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Introduction



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1.1 GLNG Project Background

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 between Roma and Emerald 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 GLNG Project has the following major components:

- Coal seam gas fields;
- Gas transmission pipeline (GTP); 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 dredging for LNG carrier access.

The CSG fields will be developed over a period of approximately 25 years to provide approximately 5,300 PJ of coal seam gas to the LNG facility.

The gas transmission pipeline will transport the gas from 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. It is most likely that this will be a substantially modular built facility.

Throughout 2008 and 2009 an environmental impact statement (EIS) was prepared by Santos for the GLNG Project. The EIS was made available for public comment and review between 20 June 2009 and 17 August 2009. In response to this, 48 written submissions were received. Copies of all submissions are attached in **Attachment A**.

1.2 EIS Supplement Report Outline

The Co-ordinator General has requested that Santos prepare a supplementary report to the EIS to address the matters raised in submissions and, based on the submissions, to include any corrections or clarifications to the EIS and provide further information and results from additional studies. In particular, the Co-ordinator General has requested further information and results from additional studies on:

- The disposal of dredge spoil, which is the subject of a separate project – the Port of Gladstone Western Basin Dredging Project;
- The location of accommodation for construction workers for the project on Curtis Island and on the mainland;
- Gas field development approvals including multi-phase development throughout the life of the project;
- Pipeline crossing at the Narrows, from the mainland to Port Curtis Island, impacting marine habitat;
- Potential impact on coastal wetlands and marine ecology from possible road, bridge and pipeline access across the Narrows;
- Harbour traffic generally and specific congestion issues for materials and workforce transport at Auckland Point;
- Transport impacts of imported gas pipes from a suitable port, and for distribution throughout the pipeline route;
- Pipeline corridor route, through sensitive environments, the Gladstone State Development Area (GSDA) and across the shale oil deposit and Targinie;

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- Management of associated water produced from coal seam gas extraction and its impact on soils, surface water and groundwater;
- Cumulative effects of multiple LNG projects being developed simultaneously.

The following EIS Supplement report has been prepared to formally respond to the EIS submissions, provide the information and additional studies requested by the Co-ordinator General and to provide further detail of the GLNG Project arising from more detailed design work which has been carried out.

The EIS Supplement report has been divided into three (3) main parts including:

- Part 1: Introduction, summary of EIS submissions and summary of project description changes;
- Part 2: Submission responses; and
- Part 3: Supporting documentation including additional technical studies, impact assessment work and project description change details.

1.2.1 Responses to EIS Submissions

Part 1 (Section 1.3) below provides a summary of all EIS submissions, including details of respondents and which sections of the EIS these respondents have provided comment on (refer to Table 1-1). All submissions made by government departments, corporations/businesses and non government organisations (NGOs) have been identified by name. Individual respondent names have not been included in this report; however each individual submission has been identified by a number. The Department of Infrastructure and Planning (DIP) has contacted each respondent to acknowledge receipt of each submission.

This EIS Supplement contains responses to all of the submissions received and is structured to correspond with the relevant sections in the EIS, which allows for easy reference back to the EIS document.

Part 2 provides responses to each submission, including a summary of the issue and identification of the respondent followed by Santos' response. Santos has reviewed each submission and summarised the issues of concern, with an appropriate response. Note that the level of detail required to respond to each submission varied significantly. Examples include:

- Where Santos believed the issue had previously been addressed in the EIS, a cross reference has been provided directing the reader to that particular EIS Section;
- Where a short (e.g. up to one page) response was required this has been provided in the text; and
- Where additional studies were undertaken to adequately respond, these have been referenced in the response. Note that all additional technical studies conducted as part of this EIS Supplement report are provided in **Attachments C to L** and have been clearly referenced.

1.2.2 Amended Project Description Details

Part 1 (Section 2) provides details of GLNG Project description details that have been further developed since the public release of the EIS in June 2009. This has been in response to:

- Submissions received during public exhibition of the EIS;
- The request for further information and studies from the Co-ordinator General; and
- Project design refinement (which typically occur during the project's front end engineering design (FEED) process); or
- Amendments to Santos' planning strategy in direct response to stakeholder concerns.

Examples of a project design refinement addressed in this EIS Supplement report include changes to the LNG facility footprint and gas transmission pipeline alignment.

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Examples of planning strategy amendments include the addition of Port Alma as an import facility option for construction materials and a revised facility loading/unloading strategy in Gladstone which attempts to reduce the impacts on the transport network in Gladstone by shifting bulk material and equipment movements to an additional facility behind the RG Tanna Coal Terminal.

Each project description amendment includes an assessment of the potential environmental impacts. In some cases additional detailed studies have been carried out, with the results (including an assessment of impacts and proposed mitigation measures) provided in separate reports within referenced appendices in this EIS Supplement report.

1.3 Summary of EIS Submissions

EIS submissions were received from the following organisations/individuals:

Commonwealth Government Departments

- Department of Environment, Water, Heritage and the Arts (DEWHA).

Queensland Government Departments

- Department of Communities;
- Department of Infrastructure and Planning (DIP) - Central Region Planning Group;
- Department of Infrastructure and Planning (DIP) – State Development Areas Implementation Branch;
- Department of Community Safety (Strategic Policy Division);
- Department of Environment and Resource Management (DERM);
- Queensland Health;
- Queensland Mines and Energy (Department of Employment, Economic Development and Innovation);
- Queensland Primary Industries and Fisheries (DPIF) – Department of Employment, Economic Development and Innovation;
- Department of Transport and Main Roads (DTMR);
- Queensland Police Service (QPS);
- Department of Employment, Economic Development and Innovation (DEEDI); and
- Queensland Treasury.

Local Authorities

- Western Downs Regional Council;
- Central Highlands Regional Council;
- Banana Shire Council;
- Maranoa Regional Council; and
- Gladstone Regional Council.

Businesses/Corporations

- Queensland Energy Resources Ltd (QER);
- Gladstone Ports Corporation (GPC);
- Gladstone Area Water Board (GAWB); and
- QGC Limited (QGC).

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Non Government Organisations (NGOs)

- Wildlife Queensland;
- Port Curtis Coral Coast Aboriginal Corporation;
- Callide Valley Landcare Group;
- Fitzroy Basin Association;
- State Council of Preservation Society of Queensland (Wildlife Queensland);
- WWF-Australia;
- Capricorn Conservation Council; and
- Port Curtis Coral Coast Native Title Claim Group (two submissions).

Individuals

- Liz Cunningham (State Member for Gladstone); and
- Ten (10) responses were received from private individuals. Note that the identities of these individuals have not been provided in this EIS Supplement report. The DIP has contacted each respondent to acknowledge receipt of each submission.

Copies of all submissions are provided in **Attachment A** of this EIS Supplement report.

Over 700 issues were raised by submitters, although for certain issues the same issue was raised multiple times. Each issue was reviewed by Santos and categorised according to which section of the EIS it refers to. Table 1-1 summarises issues by respondent, and provides an overview of what areas were commented on by each respondent.

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Table 1-1 Submission Response Matrix

EIS Section	1.*	2.*	3.*	4.	5. QER	6.*	7. Western Downs Regional Council	8.*	9. Wildlife Qld	10.	11. Dept. of Communities	12. DEWHA	13.	14.	15. Central Highlands Regional Council	16. Central Regional Division, Planning	17.	18. PCCC Aboriginal Corporation	19.*	20.	21.	22. Strategic Policy Division	23. DERM	24. Callide Valley Landcare Group
Change to Govt Departments 2009																								
General Comments															X								X	
Executive Summary									X				X		X					X				
Glossary and Abbreviations																								
1. Introduction												X		X		X							X	
2. Project Alternatives	X							X							X	X							X	
3. Project Description								X						X	X								X	
4. Transportation															X								X	
5. Waste Management																							X	
6. Coal Seam Gas Fields Environmental Values and Management of Impacts																								
6.1 Overall Assessment Methodology												X											X	
6.2 Climate																						X		
6.3 Land																							X	
6.4 Nature Conservation												X											X	
6.5 Surface Water																							X	
6.6 Groundwater							X																X	
6.7 Associated Water Management							X					X											X	
6.8 Air Quality																							X	
6.9 Greenhouse Gas Emissions																								
6.10 Noise																							X	
6.11 Land Use and Infrastructure															X								X	
6.12 Visual Amenity																								
6.13 Cultural Heritage																							X	
6.14 Social and Community										X	X				X	X								
6.15 Economics																								
6.16 Rehabilitation and Decommissioning																							X	
7. Gas Transmission Pipeline Environmental Values and Management of Impacts																								
7.1 Overall Assessment Methodology																							X	
7.2 Climate																								
7.3 Land																							X	

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EIS Section	1.*	2.*	3.*	4.	5. QER	6.*	7. Western Downs Regional Council	8.*	9. Wildlife Qld	10.	11. Dept. of Communities	12. DEWHA	13.	14.	15. Central Highlands Regional Council	16. Central Regional Division, Planning	17.	18. PCCC Aboriginal Corporation	19.*	20.	21.	22. Strategic Policy Division	23. DERM	24. Callide Valley Landcare Group
7.4 Nature Conservation																							X	
7.5 Surface Water																						X	X	
7.6 Groundwater																								
7.7 Coastal Environment																								
7.8 Air Quality																								
7.9 Greenhouse Gas Emissions																								
7.10 Noise																								
7.11 Land Use and Infrastructure					X																		X	
7.12 Visual Amenity																								
7.13 Cultural Heritage																							X	
7.14 Social and Community																X								
7.15 Economics																								
7.16 Rehabilitation and Decommissioning																								
8. LNG Facility Environmental Values and Management of Impacts																								
8.1 Overall Assessment Methodology																								
8.2 Climate																								
8.3 Land												X											X	
8.4 Nature Conservation	X											X						X					X	
8.5 Surface Water																							X	
8.6 Groundwater																								
8.7 Coastal Environment																							X	
8.8 Air Quality				X																			X	
8.9 Greenhouse Gas Emissions														X										
8.10 Noise and vibration				X																				
8.11 Land Use and Infrastructure	X																					X		
8.12 Visual Amenity				X																				
8.13 Cultural Heritage																		X						
8.14 Social and Community	X																							
8.15 Economics																								
8.16 Rehabilitation and Decommissioning																					X			
8.17 Marine Dredge Material Placement Facility												X		X		X	X		X				X	

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9. Community Consultation				X											X									
10. Hazard and Risk	X	X	X			X																X	X	
11. Coal Seam Gas Environmental Management Plan												X											X	
12. Gas Transmission Pipeline Environmental Management Plan																							X	
13. LNG Facility Environmental Management Plan																								
14. Marine Facilities Environmental Management Plan																								
15. Bridge, Road and Services Corridor Environmental Management Plan																								
16. Sustainability																								
17. Findings and Conclusions																								
18. References																								
Appendix C – Development Approvals																								
Appendix G – EPBC Act Report												X											X	
Appendix J – Traffic and Transportation																							X	
Appendix K – Waste Management																							X	
Appendix L - Land																							X	
Appendix N – Nature Conservation																							X	
Appendix P – Groundwater																							X	
Appendix Q – Associated Water Management Strategy Report																							X	
Appendix Z – Social and Community																								

*Submissions 1, 2, 3, 6, 8, 19, 37 and 47 were made by one submitter.

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EIS Section	25. Queensland Health	26. Queensland Dept. Mines and Energy	27. Banana Shire	28. Fitzroy Basin Association	29. Gladstone Ports Corporation	30.	31. Maranoa Regional Council	32. Qld Dept. Transport and Main Roads	33. Wildlife Preservation society of Qld	34. WWF - Australia	35. Gladstone Area Water Board	36. QGC	37.*	38. Capricorn Conservation council	39. Queensland Police Service	40. Gladstone Regional Council	41. Qld Govt. Dept. of Employment	42. State Dev. Areas Implementation Branch	43.	44. Qld Primary Industries and Fisheries	45.	46.	47.*	48. Qld Treasury Department	
Change to Govt Departments 2009																									
General Comments										X		X			X		X			X	X				X
Executive Summary					X			X				X			X										
Glossary and Abbreviations																									
1. Introduction								X	X	X				X	X	X									
2. Project Alternatives			X		X				X					X		X		X	X						
3. Project Description	X				X			X			X	X			X	X		X			X				
4. Transportation					X		X	X						X	X	X									
5. Waste Management	X		X		X		X									X									
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8.7 Coastal Environment	X																			X	X	X			
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8.12 Visual Amenity					X																				
8.13 Cultural Heritage																					X				
8.14 Social and Community					X										X	X			X						
8.15 Economics																									
8.16 Rehabilitation and Decommissioning								X																	
8.17 Marine Dredge Material Placement Facility					X					X										X					
9. Community Consultation															X										

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10. Hazard and Risk					X			X				X				X			X				X	
11. Coal Seam Gas Environmental Management Plan			X												X					X				
12. Gas Transmission Pipeline Environmental Management Plan			X												X					X				
13. LNG Facility Environmental Management Plan															X									
14. Marine Facilities Environmental Management Plan					X																X	X		
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