

Section 1

Introduction

1.1 Project Overview

Santos Limited (Santos) and its joint venture partner PETRONAS are proposing to develop their Queensland coal seam gas (CSG) resources in the Bowen and Surat Basins in the area around Roma as feed gas for a liquefied natural gas (LNG) liquefaction and export facility on Curtis Island, near Gladstone, Queensland. The LNG facility will have an initial capacity of 3 - 4 million tonnes per annum (Mtpa) but will have the potential for later expansion to a nominal 10 Mtpa.

The project which is known as the Gladstone LNG project (GLNG Project) has the following major components:

- Coal seam gas fields;
- Gas transmission pipeline; and
- LNG liquefaction and export facility (LNG facility).

Other components of the project include a potential bridge, road and service corridor to provide access to Curtis Island; and supporting marine infrastructure including a product loading facility, a materials offloading facility and channel dredging.

The CSG fields will be developed over a period of approximately 25 years to provide sufficient gas supply to the LNG facility.

The gas transmission pipeline will link the CSG fields to the LNG facility.

The LNG facility will be located in the south-west section of Curtis Island and will liquefy the gas to enable it to be transferred to ships for export.

Figure 1.1.1 shows the location of the above project components.

1.2 Project Proponent

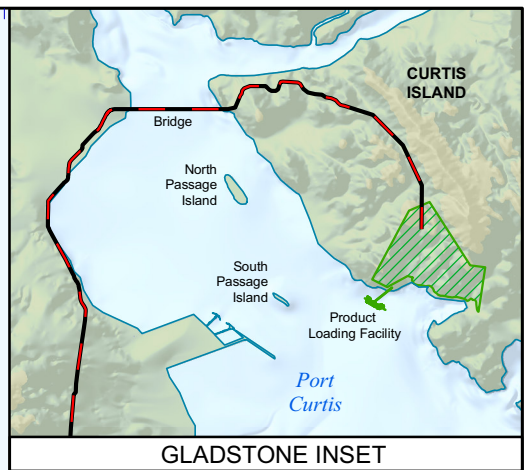
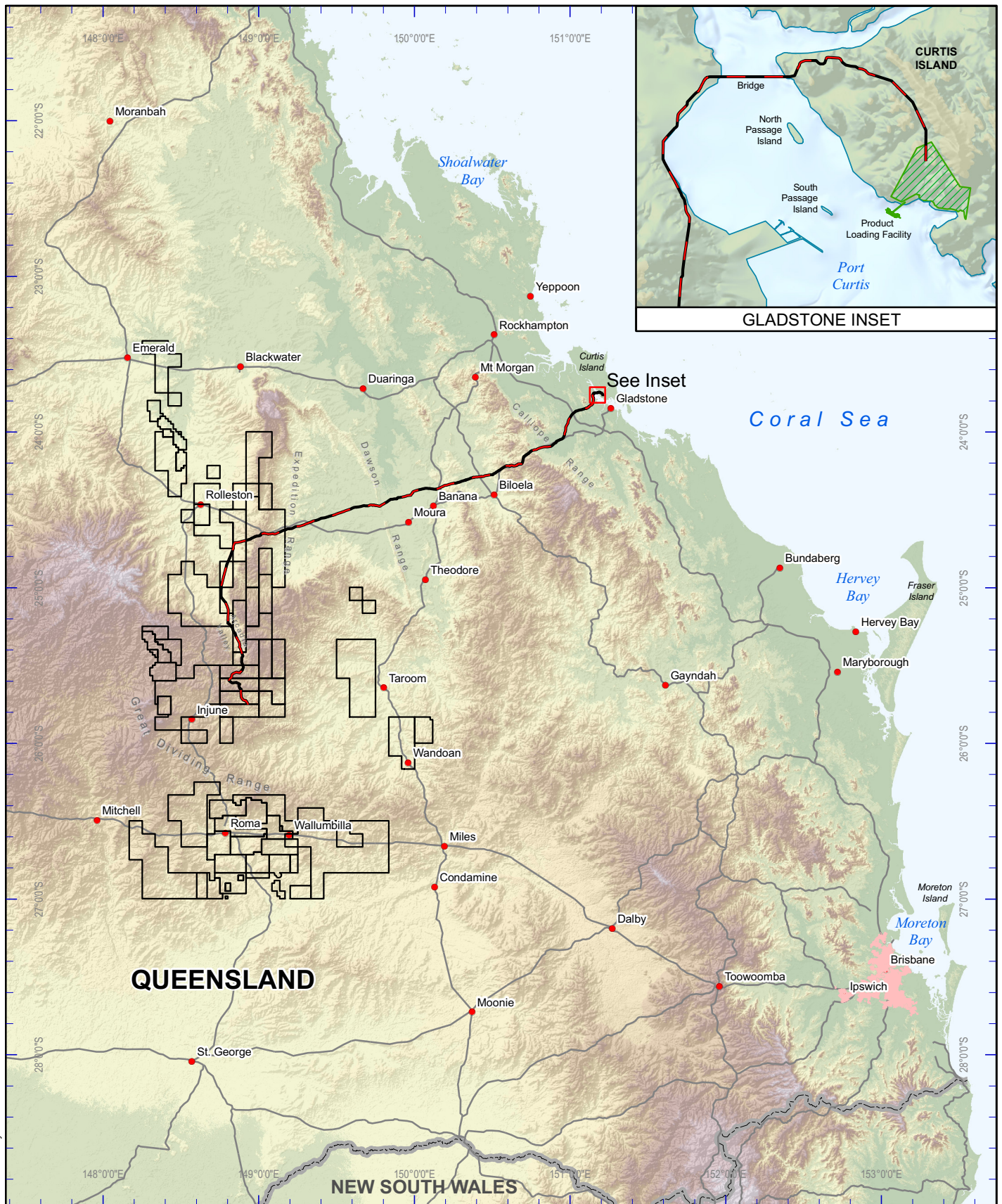
Santos is the designated proponent of the GLNG Project. It is also the operator of the CSG fields on behalf of the tenement holders.

On 29 May 2008, Santos announced that PETRONAS had been selected as Santos' 40% joint venture partner in the development, operation and marketing of the GLNG Project.

Under the agreement between Santos and PETRONAS:

- Santos sold to PETRONAS a third of its CSG total proven plus probable (2P) reserves at the time, being in those tenements described in this EIS as the Reasonably Foreseeable Development (RFD) area (listed in Table 3.4.1 and shown in Figure 3.4.2, excluding Petroleum Leases 281 and 282 (under application)). Accordingly PETRONAS has an interest in the CSG field tenements within the RFD area. Santos and PETRONAS have agreed that, to the extent of their interests, the CSG extracted from the tenements within the RFD area will be allocated to the GLNG Project, subject to existing domestic obligations.
- Santos and PETRONAS would form a 60/40 joint venture arrangement to:
 - Develop and operate the gas transmission pipeline;
 - Develop and operate the LNG facility; and
 - Undertake all marketing activity, accessing PETRONAS' well-established customer base in the three largest Asian LNG markets of Japan, Korea and Taiwan.

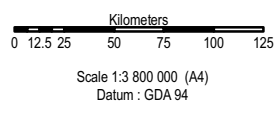
References to Santos throughout the EIS in the context of downstream activities (gas transmission pipeline and LNG facility) should be read as Santos and PETRONAS in accordance with their 60/40 participating interests. Santos will continue as upstream operator of the CSG fields on behalf of itself, PETRONAS and the other tenement holders with an interest in the relevant tenements.



GLADSTONE INSET

See Inset
Gladstone

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- LNG Facility
- Gas Transmission Pipeline
- CSG Fields
- Major Towns
- Major Roads
- Qld-NSW border

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<p>Client</p>	<p>Project</p> <p style="text-align: center;">GLADSTONE LNG PROJECT ENVIRONMENTAL IMPACT STATEMENT</p>	<p>Title</p> <p style="text-align: center;">REGIONAL LOCATION</p>
<p>Drawn: MG</p> <p>Job No.: 4262 6220</p>	<p>Approved: JB</p> <p>File No.: 42626220-g-801.mxd</p>	<p>Date: 18-03-2009</p> <p>Figure: 1.1.1</p>
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The proponent contact for the GLNG Project is:

Santos Limited
60 Edward Street
Brisbane 4000 Queensland
Attn: Mr. R Wilkinson

1.2.1 Santos

Santos is a major Australian oil and gas exploration and production company with CSG interests in Queensland. Santos has interests and operations in every major Australian petroleum province as well as interests in Indonesia, Papua New Guinea, Vietnam, India, Kyrgyzstan and Egypt. Santos is Australia's largest onshore domestic gas producer, supplying sales gas to all mainland Australian states and territories, ethane to Sydney, and oil and other liquids to domestic and international customers.

The Cooper Basin oil and gas field in south-west Queensland and north-eastern South Australia, which Santos and its joint venture partners have discovered and developed, is one of Australia's largest onshore resources project. Over \$8 billion has been invested to date in this basin.

In Australia, Santos has one of the largest exploration portfolios by area of any company and it also has assembled a large, well-situated acreage position in Indonesia. The company is also pursuing new joint venture opportunities in North Africa and Central and South East Asia.

Santos is positioning itself to perform alongside the top quartile of the world's oil and gas companies - expanding its exploration interests and delivering production growth through an exciting suite of development projects.

Significant development projects contributing to the growth of Santos include the following:

- CSG exploration and developments in Queensland;
- Bayu-Undan Liquids and Darwin LNG projects in the Timor/Bonaparte Basin area offshore Darwin;
- Mutineer-Exeter oil fields and John Brookes gas field developments in the Carnarvon Basin offshore Western Australia;
- Casino gas development in offshore Victoria; and
- Oyong oil and gas field and Maleo gas field in offshore East Java.

Santos' market capitalisation makes it one of Australia's top 20 companies.

1.2.2 PETRONAS

PETRONAS is the acronym for Petroliaam Nasional Berhad, a leading Malaysian based oil and gas multinational incorporated on 17 August 1974. Over the years, PETRONAS has grown to become a fully-integrated oil and gas corporation and is ranked among FORTUNE Global 500's largest corporations in the world. PETRONAS has four subsidiaries listed on the Bursa Malaysia (Kuala Lumpur Stock Exchange) and has projects and operations globally in more than 30 countries worldwide. Since its inception, PETRONAS has grown to encompass the full spectrum of oil and gas operations in the areas of upstream oil and gas exploration and production to downstream oil refining; marketing and distribution of petroleum products; trading; gas processing and liquefaction; gas transmission pipeline network operations; marketing of LNG; petrochemical manufacturing and marketing; shipping; and property investment.

On an equity basis, PETRONAS is the largest LNG producer in Asia and is the third largest in the world. The company operates the PETRONAS LNG Complex in Bintulu, Sarawak, which is the world's largest integrated LNG facility with a total capacity of approximately 23 mtpa from 8 LNG trains. PETRONAS is also a partner in the ELNG Project in Egypt and in the Dragon LNG Project in Wales. It is the world's largest single owner-operator of LNG ships and has long standing relationships with an extensive base of high volume LNG customers in Asia.

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Apart from the GLNG Project PETRONAS's interests in Australia include a 16.7% share in pipeline operator APA Group, and a 25% shareholding in the Evans Shoal gas field, 300 km northwest of Darwin, in which Santos is the operator with a 40% interest.

1.2.3 Upstream Environmental Policies and Management Systems

The upstream components of the project relate to the CSG field development and its associated infrastructure. As Santos will continue as upstream operator, Santos' existing policies and management systems as modified from time to time will apply to the CSG field development.

1.2.3.1 Environmental Policy

The Santos environmental policy is as follows:

Our Environmental Vision:

"We will lighten the footprint of our activities"

At Santos we are adopting the principles of sustainable development. We recognise our responsibility to meet community expectations and we are committed to the continuous improvement of our environmental performance. We believe that environmental stewardship is both a management obligation and the responsibility of every employee.

To achieve this we will:

- *Maintain and continuously improve the Environment, Health and Safety Management System (EHSMS) across the organisation.*
- *Ensure that all employees and contractors receive appropriate training to fulfill their individual EHSMS and environmental responsibilities.*
- *Proactively pursue the identification of all hazards and eliminate or, if not possible, manage the risk to as low as reasonably practicable.*
- *Establish annual environmental objectives and targets and implement programs to achieve them.*
- *As a minimum comply with relevant legal and other requirements.*
- *Ensure that we have the resources and skills necessary to achieve our environmental commitments.*
- *Incorporate environmental performance in the annual appraisal of employees and contractors and recognise accordingly.*
- *Implement strategies to minimise pollution, manage waste effectively, use water and energy efficiently and address relevant cultural heritage and biodiversity issues.*
- *Formally monitor, audit, review and report annually on our environmental performance and EHSMS requirements against defined objectives.*
- *Require that companies providing contract services to Santos manage their environmental performance in line with this Policy.*
- *Steward the environmental performance of Joint Venture activities operated by others.*

As the Chief Executive Officer and Managing Director, I am committed to working with Santos personnel to ensure that this policy is communicated, understood, accepted and successfully implemented by all Santos employees and contractors.

David Knox

Chief Executive Officer and Managing Director

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1.2.3.2 Environmental Performance

Refer to Appendix EE for details of environmental performance.

1.2.3.3 Environment, Health and Safety Management System

Santos has a company-wide environment, health and safety management system (EHSMS) which provides a structured framework for effective environmental and safety practice across all of their activities and operations. The EHSMS framework consists of multiple layers, the key components being management and hazard standards as shown in Figure 1.2.1.

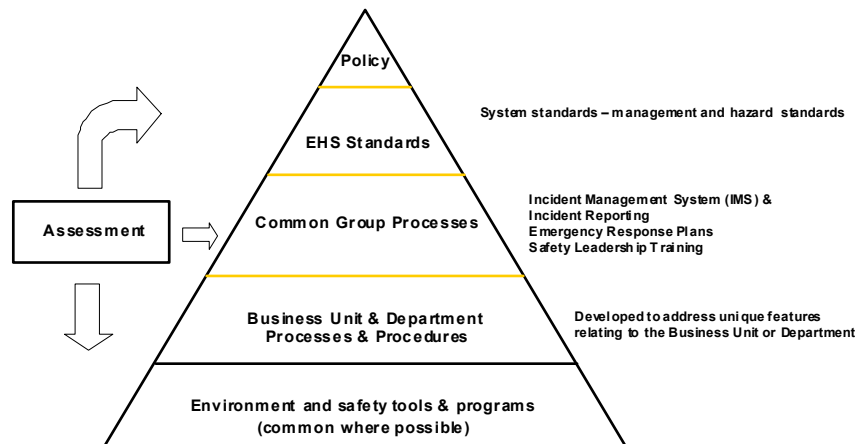


Figure 1.2.1 Santos' EHS Management System

The framework has been developed to ensure compliance with Australian Standard 4801:2000 *Occupational Health and Safety Management Systems – Specification* with guidance for use, and AS/NZS ISO 14001:1996 *Environmental Management Systems – Specification* with guidance for use.

The documents that make up each level of the EHSMS are maintained in electronic form on a central server (The Well) that is accessible to all Santos sites and employees.

Management standards have been developed as part of the EHSMS and define the requirements necessary to ensure that environmental, health and safety risk is systematically managed. These standards are listed below:

- EHS Policies;
- Legal and Other Obligations;
- EHS Objectives and Targets;
- EHS Improvement Plans;
- Responsibility and Accountability;
- Training and Competency;
- Consultation and Communication;
- Document and Records;
- Management Hazard Identification;

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- Risk Assessment and Control;
- Contractor and Supplier Management;
- Santos Operations;
- Management of Change;
- Emergency Preparedness; and
- Monitoring, Management and Reporting.

Hazard standards detail the controls required to manage the risks of specific hazards to acceptable levels. These apply to all Santos operations. They contain specific requirements for planning and undertaking activities and include checklists and references to internal and external approvals and controls.

Environment hazard standards that have been developed under the EHSMS and are listed below:

- Land Disturbance;
- Underground and Secondary Containment Systems;
- Produced (Associated) Water Management;
- Waste Management;
- Air Emissions;
- Greenhouse Gas Management;
- Energy Conservation;
- Contaminated Land Management;
- Weed and Pest Animal Control;
- Water Resource Management;
- Cultural Heritage; and
- Noise Emissions.

1.2.4 Downstream Environmental Policies and Management Systems

The downstream components of the project relate to the gas transmission pipeline, the LNG facility, the marine facilities, dredging and dredged material placement, and construction of the potential bridge and road and its associated infrastructure. Policies and management systems have been specifically developed on behalf of Santos and PETRONAS for the project's downstream components.

1.2.4.1 Environmental Policy

The GLNG Environmental Policy is as follows:

Our Environmental Vision:

"We will lighten the footprint of our activities"

GLNG adopts the principles of sustainable development. We recognise our responsibility to meet community expectations and we are committed to the continuous improvement of our environmental performance. We believe that environmental stewardship is both a management obligation and the responsibility of every employee.

To achieve this we will:

- *Adopt and contribute to continuously improving the Santos Environment, Health and Safety Management System (EHSMS).*
- *Ensure that all employees and contractors receive appropriate training to fulfill their individual environmental responsibilities.*

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- *Proactively pursue the identification of all hazards and eliminate or, if not possible, manage the risk to as low as reasonably practicable.*
- *Establish annual environmental objectives and targets and implement programs to achieve them.*
- *As a minimum comply with relevant legal and other requirements.*
- *Ensure that we have the resources and skills necessary to achieve our environmental commitments.*
- *Incorporate environmental performance in the annual appraisal of employees and contractors and recognise accordingly.*
- *Implement strategies to minimise pollution, manage waste effectively, use water and energy efficiently and address relevant cultural heritage and biodiversity issues.*
- *Formally monitor, audit, review and report annually on our environmental performance requirements against defined objectives.*
- *Require that companies providing contract services to GLNG manage their environmental performance in line with this Policy.*

As Chief Executive Officer, I am committed to working with GLNG personnel to ensure that this policy is communicated, understood, accepted and successfully implemented by all GLNG employees and contractors

Roger Kennett

GLNG Operations Pty Ltd - GLNG is a Santos-Petronas project

1.2.4.2 Environmental Performance

Refer to Appendix EE for details of environmental performance.

1.2.4.3 Environment, Health and Safety Management System

The Santos EHSMS discussed in Section 1.2.3.3 will apply to the project's downstream components.

1.3 Environmental Impact Statement Objective and Purpose

1.3.1 EIS Objective

The principal objective of this EIS is to identify and assess the environmental and related impacts that could occur as a result of the construction and operation of the GLNG Project. Impacts are considered for all relevant aspects of the natural, social and economic environments, and where appropriate, controls and safeguards to render potential impacts acceptable are proposed.

This EIS has been prepared in accordance with the requirements of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The EIS will also meet the requirements of the following groups:

- *Regulatory Agencies and Referral Bodies*, as a statement for considering the impacts and the proposed management and mitigation measures.
- *General Public and Interest Groups*, as a basis for understanding the proposal, the alternatives, the existing environment, and the potential changes to the environment which may occur.
- *Proponent*, as a statement of the actions to be taken to manage the potential impacts.

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1.3.2 EIS Purpose

The purpose of the EIS is to:

- Provide public information on the need for, and likely environmental, economic and social impacts of the GLNG Project;
- Set out acceptable standards and levels of impacts (both beneficial and adverse) on environmental values;
- Demonstrate how environmental impacts can be managed through the protection and enhancement of the environmental values; and
- Demonstrate the relationship of environmental management, planning documentation, conditions, approvals and environmental authorities to the project.

1.4 EIS Methodology

The methodology used to prepare this EIS consisted of the following stages:

- Project description;
- Baseline studies; and
- Impact assessment and management.

It should be noted that because of commercial value and sensitivity, contractual obligations or security and safety related reasons a number of confidential documents relating to economics, hazard analysis and security that have been developed as part of the EIS have been provided to the Co-ordinator General and relevant agencies. These documents have been provided as separate confidential attachments to the main report as required by the ToR.

1.4.1 Project Description

A detailed description of the project (Section 3) has been developed to provide sufficient detail to enable the reader to gain an understanding of its construction and operation as well as its decommissioning. This description has been separated into the three major project components of CSG fields, gas transmission pipeline corridor and LNG facility (including marine facilities, dredging, bridge and access road).

The description has been based on the project's feasibility design. As it moves into the detailed design phase (front end engineering design (FEED)) some aspects of the project will change. While the major elements of the project are expected to remain unaltered, the conceptual and detailed design process is likely to result in modifications being made to what has been described in the EIS. These changes will reflect improved understanding as technical uncertainties reduce over time. However, such modifications are not expected to result in any significant changes to the environmental impacts and mitigation measures described.

Specific projections in relation to CSG field development are inherently difficult. While the nature of the field development is known, details of the locations of specific wells, gathering pipelines and other infrastructure require progressive determination. Santos has developed a RFD scenario to assist in identifying the CSG field project area.

The appendices to this EIS were prepared during 2008 and describe the project as it was proposed at that time. In some instances, because of the continual development of government policy and the project's design, the project description in the appendices may differ from that described in Section 3 (current as at March 2009). The assessment included in the sections of the EIS has taken these changes into account and the impacts have been assessed against the current project description and government policy and the values identified under the EPBC Act.

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1.4.2 Baseline Studies

The first stage in the preparation of the EIS was the collection of relevant baseline information for the project. Some baseline data were available from previous investigations and reports. The extent of this information was reviewed to determine how much additional baseline information was necessary. Following this, the baseline monitoring program was developed which included data gathering for the following environmental aspects:

- Topography, geology and soils;
- Flora and fauna;
- Transport;
- Noise and vibration;
- Visual
- Air quality;
- Land use;
- Surface water;
- Groundwater;
- Social and community;
- Economics
- Scenic values; and
- Cultural heritage.

Based on this survey work, the existing environmental values of the project area were identified. These values included the environmental values identified under the requirements of the *Environmental Protection Act 1994* and relevant environmental protection policies.

1.4.3 Impact Assessment and Environmental Management

The project description has been analysed in relation to the description of the environmental baseline and identified environmental values to establish the project's potential environmental impacts during the construction, operational and decommissioning stages. The acceptability of such impacts has been assessed according to their conformance with relevant state or national guidelines and standards. Both positive and negative impacts were identified and, wherever possible, have been expressed quantitatively.

During this process, the need for appropriate environmental management or impact mitigation measures has been assessed to ensure that the identified environmental objectives can be achieved. These have included special design considerations, construction procedures, and operational practices to be implemented to minimise the project's environmental impacts. All proposed environmental management strategies and safeguards, as well as the necessary monitoring and reporting programs, have been summarised in the project's environmental management plan (EMP).

1.5 Project Description

1.5.1 Project Components

The GLNG Project will have the following major components:

- Production of approximately 5,300 petajoules (PJ) (140 billion m³) from the CSG fields to supply the first stage of the LNG facility. This will involve the development of up to approximately 2,650 exploration and production wells. It is anticipated that up to 1,200 wells will be established prior to 2015, with potential for up to 1,450 or more additional wells after 2015. Additional supporting infrastructure including field gathering lines, nodal compressor stations, centralised compression and

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water treatment facilities, accommodation facilities, power generation and water management facilities will also be installed.

- A 435 km long gas transmission pipeline for the delivery of the gas from the CSG fields to the LNG facility.
- An LNG facility of approximately 10 Mtpa capacity on Curtis Island. The LNG facility is proposed to be developed in three stages (called trains), the first of which will have a capacity of approximately 3 - 4 Mtpa. The LNG facility will consist of the following key elements (for which approvals will be sought):
 - A liquefaction facility which includes the on-shore gas liquefaction and storage facilities;
 - Marine facilities which will include a product loading facility (PLF) for loading LNG into ships for export, and a materials offloading facility (MOF) and haul road for the delivery of equipment, plant and materials to the LNG facility site;
 - A swing basin and an access channel from the existing Targinie Channel in Port Curtis;
 - A dredge material placement facility at Laird Point; and
 - A maximum 2,000-person capacity accommodation facility on Curtis Island for the accommodation of construction workers.
- Access to the LNG facility from the mainland will occur by either of the following options:
 - The provision of road access to Curtis Island by way of a potential access road and bridge from the mainland crossing Port Curtis between Friend Point and Laird Point. Construction phase access to the site for at least Train 1 will be by barge and ferry as the access road and bridge will not be constructed by that time; or
 - Access to the site by barge and ferry for the life of the GLNG Project (for both construction and operation) if the access road and bridge is not constructed.

Figure 1.1.1 illustrates the regional location of the project components. Further details on the project description are given in Section 3.

Gas in quantities beyond 5,300 PJ required for the second and third stages of the LNG facility is likely to be supplied:

- From the development wells referred to above;
- From the further development of other Santos operated CSG fields;
- By utilising Santos' share of gas from CSG fields in which Santos has an interest but is not the operator; and/or
- From third parties.

The timing and selection of the source of gas for the subsequent stages of the LNG facility cannot be fully determined at present as it will depend on future exploration activities and development. Santos is not seeking approval for the additional CSG development which may be required for the second and third stages of the LNG facility as part of this EIS. Further environmental assessment and approval processes beyond those contemplated in this EIS may apply for the extraction of the additional CSG beyond 5,300 PJs depending on the arrangements made for sourcing of the gas.

1.5.2 Project Objectives

1.5.2.1 Objective

The primary objective of the GLNG Project is to enable the proponent to fully commercialise its existing CSG fields and to facilitate the development of other Santos CSG resources in the region. It is proposed to meet this objective while protecting existing environmental values, managing environmental health and safety requirements, implementing best environmental practice, and providing employment opportunities in Queensland throughout all phases of the project.

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1.5.2.2 Existing CSG Operations

Santos has been conducting conventional oil and gas activities in the Surat Basin for many years and began CSG development in 2002. Over that time Santos has obtained a variety of petroleum tenures to permit its activities in the area.

Exploration and gas production activities are currently being undertaken in the Scotia, Roma and Fairview CSG fields. Exploration is also being undertaken in the Arcadia Valley CSG field. The locations of these fields are shown in Figure 1.5.1.

Santos began exploration of the Scotia CSG fields in 1996 and commenced production in 2002. The Scotia plant compresses the gas for transmission to the Queensland gas market via the existing transmission pipeline network.

The Roma area was initially developed by Santos as a conventional gas field. However the CSG reserves from the shallower coals in the area are now being developed for CSG production.

Santos purchased the Fairview and Arcadia Valley assets in 2005 to add to their CSG portfolio. Santos has since progressed development of the Fairview CSG field and has increased its reserves significantly.

Santos has a number of existing gas sales agreements and the work necessary for ongoing field development to service these agreements will continue under existing approvals already held and being sought by Santos.

1.5.2.3 Expansion of CSG Operations

As part of the GLNG Project existing field development will be expanded. The expansion will be concentrated on the existing CSG fields at Fairview and Roma as well as the development of Santos' Arcadia Valley and Comet Ridge CSG fields (described in this EIS as the RFD area). It is this expanded field development that is the subject of this EIS. Gas in quantities beyond 5,300 PJs may require the future development of the Mahalo, Denison, Roma Other and Eastern Surat Basin fields (described in this EIS as the future development (FD) area). The locations of these fields are shown on Figure 1.5.1.

1.5.3 Project Schedule

Construction of the first train (Train 1) including the marine facilities and capital dredging is proposed to commence in 2010 with construction taking approximately four years. During this period the gas transmission pipeline will also be constructed. This will take approximately two years.

The LNG facility operations are planned to commence in early 2014. Depending on demand, it is possible that construction of Train 2 could commence as early as 2011 and Train 3 in 2012, which will bring the LNG facility up to its ultimate capacity of 10 Mtpa. However the timing of these trains is dependant on market conditions, gas availability, labour availability and the economic climate and may vary from what is described in this EIS. It is possible that construction of Trains 1 and 2 and/or Trains 2 and 3 may overlap.

During this time development of the RFD area of the CSG fields will be ongoing up to the 5,300 PJ required for Train 1. As each production well will have an approximate life of 5 to 15 years it will be necessary to replace depleted wells with new ones. New wells will be developed at a rate that is sufficient to provide enough CSG for the annual LNG production.

The nominal project life is 25 years; however the project may remain in operation beyond this period.

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1.6 Project Rationale

1.6.1 Project Need

1.6.1.1 International Demand

World energy demand continues to rise. Between 2008 and 2030, energy demand is expected to increase by 45%, an annual average rate of increase of 1.6% (International Energy Agency, 2008). Simultaneously, there is increased pressure to find less carbon-intensive energy solutions in an increasingly carbon-constrained world. The GLNG Project is a less carbon-intensive energy solution than other fossil fuel alternatives. As such, the GLNG Project can be a global contributor to energy needs with reduced greenhouse gas outputs.

In the calendar year 2007, Australia exported 15.2 million tonnes of LNG, valued at \$5,368 million (ABARE, 2008). Exports of LNG have increased strongly over the past 20 years, and have risen particularly rapidly over the past five years (Figure 1.6.1). Exports of approximately 25 million tonnes are predicted for 2011-2012.

ABARE (2008) predicts that this growth in exports will continue, with natural gas exports expected to grow by almost 8% per year until 2030. Most of this growth is expected to come from increased production from the North West Shelf project and the Conoco-Phillips LNG plant in Darwin, supplying LNG to Japan. More West Australian operations are in the development phase, including Gorgon and Pluto projects in the Carnarvon Basin, and several in the Browse Basin.

The majority of the world's large importers of LNG are in the Asia Pacific region, giving Australia a natural advantage in terms of the relatively short distances to these key markets. In 2007 Australia exported over 20 billion m³ of gas mainly to Japan and China.

ABARE (2008) predicts that the international demand from LNG importing countries will continue. This is expected to be 120 million tonnes in 2010 and increasing to over 150 million tonnes by 2015. There is a clear opportunity for the GLNG Project to fill some of this need.

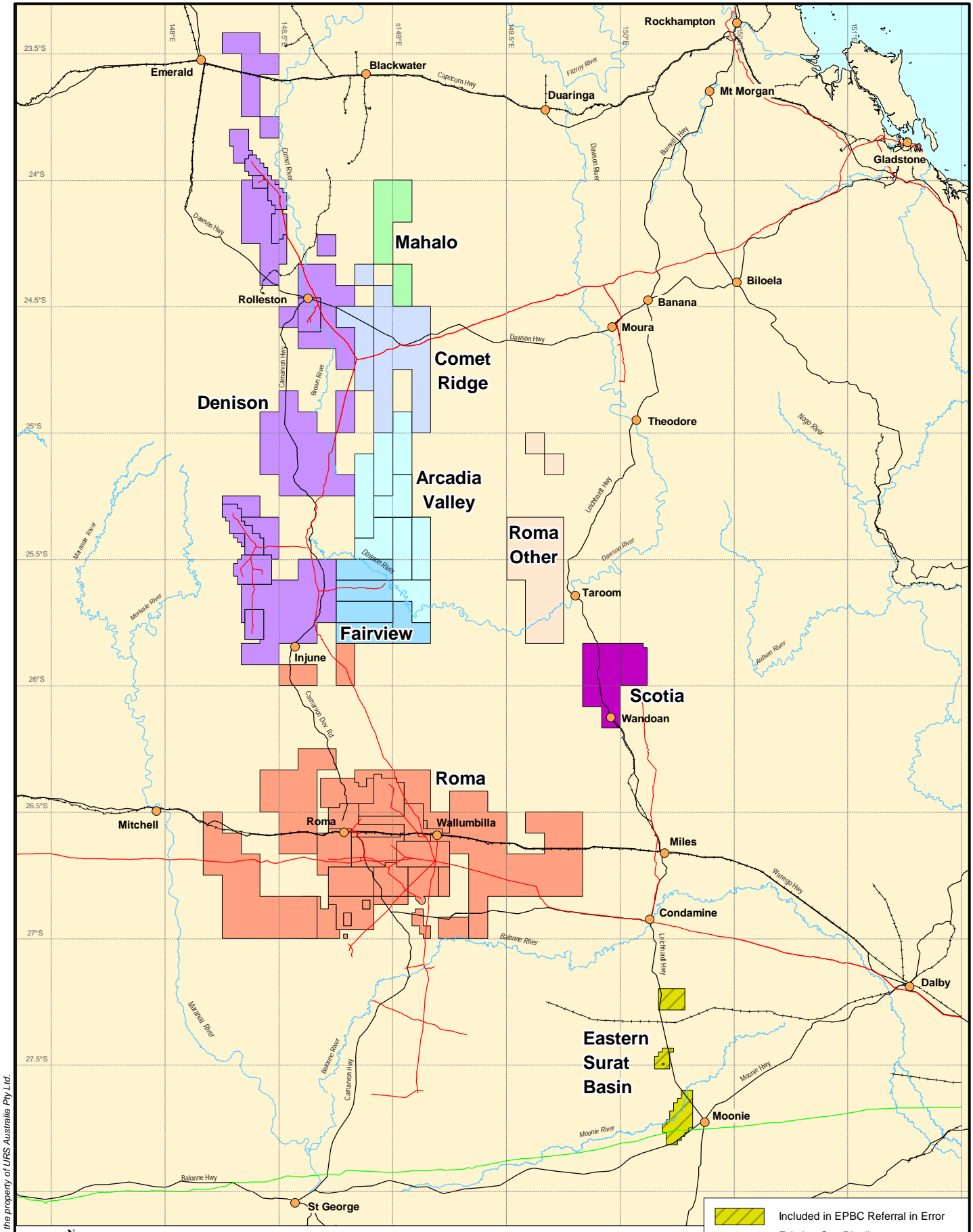
1.6.1.2 Domestic Demand

Within Australia, increasing demand for natural gas is likely to change the market structure in coming years. At present there are a small number of producers and a small number of large consumers, with relatively low household consumption. In 2007 there were approximately 3.75 million households in Australia using natural gas, most supplied by low pressure gas pipelines (ABARE, 2008).

Domestic consumption of natural gas is predicted to nearly double by 2030 (ABARE, 2008). This increase is due to increased demand for natural gas in electricity generation, manufacturing and mining, partly as a result of government policy incentives such as the Queensland 13% Gas Scheme. Under this scheme electricity retailers are required to source 13% of the electricity they sell in Queensland from gas-fired generation. The target will increase to 18% cent by 2020. The Scheme is designed to diversify Queensland's energy mix towards the greater use of gas, assist in encouraging the development of new gas sources and infrastructure in Queensland, and reduce greenhouse gas emissions from the Queensland electricity sector.



In 2005-06, natural gas accounted for 565 PJ of Australia's domestic energy consumption, or around 16% of total consumption. This is projected to increase to 18% by 2029-30.

Santos made a comprehensive, commercial-in-confidence submission to the *Queensland Government LNG Industry Issues Paper* on December 17, 2008 in which Santos addressed the question of expected impacts of LNG on domestic gas and electricity prices. This information has also been provided to the Government EIS assessment team to ensure the project is fully compliant with the ToR.



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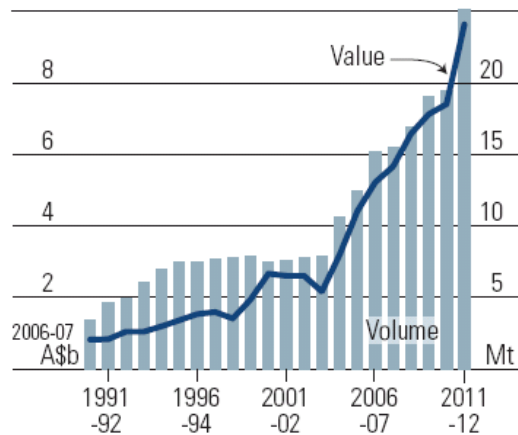
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<p>Client</p> 	<p>Project</p> <p align="center">GLADSTONE LNG PROJECT ENVIRONMENTAL IMPACT STATEMENT</p>	<p>Title</p> <p align="center">LOCATION OF CSG FIELDS</p>										
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Australian LNG exports



(Source: ABARE 2008)

Figure 1.6.2 Australian LNG Exports

1.6.2 Project Costs and Benefits

The project will generate major net economic benefits¹ for the Queensland economy and the wider Australian economy. In summary, the impact on the Queensland economy of the 10 Mtpa project is estimated to be:

- Over the period 2009 to 2033, Queensland's real gross state product (GSP) is on average \$4.1 billion or one percent higher each year than in the base case scenario. In the period after 2022, when the project has reached production of 10 Mtpa, real GSP is almost \$6.4 billion or 1.4 percent higher than in the base case scenario.
- This increase in Queensland's real GSP is distributed to households throughout Australia, although Queenslanders benefit proportionately more than other Australians. The project contributes to a net average annual increase in Queensland real private consumption spending over the period 2010 to 2033 of \$540 million. This constitutes a 0.2 percent increase over the base case scenario, which is significantly higher than the gain for Australia as a whole (of 0.1 percent). In the period after 2022, the net average annual increase in real private consumption spending is almost \$1 billion a year (0.4 percent) higher than it would be otherwise.
- The project delivers important employment benefits to the Queensland economy and the project regions. On average, additional employment in Queensland is 4,300 per year on a full-time equivalent basis. This exceeds the average annual employment of the project (the direct employment effect) across both the construction and operations phases of 3,196, demonstrating a significant employment multiplier effect. The employment effect is stronger after 2022, averaging almost 5,000 additional jobs per year.

The regional economies in which the project is located, on a per capita basis, are likely to benefit to a greater extent from the Project than the wider Queensland and Australian economies. Regional residents can be expected to benefit from increased employment opportunities and opportunities to supply the

¹ The modelled results presented in this report are net benefits; that is, the private costs (that are borne by Santos and Petronas) associated with the Project, have been subtracted from the overall benefits associated with the Project. The social costs (i.e. those that are borne by the community) are covered in the context of the social and environmental studies that contribute to this EIS. Quantification of these costs (in dollar terms) would typically be undertaken in a social cost benefit analysis.

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project with goods and services. Given the relative size of the regional economies, project expenditures in the local region will be significant.

While project expenditures will vary from year to year, in an average year (including both construction and operating expenditures) the Project is estimated to spend \$142 million in the Gas Transmission Pipeline/CSG Fields Region and almost \$363 million a year in the LNG Facility Region. This involves a direct contribution to regional value-added (or GDP produced by industries other than the GLNG project) of around \$60 million per year for the Gas Transmission Pipeline/CSG Fields Region and around \$153 million a year for the LNG Facility Region. In addition to this direct economic stimulus there is likely to be some indirect or flow on increases in regional value-added. Further information is provided in Section 8.15.

The project's demand for labour and resources will generate a number of social impacts in the region. These will include effects on existing employment and skills development as well as on the demographic characteristics of the local communities. In addition there will be additional demands placed on accommodation and community facilities. However, the project will also provide a number of benefits for the region, community and businesses including:

- Customer focus by quality staff reflecting the Santos work ethos;
- Enabling Production North to grow without human capital constraints;
- Increased business growth and profits; and
- Positive impact on local community through employment from abovementioned talent pool.

Santos is also considering:

- Extending the Santos Apprenticeship program to Eastern Queensland;
- Targeting school leavers in the first instance to source initial apprentices; and
- Reinvesting government rebates into local apprenticeships/traineeships.

The extent of these impacts and the mitigation and management measures proposed to be implemented are discussed in Sections 6.14, 7.14 and 8.14.

Using CSG as the feedstock for the LNG facility makes for one of the simplest LNG facilities, in terms of the processing facilities, as there are no heavies (e.g. condensate, LPGs etc) to contend with. There are CO₂ and N₂ contaminants to be removed, but these are at similar concentrations to those in other conventional LNG facility feed gases. For the LNG facility the ConocoPhillips liquefaction process was selected due to its robustness and low turndown capability to cater for slow build-up of CSG supply. There are aspects of 'pioneering' in the upstream (with the large number of wells to be drilled, hooked-up and operated) and marketing (the LNG being low heating value for the potential markets), however the downstream processing facilities are straightforward and well proven.

1.7 Relationship to Other Projects

There are a number of other major projects within the vicinity of the GLNG Project which are currently in the approvals stage or are under construction and for which information is publicly available. Details of the major projects for which adequate information is available and which have the potential to contribute to cumulative impacts are listed in Table 1.7.1. Where relevant, these projects have been considered as part of the cumulative impact assessment which forms part of this EIS.

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Table 1.7.1 Other Relevant Projects

Project - Proponent	Description	Location	Project Status	Relationship to GLNG Project
Gladstone LNG Project – Arrow Energy and LNG Ltd.	A natural gas liquefaction plant (1.5 Mtpa) and associated infrastructure and facilities would be built at Fisherman's Landing Wharf (FLW). Wharf loading facilities at FLW No. 5 would be upgraded. Coal seam gas would be sourced from gas fields operated by Arrow Energy NL via the proposed Central Queensland Gas Pipeline. At the LNG facility the CSG will be liquefied, stored and loaded onto ships for export.	Expansion of the existing Moranbah CSG fields. LNG facility at Fisherman's Landing Wharf, Gladstone.	EIS approved.	Another Gladstone based LNG project. Delivery pipeline may coincide in part with the alignment of the Santos pipeline. May be overlapping construction phases.
Sun LNG Project – Sunshine Gas and Sojitz Corp.	A natural gas liquefaction plant and associated infrastructure and facilities would be built at FLW. Wharf loading facilities at FLW No.5 would be upgraded. A five km lateral gas pipeline would be constructed to deliver natural gas from the Gladstone City Gas Gate to the plant. Development of Sunshine's Lacerta coal seam gas project in the Southern Bowen Basin and the Surat Basin would also be included.	Coal seam gas project - Bowen Basin and the Surat Basin. LNG facility at Fisherman's Landing Wharf, Gladstone.	EIS Terms of Reference (ToR) released	Another Gladstone based LNG plant. May be overlapping construction phases.
Queensland Curtis LNG Project – QGC Ltd and BG Group.	The Queensland Curtis LNG Project proposes to develop an integrated LNG project comprising three principal components: <ul style="list-style-type: none"> Expansion of coal seam gas operations in the Surat Basin; A 380 km pipeline to Gladstone; and A LNG processing plant on Curtis Island (12 Mtpa) with a port facility for exports. 	Gas fields in the Surat Basin, gas pipeline from Surat Basin to Curtis Island and LNG plant on Curtis Island, Gladstone	EIS ToR released	Another Gladstone based LNG project. Delivery pipeline may coincide in part with the alignment of the Santos pipeline. May be overlapping construction phases. Curtis Island road access and approach channel for shipping may be shared with GLNG.
Southern Cross LNG Project – LNG Impel.	This is an open access liquefaction facility and associated pipeline including natural gas liquids recovery, liquefaction, LNG storage, and marine loading. It is proposed to be developed in three trains with each train having a capacity of 0.7 to 1.3 Mtpa. The Southern Cross Pipeline will be an open access natural gas pipeline of approximately 400 km to connect the reserves to the Southern Cross Terminal.	Facility on Curtis Island, Gladstone.	Project publicly announced in May 2008.	Another Gladstone based LNG plant. May be overlapping construction phases.
Central Queensland Gas Pipeline – AGL and Arrow Energy.	A 440 km long high pressure gas transmission pipeline in Central Queensland from Moranbah to Gladstone.	Moranbah to Gladstone.	EIS completed.	Pipeline may coincide in part with the alignment of the Santos pipeline.

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Project - Proponent	Description	Location	Project Status	Relationship to GLNG Project
Australia Pacific LNG Project – ConocoPhillips and Origin Energy	Developing Origin's CSG resources in the Bowen and Surat Basins and constructing a four train LNG processing plant on Curtis Island, Gladstone (16 Mtpa).	Bowen and Surat Basins, gas pipeline from Surat Basin to Curtis Island and Curtis Island, Gladstone.	Declared a Significant Project by Coordinator-General and Initial Advice Statement available.	Potential overlapping development phases in CSG field and on Curtis Island.
Yarwun Alumina Refinery Expansion – Rio Tinto Alcan	Stage 2 of the existing Yarwun Alumina Refinery including a gas-fired cogeneration facility.	Yarwun, Gladstone.	Under construction.	Construction likely to be substantially completed prior to commencement of GLNG construction.
Boyne Smelter – Boyne Smelters.	Construction of new baking furnace and upgrade of crane runway.	Boyne Island, Gladstone, (20km from the Port of Gladstone).	Under construction.	Construction likely to be substantially completed prior to commencement of GLNG construction.
Wiggins Island Coal Terminal –Wiggins Island Coal Export Terminal P/L	New coal terminal and associated rail infrastructure.	Wiggins Island, Gladstone.	EIS completed.	May be overlapping construction phases.
Gladstone Pacific Nickel Refinery – Gladstone Pacific Nickel	New nickel refinery and residue storage facility including ore importing facility at the proposed Wiggins Island terminal.	Yarwun, Gladstone.	EIS completed.	May be overlapping construction phases.
Gas Field Developments	There are other coal seam gas development programs in the Bowen/Surat Basin for domestic production but public information is not available for these.	Bowen/Surat Basin.	Planned / in development	Will be overlapping development phases but without project information cannot be assessed.

More detailed information relating to some of these major projects is provided below.

1.7.1 Gladstone LNG Project

Gladstone LNG Pty Ltd (GLNG), which is a subsidiary of the publicly listed Australian company Liquefied Natural Gas Ltd, proposes to develop a mid-scale (2.6 Mtpa) LNG plant at Fisherman's Landing Wharf (FLW) in the Port of Gladstone. The proposal has an expected life of 25 years and the first stage would produce up to 1.5 million tonnes of LNG per year. A proposed second stage would double the capacity within three years of Stage 1. The environmental impact statement for the Gladstone LNG Project – Fisherman's Landing is currently available for review.

GLNG has planned the project in two stages, with the first stage consisting of operating a single processing train (Train 1) which will provide an initial maximum operational capacity of 1.3 Mtpa. A second train (Train 2) will follow, which will double the operational capacity of the plant to 2.6 Mtpa. The expected life of the project is 25 years with the first shipment of LNG expected in 2011. The website for the development is http://www.Inglimited.com.au/IRM/content/project_australia.html.

CSG for the Gladstone LNG Project will be sourced from gas fields operated by Arrow Energy NL (Arrow) located in the Bowen Basin in Central Queensland, approximately 400 km south of Townsville and 170

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km west of Mackay. Total gas production for the year ending 30 June 2008 was 16.8 PJ, with gross gas production for the half year ending 31 December 2008 at 7 PJ.

The CSG will be transported to Gladstone via the proposed 450 km Central Queensland Gas Pipeline (CQGP).

The LNG plant and associated infrastructure and facilities will be built at FLW. Wharf loading facilities at FLW No. 5 will also be upgraded. Once the CSG has been processed at the plant, it will then be loaded onto LNG carriers for export to the target markets of South East Asia and/or North America.

1.7.2 Sun LNG Project

Sojitz Corporation and Sunshine Gas Ltd (recently subject to a takeover by the Queensland Gas Company Limited and now a subsidiary of the BG Group) propose to develop a LNG plant at FLW in the Port of Gladstone. The first stage will produce 0.5 Mtpa of LNG with Stage 2 increasing the capacity to 1 Mtpa. A 5 km lateral gas pipeline will also be constructed to deliver natural gas from the Gladstone City Gas Gate to the plant. An EIS is currently being prepared.

Gas for the Sun LNG Project will be supplied from the Lacerta coal seam gas project in the Southern Bowen Basin and the Surat Basin in Queensland via the Queensland Gas Pipeline (QGP).

A 5 km lateral gas pipeline will be constructed to deliver the CSG from the Gladstone City Gas Gate of the QGP to the plant.

1.7.3 Queensland Curtis LNG Project

BG International Limited (BG) and Queensland Gas Company Limited (QGC) (a subsidiary of the BG Group) are proposing to develop an integrated LNG project in Queensland. The Queensland Curtis LNG Project will involve the development of CSG fields, construction of a pipeline and a LNG facility to be located on Curtis Island in the Port of Gladstone. The LNG facility will supply up to 12 Mtpa of LNG through the development of three LNG trains, with the first stage expected to produce 7.5 Mtpa. First production is anticipated to take place in 2013. The draft Terms of Reference have been released for comment. The website for the project is <http://www.qclng.com.au/>.

The Queensland Curtis LNG Project will involve an expansion of QGC's exploration and gas production operations in the Surat Basin in southern Queensland. QGC currently holds 9 ATPs covering 7,500 km², 13 petroleum leases (including current applications), and 4 pipeline licences which are all located within the Surat Basin.

An underground pipeline will be constructed from QGC's CSG fields in the vicinity of Miles in the Surat Basin to the plant on Curtis Island. It will traverse a distance of approximately 380 km in a north-easterly direction.

The liquefaction plant will be located on Curtis Island in the Port of Gladstone adjacent to the GLNG LNG facility. Nominally it will comprise three LNG trains, each of 3 to 4 Mtpa production capacity.

1.7.4 Southern Cross LNG Project

LNG Impel (Southern Cross LNG) proposes to construct an open-access LNG terminal on Curtis Island in the Port of Gladstone. The LNG plant has been scoped for 3 LNG trains, each with a capacity range of 0.7 to 1.3 Mtpa. LNG Impel also proposes to build an open access, 400 km long pipeline (the Southern Cross Gas Pipeline) which will be constructed to connect reserves to the terminal (Southern Cross Terminal) on Curtis Island. The Southern Cross Terminal will include natural gas liquids recovery, liquefaction, LNG storage, and marine loading. Production is expected to start in 2013.

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1.7.5 Central Queensland Gas Pipeline

Central Queensland Pipeline Pty Ltd (CQP) is a 50:50 joint venture between Arrow Energy and AGL Energy. CQP proposes to construct a 440 km natural gas pipeline in a 30 m wide corridor from the existing compressor station at Moranbah generally south/southeast to Gladstone (the CQGP). The project is part of the overall Arrow Energy and AGL Energy investment into the Bowen Basin coal seam gas fields.

The CQGP will form a key link in delivering CSG from the Moranbah Gas Processing Plant to Gladstone where it will connect into the national pipeline grid and to a proposed LNG plant at FLW. The CQGP will be initially configured to deliver 20 PJ per annum but could be expanded through further gas compression to approximately 50 PJ per annum.

The EIS for the project was published on 7 October 2006, with the Coordinator-General's (CG) Report completed on 16 October 2007 approving the project, subject to certain conditions.

1.7.6 Australia Pacific LNG Project

Origin Energy Limited and ConocoPhillips have formed Australia Pacific LNG, a 50:50 CSG to LNG joint venture. Australia Pacific LNG proposes to construct a four train LNG plant on Curtis Island.

The project will use Origin's Queensland CSG reserves. The first train is expected to begin production in 2014 (3.5 Mtpa), the second train in 2015 (total production around 7 Mtpa) and trains 3 and 4 (total production around 14-16 Mtpa) beyond 2015.

This project has been declared a Significant Project by the CG and its Initial Advice Statement (IAS) has been released. The final investment decision for Train 1 is expected at the end of 2010 with Australia Pacific LNG targeting first LNG production in 2014.

1.7.7 Yarwun Alumina Refinery Expansion

The Rio Tinto Alcan's Yarwun refinery is situated 10 km north-west of Gladstone, near the Port of Gladstone. The first stage of the refinery has the capacity to provide 1.4 Mtpa of smelter grade alumina. The first shipments from the refinery were made in November 2004.

In July 2007, Rio Tinto Alcan announced it would proceed with a US\$1.8 billion expansion to the refinery. The expansion will more than double annual production, increasing output by 2 Mtpa to 3.4 Mtpa by 2011.

The "Yarwun 2" project will focus on the construction of the five alumina process areas: tube digestion, precipitation, filtration, clarification and calcination. Major and minor facilities utilised in these process areas will be replicated. In some instances, new facilities will feature improvements that will increase process and environmental efficiency. Major non-process facilities will be extended or expanded as part of the Yarwun 2 project.

1.7.8 Boyne Smelter

The Boyne Smelter is one of Australia's largest aluminum smelters, located approximately 20 km south of Gladstone. The smelter currently produces more than half a million tonnes of aluminum each year from its three reduction lines.

Rio Tinto Alcan and its joint venture partners are carrying out two projects that will modernise and extend the life of the Boyne Smelter. The first project, construction of a new baking furnace, will reduce onsite greenhouse gas emissions, while the second project, which includes overhead crane replacement and a crane runway upgrade, will result in a more efficient crane/alumina transport system. The projects will be built over approximately three years.

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1.7.9 Wiggins Island Coal Terminal

Wiggins Island Coal Export Terminal Pty Ltd is proposing to construct a coal export terminal at the Port of Gladstone. The proposed Wiggins Island Terminal is located to the west of the existing RG Tanna Terminal. The terminal will involve the construction and operation of rail unloading facilities, stockpiling and ship loading facilities for a terminal capacity of up to 70 Mtpa of coal. In parallel, Queensland Rail proposes to develop rail infrastructure to connect the new terminal with existing rail networks.

The Wiggins Island Terminal is proposed to be developed in three stages over the next 13 years. The CG has issued its report, approving the project, subject to conditions. The website for the project is www.wict.com.au.

1.7.10 Gladstone Pacific Nickel Refinery

The Queensland State Government has approved the EIS for the construction and operation of Stages 1 and 2 of the Gladstone Pacific Nickel Refinery (GPNR), located in the Yarwun Precinct of the Gladstone State Development Area.

The GPNR will involve the construction and operation of a high-pressure acid leach plant to produce nickel and cobalt metal. Stage 1 of the project will produce approximately 63,000 tonnes of nickel and 5,000 tonnes of cobalt per annum. The GPNR will have access to the Port of Gladstone via the Wiggins Island Terminal. The website for the project is www.gladstonepacific.com.au.

1.8 Environmental Impact Assessment Process

1.8.1 Queensland Government Process

The Queensland Government has determined that the EIS process for the GLNG Project is to be managed in accordance with the requirements of the SDPWO Act. This is based on the project's declaration by the CG as a Significant Project after consideration of the following matters as set out in Section 27 of the SDPWO Act:

- **Relevant planning schemes and policy frameworks.** The various project components will be located in numerous local authority areas as discussed in Section 1.9.6. Should environmental approval be granted, development applications to and decisions from these Councils may be required in respect of a material change of use for the sites pursuant to the requirements of the *Integrated Planning Act 1997*.
- **Potential effects on relevant infrastructure.** The LNG facility will require extensive infrastructure support including:
 - *Water.* Water will be required for drinking, process water, fire water and possibly cooling purposes. The facility will also include effluent and wastewater treatment facilities.
 - *Electricity.* Electricity will either be generated onsite via gas turbine generators, or purchased from a third party.
 - *Access.* Access to the site on Curtis Island will be either via road or barge. The road option includes a bridge across Port Curtis from Friend Point to Laird Point together with new access roads constructed on the mainland and on the island. This would be a common user facility available to other potential LNG producers on Curtis Island.
- **Employment opportunities.** The project is predicted to generate a peak of approximately 3,000 jobs during construction and sustain approximately 250 jobs once the three trains are operational, with most of these generated in Queensland.
- **Potential environmental effects.** The project has the potential to affect a wide range of environmental components including air quality, noise, terrestrial biology, marine biology, water quality, socio-economics, infrastructure and others. Appropriate environmental management strategies will be implemented to limit environmental impacts to acceptable levels.

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- **Complexity of government requirements.** The project will involve approvals from the commonwealth government as well as multiple state and local government agencies.
- **Level of investment.** The GLNG Project is a multi-billion dollar project. Its economic benefits will have national, state and regional dimensions.
- **Strategic significance.** Between 2008 and 2013 world energy demand is expected to increase by 45%, an annual average rate of increase of 1.6% (International Energy Agency, 2008). The GLNG Project is a less carbon-intensive energy solution than other fossil fuel alternatives. In addition, ABARE (2008) predicts that the international demand from LNG importing countries will be 120 million tonnes in 2010 and increasing to over 150 million tonnes by 2015. There is a clear opportunity for the GLNG Project to fill some of this need.

To initiate the EIS process under the SDPWO Act, an Initial Advice Statement (IAS) for the project was lodged with the CG on 10 July 2007. On 16 July 2007, the CG determined that the GLNG Project is a "Significant Project" in accordance with the requirements of Section 26 of the SDPWO Act.

A draft ToR for the EIS was prepared and advertised for public comment on 24 May 2008 for a period of four weeks. All relevant commonwealth, state and local government agencies and authorities were also invited to participate in the process as advisory agencies. In finalising the ToR, the CG gave regard to all submissions on the draft ToR. The final ToR was released by the CG in August 2008. A copy of the final ToR is provided in Appendix A. A cross-reference to where each aspect is discussed in the EIS is provided in Appendix B.

The impact assessment process under the SDPWO Act is also the subject of a bilateral agreement between the Queensland and Commonwealth Governments in relation to environmental assessment under the EPBC Act. Santos referred the proposal to the Commonwealth Minister for the Environment, Heritage and the Arts in accordance with the provisions of the EPBC Act. This is discussed further in Section 1.8.4.

A public notice has been placed in relevant local and state newspapers advising the public where copies of this EIS are available for inspection or purchase; that submissions may be made to the CG about the EIS; and the timeframe for the submission period. During this advertising period, members of the public have the opportunity to make submissions about the EIS. Following the submission period, Santos may be required to prepare a supplementary report/addendum to the EIS to address specific matters raised in submissions on the EIS.

At the completion of the assessment phase, the CG will prepare a report evaluating the EIS and other related material, pursuant to Section 35 of the SDPWO Act. The CG's report will include an evaluation of the environmental effects of the project and any related matters, and will reach a conclusion about the environmental effects and any associated mitigation measures. The evaluation will take into account all relevant material including: the EIS; all properly made submissions and other submissions accepted by the CG; any other material the CG considers is relevant to the project such as the supplementary report/addendum to the EIS; comments and advice from advisory agencies; and technical reports on specific components of the project.

In addition to the requirements under the SDPWO Act and EPBC Act, the project will require environmental authorities under the *Environmental Protection Act 1994* (EP Act), petroleum authorities under the *Petroleum and Gas (Production and Safety) Act 2004* and *Petroleum (Submerged Lands) Act 1982*, development approvals under the Gladstone State Development Area (GSDA) Development Scheme made under the SDPWO Act, and development approvals under the *Integrated Planning Act 1997* (IP Act).

Under divisions 6 and 6A of the SDPWO Act the CG's report may state conditions for the environmental authority and/or any petroleum lease, pipeline licence or petroleum facility licence required for the GLNG Project.

Under Section 39 of the SDPWO Act, the CG's report may set out for the IP Act assessment manager one or more of the following:

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- The conditions that must attach to any development approval;
- That the development approval must be for part only of the development; and/or
- That the approval must be a preliminary approval only.

Alternatively, the CG’s report may tell the assessment manager that there are no conditions or requirements for the project, or that the application for development approval be refused.

A flowchart showing the Queensland Government’s EIS process under the SDPWO Act is shown in Figure 1.8.1.

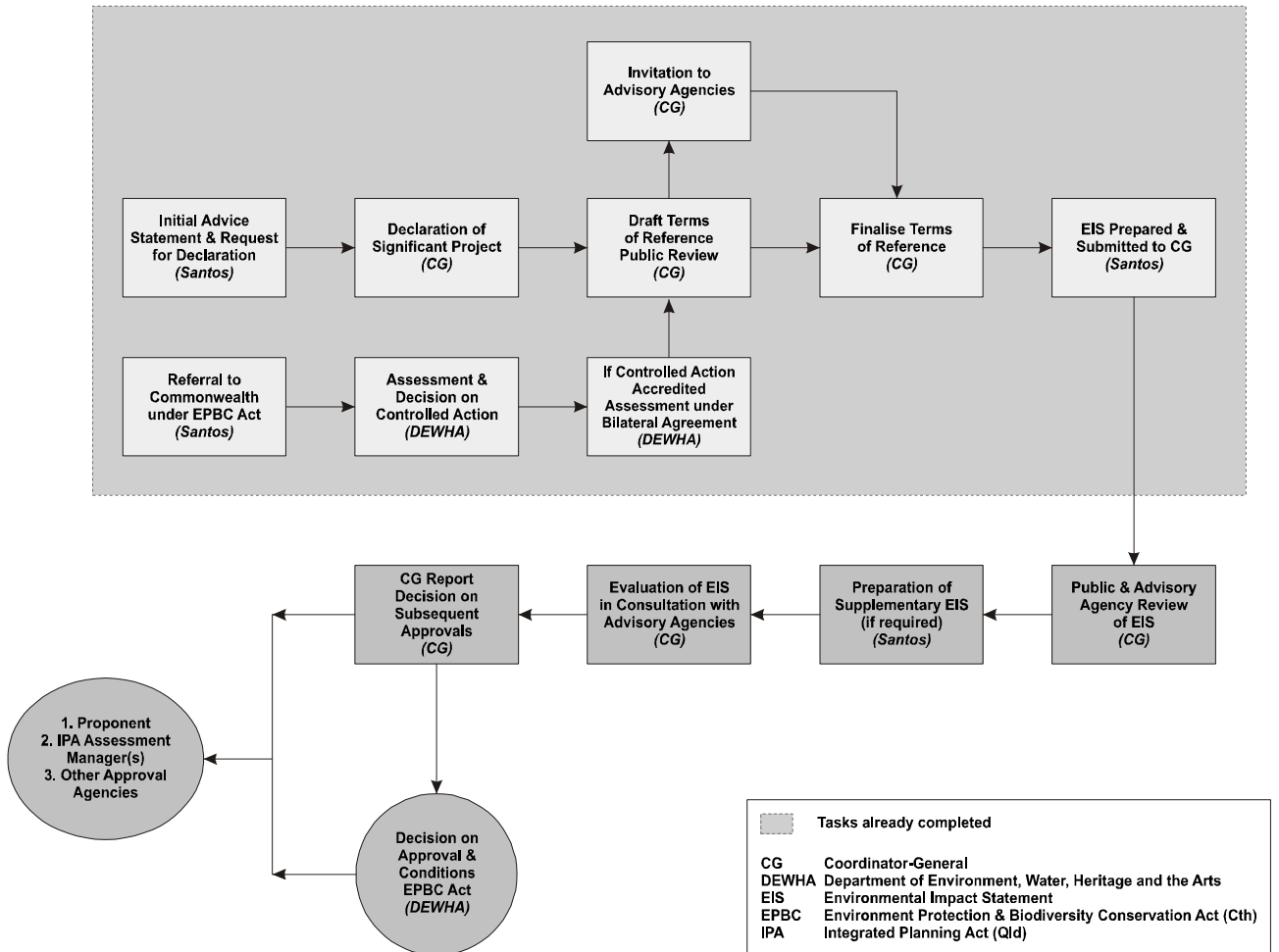


Figure 1.8.1 EIS Process

1.8.2 EIS Submissions

The EIS has been released for public review to enable the public and the advisory agencies to comment on the project. Notification of the display centres, submission centres, submission procedures, lodgement address, deadlines and purchasing details have been advertised in a number of newspapers including:

- Gladstone Observer (Gladstone);
- The Courier Mail (Brisbane);
- The Weekend Australian (National);
- The Western Star (Roma); and
- The Herald (Emerald).

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The public has been invited to make submissions on this EIS. Submissions can be made to provide additional data, to correct inaccuracies, to raise issues of concern, to seek additional information, or for any other relevant reason.

In order for public submissions to be identified as 'properly made submission' the DIP's website (<http://www.dip.qld.gov.au/resources/factsheet/eis/eis-submissions.pdf>) outlines the following steps:

- *“Be made to the Coordinator-General in writing be received on or before the last day of the submission period;*
- *Be signed by each person who makes the submission;*
- *State the name and address of each person who makes the submission; and*
- *State the grounds of the submission and facts and circumstances relied on.*

Note: Under s.34(3) of the Act the Coordinator-General may accept a submission that is not a 'properly made submission' for example an e-mail that is not signed. However, to ensure you have appeal rights under the Integrated Planning Act 1997 submission will need to confirm to the 'properly made submission' criteria.”

Written submissions will be received by the CG. All submissions should be typed on A4 paper and not require colour for interpretation.

Submissions should be sent to:

Project Manager
 Significant Projects Coordination
 Infrastructure and Economic Development
 Department of Infrastructure and Planning
 PO Box 15009 City East Qld 4002
 Fax: 3225 8282

1.8.3 Public Consultation Process

Consultation with advisory agencies, members of the public and other stakeholders has formed an integral part of the EIS process and will continue to be an integral part of project development. The community consultation process aims to ensure clear, transparent, two-way communication between Santos and the interested and affected stakeholders through listening, recording and responding to issues relating to the project as these arise. The process provides an opportunity for Santos to impart information to the stakeholders regarding the project, to obtain valuable local knowledge from these groups, and to respond to concerns through appropriate action. It provides stakeholders with an opportunity to express their views and concerns, provide feedback, and be involved in the EIS process.

A comprehensive consultation program was successfully conducted throughout the EIS process and will continue during project implementation. A variety of communication tools and activities were used including meetings, newsletters, presentations, a freecall number and a website. These consultation tools and activities and the timings of these are described in Section 9. The issues identified in, and outcomes of, the consultation program have been recorded and fed back into the EIS process.

The key objectives of the consultation program were to:

- Initiate and maintain open communication between stakeholders and Santos on all aspects of the project and the environmental impact assessment work;
- Inform the different interest groups about the proposal and encourage their involvement in the process;
- Seek an understanding of interest group concerns about the proposal;
- Explain the impact assessment research methodology and how public input might influence the final assessment of the project;

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- Provide an understanding of the regulatory approval process;
- Seek local information and input into the project by providing a range of opportunities for stakeholders to identify key issues for consideration; and
- Proactively work with the community to propose strategies to minimise any negative impacts.

1.8.4 Commonwealth Government Process

Under the EPBC Act, a project will require approval by the Commonwealth Minister for the Environment, Heritage and the Arts if the project has been declared a controlled action which will have, or is likely to have, a significant impact on a matter of national environmental significance. Matters of national environmental significance are:

- World Heritage;
- National Heritage;
- Wetlands of international importance;
- Listed threatened species and communities;
- Listed migratory species;
- Nuclear actions; and
- The marine environment.

On 28 February 2008 (and 13 March 2008 in respect of the Gas Pipeline corridor), Santos referred the project to the Commonwealth Minister for the Environment, Heritage and the Arts under the EPBC Act as five EPBC Act Referrals addressing the following:

- CSG Fields development (referral reference number 2008/4059);
- Gas Pipeline corridor (referral reference number 2008/4096);
- LNG Park (referral reference number 2008/4057);
- Bridge and Road (referral reference number 2008/4060); and
- Marine Facilities (referral reference number 2008/4058).

On 31 March 2008 (and 14 April 2008 in respect of the Gas Pipeline corridor), the Minister's delegate decided that each of the components of the project were controlled actions, for which the following relevant controlling provisions were noted:

- Listed threatened species and communities (ss 18 and 18A);
- Listed migratory species (ss 20 and 20A);
- World Heritage properties (ss 12 and 15A); and
- National Heritage places (ss 15B and 15C).

Consequently, an approval for the project is required under Part 9 of the EPBC Act.

Appendix G summarises how the potential environmental impacts of each of the referred project components on the controlling actions of relevance have been addressed and managed.

In accordance with the Commonwealth Minister's decision on the assessment approach, the project will be assessed under the bilateral agreement with the Queensland Government. Under the bilateral agreement, the Commonwealth Government has accredited the SDPWO Act EIS process to meet the impact assessment requirements under both Commonwealth and State legislation.

The Department of the Environment, Water, Heritage and the Arts (DEWHA) is an advisory agency to the Queensland Government for the project's EIS process. As part of the EIS process, the Commonwealth Minister for the Environment, Heritage and the Arts will review the EIS to ensure that it adequately addresses the requirements of the EPBC Act. The Minister's assessment will usually follow preparation of

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the CG's assessment report. DEWHA will ensure that relevant input from other Commonwealth agencies is provided.

At the conclusion of the Queensland Government process, DEWHA will receive a copy of the CG's report and will prepare its own assessment report for the Commonwealth Minister for the Environment, Heritage and the Arts. The Minister will take the CG's report into account when making a decision on the project.

1.8.5 EIS Schedule

The EIS schedule summarising the main study milestones and consultation activities discussed below is given in Figure 1.8.2. The EIS was prepared throughout 2008 during which there was ongoing community consultation with relevant stakeholders. This consultation will continue during the public advertising period in early 2009. It is expected that this will be followed by the preparation of an EIS Supplement with the CG's assessment report expected in November 2009.

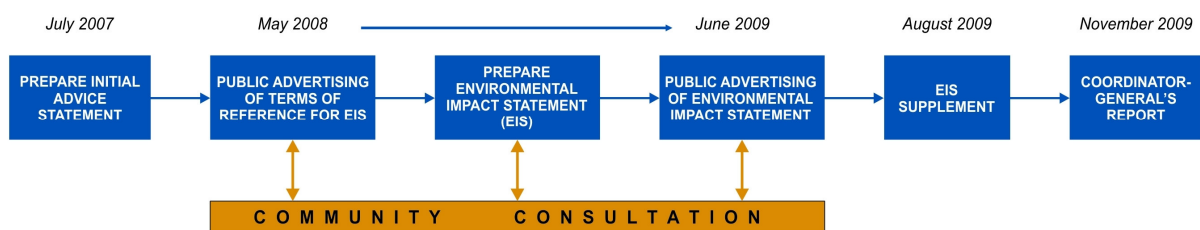


Figure 1.8.2 EIS Schedule

1.9 Project Approvals and Legislative Framework

1.9.1 State Legislation

In addition to the EIS approval process, the project will need to obtain other approvals before construction can begin and operations can commence. A description of these and other necessary approvals that may be required is given below. Land use and other relevant legislation are discussed in Section 6.11, 7.11 and 8.11.

The following are the main approvals required for the construction and operation of the project:

- Approvals under the Commonwealth EPBC Act from the Commonwealth Minister for the Environment, Heritage and the Arts;
- An approval for a material change of use under the Gladstone State Development Scheme pursuant to the SDPWO Act; and
- A petroleum facilities licence, pipeline licences and petroleum leases under the *Petroleum and Gas (Production and Safety) Act 2004* (Qld) (P&G (PS) Act) and *Petroleum (Submerged Lands) Act 1982* (Qld) granted by the Minister for Mines and Energy including related environmental authorities granted under the *Environmental Protection Act 1994* (Qld) by the Minister for Sustainability, Climate and Innovation.

Figure 1.9.1 overviews the commonwealth and state regulatory approvals process for the project.

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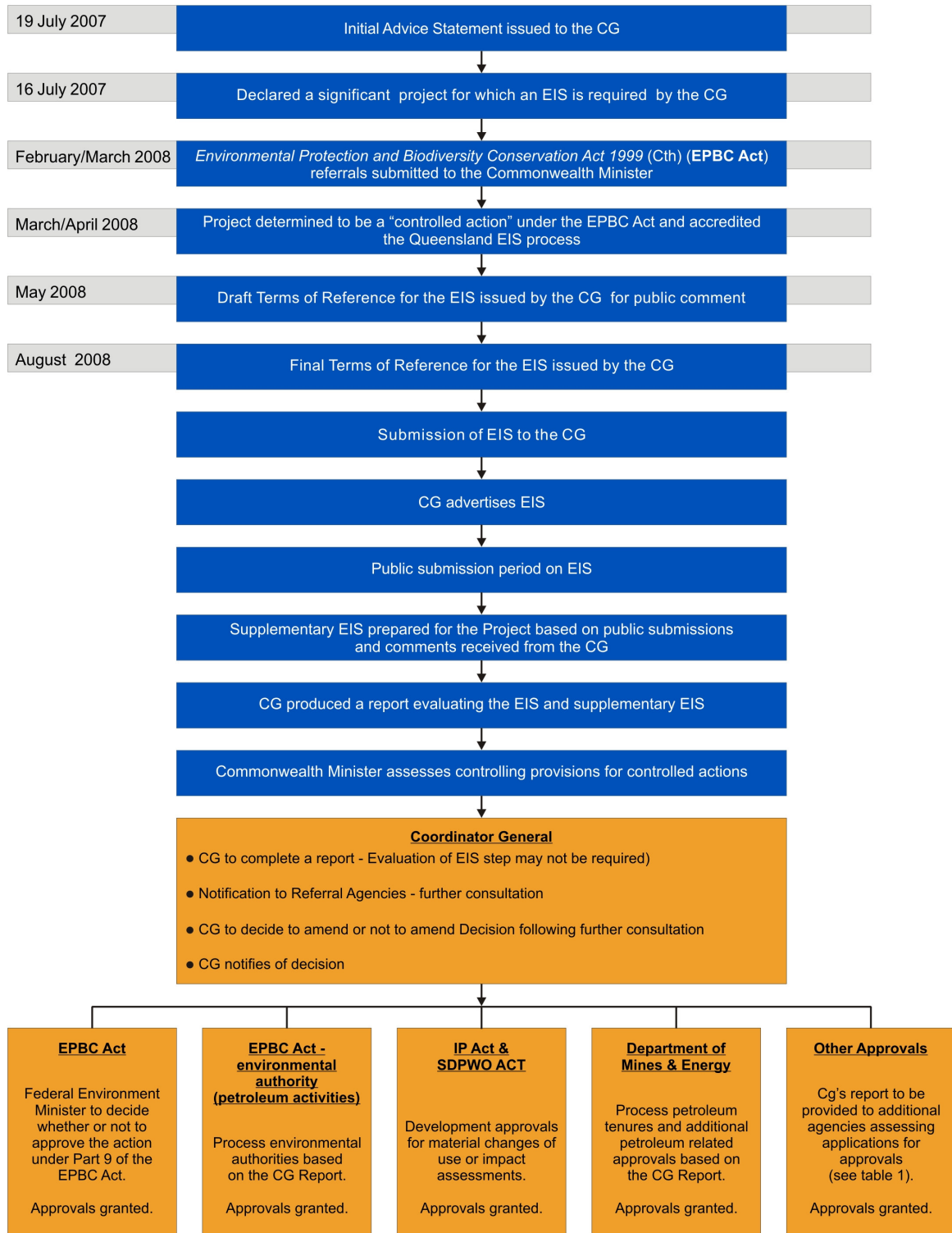


Figure 1.9.1 Federal and State Regulatory Approval Process

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Table 1.9.1 provides a list of the key approvals required for the project and the responsible authority for each approval. Further details of the approvals required for the project are provided in each volume within this EIS and Appendix C.

Table 1.9.1 Key Approvals Required

Approval Source	Responsible Authority	Relevant Aspect of Project
<p><i>Aboriginal Cultural Heritage Act 2005 (Qld).</i> Cultural Heritage Management Plan (CHMP) (s 87).</p>	<p>Department of Natural Resources and Water (DNRW) (Cultural Heritage Coordination Unit).</p>	<p>CHMPs for the project must be developed and approved.</p> <p>This requirement does not apply to areas where Indigenous Land Use Agreements in relation to the project apply, unless Aboriginal Cultural Heritage is expressly excluded from being subject to the Indigenous Land Use Agreement.</p> <p>The proponent's cultural heritage strategy for the project involves seeking CHMPs in the first instance, with the following indigenous groups (as described in Section 6.13):</p> <ul style="list-style-type: none"> • Mandandanji; • Bidjara; • Karingbal; • Iman; • Gangulu; • Port Curtis Coral Coast; and • Two areas not subject to registered native title claims.
<p><i>Building Act 1975 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit for building work (Schedule 8, Part 1, Table 1, Item 1 IP Act).</p>	<p>Relevant local council.</p>	<p>A development permit for building work is required for 'assessable development', where the structure or building work is of a fixed nature (as defined under the Building Act 1975 (Qld)). For example, development in the local government area (which does not include the land below high water mark), may involve:</p> <ul style="list-style-type: none"> • Building work assessable against the relevant local government Planning Scheme; and • Building work assessable against the Building Act 1975 (Qld) and the Building Code of Australia. <p>However, where an activity is authorised under the Petroleum & Gas (Production and Safety) Act, then (a) will not apply.</p>
<p><i>Coastal Protection and Management Act 1995 (Qld).</i> Dredge Management Plan (ss 89 and 91).</p>	<p>Environmental Protection Agency (EPA).</p>	<p>A dredge management plan is required to dredge within a coastal protection area. Dredging will be required for the Marine Facilities component of the project.</p>
<p><i>Coastal Protection and Management Act 1995 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit for tidal work (schedule 8, Part 1, Table 4, Item 5(a) IP Act and Regulation 14 and Coastal Protection Management Act 1995 (Qld)).</p>	<p>Gladstone Regional Council or EPA.</p>	<p>A development permit is required to carry out:</p> <ul style="list-style-type: none"> • Prescribed tidal works (being tidal works completely or partly in a local government tidal area being, relevantly, land between the high water mark and 50 metres seaward) in which case application is made to Gladstone Regional Council; or • Tidal works other than prescribed tidal works, in which case the application is to be made to the EPA.

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Approval Source	Responsible Authority	Relevant Aspect of Project
<p><i>Coastal Protection and Management Act 1995 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit for works within Coastal Management District (Schedule 8, Part 1, Table 4, Item 5(b) IP Act and s 100A(3)(a)(ii) <i>Coastal Protection and Management Act 1995 (Qld).</i></p>	EPA.	<p>A development permit is required where operational work is carried out in a coastal management district (in this case, the Curtis Coast Regional Management District) to:</p> <ul style="list-style-type: none"> • Interfere with quarry material on State coastal land above high water mark; • Dispose of dredge spoil or other solid waste material in tidal water; • Draining or allowing drainage or flow of water or other matter across State coastal land above high water mark; • Reclaim land under tidal water; and • Construct or install works in a water course if carried out completely or partly within a coastal management district.
<p><i>Environmental Protection Act 1994 (Qld) (Schedule 5).</i> Environmental authority (s 426, reg 23 and Schedule 5 Regulation).</p>	EPA.	<p>An environmental authority is required to carry out an environmentally relevant activity which is a petroleum activity.</p> <p>The environmental authority will also authorise other activities that are environmentally relevant activities to be carried out in the area of a petroleum authority granted under the P&G (PS) Act.</p> <p>If any activities are environmentally relevant activities that are undertaken on areas other than those subject to a petroleum authority, then a development permit under the IP Act may be required.</p>
<p><i>Environment Protection and Biodiversity Conservation Act 1999 (Cth).</i> The Commonwealth Minister for the Environment, Heritage and the Arts decided the Project constitutes a controlled action under relevant controlling provisions of the <i>EPBC Act</i> (ss 68 and 133).</p>	Commonwealth Minister for the Environment, Heritage, and the Arts.	Any aspect of the project which is likely to impact on a relevant matter of national environmental significance.
<p><i>Explosives Act 1999 (Qld).</i> <i>Explosives Regulation 2003 (Qld).</i> Licence to use explosives (reg 29).</p>	Chief Inspector of the Department of Mines and Energy (DME).	Licence is required to use, possess, store and transport explosives.
<p><i>Fisheries Act 1994 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit to remove, destroy or damage a marine plant (ss 8 and 123 <i>Fisheries Act 1994 (Qld)</i> and Schedule 8, Part I, Table 4, Item 8 IP Act).</p>	Department of Primary Industries and Fisheries.	<p>An approval is required to remove, destroy or damage a marine plant.</p> <p>The Fisheries Act 1994 (Qld) broadly defines a 'marine plant' to include a plant (being a tidal plant) that usually grows on, or adjacent to, tidal land, whether it is living, dead, standing or fallen.</p>
<p><i>Integrated Planning Act 1997 (Qld)</i> (and other legislation) or local government planning schemes.</p>	Relevant local government authority.	<p>A development permit may be required for development that occurs on areas outside of the area of the relevant petroleum authorities, where the development is an 'assessable development' under schedule 8 of the IP Act or the relevant local government planning scheme.</p> <p>The current intention is that the activities associated with the project will almost entirely occur on areas the subject of relevant petroleum authorities.</p>

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Approval Source	Responsible Authority	Relevant Aspect of Project
<p><i>Land Act 1994 (Qld).</i> <i>Land Title Act 1994 (Qld).</i> Approval to provide a particular public utility service (s 361 <i>Land Act 1994 (Qld)</i> and s 81A <i>Land Title Act 1994 (Qld)</i>).</p>	DNRW.	<p>Approval of Santos as 'suitable to provide a particular public utility' is required in order for a public utility easement to be registered.</p> <p>A public utility easement may be used to secure long term tenure for the Gas Pipeline where it traverses either:</p> <ul style="list-style-type: none"> • Non freehold land (s 361 <i>Land Act 1994 (Qld)</i>); or • Freehold land (s 81A <i>Land Title Act 1994 (Qld)</i>).
<p><i>Local Government Act 1993 (Qld).</i> Relevant local government local laws which differ between local government areas.</p>	Relevant local council.	<p>Required where works are to be undertaken on, for example, a local government road or reserve, then the following local government local laws will apply:</p> <ul style="list-style-type: none"> • Clause 14, Calliope Shire Council Local Law No. 21 (Roads) and Clause 10, Gladstone City Council Local Law No. 12 – Roads, Subordinate Local Law No. 12 (Roads) (application made to Gladstone Regional Council); • Clause 18, Banana Shire Council (Roads) Local Law No. 17 (application made to Banana Shire Council); • Chapter 2, clause 14, Duaringa Shire Council Local Law No. 4 (Roads) and Local Law Policy No. 4 (application made to Central Highlands Regional Council); • Clause 9, Bauhinia Shire Council Local Law No. 21 (Roads) (application made to Central Highlands Regional Council); • Clause 14, Bungil Shire Council – Local Law No. 21 (Roads) (application made to Roma Regional Council); and • Clause 9, Taroom Shire Council Local Law No. 21 (Roads) (application made to Banana Shire Council).
<p><i>Marine Parks Act 2004 (Qld).</i> Approval to carry out proposed reclamation of tidal land within a declared marine park (s 15).</p>	EPA.	An approval to carry out proposed reclamation of tidal land may be required in the event that reclamation of some tidal land within a declared marine park area is required.
<p><i>Marine Parks Act 2004 (Qld).</i> Authority to enter or use a marine park for a particular purpose (s 44).</p>	EPA.	An approval is required where entry or use of a marine park is required.
<p><i>Marine Parks Act 2004 (Qld).</i> Marine Parks Regulation 2006 (Qld). Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004 (Qld). Great Barrier Reef Marine Park Zoning Plan 2003 (Cth). Permission to use or enter a Habitat Protection Zone (s 44 MP Act; ss 8 and 16 MP Regulation; s 23 MP Zoning Plan; s 2.3.4 GBRMP Zoning Plan).</p>	EPA.	<p>Permission may be required for the following activities that are likely to be relevant:</p> <ul style="list-style-type: none"> • Conducting a vessel or aircraft charter operation in a Habitat Protection Zone; • Operating a vessel or aircraft in a particular vicinity for more than 14 consecutive days or for more than 30 days in any period of 60 days; • Navigating a ship, a managed vessel in a Habitat Protection Zone; • Operating a 'facility' which includes a building, a structure, a vessel, goods, equipment or services; and • Carrying out works for a purpose consistent with the objectives of the zone (only applications for

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Approval Source	Responsible Authority	Relevant Aspect of Project
		<p>activities consistent with the objectives of the zone will be considered and approval to carry out an activity consistent with the objectives of the zone is still required) including:</p> <ul style="list-style-type: none"> – dredging; – dumping of spoil; – reclamation; – beach protection works; and – harbour works (s 2.3.4(m) GBRMP Zoning Plan).
<p><i>Native Title Act 1993</i> (Cth) (NTA). Compliance prior to the grant of a right and rights to access to land to construct to the extent it affects Native Title (s 24AO).</p>	National Native Title Tribunal.	<p>The NTA must be complied with prior to the granting of the appropriate tenure, except on land where Native Title has been extinguished.</p> <p>It is expected this will be dealt with through an Indigenous Land Use Agreement with registered native title claim groups or other parallel future processes under the NTA, including a submission to the State on the applicability of s 24KA or s 24MD and use of the Part 5 Permission process under the P&G (PS) Act.</p>
<p><i>Nature Conservation Act 1992</i> (Qld). Approval to take or interfere with a cultural or natural resource of a protected area (s 62).</p>	EPA.	<p>Required if the Gas Pipeline will traverse a 'protected area'.</p> <p>'Protected areas' include national parks, conservation parks, resources reserves, nature refuges, coordinated conservation areas, wilderness areas, World Heritage management areas and international agreement areas.</p>
<p><i>Nature Conservation Act 1992</i> (Qld). Approval to take native wildlife (s 97(2)).</p>	EPA.	Approval is required to take/relocate native wildlife.
<p><i>Nature Conservation Act 1992</i> (Qld) (s 89(1)). Nature Conservation (Administration) Regulation 2006 (Qld) (reg 15). Approval to take protected plants (s 89(1) and reg 15).</p>	EPA.	<p>Approval is required to take protected plants.</p> <p>Protected plants are plants prescribed as 'threatened, near threatened, rare or least concern wildlife'.</p>
<p><i>Nature Conservation Act 1992</i> (Qld). Nature Conservation (Protected Areas Management) Regulation 2006 (Qld). Permit to conduct a commercial activity in a protected area (reg 115).</p>	EPA.	<p>A permit is required to conduct a commercial activity in a protected area.</p> <p>Protected areas include conservation parks, nature refuges and World Heritage areas.</p>
<p><i>Nature Conservation Act 1992</i> (Qld). Nature Conservation (Protected Areas Management) Regulation 2006 (Qld). Permit to erect a structure in a protected area (reg 107).</p>	EPA.	<p>A permit is required to erect a structure in a protected area.</p> <p>Protected areas include conservation parks, nature refuges and World Heritage areas.</p>
<p><i>Petroleum and Gas (Production and Safety) Act 2004</i> (Qld).</p>	DME.	A pipeline licence is required to construct a gas pipeline and conduct incidental activities.

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Approval Source	Responsible Authority	Relevant Aspect of Project
<i>Petroleum and Gas (Production and Safety) Regulation 2004 (Qld).</i> Pipeline Licence (s 409).		A number of related notices, approvals and consents, including some from 3rd parties, may be required under the P&G (PS) Act to obtain or give effect to the rights pertaining to a pipeline licence.
<i>Petroleum (Submerged Lands) Act 1982 (Qld).</i> Pipeline Licence (s 64).	DME.	A pipeline licence is required to construct a gas pipeline over, under or through the area between the low water mark on the coastline and the territorial sea baseline (3 nautical miles).
<i>Petroleum and Gas (Production and Safety) Act 2004 (Qld).</i> <i>Petroleum and Gas (Production and Safety) Regulation 2004 (Qld).</i> Authority to Prospect (s 32). Petroleum Lease (s 109).	DME.	ATPs and PLs must be held in order to undertake exploration and production activities. Note: A number of the existing ATPs and PLs relevant to the project are governed by the Petroleum Act 1923 (Qld). A number of related notices, approvals and consents, including some from third parties, may be required under the P&G (PS) Act (or Petroleum Act 1923 (Qld)) to obtain, or to utilise the rights pertaining to, an ATP or a PL.
<i>Petroleum and Gas (Production and Safety) Act 2004 (Qld).</i> <i>Petroleum and Gas (Production and Safety) Regulation 2004 (Qld).</i> Petroleum facility licence (s 445).	DME.	A petroleum facility licence is required to construct a petroleum facility (ie. a facility for the distillation, processing, refinery, storage or transport of petroleum). A number of related notices, approvals and consents, including some from third parties, may be required under the P&G (PS) Act to obtain, or to utilise the rights pertaining to, a petroleum facilities licence.
<i>State Development and Public Works Organisation Act 1999 (Qld)</i> (s 35).	Coordinator-General.	Report evaluating the EIS for the project.
<i>State Development and Public Works Organisation Act 1999 (Qld).</i> Development Scheme for the Gladstone State Development Area (July 2008). Approval for a material change of use (Gladstone State Development Scheme and s 84 <i>State Development and Public Works Organisation Act 1999 (Qld)</i>).	Coordinator-General.	An approval will be required for a material change of use of land for the purpose of an infrastructure facility or as an ancillary use to the LNG facility. It is also required in respect of those parts of the GLNG Project within the Curtis Island Industry Precinct and within any other Precinct within the Gladstone State Development Area (GSDA).
<i>Transport Operations (Road Use Management) Act 1995 (Qld).</i> Approval to close a road temporarily or permanently (s 96).	Queensland Transport.	Approval required if a road is temporarily or permanently closed.
Transport Operations (Marine Safety) Regulation 2004 (Qld) (reg 209). Approval for establishment of a buoy (reg 209).	Maritime Safety Queensland.	Approval is required for establishment of a buoy.
<i>Vegetation Management Act 1999 (Qld).</i> Approval to clear native vegetation.	DNRW	A permit under the VM Act is not required where the vegetation clearing is an 'incidental activity' with respect to a petroleum activity approved under the P&G (PSA) Act. Permits are required for clearing of native vegetation for any activities not authorised under the P&G (PSA) Act.

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Approval Source	Responsible Authority	Relevant Aspect of Project
<i>Water Act 2000 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit for operational work (Schedule 8, Part 1, Table 4, Item 3(a) and Table 5, Item 3(c)(i)).	DNRW.	A development permit may be required to: <ul style="list-style-type: none"> • Take or interfere with water from a watercourse; or • Take or interfere with artesian water; or • Take or interfere with overland flow water or sub artesian water.
<i>Water Act 2000 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Riverine protection permit (s 266(1)).	DNRW.	A riverine protection permit is required to do any or all of the following activities in a watercourse, lake or spring: <ul style="list-style-type: none"> • Destroy vegetation; • Excavate; and • Place fill.
<i>Water Act 2000 (Qld).</i> Allocation notice for quarry material (s 815).	DNRW.	Quarry material includes stone, gravel, sand, rock, clay, earth and soil, unless it is removed from a watercourse as waste material. The need to obtain an allocation notice will only arise where there is an intention to re-use the material that is taken from a watercourse for another purpose (eg. building up foundations). This will occur in certain parts of the project.
<i>Water Act 2000 (Qld).</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit for removing quarry material from a watercourse (Schedule 8, Part 1, Table 5, Item 1, IP Act).	DNRW.	The requirement to obtain the development permit will arise where there is an intention to re-use the material that is taken from a watercourse for another purpose (e.g. building up foundations). This will occur in certain parts of the project.
<i>Water Supply (Safety and Reliability) Act 2008.</i> <i>Integrated Planning Act 1997 (Qld).</i> Development permit for operational work being the construction of a referable dam as defined under the Water Supply (Safety and Reliability) Act 2008. (Schedule 8, Part I, Table 4, Item 4 of the IP Act and Section 561).	DNRW.	A development permit for operational work is required for the construction of a referable dam as defined under the Water Supply (Safety and Reliability) Act 2008. This only applies to dams of a certain size and does not include dams that contain hazardous waste.

Notes: Where applicable, local government planning schemes will be adhered to by Santos.

For further planning framework information relevant to the CSG fields, gas transmission pipeline and the LNG facility please refer to Sections 6.11, 7.11 and 8.11 respectively.

In relation to security arrangements, certain steps will be required under relevant commonwealth legislation. The required actions are summarised below in Table 1.9.2.

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Table 1.9.2 Security Approvals

Legislation	Responsible Authority	Required Action
<p><i>Maritime Transport and Offshore Facilities Security Act 2003</i> (Cth).</p> <p><i>Maritime Transport and Offshore Facilities Security Regulations 2003</i> (Cth).</p> <p>Maritime Security Plan for Port Facility Operators within a Security Regulated Port (s 42 (b)).</p>	<p>The Secretary of Department of Infrastructure, Transport, Regional Development and Local Government (Secretary).</p>	<p>As Santos will be acting as a Port Facility Operator within a Security Regulated Port, it must submit a Maritime Security Plan for review and approval.</p> <p>The Maritime Security Plan is to contain:</p> <ul style="list-style-type: none"> • Document that outlines information such as name and contact details of operator and a participant security officer responsible for implementing the plan; • Map showing each zone covered by the plan (s 49 (2)); • A security assessment in accordance with Reg 3.05; • Details pertaining to common requirements for security plan audits and reviews in accordance with Reg 3.10; • The security measures or activities to be implemented at each level of security (1,2 and 3); • Demonstrate the implementation of the plan will make an appropriate contribution towards the achievement of the maritime security outcomes; and • Specific requirements as detailed in Reg 3.20. <p>The Maritime Security Plan must be accompanied with a map in a size and scale that clearly shows the:</p> <ul style="list-style-type: none"> • Boundaries of the relevant site; and • Location of any port security zones established, or to be established or changed, within the area covered by the plan. <p>The Maritime Security Plan comes into force at the time as specified in the notice of approval (s 52).</p>
<p><i>Maritime Transport and Offshore Facilities Security Act 2003</i> (Cth).</p> <p><i>Maritime Transport and Offshore Facilities Security Regulations 2003</i> (Cth).</p> <p>Security Assessment (s 47(1)(a) and Reg 3.05 and 3.110).</p>	<p>N/A (part of Maritime Security Plan).</p>	<p>The Security Assessment is to contain:</p> <ul style="list-style-type: none"> • Date of when assessment was completed; • Scope of the assessment, including assets, infrastructure and operations assessed; • Summary of how the assessment was conducted, including details of the risk management process adopted; • The skills and experience of the key persons who completed or participated in the assessment; • A statement outlining the risk context or threat situation for the port facility; • Identification and evaluation of important assets, infrastructure and operations that need to be protected; • Identification of possible risks or threats to assets, infrastructure and operations, and the likelihood and consequences of their occurrence;

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Legislation	Responsible Authority	Required Action
		<ul style="list-style-type: none"> • Identification of existing security measures, procedures and operations; • Identification of weaknesses (including human factors) in the infrastructure, policies and procedures; and • Identification, selection and prioritisation of possible risk treatments (for example, counter-measures and procedural changes that need to be implemented) and their effectiveness in reducing risk levels and vulnerabilities).
<p><i>Maritime Transport and Offshore Facilities Security Act 2003</i> (Cth).</p> <p><i>Maritime Transport and Offshore Facilities Security Regulations 2003</i> (Cth).</p> <p>Maritime Security Identification Card (MSIC card) (s 105 (2)) (Part 6 of the regulations).</p>	Port of Brisbane Corporation or Fastcards Pty Ltd.	<p>MSIC cards will be required for all contractors entering the Port of Gladstone security zone.</p> <p>All persons whose occupation or business interests require unmonitored access to a maritime security zone at least once a year to hold a maritime security identification card.</p> <p>MSIC cards are issued following successful background checks.</p>
<p><i>Maritime Transport and Offshore Facilities Security Act 2003</i> (Cth).</p> <p>Other Security Measures (Part 7).</p>	N/A.	Part 7 imposes requirements in relation to screening and clearing of goods in <i>cleared zones</i> that may be controlled (s 116), including vehicles (s 118), weapons (s121) or persons (s 115).

1.9.2 State Planning Policies

There are number of state planning policies (SPP) applicable to the project including the following.

- SPP 1/92 “Development and the Conservation of Agricultural Land” requires that an assessment of the agricultural land capability of the area be conducted to provide a benchmark of existing/potential agricultural land use. Sections 6.3, 7.3 and 8.3 provide detail on the assessment of agricultural land capability for the project.
- SPP 2/02 “Planning and Managing Development Involving Acid Sulphate Soils” applies to the project. The SPP applies to developments involving the excavation or removal of over 100 m³ of soil or sediment or filling of land involving 500 m³ or more of material with an average depth of 0.5 m or greater. Potential and actual acid sulphate soils are discussed further in Sections 7.3 and 8.3.
- SPP 1/03 “Mitigating the Adverse Impacts of Flood, Bushfire and Landslide” is applicable to the project and discussed in Sections 6.11, 7.11 and 8.11.
- SPP 1/02 “Development in the Vicinity of Certain Airports and Aviation Facilities” may also be applicable to the project. Santos will enter into discussions with the Gladstone and Calliope Aerodrome Board and the Civil Aviation Safety Authority (CASA) regarding an application if necessary.
- SPP 1/07 “Housing and Residential Development”, will be considered with respect to the accommodation of the project workforce as discussed in Sections 6.14, 7.14 and 8.14.
- SPP 2/07 “Protection of Extractive Resources and Guidelines”. This policy aims to protect extractive resources from developments that might prevent or constrain current or future extraction. This policy has been considered in the identification of potential extractive resources within the various project areas.

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1.9.3 Regional Planning Frameworks

1.9.3.1 Central Queensland Strategy for Sustainability 2004 and Beyond

The Central Queensland Strategy for Sustainability – 2004 and Beyond (CQSS2) is the regional plan for the management of the natural resources and environments of the river catchments of the Central Queensland region. The plan seeks to protect the region's assets through addressing key pressures.

This plan was developed through the Fitzroy Basin Association with a long term vision for the region of integrating sustainable development principles and management techniques to support sustainable development for the region. The vision identifies that the community values healthy ecosystems, a strong economy and prosperous communities.

The CQSS2 is also a plan for the future management of natural resources in the region. It builds upon decades of previous work by the community, industry, and all tiers of government, and its predecessor the Central Queensland Strategy for Sustainability (CQSS). The CQSS2 provides a framework for achieving actions to address critical pressures on the assets of the region, through collaborative partnerships, voluntary action and cost sharing for broad community benefit.

In addition the CQSS2 has taken an assets based approach to planning. Rather than focus on problems in the region, stakeholders have been encouraged to determine which assets in the region are critical to its health and viability for the long term, and actions identified are aimed at addressing the key pressures on these assets. It has also adopted an adaptive management approach which has the ability to support complex systems that incorporate the natural, social and economic environments and identifies that sustainability is a journey not the end point.

Integrated Catchment Management (ICM) a type of adaptive management is a holistic approach to environmental and natural resource management that uses a river catchment as its unit of management. The CQSS2 states "ICM recognises that land, water, vegetation, people and land uses in a catchment are interrelated. Using the process of ICM, resource managers have an opportunity to manage the system as a whole. It also relies on stakeholders of the catchment working cooperatively to develop integrated approaches to natural resource management. Through ICM the catchment community can make choices about the future of their catchment and the way they plan to use and manage its natural resources".

The principles and processes of ICM have been the foundation of the development of this plan. The GLNG Project supports the vision and principles of the CQSS2.

1.9.3.2 Central Queensland – A New Millennium

Central Queensland - A New Millennium is a locally initiated and directed regional planning project. It aims to involve all levels of government and the community in the development of a planning framework for the future of central Queensland.

The project built on the substantial body of knowledge and experience in the region and sought to fill the gaps in this knowledge. It aims to create and maintain a regional growth management framework that capitalises on regional strengths and focuses on regionally significant issues across environmental, economic and social dimensions. The project seeks to complement and enhance other planning processes and strategies, and to provide a vehicle through which the region's vision and aspirations can be articulated. It does this by:

- Providing strategies designed to improve the quality of life for communities, through provision of infrastructure, sustainable environmental practices and improved facilities and services;
- Providing governments with a regional focus on fundamental strategic planning issues; and
- Positioning the region in order to maximise the competitive advantage and sustainability of its future.

Central Queensland - A New Millennium was developed with input from community, industry, government and other interested parties, gathered over a period of three years. The Central Queensland Regional Growth Management Strategy (CQRGMS) was developed from this initiative.

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1.9.3.3 Central Queensland Regional Growth Management Strategy

The CQRGMS was endorsed in July 2002 by the Queensland Government. It is a non-statutory document and includes the following local government areas which are affected by the GLNG Project: Banana, Bauhinia, Calliope, Gladstone and Taroom.

The CQRGMS provides a policy framework for the growth of the region. It recognises the valuable commodities in the region and the importance of preserving and enhancing existing land uses that are mainstays of the region's economy.

The GLNG Project supports the outcomes of the CQRGMS and will implement management strategies that are similar to and reflect those contained within the CQRGMS. For example in locating the gas wells, consideration will be given to the significance of the local agricultural practices, what these practices are and entail and how the wells can be best located to minimise the impact on them.

1.9.3.4 Natural Resource Management Plans

Queensland has 12 regional natural resource management bodies in 14 regions throughout the state. These groups develop regional natural resource management plans and organise on-ground works and community events. They are run by boards that represent a wide range of community interests and employ paid staff and volunteers.

Regional natural resource management plans form the basis for investment from the Natural Heritage Trust extension and the National Action Plan for Salinity and Water Quality. These plans identify a region's major natural resource issues and ways of addressing them. They also outline the contributions that all involved groups will make.

Consultation, feedback and negotiation between regional bodies and stakeholders are major parts of the development of the plans. Key stakeholders include communities, indigenous peoples, environmental groups, industry groups, universities and local, state and federal governments.

The GLNG Project is located within the following two natural resource management plan areas. Santos will ensure that the project is developed to be consistent the intent of these plans.

Queensland Murray Darling Committee

The Queensland Murray-Darling Committee is the natural resource management organisation that supports communities in the Roma region to sustainably manage their natural resources. It includes much of the area covered by the CSG fields and some of the western sections of the gas transmission pipeline.

The committee provides financial incentives, mapping and planning support, and technical advice to private and public land managers. It does this in order to help communities to put catchment-wide improvements to natural resource management into practice. Specific natural resources targeted by the committee include:

- Land and Soils;
- Water;
- Riverine, Floodplains and Wetlands;
- Weeds and Pest Animal Management; and
- Vegetation and Biodiversity.

Fitzroy Basin Association

The Fitzroy Basin Association is a regional community group working across central Queensland to ensure communities have knowledge and resources for a sustainable social, economic and environmental future. It includes Gladstone and much of the area covered by the eastern end of the gas transmission pipeline.

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The association is an umbrella organisation providing support to natural resource management groups based within sub-catchments of the Fitzroy Basin. These sub-regional groups provide on-ground assistance for people involved in natural resource management projects.

1.9.4 Gladstone Ports Corporation Land Use Plan

The project is consistent with the intentions of the area set out in the Gladstone Ports Corporation's Land Use Plan 1999. It is understood that the plan will be revised and updated in the near future.

The Gladstone Port Authority Strategic Plan – 2045 50 Year Horizon shows future wharves (“Curtis Wharves”) at China Bay. The plan states – *“these wharves could serve as metal plant and coal to oil conversion plant with a total throughput of 7MTPA”*. The proposed PLF for the GLNG Project will be consistent with the intended use stated here.

There is no development plan for Curtis Island within the plan to provide further information or directives of the use of the Curtis Island area immediately adjacent to the Curtis Wharves area. Map 1 on page 39 of the plan suggests future infrastructure around the ports and shows a potential bridge from the mainland over to Curtis Island.

1.9.5 Gladstone State Development Area Development Scheme

The GSDA is that part of the Gladstone and Calliope areas declared a State Development Area by the *State Development and Public Works Organisation (State Development Areas) Regulation 1998* and subsequent regulations.

The GSDA Development Scheme has been prepared pursuant to s 79 of the SDPWO Act and is the major land use planning control for the GSDA. Under the Development Scheme, the GSDA is divided into a number of land use designations and each designation has its stated purposes.

An application for material change of use in the GSDA is assessed by the Coordinator-General under the provisions of the Development Scheme. All development under the IP Act other than a material change of use is assessed under the IP Act.

The LNG facility site on Curtis Island is in the Rural Zone of the Calliope town planning scheme. As the site is in the GSDA and the Development Scheme overrides the local authority town planning scheme, a material change of use application will be made in accordance with the requirements of the Development Scheme. The proposed use is consistent with the intent of the Development Scheme which is for industrial development of the site. Any other development for material change of use in respect of the project within the GSDA will likewise be made in accordance with the requirements of the Development Scheme.

1.9.6 Local Authority Planning Schemes

The GLNG Project is located within the following local government authority jurisdictions:

- Roma Regional Council;
- Dalby Regional Council;
- Central Highlands Regional Council;
- Banana Shire Council; and
- Gladstone Regional Council.

These regional councils were formed in March 2008 upon the amalgamation of the former shires in the region.

With the exception of the GSDA, local authority planning schemes are one of the main instruments regulating the assessment of applications for approvals in respect of development regulated by the planning scheme. Under the transitional arrangements for amalgamated councils, the planning schemes

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for the former shires remain applicable until such time as new consolidated schemes are prepared. The following former local authority planning schemes are the relevant planning instruments:

- Roma Town;
- Bungil Shire;
- Bendemere Shire;
- Waroo Shire;
- Bauhinia Shire;
- Banana Shire; and
- Calliope Shire.

These planning schemes will not be relevant to areas of the GLNG Project which are subject to petroleum authorities (see table 5, Schedule 9 of the IP Act).

The planning schemes' zoning maps show the desired land use patterns within each local government area. These include:

- Rural zones for much of the CSG fields and gas transmission pipeline corridor. The impact on rural land will vary depending on the agricultural quality of the land and current use. Each planning scheme sets out the requirements for the use of this land;
- Urban zones for most of the rural towns in the GLNG Project area. The zoning maps for the town areas typically show a small commercial hub, a small industrial area bounded by residential land and open space areas. The capacity of the urban areas to accommodate additional land uses associated with the GLNG Project will be assessed in conjunction with the relevant local authorities. With the exception of any development application for a material change of use within the GSDA, necessary development applications required to accommodate project facilities will be undertaken in accordance with the local planning scheme requirements.

Other approvals relating to the construction and operational aspects of the project may require approval by relevant local and other authorities. Relevant applications will be made for these approvals.

1.9.7 Great Barrier Reef Coast Marine Park

The *Marine Parks Act 2004* (Qld) (MPA) provides for the conservation of the marine environment through an integrated strategy including (among other things) the establishment of marine park zones, designated areas and highly protected areas within marine parks. The MPA also sets out various permitting and licensing requirements to carry out activities within declared marine park zones.

Relevant to the LNG facility, and in particular the potential bridge and gas transmission pipeline, is the Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004 (MPGBRC Zoning Plan). The bridge (or part thereof) and the gas transmission pipeline, are to be located within The Narrows which falls within the Habitat Protection Zone of the MPGBRC Zoning Plan. Under the MPA, the MPGBRC Zoning Plan applies the zoning plan for the Great Barrier Reef Marine Park, however the decision maker is the EPA.

Permission is required to enter or use the Habitat Protection Zone for certain purposes. The main purposes for which permissions can be sought are those set out in the Commonwealth Great Barrier Reef Marine Park Zoning Plan 2003 (for the corresponding Commonwealth Habitat Protection Zone). Most relevant is the requirement for a permission to operate a facility (which includes, among other things, building structures) and to carry out works (which includes, among other things, dredging).

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1.10 Report Structure

1.10.1 EIS Report

The EIS report is presented in five separate volumes with the following structure:

Section Number	Section Title	Scope
Volume 1		
	Executive Summary.	Provides an executive summary of the studies undertaken for this EIS.
	Glossary and Abbreviations.	Provides complete list of terms and abbreviations used in the EIS.
1	Introduction.	Introduction to the report outlining its objective, the project and proponent, relevant legislation, and the EIS process.
2	Project Alternatives.	Discusses alternatives considered for the locations of the project components, the process, and infrastructure.
3	Project Description.	Provides details of the proposed project and is divided into the project components of CSG fields, gas transmission pipeline and LNG facility.
4	Transportation.	Discusses the project's transportation requirements and likely impacts.
5	Waste Management.	Characterises the project's waste streams and identifies treatment and disposal proposals.
Volume 2		
6	CSG Fields Environmental Values and Management of Impacts.	Discusses the environmental values, impacts and proposed mitigation measures associated with the CSG field components of the project.
Volume 3		
7	Gas Transmission Pipeline Environmental Values and Management of Impacts.	Discusses the environmental values, impacts and proposed mitigation measures associated with the gas transmission pipeline components of the project.
Volume 4		
8	LNG Facility Environmental Values and Management of Impacts.	Discusses the environmental values, impacts and proposed mitigation measures associated with the LNG facility components of the project.
Volume 5		
9	Community Consultation.	Details the community consultation activities undertaken and summarises the results.
10	Hazard and Risk.	Provides the results of the project's hazard risk assessment and outlines the proposed risk management strategies.
11	CSG Fields Environmental Management Plan.	Outlines the draft environmental management plans for the CSG fields.
12	Gas Transmission Pipeline Environmental Management Plan.	Outlines the draft environmental management plans for the gas transmission pipeline.
13	LNG Facility Environmental Management Plan.	Outlines the draft environmental management plans for the LNG facility.
14	Marine Facility Environmental Management Plan.	Outlines the draft environmental management plans for the marine facilities.

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Section Number	Section Title	Scope
15	Bridge Road and Service Corridor Environmental Management Plan.	Outlines the draft environmental management plans for the bridge, road and service corridor.
16	Sustainability.	Assessment of the project's environmental sustainability.
17	Findings and Conclusions.	Summarises the report's findings and conclusions.
18	References.	Lists the references used in the report and figures.

1.10.2 EIS Appendices

The EIS appendices are presented on a CD contained in Volume 5. The following appendices are provided:

Appendix Number	Appendix Title	Scope
A	Final Terms of Reference	EIS Terms of Reference prepared in accordance with the requirements of Part (4) of the <i>State Development and Public Works Organisation Act 1971</i> .
B	Cross reference with Terms of Reference	List indicating where each component of the Terms of References is discussed in the EIS.
C	Development Approvals	List of the development approvals required by the GLNG Project.
D	EIS Study Team	List of the persons who prepared the EIS.
E	Community Engagement and Consultation	Report of the community engagement and consultation activities undertaken for the GLNG Project.
F	Proponent Commitments	List of the commitments made by Santos in the EIS.
G	EPBC Act Report	Report on the project's impacts on the controlling matters of national environmental significance in accordance with the requirements of the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> .
H	Gas Transmission Pipeline Route Studies	Route selection studies for the gas transmission pipeline.
I	Land Tenure Maps	Maps showing land tenure in and around the CSG fields, gas transmission pipeline and the LNG facility.
J	Traffic and Transportation	Report on the traffic and transportation aspects of the GLNG Project.
K	Waste Management	Report on the waste management aspects of the GLNG Project.
L	Land	
L1	CSG Field	Report on the terrain and soils characteristics of the CSG field.
L2	Gas Transmission Pipeline	Report on the terrain and soils characteristics of the gas transmission pipeline.
L3	LNG Facility	Report on the terrain and soils characteristics of the CSG field.
L4	Acid Sulfate Soils	Report on the acid sulphate soils aspects of the GLNG Project.
M	Land Contamination	Report on the land contamination aspects of the GLNG Project.
N	Nature Conservation	
N1	CSG Field	Report on the nature conservation aspects of the CSG field.
N2	Gas Transmission Pipeline	Report on the nature conservation aspects of the gas transmission pipeline.
N3	LNG Facility	Report on the nature conservation aspects of the LNG facility.

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Appendix Number	Appendix Title	Scope
N4	Aquatic Flora and Fauna	Report on the aquatic flora and fauna of the CSG field.
O	Surface Water	
O1	CSG Field (Associated Water Discharge)	Report on issues relevant to the discharge of CSSG associated water.
O2	Gas Transmission Pipeline	Report on the surface water aspects of the gas transmission pipeline.
O3	LNG Facility	Report on the surface water aspects of the LNG facility.
P	Groundwater	
P1	Groundwater (shallow)	Report on aspects of the shallow groundwater in the CSG fields.
P2	Groundwater (deep)	Report on aspects of the deep groundwater in the CSG fields.
Q	Associated Water Management Strategy	Report outlining the proposed associated water management strategy.
R	Coastal Environment	
R1	Marine Ecology	Report on the marine ecology of Port Curtis.
R2	Marine Water Quality	Report on the hydrodynamic modelling of the marine water quality impacts of the GLNG Project.
R3	Marine Sediment	Report on the characteristics of marine sediments in Port Curtis.
S	Air Quality	Report on the air quality impacts of the GLNG Project.
T	Greenhouse Gas Emissions	Report on the greenhouse gas aspects of the GLNG Project.
U	Noise and Vibration	
U1	Terrestrial Noise	Report on noise and vibration impacts from the GLNG Project.
U2	Marine Noise	Report on the impacts of the GLNG Project on marine noise in Port Curtis.
V	Land Use and Project Approvals	Report providing details on land use and planning aspects of the project area.
W	Visual Amenity.	
W1	CSG Field and Gas Transmission Pipeline	Report in the visual impact of the CSG fields and gas transmission pipeline.
W2	LNG Facility	Report in the visual impact of the CSG facility
X	Non-Indigenous Cultural Heritage	Report on the non-indigenous cultural heritage aspects of the GLNG Project.
Y	Indigenous Cultural Heritage	Report on the indigenous cultural heritage aspects of the GLNG Project.
Z	Social and Community	Report on the social and community aspects of the GLNG Project.
AA	Northern Deviation Pipeline	Desktop assessment of the environmental aspects of the proposed northern deviation route for the gas transmission pipeline.
BB	Health and Safety	Copy of the Santos Environment Health and Safety Management Guide.
CC	Plume Rise Assessment	Assessment of the impact of plume rise from the LNG facility on aircraft operations.
DD	Dredge Material Placement facility	
DD1	Concept Description	Report on the conceptual design of the dredge material placement facility.
DD2	Surface Water	Report on the surface water aspects of the dredge material placement facility.
DD3	Groundwater	Report on the groundwater aspects of the dredge material placement facility.
DD4	Nature Conservation	Report on targeted surveys for the water mouse, powerful owl and wading

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Appendix Number	Appendix Title	Scope
		birds at the dredge material placement facility site.
DD5	Noise	Report on the noise aspects of the dredge material placement facility.
EE	Environmental Performance	Discussion of the environmental performance of Santos and PETRONAS.
FF	Confidential Information	Confidential information has been provided separately to the Queensland Government. This includes reports on project economic impacts, preliminary hazard analyses and security related documentation.