

# Chapter 5

## Key approvals and assessment framework

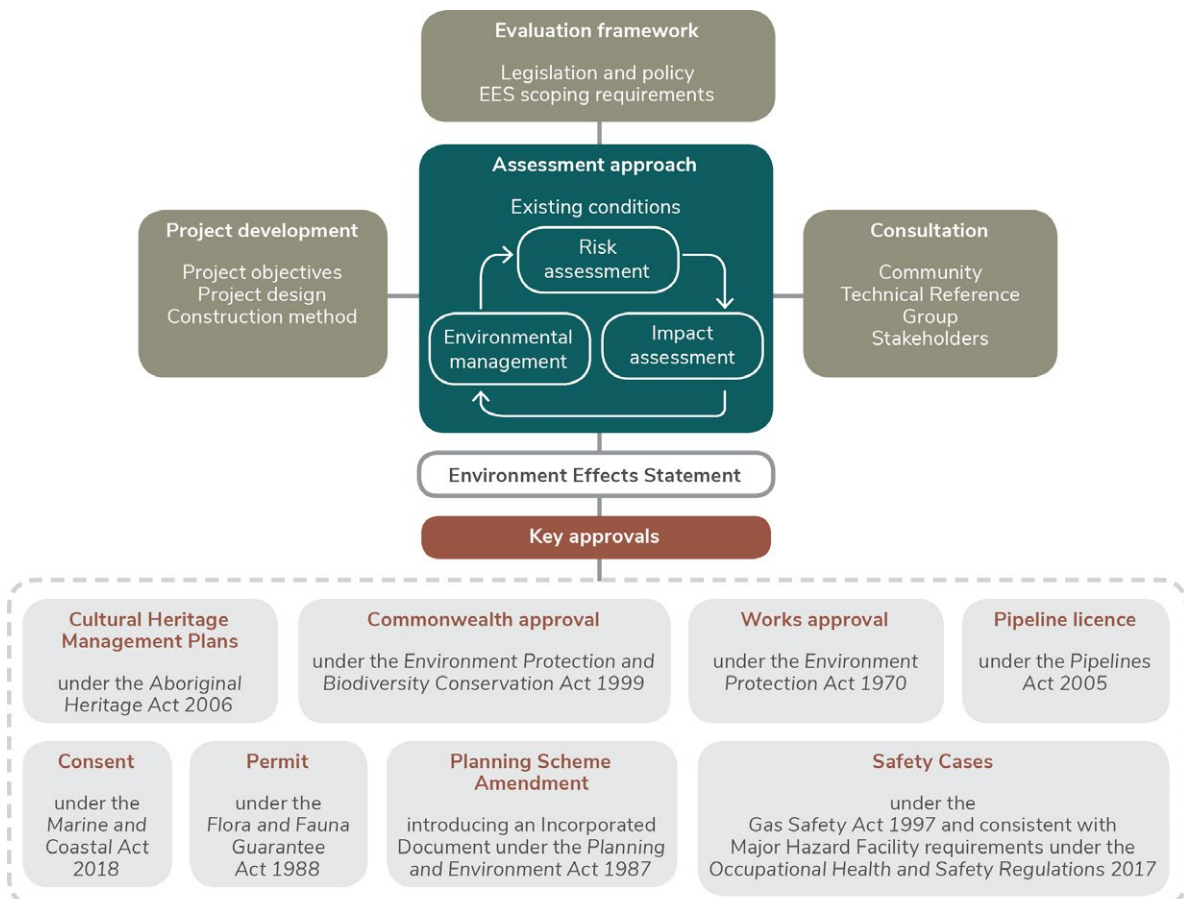


This chapter describes how the EES for the Gas Import Jetty and Pipeline Project (the Project) was prepared and explains the key approvals requirements and process for the Project. The chapter also describes how the environmental risks and potential impacts of the Project were investigated and how the Environmental Management Framework (EMF) was developed.

### 5.1 Overview of assessment framework

The relationships between the components of the EES assessment framework are shown in **Figure 5-1**.

▼ **Figure 5-1:** EES assessment framework



The key components of the assessment framework are:

- evaluation framework
- assessment approach
- Project development
- consultation.

The assessment framework for this EES was developed in the context of the EES scoping requirements provided by the Victorian Government and by relevant legislation and policy. The scoping requirements for the EES informed the specialist studies to be undertaken and the matters to be investigated as part of the EES.

The scopes of the specialist studies to be undertaken were also informed by issues raised during stakeholder engagement activities before and during the EES preparation and by issues identified as the Project design was refined during the EES process.

The outputs from the specialist studies are brought together in the completed EES, which informs decisions on the key approvals for the Project.

## 5.2 Key approvals

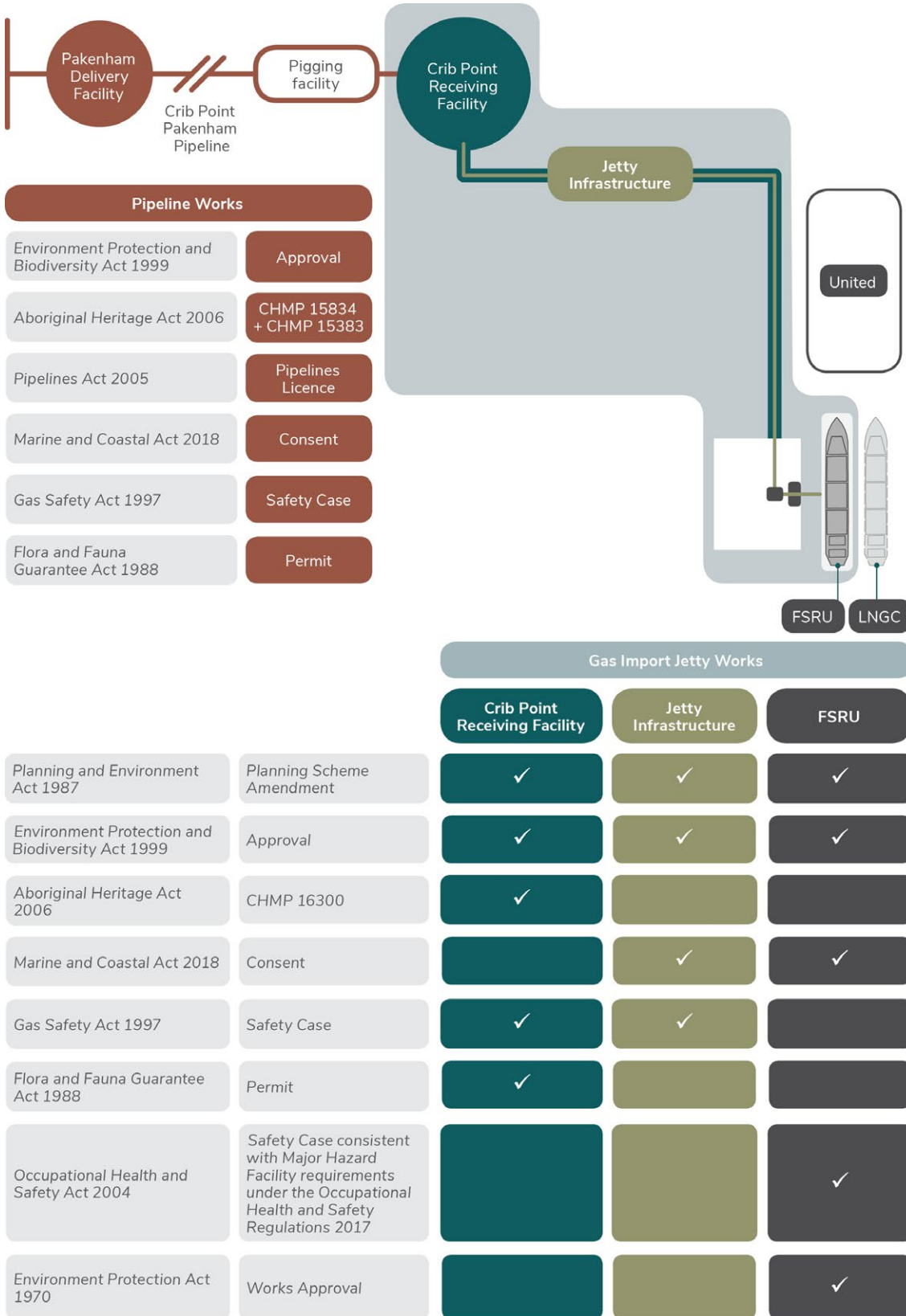
Victoria's *Environment Effects Act 1978* (Environment Effects Act) sets out the process under which the Victorian Minister for Planning may require the proponent of a project to prepare an EES. The EES process is an assessment that demonstrates the ability of a proposed project to meet the statutory requirements and is not an approval process itself. A project's statutory approvals cannot be considered and issued by regulatory authorities until the Minister's Assessment is made. Refer to **Chapter 1 Introduction** for further information on the EES process.

The Project requires a number of key approvals including:

- approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) for the Gas Import Jetty Works and the Pipeline Works
- Works Approval under the *Environment Protection Act 1970* (Environment Protection Act) (Vic) for the floating storage and regasification unit (FSRU) component of the Gas Import Jetty Works
- Pipeline Licence for the Pipeline Works under the *Pipelines Act 2005* (Vic), including a Construction Environmental Management Plan and a Safety Management Plan
- consent under the *Marine and Coastal Act 2018* (Vic) for development of marine and coastal Crown land, for the components of the Gas Import Jetty Works on the Crib Point Jetty and some components of the Pipeline Works
- Planning Scheme Amendment to apply the Specific Controls Overlay to the Gas Import Jetty Works including the FSRU allowing for the application of an Incorporated Document to the site under the Mornington Peninsula Planning Scheme and in accordance with the *Planning and Environment Act 1987* (Vic)
- Cultural Heritage Management Plans (CHMPs) for the Gas Import Jetty and the Pipeline Works under the *Aboriginal Heritage Act 2006* (Vic)
- Safety Cases under the *Gas Safety Act 1997* (Vic) and the *Occupational Health and Safety Act 2004* (Vic) (note the FSRU is currently not classified as Major Hazard Facility (MHF) under the *Occupational Health and Safety Act 2004*. WorkSafe Victoria is considering a change to the Regulations that would classify the FSRU as an MHF for the purposes of the *Occupational Health and Safety Act 2004*. While the MHF laws do not currently apply, AGL would submit a safety case that is consistent with MHF requirements to WorkSafe Victoria for approval as if the FSRU was an MHF) (see **Section 5.2.7** below for further details on requirements under the *Occupational Health and Safety Act 2004*)
- permits under the *Flora and Fauna Guarantee Act 1988* (Vic) for the removal of FFG Act-listed species (and may be required for 'taking' of fish by the FSRU water intake process).

**Figure 5-2** outlines the key approvals required for the Project. These key approvals and any additional approval requirements for the Project are discussed further in EES Attachment II *Legislation and policy report*.

▼ **Figure 5-2:** Key approvals for the Gas Import Jetty Works and the Pipeline Works



### 5.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Commonwealth Government's principal environmental protection and biodiversity conservation legislation.

The EPBC Act provides the legal framework for the conservation of biodiversity and the protection of the environment, particularly those aspects which are among the nine Matters of National Environmental Significance (MNES), including World Heritage properties, National Heritage places, Ramsar wetlands, listed nationally threatened species and listed native migratory species.

The Project was referred to the Commonwealth Government under the EPBC Act as two separate projects. On 28 November 2018, the delegate for the Commonwealth Minister for the Environment and Energy determined that the two projects were each a 'controlled action'. The EPBC Act states that 'controlled' actions, being actions that are determined as likely to have a significant impact on a MNES, are subject to assessment and approval under the EPBC Act.

The Victorian EES will serve as the accredited assessment process for the purpose of the EPBC Act by reason of a Bilateral Assessment Agreement between the Commonwealth and Victorian governments.

After considering the Victorian Minister for Planning's assessment under the *Environment Effects Act 1978* (Vic) (Environment Effects Act), the Commonwealth Minister for the Environment or their delegate will ultimately decide whether the action is approved, approved with conditions or refused under the EPBC Act.

The EPBC Act has particular relevance to the Project due to its potential for impacts on the ecological character of the internationally significant Ramsar listed Western Port Wetlands, listed threatened species and communities and listed migratory species. The Act will necessitate consideration of matters such as marine discharges and impacts on marine biota and waterbirds, potential entrainment of biota in water intakes from the FSRU and pipeline construction activities impacting on threatened terrestrial species and communities through habitat removal and other disruptions.

### 5.2.2 Pipelines Act 2005

The *Pipelines Act 2005* (Vic) (Pipelines Act) is the primary legislation governing the construction and operation of pipelines in Victoria. The Act covers 'high' transmission pipelines for the conveyance of gas, oil and other substances. The Department of Environment, Land, Water and Planning (DELWP) and Energy Safe Victoria (ESV) are responsible for administering the Act along with the Pipeline Regulations 2017. The Pipeline Works will require a Pipeline Licence under the Act for the construction and operation of the pipeline.

The Pipelines Act requires licensed pipelines to be constructed and operated in accordance with *Australian Standard 2885: Pipelines—Gas and liquid petroleum*. The standard requires pipeline licensees to implement a range of safety measures to reduce foreseeable risks associated with operating a licensed pipeline. This includes understanding how land is being used when pipelines are constructed and where land is planned to be redeveloped once they are operating.

The Pipelines Act specifies that a licensee must prepare a Safety Management Plan and Construction Environmental Management Plan, which are required to be submitted and approved by ESV and the Minister respectively. Pipeline operations cannot start without the approval of both requirements.

Where the Pipelines Act applies, it removes the requirement for approval under the *Planning and Environment Act 1987* although regard must be had for planning matters in the areas traversed by the pipeline.

The Pipelines Act does not apply to a pipeline which is wholly within a port. As the Gas Import Jetty Works (including the FSRU) are located entirely within declared Port of Hastings land, these works cannot be licensed under the Pipelines Act. As a result, approval for this component of the works will be under the *Planning and Environment Act 1987*.

### 5.2.3 Environment Protection Act 1970

The *Environment Protection Act 1970 (Vic)* (*Environment Protection Act*) provides a legal framework to protect the environment in Victoria, including the protection of air, land and water from pollution. The Act is outcome oriented, with a basic philosophy of preventing pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them.

The *Environment Protection Act* establishes the EPA Victoria to administer the Act and any regulations and orders made under the Act, including orders declaring State Environment Protection Policies (SEPPs).

The *Environment Protection Act* requires a Works Approval for scheduled premises which exceed air emissions thresholds under Schedule 1 of the *Environment Protection (Scheduled Premises) Regulation 2017 (Vic)*. As a result, a Works Approval for the floating storage and regasification unit (FSRU) component of the Gas Import Jetty Works is required, and the operation of the FSRU will require an EPA Licence.

The *Environment Protection Act 2017 (Vic)* (as amended by the *Environment Protection Amendment Act 2018 (Vic)*) is set to commence on 1 December 2021. This Act (as amended) will substantially amend the environment protection framework, including adopting a new general environmental duty and introducing a new permissions scheme including a development licence, operating licence, permits and registrations.

### 5.2.4 Marine and Coastal Act 2018

On 1 August 2018 the *Marine and Coastal Act 2018 (Vic)* (*Marine and Coastal Act*) came into effect and replaced the *Coastal Management Act 1995*.

The *Marine and Coastal Act* aims to protect Victoria's marine and coastal environment. The *Marine and Coastal Act* provides an integrated and coordinated approach to planning and managing the marine and coastal environment by enabling protection of the coastline and the ability to address the long-term challenges of climate change, population growth and ageing coastal structures.

Any use or development of coastal Crown land within 200 metres inland of the high-water mark requires consent under the *Marine and Coastal Act*.

The Project requires consent under the *Marine and Coastal Act* for the components of the Project to which this Act applies, namely to 'use or develop, or undertake works on, marine and coastal Crown land'. The Gas Import Jetty Works on the Port of Hasting Development Authority freehold land (namely the Crib Point Receiving Facility and other gas infrastructure) will not require consent under the *Marine and Coastal Act*. Other components, including the mooring of the FSRU and the jetty pipeline on the jetty will require consent. The *Marine and Coastal Act* will also apply to two areas where the pipeline alignment traverses coastal Crown land.

### 5.2.5 Planning and Environment Act 1987

The *Planning and Environment Act 1987* (Vic) (Planning and Environment Act) establishes a framework for planning the use, development and protection of land in Victoria.

The Planning and Environment Act provides for the preparation of planning schemes in each municipality consistent with the Victoria Planning Provisions (VPPs) and procedures by which planning schemes may be amended and planning permits obtained to govern land use and development.

The Pipelines Act exempts pipelines from the requirement of approval under the Planning and Environment Act where a Pipeline Licence is issued. Notwithstanding this exemption, the Planning and Environment Act requires the Pipeline Works to be considered in the context of the purpose and objectives of that Act and have regard for the intent of planning policies and guidelines contained within local planning schemes. Selection of the pipeline alignment had regard for the provisions of the Mornington Peninsula, Cardinia and Casey Planning Schemes including those related to environment, agriculture, urban development, landscape and amenity amongst others. These provisions were an important consideration in the alignment selection and refinement process influencing both the location of the alignment, for example, to avoid important resources such as intensive agricultural land and in the construction method, for example, application of underground drilling techniques rather than trenching to protect important environmental values.

The Pipelines Act does not apply to a pipeline which is wholly located within a port. On the basis that the Gas Import Jetty Works would be entirely within declared Port of Hastings land, the gas piping on the jetty, the FSRU and the Crib Point Receiving Facility cannot be licensed under the Pipelines Act and so the exemption from approval under the Planning and Environment Act is not applicable.

Approval under the Planning and Environment Act for the Gas Import Jetty Works (including the FSRU) would be via a planning scheme amendment to the Mornington Peninsula Planning Scheme to apply the Specific Controls Overlay allowing for the application of an Incorporated Document.

The Incorporated Document would allow the use and development of the land for the Gas Import Jetty Works to be undertaken in accordance with the specific and comprehensive conditions contained in the Incorporated Document.

### 5.2.6 Aboriginal Heritage Act 2006

The *Aboriginal Heritage Act 2006* (Vic) (Aboriginal Heritage Act) provides for the protection of Aboriginal cultural heritage in Victoria.

Section 49 of the Aboriginal Heritage Act states that a Cultural Heritage Management Plan (CHMP) must be prepared when an EES is required under the Environment Effects Act in respect of any works. The CHMP must be prepared before works start.

Three CHMPs are being prepared for the Project: two for the Pipeline Works (CHMP 15383 and CHMP 15384) and one for the Gas Import Jetty Works (CHMP 16300). The CHMPs are being prepared in consultation with Aboriginal Victoria (AV) and the Traditional Owners of the land the Project would be located on. The CHMPs would be lodged for approval following the Minister's assessment of the EES.

### 5.2.7 Occupational Health and Safety Act 2004

The *Occupational Health and Safety Act 2004* (Vic) (OHS Act) is the main workplace health and safety law in Victoria. It aims to protect the health, safety and welfare of employees and other people at work. This includes ensuring the health and safety of the public is not at risk due to workplace activities. The Occupational Health and Safety Regulations 2017 (Regulations) build on the OHS Act and set out how to fulfil duties and obligations and particular processes that support the OHS Act.

Part 5.2 and Schedules 14 to 18 inclusive of the Regulations provide for the regulation of Major Hazard Facilities (MHFs). WorkSafe Victoria is considering a change to the Regulations that would classify the FSRU to be an MHF for the purposes of the OHS Act. Although the MHF laws do not currently apply, AGL would submit a safety case that is consistent with MHF requirements to WorkSafe Victoria for approval as if the FSRU was an MHF.

AGL would also continue to engage with WorkSafe's Major Hazards Division which is primarily responsible for the licensing and safety oversight of all MHFs in Victoria. This would ensure that best practice is followed and the highest levels of health and safety protection for personnel and the public would be provided so far as is reasonably practicable.

### 5.2.8 Gas Safety Act 1997

The Gas Safety Act 1997 (Vic) (Gas Safety Act) aims to regulate the safety of gas supply and use in Victoria and to provide for the safe conveyance, sale, supply, measurement, control and use of gas. ESV administers the Act and the two sets of regulations under the Act: the Gas Safety (Installation) Regulations 2018 and the Gas Safety (Safety Case) Regulations 2018.

A Gas Safety Case for natural gas transmission infrastructure under Part 3 of the Gas Safety Act would be required to be prepared for the Gas Import Jetty Works excluding the FSRU. A Gas Safety Case would also be required for the Pipeline Works. Both safety cases would be prepared in accordance with the Gas Safety (Safety Case) Regulations 2018 and would require approval from the ESV.

### 5.2.9 Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) is the primary legislation dealing with biodiversity conservation and sustainable use of native ecology in Victoria.

The FFG Act provides a legal framework to promote conservation of Victoria's native flora and fauna and enable management of potentially threatening processes. Threatened species and communities of flora and fauna, as well as threatening processes, are listed under the FFG Act. Section 47 of the FFG Act provides that a permit is required for the removal of any listed protected flora from public land.

A range of FFG Act-listed species are present within the Project Area and within the pipeline alignment. Permits under the FFG Act would be required for several locations along the Pipeline alignment where vegetation clearance of FFG Act-listed species would occur on public land.

An FFG Act or *Fisheries Act 1995* (Vic) permit may be required for 'taking' of fish by the FSRU water intake process. These are secondary consents and would be obtained if the Project receives overall approval.

## 5.3 EES draft evaluation objectives and assessment framework

The legislation, policies and guidelines relevant to the draft EES evaluation objectives established by the scoping requirements for the Project are outlined in **Table 5-1**. This is the regulatory framework that drives much of the assessment presented in the EES. **Table 5-1** also indicates where further information can be found within the EES main report and technical reports.

A list and description of applicable legislation, policy and guidelines is provided in EES Attachment II *Legislation and policy report*.

**Table 5-1:** EES draft evaluation objectives and corresponding legislation

Evaluation objectives	Key legislation	Relevant EES chapter, technical report
<p><b>Energy efficiency, security, affordability and safety</b></p> <p>– To provide for safe and cost-effective augmentation of Victoria’s natural gas supply in the medium to longer term</p>	<p><i>Environment Effects Act 1978 (Vic)</i>  <i>Pipelines Act 2005 (Vic)</i>  <i>Port Management Act 1995 (Vic)</i>  <i>Occupational Health and Safety Act 2004 (Vic)</i>  <i>Public Health and Wellbeing Act 2008 (Vic)</i>  <i>Marine Safety Act 2010 (Vic)</i>  <i>Dangerous Goods Act 1985 (Vic)</i>  <i>Electricity Safety Act 1998 (Vic)</i>  <i>Gas Safety Act 1997 (Vic)</i>  <i>Gas Industry Act 2001 (Vic)</i>  <i>Climate Change Act 2017 (Vic)</i>  <i>Maritime Transport and Offshore Facilities Security Act 2003 (Cth)</i> (under which the Office of Transport Security requires a maritime security plan)  <i>Navigation Act 2012 (Cth)</i> (and Australian Maritime Safety Authority marine orders)  <i>Marine Safety (Domestic Commercial Vessel) National Law Act 2012 (Cth)</i> and marine orders  <i>Protection of the Sea (Civil Liability for Bunker Oil Pollution Damage) Act 2008 (Cth)</i></p>	<p>EES Technical Report K: Safety, hazard and risk assessments</p> <hr/> <p><b>Chapter 16</b> Safety, hazard and risk</p>
<p><b>Biodiversity</b> – 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.</p>	<p><i>Environment Effects Act 1978 (Vic)</i>  <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>  <i>Planning and Environment Act 1987 (Vic)</i>  <i>Flora and Fauna Guarantee Act 1988 (Vic)</i>  <i>Wildlife Act 1975 (Vic)</i>  <i>Conservation, Forests and Lands Act 1987 (Vic)</i>  <i>Environment Protection Act 1970 (Vic)</i>  <i>Marine and Coastal Act 2018 (Vic)</i>  <i>Catchment and Land Protection Act 1994 (Vic)</i>  <i>Pipelines Act 2005 (Vic)</i>  <i>Water Act 1989 (Vic)</i>  <i>Fisheries Act 1995 (Vic)</i></p>	<p>EES Technical Report A: Marine biodiversity impact assessment</p> <hr/> <p>EES Technical Report B: Terrestrial and freshwater biodiversity impact assessment</p> <hr/> <p><b>Chapter 6</b> Marine biodiversity</p> <hr/> <p><b>Chapter 7</b> Terrestrial and freshwater biodiversity</p>
<p><b>Water, catchment values and hydrology</b> – To minimise adverse effects on surface 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.</p>	<p><i>Environment Effects Act 1978 (Vic)</i>  <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>  <i>Environment Protection Act 1970 (Vic)</i>  <i>Water Act 1989 (Vic)</i>  <i>Catchment and Land Protection Act 1994 (Vic)</i>  <i>Pipelines Act 2005 (Vic)</i>  <i>Marine and Coastal Act 2018 (Vic)</i>  <i>Biosecurity Act 2015 (Cth)</i>  <i>Flora and Fauna Guarantee Act 1988 (Vic)</i>  <i>Fisheries Act 1995 (Vic)</i>  <i>National Parks Act 1975 (Cth)</i>  <i>Crown Land (Reserves) Act 1978 (Vic)</i></p>	<p>EES Technical Report C: Surface water impact assessment</p> <hr/> <p>EES Technical Report D: Groundwater impact assessment</p> <hr/> <p><b>Chapter 8:</b> Surface water</p> <hr/> <p><b>Chapter 9:</b> Groundwater</p>
<p><b>Cultural heritage</b> – To avoid or minimise adverse effects on Aboriginal and historic cultural heritage.</p>	<p><i>Environment Effects Act 1978 (Vic)</i>  <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>  <i>Aboriginal Heritage Act 2006 (Vic)</i>  <i>Heritage Act 2017 (Vic)</i>  <i>Planning and Environment Act 1987 (Vic)</i>  <i>Traditional Owners Settlement Act 2010 (Vic)</i>  <i>Native Title Act 1993 (Cth)</i>  <i>Pipelines Act 2005 (Vic)</i></p>	<p>EES Technical Report P: Aboriginal cultural heritage impact assessment</p> <hr/> <p>EES Technical Report Q: Historic heritage impact assessment</p> <hr/> <p><b>Chapter 21</b> Aboriginal cultural heritage</p> <hr/> <p><b>Chapter 22:</b> Historic heritage</p>



Evaluation objectives	Key legislation	Relevant EES chapter, technical report
<b>Social, economic, amenity and land use</b> – To minimise potential adverse social, economic, amenity and land use effects at local and regional scales.	<i>Environment Effects Act 1978 (Vic)</i> <i>Planning and Environment Act 1987 (Vic)</i> <i>Public Health &amp; Wellbeing Act 2008 (Vic)</i> <i>Environment Protection Act 1970 (Vic)</i> <i>Conservation, Forests and Land Act 1987 (Vic)</i> <i>Pipelines Act 2005 (Vic)</i> <i>Marine and Coastal Act 2018 (Vic)</i> <i>Heritage Act 2017 (Vic)</i> <i>Road Management Act 2004 (Vic)</i> <i>Transport Integration Act 2010 (Vic)</i> <i>Road Safety Act 1986 (Vic)</i> <i>Catchment and Land Protection Act 1994 (Vic)</i>	EES Technical Report L: Land use impact assessment <hr/> EES Technical Report M: Social impact assessment <hr/> EES Technical Report N: Business impact assessment <hr/> EES Technical Report J: Transport impact assessment <hr/> EES Technical Report O: Agriculture impact assessment <hr/> EES Technical Report H: Noise and vibration impact assessment <hr/> EES Technical Report G: Air quality impact assessment <hr/> EES Technical Report I: Landscape and visual impact assessment <hr/> <b>Chapter 12</b> Air quality <hr/> <b>Chapter 13</b> Noise and vibration <hr/> <b>Chapter 14</b> Land use <hr/> <b>Chapter 15</b> Transport <hr/> <b>Chapter 18</b> Social <hr/> <b>Chapter 19</b> Business <hr/> <b>Chapter 20</b> Agriculture
<b>Waste management</b> – To minimise generation of wastes by or resulting from the project during construction and operation, including accounting for direct and indirect greenhouse gas emissions.	<i>Environment Effects Act 1978 (Vic)</i> <i>Environment Protection Act 1970 (Vic)</i> <i>Catchment and Land Protection Act 1994 (Vic)</i> <i>Climate Change Act 2017 (Vic)</i> <i>Water Act 1989 (Vic)</i> <i>National Environment Protection Act 1994 (Cth)</i> <i>National Greenhouse and Energy Reporting Act 2007 (Cth)</i> <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth)</i>	EES Technical Report E: Contamination and acid sulfate soils impact assessment <hr/> EES Technical Report F: Greenhouse gas impact assessment <hr/> <b>Chapter 10</b> Contamination and acid sulfate soils <hr/> <b>Chapter 11</b> Greenhouse gas

Legislation referenced in the scoping requirements that is not considered applicable to the Gas Import Jetty and Pipeline Project is the Marine Safety (Domestic Commercial Vessel) National Law Act 2012, National Law Act 2012, Conservation, Forests and Lands Act 1987 and Local Government Act 1989.

## 5.4 Impact and risk assessment approach



### Environment

'Environment' is a broad term that includes ecological, cultural, social, heritage, health, safety and economic aspects

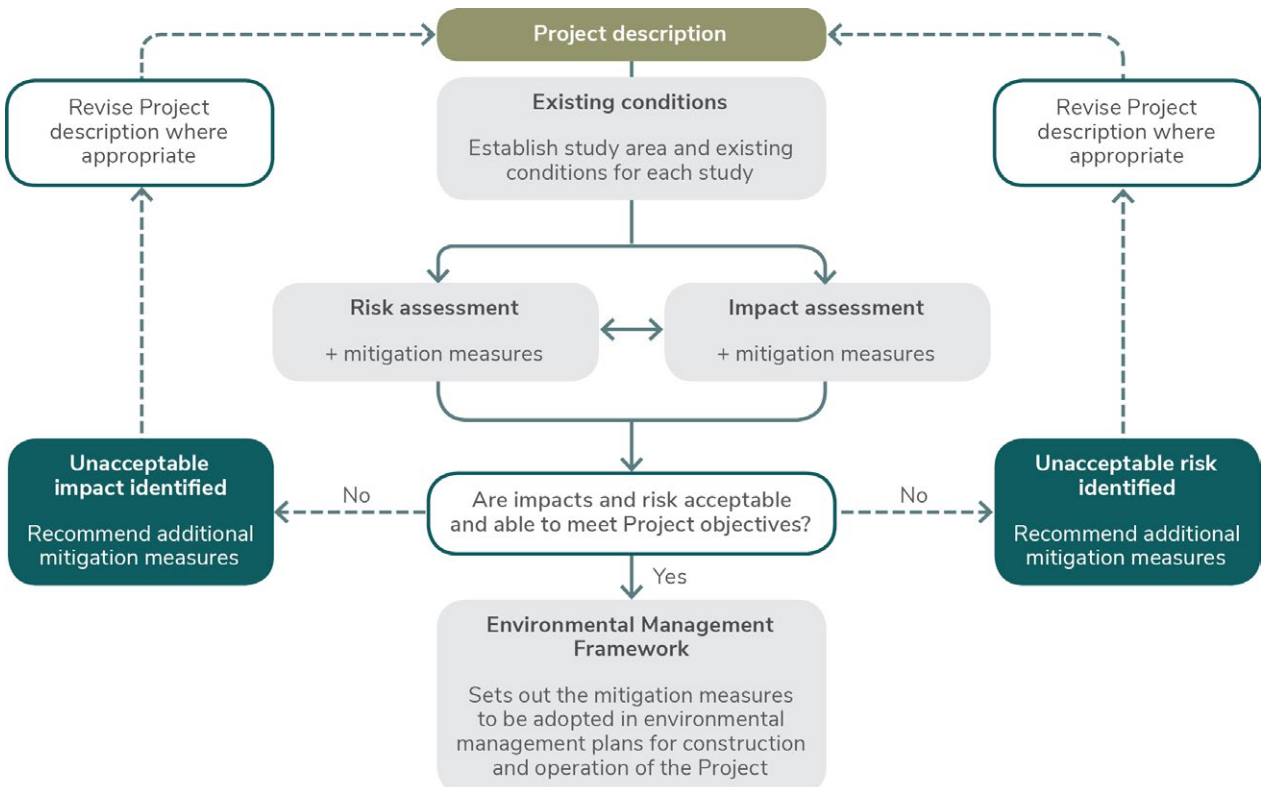
The EES assessment used a systematic risk-based approach to understand the existing environment, identify potential impacts of the Project on the environment and evaluate the effectiveness of mitigation measures to avoid, minimise or manage the risk of impacts.

After refinement of the Project description, environmental impact assessments were undertaken through 17 specialist studies. These assessments involved defining the existing or baseline conditions of the Project study area for each specialist study, reviewing these conditions against the Project description and identifying impacts the Project may have on the existing environment.

The findings from the impact assessments informed the assessment of risk posed by each potential Project impact.

An overview of the EES impact and risk assessment process is illustrated in **Figure 5-3**.

▼ **Figure 5-3:**  
Impact and risk assessment approach



The impact and risk assessment process involved the following steps:

- establishment of the existing or baseline conditions
- consideration of the Project design, construction and operational activities in the context of existing conditions to determine risk pathways
- development of likelihood and consequence criteria
- identification of mitigation measures based on legislative compliance, known industry specific best practice and codes and guidelines for like infrastructure projects (initial mitigation measures)
- assignment of likelihood and consequence for each risk to determine initial risk ratings considering Project design, proposed Project activities and initial mitigation measures
- additional mitigation measures were identified where the initial risk ratings were categorised as medium or higher, additional and a residual risk rating was assigned.

The initial findings of the impact assessments completed by specialists were used to identify and describe cause-and-effect pathways for the Project and to determine links between Project activities and their subsequent potential environmental consequences (known as risk pathways).

These risk pathways were identified giving consideration to the assets, values and uses requiring protection as identified during the assessment of the existing or baseline conditions and the outcomes of stakeholder consultation.

The risk assessment process developed for the Project involved the assignment of consequence and likelihood levels which were combined to give an overall risk level for each identified impact. The specialists developed an initial set of mitigation measures as part of their impact assessments.

These mitigation measures were based on compliance with legislation and standard requirements that are typically incorporated into the delivery of infrastructure projects of similar type, scale and complexity. Risk ratings were applied to each identified risk pathway assuming that these mitigation measures were in place.

The cumulative and synergistic impact on different receptors has been assessed in the risk methodology including environmental, social, economic and health and safety consequences of each risk and their likelihood of occurring. For example, increased congestion may result in a social impact (reduced amenity) as well as a public health and safety impact (reduced road safety). The impact resulting in the greatest consequence was conservatively used to determine the risk for that risk pathway.



### Mitigation measures

Mitigation measures are the measures that will be used to avoid, manage and mitigate potential environmental, social, economic, and public health and safety impacts. Over the course of their assessments, specialists have recommended mitigation measures, and these have been refined to arrive at the Project mitigation measures.

Risk levels were categorised as very low, low, medium, high or very high. Where the initial risk ratings were categorised as medium or higher, additional mitigation measures were developed. These Project-specific mitigation measures were then incorporated into the Project description or Project design (where relevant) and/or included in the EMF for the Project so they would be adopted.

Following the adoption of Project-specific mitigation measures, the level of risk was reassessed using the same methodology to confirm the mitigating measure had the desired effect of lowering the residual risk to what was considered to be an acceptable level. This was an iterative process which was continued until the residual risk was considered acceptable and able to meet the Project objectives.

The risk assessment process provides a method for:

- facilitating a consistent approach to risk assessment across the various specialist studies
- identifying Project risks that require detailed investigation
- ensuring the level of investigation is proportionate to the relative environmental risk
- assessing the effectiveness of proposed mitigation measures and whether additional measures may be required.

The mitigation measures adopted for this Project are detailed in the EMF (see **Chapter 25 Environmental Management Framework**).

The impact and risk assessment approach is further described in Sections 5.5.1 to 5.5.3.

## 5.5 Existing conditions

The assessment of the current condition of the environment is called an existing or baseline conditions assessment.

The existing conditions assessment identifies the environmental context for the Project and provides the baseline conditions for the impact assessment. It includes identifying and characterising the significance of existing assets, values and uses that could be affected by the Project.

Each of the specialist studies completed for this EES undertook an existing conditions assessment, which collectively provides the environmental context for the Project.

Each study considered the area within which potential effects could occur, the zone of influence, or 'study area'. For some specialist studies, the 'study area' is larger than the Project Area presented in **Chapter 1 Introduction**. For example, consideration of the potential impacts of the Project on the marine environment involved hydrodynamic modelling of areas of Western Port outside the Project Area given the potential for spatial impacts on the wider marine environment.

The existing conditions for each specialist study are summarised in **Chapters 6 to 22** and detailed in EES Technical Reports A to Q.

### 5.5.1 Risk assessment

The risk assessment for the EES was conducted using an approach that is consistent with AS/NZS ISO 31000:2018 Risk Management Process. It involves the following steps:

- establishment of the context of the risk assessment
- risk identification
- risk analysis
- risk evaluation
- risk treatment.

Risk can be defined as a combination of:

- the magnitude of potential consequences of an event occurring
- the likelihood of the consequence event occurring.

The risk assessment combines the consequence of that impact and the likelihood of that consequence occurring, to arrive at an overall risk rating.

While the findings of the impact assessment informed the assessment of risk posed by potential Project impacts, it is a cyclical process. The studies recommended mitigation measures to manage and mitigate potential impacts. Where risks were determined to be unacceptable (medium or above initial risk rating), the specialist assessments identified additional or revised mitigation measures that could be adopted to reduce risks and potential impacts to what are considered to be acceptable levels. Using this information, the risk assessment was then revisited to determine residual risk ratings.

The risk assessment undertaken for the EES was specifically developed for this purpose with AGL and APA maintaining separate risk registers for risks associated with the Project delivery. While these risk assessments are in line with each organisation's corporate risk assessment methodologies, both organisations have adopted the risk assessment approach outlined in this section for the purposes of the EES.

#### Assigning likelihood of risks

A likelihood rating based on the opinion of the specialists was assigned using the guide in **Table 5-2**.

The likelihood criteria in the risk assessment range across a scale from 'almost certain' where 'the event is expected to occur in most circumstances or is planned to occur' to 'rare' where 'the event may occur only in exceptional circumstances'.

**Table 5-2:** Likelihood guide

Level	Description
Rare	The event may occur only in exceptional circumstances
Unlikely	The event could occur but is not expected
Possible	The event could occur
Likely	The event will probably occur in most circumstances
Almost Certain	The event is expected to occur in most circumstances or is planned to occur

**Assigning consequence of risks**

In this risk assessment, the consequences of a risk occurring were assigned by the specialists using a consequence guide.

Specific consequence categories were developed by each specialist using the framework provided in **Table 5-3** as a guide and considering existing conditions in the Project Area. Specific consequence criteria relating to each specialist study is provided in **Chapters 6 to 22** and EES Attachment III *Environmental risk report*.

The consequence criteria in the risk assessment extend across a scale of magnitude from 'negligible' to 'severe', reflecting the size of the impact, the spatial area affected and the expected recovery time of the environmental system(s) affected.

Where a minimal impact was indicated over a local area only and with a recovery time within the range of normal variability, the consequence of the event was considered 'minor' (towards the 'negligible' end of the scale). Conversely, a 'major' consequence describes scenarios involving a very high magnitude event, affecting a very large area or requiring many years to recover.

**Table 5-3:** Consequence framework

Level	Qualitative description of biophysical/ environmental consequence	Qualitative description of socio-economic consequence
<b>Negligible</b>	No detectable change in a local environmental setting	No detectable impact on economic, public health and safety, cultural, recreational, aesthetic or social values
<b>Minor</b>	Short-term, reversible changes, within natural variability range, in a local environmental setting	Short-term, localised impact on economic, public health and safety, cultural, recreational, aesthetic or social values
<b>Moderate</b>	Long-term but limited changes to local environmental setting that are able to be managed	Significant and/or long-term change in quality of economic, public health and safety, cultural, recreational, aesthetic or social values in local setting. Limited impacts at regional level
<b>Major</b>	Long-term, significant changes resulting in risks to human health and/or the environment beyond the local environmental setting	Significant, long-term change in quality of economic, public health and safety, cultural, recreational, aesthetic or social values at local, regional and State levels. Limited impacts at national level
<b>Severe</b>	Irreversible, significant changes resulting in widespread risks to human health and/or the environment at a regional scale or broader	Significant, permanent impact on regional economy, public health and safety and/or irreversible changes to cultural, recreational, aesthetic or social values at regional, state and national levels

## Risk matrix

The consequence and likelihood ratings were combined to arrive at a risk rating, using the risk assessment matrix shown in **Table 5-4**.

The finalised EES risk assessment is presented in EES Attachment III *Environmental risk report*, which includes the complete risk register. Relevant extracts from the complete risk register are included in the risk assessment section of each EES chapter (**Chapters 6 to 22**).

**Table 5-4:** Risk assessment matrix

		Consequence ratings				
Likelihood rating	Negligible	Minor	Moderate	Major	Severe	
	Rare	Very low	Very low	Low	Medium	Medium
Unlikely	Very low	Low	Low	Medium	High	High
Possible	Low	Low	Medium	High	High	
Likely	Low	Medium	Medium	High	Very high	
Almost Certain	Low	Medium	High	Very high	Very high	

## 5.5.2 Impact assessment

A change that would result from the construction and/or operation of the Project is called an impact. After defining the study area for each specialist study, an environmental impact assessment was carried out. The environmental impact assessment involved identifying the nature and extent of any potential impacts the Project may have on the existing environment.

The following factors were considered when determining the significance of potential environmental impacts of the Project:

- existing environmental conditions
- the likelihood that any given environmental impact would occur
- magnitude, extent and duration of impact on the environment
- the relationship between different impacts on the environment and potential cumulative impacts
- the likely effectiveness of measures to avoid, minimise and manage impacts
- benchmarks and standards set by statutory requirements and environmental approvals
- the policies and guidelines that apply to the proposed projects
- community expectations
- the principles of ecologically sustainable development as defined in the Ministerial guidelines for assessment of environmental effects (DSE, 2006).

The impact assessment was iterative. Following the risk assessment, the identified impacts were reassessed and subsequent, Project-specific mitigation measures were added as applicable.

The impact assessments for each of the specialist studies are summarised in **Chapters 6 to 22** and detailed in EES Technical Reports A to Q.

## 5.5.3 Environmental Management Framework

The EMF provides a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the Project, in order to achieve acceptable environmental outcomes.

Through the risk assessment process outlined in **Section 5.2.3** above, the initial set of mitigation measures was refined to a final set of mitigation measures.

A complete list of the mitigation measures adopted for the Project is set out in **Chapter 25 Environmental Management Framework**. These mitigation measures form commitments made by AGL and APA and would be incorporated into the applications for the key approvals following the EES process.

### 5.5.4 Project refinement

Ongoing refinement of the Project is a key input to the EES assessment as modifications to the design can assist or are required to mitigate environmental impacts.

Project refinement encompasses activities such as consideration of Project alternatives, development of the Project design and description and development of the construction method. These activities occur in parallel with the EES assessment process and provide the design assessed by the EES.

**Chapter 3** *Project development* and **Chapter 4** *Project description* provide details of this process, and the design, construction and operation of the Project.

### 5.5.5 Assessing cumulative impacts

It is acknowledged that other major projects occurring within the same geographical area (those under construction as well as proposed projects) could compound the potential impacts of the Project in its entirety, potentially creating 'cumulative impacts'.

These potential impacts were addressed through the environmental impact and risk assessment process undertaken for each environmental discipline where relevant and included in the specialist studies.

While the scope of projects considered as part of the cumulative impact assessment was tailored by each discipline, the potential impacts of the Crib Point Jetty Upgrade Project (being undertaken by the Port of Hastings Development Authority) were considered by all relevant specialist studies as a minimum due to the proximity and potential interaction with the Gas Import Jetty Works.

Identified cumulative impacts are included in the risk assessment register, which forms part of the EES environmental risk assessment report (see Attachment III *Environmental risk report*).

## 5.6 Consultation

A comprehensive program of public engagement was undertaken to keep the community informed about Project progress, seek input on Project design and development, and identify and respond to stakeholder and community concerns.

Consultation activities began with key community stakeholders in July 2017 before the preferred site selection was announced and continued throughout the EES phase of the Project.

The main forms of consultation have been:

- community information sessions
- community meetings
- community presentations
- meetings with councils, community groups and peak bodies
- meetings with owners and occupiers of land in the immediate vicinity of the Crib Point Jetty and those along the pipeline alignment.

During the EES phase, councils and relevant government agencies were engaged through the EES Technical Reference Group (TRG). The TRG provided advice to the Project team on key issues and concerns from their respective areas of interest.

This ongoing engagement has enabled the key issues of particular concern to local communities and stakeholders to be incorporated into the EES. This included carrying forward to the impact assessment issues of particular concern or importance to stakeholders, even if they were not identified as key Project risks through the risk assessment.

**Chapter 26** *Stakeholder engagement* provides further detail on the community and stakeholder engagement undertaken for the Project.

## 5.7 Integrated assessment

Each specialist has worked closely with others so that any relationships between the different studies that inform the EES have been identified.

To fully identify and assess potential impacts, the EES has considered the existing conditions and potential impacts relevant to each aspect of the environment in isolation as well as impacts that may result when various aspects of the environment are considered together. This may include the use of data collected by another discipline, or the reliance on one study's result to inform the assessment in another study.

For example, the biodiversity studies needed to give consideration to the assessment and outcomes of noise, vibration and light spill studies to inform the assessment of impacts on flora and fauna.

Mitigation measures for individual specialist studies do not operate in isolation. In assessing impacts and risk, the impact assessment studies have cross-referenced mitigation measures from other technical areas as relevant.

The interactions were identified through concurrent preparation of the scopes for each specialist study, scheduling assessments simultaneously to ensure necessary information was available, participation of multiple specialists in risk assessment workshops and the integrated risk-based approach outlined above.

## 5.8 Independent peer review

The following specialist studies were peer reviewed:

- Marine biodiversity – including the hydrodynamic modelling and underwater noise
- Terrestrial and freshwater biodiversity
- Greenhouse gas
- Noise and vibration
- Air quality.

The reviewer considered the assumptions, methodology, assessment criteria and scope applied in the reports. They also reviewed the results to ensure their consistency with the methodology adopted. The final peer review reports are appended to the five specialist reports listed.