management conditions and marking construction areas with survey pegs and/or marking tape or similar to keep construction works within approved CHMP Activity Areas.

The management conditions for each CHMP were developed in consultation with relevant regulatory bodies and Traditional Owner groups. The conditions include general and specific conditions and they become legal requirements once the CHMPs are approved under the *Aboriginal Heritage Act 1996 (Vic)*.

The Project has avoided direct impacts on historic heritage as far as practicable. The curtilage of the Denham Road farmhouse, which is listed on the Victorian Heritage Inventory, would be impacted during pipeline construction. However, there would be no direct impacts to the farmhouse itself due to the use of HDD at this location. In addition, there is potential for construction works to indirectly impact the former BP refinery administration building, as trenching and a laydown area would occur near the building's curtilage which may result in vibration impacts. A condition survey and monitoring during construction at this site would ensure that works with potential to cause vibration impacts were conducted appropriately.

No unacceptable impacts associated with the operation of the Project were identified in relation to Aboriginal cultural heritage or historic heritage.

27.2.5 Social, economic, amenity and land use

Evaluation objective:

Social, economic, amenity and land use: *To minimise potential adverse social, economic, amenity and land use effects at local and regional scales*

EES documents relevant to this draft evaluation objective:

- **Chapter 12** Air quality and EES Technical Report G: *Air quality impact assessment*
- **Chapter 13** Noise and vibration and EES Technical Report H: *Noise and vibration impact assessment*
- **Chapter 14** Landscape and visual and EES Technical Report I: *Landscape and visual impact assessment*
- **Chapter 15** Transport and EES Technical Report J: *Transport impact assessment*
- **Chapter 17** Land use and EES Technical Report L: *Land use impact assessment*
- **Chapter 18** Social and EES Technical Report M: *Social impact assessment*
- **Chapter 19** Business and EES Technical Report N: *Business impact assessment*
- **Chapter 20** Agriculture and EES Technical Report O: *Agriculture impact assessment*

The Project has been developed to minimise potential adverse impacts at local and regional scales from a social, economic, amenity and land use perspective. Of the Project components, the Pipeline Works have been designed to avoid urban areas and sensitive land uses, and the FSRU would be located within the existing port and away from sensitive receptors.

Potential impacts during construction

The EES has assessed potential noise and vibration, air quality and traffic and access impacts on sensitive receptors during construction of the Project using quantitative and qualitative assessment methodologies. The assessment of these potential impacts has subsequently informed an assessment of potential temporary land use changes, changes to the way public areas and facilities are used and potential impacts such as disturbance on businesses and other sensitive receptors.

It is anticipated there would be some minor amenity impacts during construction, but these are not anticipated to have significant or ongoing adverse impacts on sensitive receptors or areas of public land. Along the proposed pipeline alignment, dust and noise impacts would be localised and short-term given the linear progression of construction.

Some traders in the retail and manufacturing sectors in Hastings are anticipated to experience some minor, temporary access changes for staff and customers, and reduced amenity due to noise and dust during pipeline construction. These impacts would be temporary and unlikely to result in significant impacts.

Some users of open space at Crib Point (such as Woolleys Beach North) may temporarily choose to use other areas in the vicinity if construction noise from the Gas Import Jetty Works causes disturbance. However, exceedance of the noise levels at these open space locations would be minor and intermittent and construction impacts would be temporary.

Construction activities across the Project Area would result in a temporary loss of visual amenity and landscape character. A key impact of the Pipeline Works would be the clearing of vegetation in the right of way (ROW) during construction. Amenity impacts during construction have been minimised where possible through the optimisation of the pipeline alignment to determine the most efficient route with the least impact to visual amenity, the environment and community. Optimising the pipeline alignment allows for the retention of valuable vegetation and situates the works away from receptors.

The EES found the main agricultural impact would occur through the pipeline construction. Impacts would include reduced access on a temporary basis, potential loss of production, and loss or damage to agricultural facilities and capital improvements. To minimise these potential impacts, mitigation measures include (but are not limited to) negotiation of appropriate levels of compensation with landowners, effective landholder liaison, adhering to any reasonable landholder-specific biosecurity control measures and locating the construction right ROW adjacent to existing boundaries or fence lines.

During Project construction, road safety and traffic operation would be temporarily impacted in relation to traffic volumes, intersection safety, road closures, pedestrians and cycling, as well as impacts on public transport. Transport impacts are expected to be most pronounced at the peak of construction when the construction workforce volume is at its highest.

The development of a Traffic Management Plan (TMP) would be the primary mitigation measure to minimising these impacts. A TMP would be included in the CEMP for the Pipeline Works approved under the *Pipelines Act 2005* (Vic) and a TMP would also be included in the EMP to be required by the Incorporated Document for the Gas Import Jetty Works.

Potential impacts during operation

Amenity impacts from operation of the Project would be minor and generally restricted to the area around the existing operational port at Crib Point. There may be some ongoing minor change to amenity at areas of open space immediately adjacent to Crib Point Jetty due primarily to intermittent noise that may be more discernible when background noise levels are low (during the evening and night-time periods). These operational impacts would be extremely localised and would be unlikely to detrimentally impact on the use of these areas.

Impacts on agricultural activities once the pipeline is operating are considered unlikely. The pipeline is not considered likely to restrict the construction of farm improvements and deep cultivation within the pipeline easement nor loss of production through soil degradation caused by unsatisfactory reinstatement method. To avoid any potential ongoing loss of production, an appropriate reinstatement method would be implemented.

Minor impacts are expected to the level of service of key local and declared roads due to additional workforce, nitrogen and odorant truck movements during the Project's operation. These impacts would be managed through the implementation of a Nitrogen Transport Plan. Local roads and roads around urbanised areas such as Hastings would be avoided where feasible to avoid potential impacts on other road users and pedestrians and cyclists.

The Project would have a negligible to minor landscape and visual impact. The foremost visual impact would arise in relation to the FSRU and Crib Point Receiving Facility although these impacts are in the context of the existing use of the jetty. Lighting from the Gas Import Jetty Works would not cause an increase of directly measurable luminance at any of the assessed viewpoints. Vegetation screening, limited reflective infrastructure surfaces and appropriate materials and finishes would be implemented to above-ground facilities where possible to minimise potential adverse visual effects.

During operation, the Project would meet the State Environment Protection Policy (Air Quality Management) (SEPP (AQM)) design criteria at sensitive receptors and there are no forecast air quality impacts on other areas such as public spaces adjacent to the Crib Point Jetty. This indicates the FSRU could operate in compliance with the SEPP (AQM) and the *Environment Protection Act 1970* (Vic). While there would be exceedances of the SEPP (AQM) design criteria over water for NO₂, air quality impacts would likely be negligible due to the mostly transient nature of boating activities and the requirement, based on safety, for an exclusion zone from port operations at the Crib Point Jetty.

Modelled operational noise scenarios without mitigation measures for the facilities at Crib Point and Pakenham exceeded the EPA Victoria publication 1411 – *Noise from industry in regional Victoria (NIRV)* maximum recommended levels at nearby receptors. Mitigation measures would be implemented to ensure these facilities are designed and managed in accordance with EPA Victoria publication 1411 – *NIRV* and EPA Victoria publication 1413 – *Applying NIRV to proposed and existing industry*.

While concerns for potential risks to human health and safety may be held by users of private land and public areas, the actual risks are very low. Concerns held by the community would be addressed through ongoing safe operation and maintenance of the Project elements, and ongoing consultation with relevant stakeholders in accordance with the proposed Stakeholder Engagement Management Plan.

During operation, the Gas Import Jetty Works would make use of the existing commercial shipping channel and marine infrastructure within the Port of Hastings to import LNG. While commercial shipping and other port-related/industrial activities are an existing use of the Crib Point Jetty (Berth 1) and within a designated port, these uses are not necessarily considered by some to be compatible with the use of adjacent areas for social activity and active and passive recreation. As a result, there is potential for a change to the pattern of recreational use at the Woolleys Beach Reserve with a potential shift to a greater use of Woolleys Beach South Reserve or other recreational areas in the area. This may occur due to a change in the noise and/or visual environment due to the operation of the FSRU and the Crib Point Receiving Facility.

In consultation with the Crib Point Stony Point Committee of Management and the community, AGL and APA would seek to identify a suitable foreshore location to accommodate activity that may be displaced from Woolleys Beach North.

The FSRU may also be visible to some residents along The Esplanade at Crib Point. Measures have been developed so that lighting is appropriately designed to minimise the effects of lighting on nearby receptors.

A Stakeholder Engagement Management Strategy would be implemented to facilitate ongoing consultation. A complaints management system would also be put in place that documents the details of any complaints made and actions taken to rectify and minimise risk of reoccurrence.

The operation of the Project would result in minor impacts to existing and future land uses where the pipeline easement would place constraints on existing and future land uses, and the acquisition of easements for pipeline infrastructure and a small parcel of land for the Pakenham Delivery Facility would be required. Neither of these land acquisitions are expected to have significant impacts given the proposed location of the pipeline, the limited number of land uses affected, as well as the broadacre rural use of the affected land. Overall, operational impacts would be minimal.

The overall Project has been assessed as being consistent with the general land use policies and provisions within the local Planning Schemes along the pipeline alignment. To provide for a co-ordinated and integrated planning process for the Gas Import Jetty Works (including the FSRU), a Planning Scheme Amendment (PSA) has been prepared. The PSA proposes to apply the Specific Controls Overlay to the Gas Import Jetty Works (including the FSRU), allowing for the application of an Incorporated Document under the Mornington Peninsula Planning Scheme. The Incorporated Document would permit the use and development of land for a Liquefied Natural Gas Import Facility (innominate land use including Wharf and Utility Installation land uses).

No substantial impacts associated with local businesses were identified for the Project's operation.

The community fund of \$7.5 million proposed by AGL is a beneficial outcome, which is to be established as a mechanism for sharing some of the benefits of the Project with the local community. Specifically, for communities such as Hastings and Crib Point, the fund seeks to address local social disadvantage. The community fund would be managed by a panel of community-based representatives if the Project proceeds.

27.2.6 Waste management

Evaluation objective:

Waste management: *To minimise generation of wastes by or resulting from the Project during construction and operation, including accounting for direct and indirect greenhouse gas emissions*

EES documents relevant to this draft evaluation objective:

- **Chapter 9** Groundwater and EES Technical Report D: Groundwater impact assessment
- **Chapter 10** Contamination and acid sulfate soils and EES Technical Report E: Contamination and acid sulfate soils impact assessment
- **Chapter 11** Greenhouse gas and EES Technical Report F: Greenhouse gas impact assessment

As the Project Area is largely surrounded by open agricultural or farmland, the potential for contamination is generally considered to be low. Areas of commercial and industrial land use, including a former landfill that may give rise to contamination along the pipeline alignment, are present within the study area. The presence of acid sulfate soils does not necessarily correlate with contamination rather underlying geology. If the contaminated soils were encountered during construction, this would be managed in accordance with the relevant environmental management plans and would be tested and disposed of at licensed facilities.

Risks associated with spills and waste streams from construction and operation of the Project have been identified as low, with measures in place to manage waste in accordance with relevant guidelines, as well as the implementation of measures to prevent spills as outlined in the Gas Import Jetty Works EMP and Pipeline Works CEMP.

The EES found the risk of potential impacts from contamination and acid sulfate soils from construction and operation of the Project have been identified as low or very low, with the relevant mitigation measures in place. However, the identified potential impacts to human health and the environment from operation of the Project include: leaks or spillages from machinery/plant, fuel and chemicals storage; maintenance activities such as firefighting system testing and operation; receipt and addition of odorant and nitrogen and pigging activities, and management of waste streams. The primary mitigation measure is to manage potential impacts in accordance with the relevant industry standard measures and the development of management plans and/or protocols in line with those measures.

Greenhouse gas emissions during construction are below the National Greenhouse and Energy Reporting (NGER) Scheme reporting requirements. The Project's estimated Scope 1 (direct emissions) and Scope 2 (indirect emissions) construction emissions are estimated to contribute the equivalent of 0.02 per cent of Victoria's annual greenhouse gas emissions.

Scope 1 and 2 annual greenhouse gas emissions from operation of the Project are estimated to be the equivalent of 0.23 per cent of Victoria's annual emissions under a closed loop scenario and 0.06 per cent under an open loop scenario. The FSRU would operate primarily in open loop regasification mode, which would minimise greenhouse gas emissions compared with operating in closed loop regasification mode.

Greenhouse gas emissions associated with the operation of the FSRU would be managed in accordance with the EPA Victoria's Protocol for Environmental Management (PEM). The PEM would include conducting a minimum level 2 audit on the FSRU operation annually to identify inefficiencies; preparation of an action plan for implementing greenhouse gas emissions reduction measures; annual reporting of measures to the EPA Victoria; and regular reviews for a period of three years.

27.3 Environmental Management Framework

Section 5 of the EES scoping requirements establishes a requirement for an EMF to be prepared for the Project. It is stated 'the proponent needs to provide a transparent environmental management framework (EMF) for the Project in the EES with clear accountabilities for managing and monitoring environmental effects and hazards associated with construction, operation, and site reinstatement phases of the Project to achieve acceptable environmental outcomes'.

The proposed EMF for construction and operation of the Project addresses this objective by specifying the proposed environmental management and monitoring arrangements for the delivery of the Project (see **Chapter 25 Environmental Management Framework**). The EMF sets out the mitigation measures (MMs) developed in this EES to avoid, minimise or offset potential environmental, social and safety impacts. The EMF outlines the relevant statutory approvals and consents required for the Project and how the mitigation measures would be incorporated within the approval conditions or within Environmental Management Plans to be approved pursuant to the statutory approvals. It also outlines a program for community consultation, stakeholder engagement and communications during construction and operation of the Project, including opportunities for local stakeholders to engage with AGL and APA to seek responses to issues that might arise when the Project is undertaken.

The development of the EMF has been informed by the 17 specialist technical reports completed as part of the EES, the EES scoping requirements, and relevant legislation, policy and guidelines.

The key statutory approvals would include conditions requiring the preparation of management plans in accordance with the EMF. For the Pipeline Works, the Pipeline Licence would require a CEMP, Safety Management Plan and a Consultation Plan which would require approval by the Minister for Energy Environment and Climate Change and Energy Safe Victoria. For the Gas Import Jetty Works (including the FSRU), the proposed Planning Scheme Amendment would apply an Incorporated Document with conditions requiring approval of development plans and an EMP by the Minister for Planning. Other key statutory approvals such as the Works Approval for the FSRU, EPBC Act Approvals for each of the controlled actions, and consents under the *Marine and Coastal Act 2018* for components of each of the Gas Import Jetty Works and the Pipeline Works, would also incorporate relevant mitigation measures.

After the EES process is completed and all required statutory approvals obtained for the Project (if the Project is approved), relevant contractors would be engaged for the construction and operation of the Project. Tender documentation used for the appointment of contractors would require that contractors demonstrate compliance with AGL and APA's management plans, relevant legislative requirements, and Project approval conditions that have been obtained by AGL and APA.

AGL and APA consider the EMF is a robust framework for future management of the potential impacts of the Project to achieve acceptable environmental outcomes.

27.4 Justification

The aim of the Project is to meet the needs of industrial, commercial and residential gas customers on the east coast of Australia against a backdrop of predicted gas shortfalls in the south-eastern Australian states from 2024 onwards and improve gas supply certainty.

The Project would benefit the south-eastern Australian states as well as the national economy due to the interconnected nature of gas and electricity markets on the eastern seaboard and achieve a net community benefit.

The key objectives of the Project are to:

- provide security and stability of gas supply for south-eastern Australia
- expand AGL and the broader market's capacity to provide gas to where it is needed, helping to put downward pressure on prices
- allow the most competitive sources of gas, most likely from overseas, to be supplied to the Australian east coast gas market
- provide an additional source of supply to the Australian gas market over the short to medium-term, so the market is well supplied if additional gas reserves in Australia fail to be commercialised
- provide supply flexibility that can be ramped up to address and manage emergencies at critical infrastructure such as Longford Pipeline or the South Eastern Australia Gas Pipeline
- provide additional capacity and reliability for new residential, commercial and industrial customers.

Through the 17 detailed technical assessments presented in the EES, the potential environmental effects were assessed to demonstrate the Project meets the draft evaluation objectives and the Project objectives and can be constructed and operated in compliance with relevant legislation and policy. The assessments demonstrated the Project would avoid, minimise or manage potential impacts to achieve acceptable environmental, social and economic outcomes with the adoption of mitigation measures.

27.5 Next steps in the EES process

The EES for the Project, including the draft Planning Scheme Amendment, EPA Victoria Works Approval application and the Pipeline Licence application will be on public exhibition for 40 business days.

Written submissions on any matters described in the EES and approvals and licence documents can be made during this time.

Submissions can also be made on the draft Planning Scheme Amendment (Attachment VI Draft Planning Scheme Amendment), the Works Approval application (Attachment VIII Works Approval Application) and the Pipeline Licence application (Attachment IX Pipeline Licence Application).

The EES documents including the approvals and licence documents will be available online at www.gasimportprojectvictoria.com.au.

Register to receive an EES information pack, free of charge by phoning 1800 039 600 or emailing AGLcommunity@agl.com.au. An EES information pack contains:

- A USB loaded with the complete EES, draft Planning Scheme Amendment, EPA Works Approval and Pipeline Licence application
- A printed EES Summary Document
- A printed copy of the EES Map Book
- An information sheet on 'How to Navigate the EES'.

For those who may have accessibility issues, or where electronic options are impractical, hard copies may be requested, free of charge. Requested items will be provided in time for the start of the exhibition period. For requests received after exhibition starts, items will be provided within a week of your request.

Please note the EES is a long document and we encourage the use of electronic versions.

Making a submission

Submissions on the Gas Import Jetty and Pipeline Project EES, draft Planning Scheme Amendment, the Works Approval application and Pipeline Licence application must be made in writing and received by 11.59pm on Wednesday 26 August 2020.

Each submission will be treated as a submission in response to all the exhibited documents, so only one submission addressing all of your views about the Project is needed.

Online submissions are preferred and can be lodged via the Victorian Government's engagement website at www.engagevic.gov.au/crib-point-IAC.

For hard copy submissions to be considered, they must be accompanied by a coversheet, available by calling the Department of Environment, Land, Water and Planning Customer Service Centre on 136 186. Each written submission must have its own coversheet. Submissions cannot be directly copied from another.

All submissions must state the name and address of the person making the submission. Where a submission is made by two or more persons (including an organisation), it must state the name and address of the person who will speak to the submission in any public hearing and be the contact person for the submission. Anonymous submissions will not be considered. Submissions will be treated as public documents and will be published on the Victorian Government's engagement website. Therefore your submission and your name will be made public.

Information about the EES submission process or public hearings is available from the DELWP website at www.delwp.vic.gov.au or by phoning its Customer Contact Centre on 136 186.

Concluding the EES Process

The Minister for Planning will appoint a joint Inquiry and Advisory Committee (IAC) under the *Environment Effects Act 1978* and the *Planning and Environment Act 1987*. The IAC will also be appointed as a panel under other applicable legislation. It will review the public submissions, the EES, the draft Planning Scheme Amendment, the EPA Works Approval application and the Pipeline Licence application. It will review and consider the environmental effects of the Project in accordance with Terms of Reference issued by the Minister for Planning.

After the exhibition period, the IAC will hold a directions hearing in mid to late September 2020, where the necessary arrangements and timetable for the public hearing will be established. The public hearing is expected to commence from mid October 2020.

Information on the hearing process and timetable will be published as it becomes available at: www.engagevic.gov.au/crib-point-IAC

Members of the public and any other parties seeking to be heard at the public hearing are required to submit a written submission as outlined above and indicate that they would like to be heard at the hearing.

As a result of the current pandemic, the Minister has provided AGL and APA with amended procedures and requirements for the exhibition and inquiry phase of the Project. These state that the formal hearing would be conducted in the most practicable manner available under the prevailing circumstances and may include use of video conferencing or other comparable technology. Interested parties would be advised of this process closer to the date of the inquiry.

Following receipt of the inquiry report, the Minister for Planning will assess all relevant information including the EES documents, public submissions and the inquiry report. The Minister will then issue a written assessment of the Project's environmental effects, commonly known as the 'Minister's Assessment'. This assessment will recommend whether the Project's environmental effects are acceptable and set out any modifications or further management measures the Minister considers appropriate.

The Minister's Assessment must be considered by relevant Victorian statutory decision-makers responsible for determining key approvals for the Project.

The Commonwealth Minister for the Environment must also consider the Victorian Minister's assessment before deciding whether to grant approvals under the EPBC Act, and if so under what conditions.

27.6 Conclusion

As Victoria's population grows and the State's economy changes, the demand for energy is increasing, and there is a continued reliance for gas supply by industrial, commercial and residential users. The Project would provide Victoria with an alternate and flexible source of natural gas supply from existing and new LNG projects in Australia and around the world and has the potential to supply up to 160 petajoules of natural gas per annum in order to meet a projected gas supply shortfall from 2024 onwards.

The Project would contribute to the following benefits for Victoria:

- providing gas supply certainty and security for Victorian gas customers and customers from other states that rely on Victoria's gas supply
- putting downward pressure on gas prices for residential customers as well as vulnerable industrial and commercial customers, many of whom are large generators of employment
- providing flexible source of gas for gas power generation so that customers have secure and stable electricity supply as the National Energy Market transitions to accommodate an increasing penetration of renewables.

The EES for the Project provides an integrated assessment of the potential environmental, social and business impacts associated with construction and operation of the Project. AGL and APA's assessment of the potential impacts of the Project has been guided by the EES draft evaluation objectives contained in the scoping requirements prepared by the Minister for Planning. The EES details the systems and risk-based approach adopted to assess the potential impacts of the Project and develop mitigation measures.

AGL and APA consider the mitigation measures to be a suitable approach to manage the environmental, social and business outcomes of construction and operation of the Project – as part of a transparent and accountable overarching EMF. Demonstrating consistency with the EMF and meeting the obligations of statutory approvals and consents would result in the Project achieving acceptable environmental, social and economic outcomes. The EMF as implemented in the conditions of the relevant approvals would also ensure the ongoing design and development of the Project would avoid or reduce adverse impacts and achieve benefits for the whole of Victoria, and the east coast of Australia.