

APPENDIX 1-6 PROJECTS CONSIDERED IN THE ASSESSMENT OF CUMULATIVE IMPACTS

The following criteria were applied to determine which proposed projects, within the QCLNG Project's area of potential influence, could reasonably and practically be considered in the assessment of cumulative impacts in the QCLNG EIS:

- The anticipated project is being proposed by QGC as an extension of existing domestic gas supply operations or power generation but is not associated with the QCLNG Project (i.e. Condamine Power Station and expansion of CSG fields to supply domestic gas markets); or
- The anticipated project has been declared a 'State significant project' by the Coordinator-General as of April 2009 and an EIS for the project is currently being completed or has been completed. As a minimum an Initial Advice Statement is available on the website of the Department of Infrastructure and Planning (DIP); or
- The anticipated project is being / was assessed under Part 1 of Chapter 3 of the *Environmental Protection Act 1994* (Qld) with the Queensland Environmental Protection Agency (EPA) being the EIS Coordinator. As a minimum an Initial Advice Statement or similar is available on the website of the EPA; or
- The anticipated project is directly associated with the development of LNG projects on Curtis Island (i.e. Dredging of the Swing Basin and Shipping Approach Channel and Curtis Island Road / Bridge).

Based on these criteria, *Table 1-6.1* identifies the projects which have been considered in terms of cumulative impacts in the QCLNG Project EIS. An outline of these projects is provided in *Section 1-6.1* of this Appendix. The locations of these projects in relation to the QCLNG Project are shown in *Figure 1-6.1A* and *Figure 1-6.1B*.

Table 1-6.1 Proposed Projects Considered for Cumulative Impacts in the QCLNG Project EIS

Proposed Project	Proponent	Location	Applicable Criteria
CSG Field & Pipeline			
Condamine Power Station	QGC	8 km east of Miles (Western Downs Regional Council)	QGC project which is not linked to the QCLNG project.
Expansion of CSG fields for domestic gas supply	QGC	CSG fields in the Surat Basin near Miles (Various Regional Councils)	QGC project which is not linked to the QCLNG project.
Gladstone LNG Project: CSG field and pipeline	Santos Limited and Petronas	CSG fields in the Comet Ridge and Roma region (Various Regional Councils) Pipeline connecting CSG fields in Comet and Roma region with LNG facility on Curtis Island.	State significant project. EIS in progress and available on DIP website.

Proposed Project	Proponent	Location	Applicable Criteria
New Acland Coal Mine: Stage 3 Expansion (Including Wetalla Water Pipeline)	New Acland Coal Pty Ltd	14 kilometres north-northwest of Oakey and 35 kilometres northwest of Toowoomba (Toowoomba Regional Council)	State significant project. EIS for mine in progress. IAS and final TORs on DIP website. EIS for water pipeline prepared and approved by COG.
Wandoan Coal Project	Xstrata Coal Queensland Pty Ltd, ICRA (Itochu) Pty Ltd and Sumisho Coal Australia Pty Ltd	5 kilometres west of Wandoan (Western Downs Regional Council)	State significant project. EIS in progress and available on DIP website.
Linc Energy Underground Coal Gasification	Linc Energy Ltd	20 kilometres south-west of Chinchilla (Western Downs Regional Council)	State significant project. EIS in process. IAS and final TORs on DIP website.
Spring Gully Power Station	Origin Energy Power Ltd	80 kilometres north-east of Roma (Roma Regional Council)	State significant project. EIS approved and EIS and COG Report on DIP website.
Felton Mine and Dimethyl Ether Pilot Plant Project	Ambre Energy (Felton) Pty Ltd	Near Felton, 30 km south west of Toowoomba and 10 km south east of Pittsworth (Toowoomba Regional Council)	EIS underway for EPA. IAS and Draft TORs available for public review on EPA website.
Kunioon Open Cut Coal Mine	Tarong Energy Corporation	15 km south of Kingaroy and 17 km west of Nanango (South Burnett Regional Council)	EIS underway for EPA. IAS and Final TORs available on EPA website. Development anticipated from 2010 - 2012.
Central Queensland Gas Pipeline	AGL/Arrow Energy	Pipeline from Moranbah to Gladstone	State significant project. EIS approved. Only COG Report on DIP website.
Gladstone – Fitzroy Pipeline	Gladstone Area Water Board	Pipeline from Gladstone to Fitzroy	State significant project. EIS in process and available on DIP website.
Surat Basin Rail	Surat Basin Rail Pty Ltd	From the Western Railway System near Wandoan to Moura Railway System near Banana.	State significant project. EIS in process. IAS and final TORs on DIP website.
Moura Link – Aldoga Rail	Queensland Rail	North of Greater Gladstone (Gladstone Regional Council)	State significant project. EIS in process and available on DIP

Proposed Project	Proponent	Location	Applicable Criteria
			website.
Nathan Dam and Pipelines	SunWater	35 km north east of Taroom (Banana Regional Council)	State significant project. EIS in process. IAS and draft TORs on DIP website.
Boundary Hill Mine Extension Project	Anglo Coal (Callide Management) Pty Ltd	20 km north of Biloela and 120 km south west of Gladstone (Banana Shire Regional Council)	EIS underway for EPA. Final TORs available on EPA website.
Dawson South Stage 2 Coal Project	Anglo Coal Australia Pty Ltd	Commencing 10 km northwest of Theodore and proceeding southwards along the Dawson River (Banana Shire Regional Council)	EIS completed for EPA. EIS, Final TORs and IAS available on EPA website.
LNG Facility			
Gladstone LNG Project: LNG Facility (Curtis Island)	Santos Limited and Petronas	LNG facility in Curtis Island Industry Precinct of Gladstone State Development Area (Gladstone Regional Council)	State significant project. EIS in progress and available on DIP website.
Wiggins Island Coal Terminal	Gladstone Ports Corporation and Queensland Rail	Port of Gladstone on the northern bank of the Calliope River mouth (Gladstone Regional Council)	State significant project. EIS approved. EIS and COG Report on DIP website.
Gladstone Pacific Nickel Refinery	Gladstone Pacific Nickel Ltd	8km west of Gladstone in Yarwun Precinct of Gladstone State Development Area (Gladstone Regional Council)	State significant project. EIS approved. EIS and COG Report on DIP website.
Fisherman's Landing Port Expansion	Gladstone Ports Corporation	Adjacent to the existing port facility at Fisherman's Landing, Port of Gladstone (Gladstone Regional Council)	State significant project. EIS in process. IAS and Final TORs on DIP website.
Boyne Island Aluminium Smelter Extension	Comalco (now Rio Tinto)	Boyne Island about 12 kilometres south-east of Gladstone (Gladstone Regional Council)	State significant project. Project on hold. EIS approved. Only COG Report on DIP website.
Aldoga Aluminium Smelter	Aldoga Aluminium Smelter Pty Ltd	Aldoga Precinct of the Gladstone State Development Area (Gladstone Regional Council)	State significant project. Project on hold. EIS approved. Only COG Report on DIP website.
Gladstone LNG (Fisherman's)	Gladstone LNG Pty Ltd	Fisherman's Landing, Port of Gladstone	EIS prepared for EPA. Link to Draft EIS on

Proposed Project	Proponent	Location	Applicable Criteria
Landing)		(Gladstone Regional Council)	EPA website.
Sun LNG	Sunshine Gas Limited and Sojitz Corporation	Fisherman's Landing, Port of Gladstone (Gladstone Regional Council)	Voluntary EIS underway for EPA. IAS and final TORs available on EPA website.
Curtis Island Road / Bridge	Department of Infrastructure and Planning	Road and bridge connecting the northern end of Landing Road near Fisherman's Landing to south west Curtis Island (Gladstone Regional Council)	Project directly associated with LNG development within Curtis Island Industry Precinct.
Dredging of Swing Basin and Shipping Channel for LNG projects on Curtis Island.	Gladstone Ports Corporation	Port of Gladstone (Gladstone Regional Council)	Project directly associated with LNG development within Curtis Island Industry Precinct.

The proposed projects listed in *Table 1-6.1* have been considered in terms of the cumulative impacts, including:

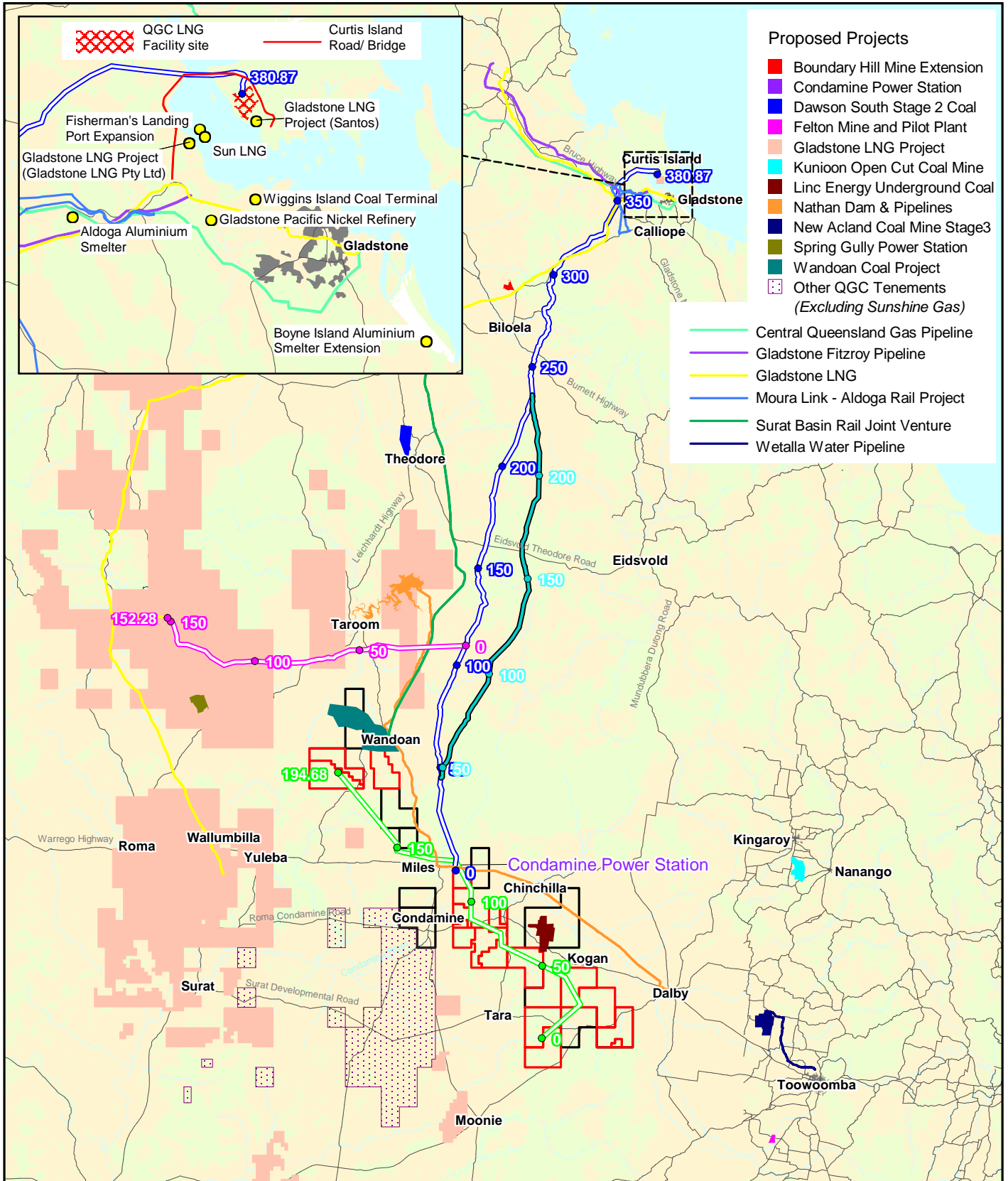
- competition for workforce, materials or equipment where timing of construction and operations overlap;
- cumulative environmental and social impacts;
- cumulative impacts on existing infrastructure, traffic / transport and other resources and services; and
- co-locational / geographic overlap.



Cumulative impacts are addressed in the QCLNG EIS in the following volumes and chapters:

- Volume 3, Chapter 18 – CSG Field Component
- Volume 4, Chapter 17 – Pipeline Component
- Volume 5, Chapter 19 – LNG Facility Component
- Volume 6 – Dredging of the Swing Basin and Shipping Channel
- Volume 8 – Social, Cultural and Economic impacts of the QCLNG Project

The following projects are currently being proposed within the QCLNG Project's area of influence, however, they did not meet the project selection criteria and therefore have not been considered in the assessment of cumulative impacts for the QCLNG EIS:

- **Darling Downs Power Station (Origin Energy Power Ltd):** Although this is a 'State significant project' the Coordinator General declared that the project does not require an EIS.



 <p>QUEENSLAND CURTIS LNG A BG Group business</p>	Project Queensland Curtis LNG Project		Title Proposed Projects Considered for the Gas Field and Pipeline Components
	Client QGC - A BG Group business		
 <p>ERM Environmental Resources Management Australia Pty Ltd</p>	Drawn Mipela	Appendix 1.6 Figure A	Disclaimer: Maps and Figures contained in this Report may be based on Third Party Data, may not be to scale and are intended as Guides only. ERM does not warrant the accuracy of any such Maps and Figures.
	Approved CD	File No: E05-P-MA-96210	
	Date 10.07.09	Revision A	



Legend

- Proposed QCLNG Site
- Proposed Curtis Island Road/Bridge Corridor
- Proposed Export Pipeline
- Main Highways
- Local Roads
- State Parks
- Proposed Swing Basin and Shipping Channel
- Existing Shipping Channel

Source Note:
 Sat Image 17m/12span
 Curtis Island Road/Bridge - Connell Wagner
 StreetPro Australia - Pitney Bowes Mapnic

Projection: UTM MGA Zone 96 Datum: GDA 94

QUEENSLAND CURTIS LNG
A BG Group business

ERM
Environmental Resources Management Australia Pty Ltd

Project	Queensland Curtis LNG Project		
Client	QGC - A BG Group business		
Drawn	JB	Appendix 1.6	Figure B
Approved	GB	File No: 0086165b_EIS_GIS001_F1.6.B	
Date	09.07.09	Revision	0

Title **Proposed Projects in the Gladstone Area considered for the Cumulative Impact Assessment for the LNG Facility Component**

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- **AGL / Arrow Energy CSG field development and pipeline:** No information available on the DIP or EPA website.
- **Methanol and ammonia plant near Dalby (Carbon Energy):** No information available on the DIP or EPA website.
- **Australia Pacific LNG Ltd (Origin Energy Ltd and ConocoPhillips):** The proposed APLNG project was declared a 'State significant project' on 7 April 2009.
- **Steel mill in Gladstone proposed by Boulder Steel Ltd:** No information available on the DIP or EPA website.
- **Chalco Refinery:** No info on DIP or EPA website. Media reports issued in June 2008 suggest that this project is likely to be located at Bowen.
- **Expansion of Yarwun alumina refinery (Yarwun 3) in Gladstone by Rio Tinto:** No info on DIP or EPA website.

1-6.1 **DESCRIPTION OF PROJECTS CONSIDERED IN THE ASSESSMENT OF CUMULATIVE IMPACTS**

A brief description of the proposed projects considered for the identification and assessment of cumulative impacts for the QCLNG EIS is provided below.

1-6.1.1 **CSG Field and Pipeline**

a. Condamine Power Station

QGC will supply CSG to the Condamine Power Station. The Condamine Power Station has been approved by the relevant government authorities and will commence power generation in 2009.

b. Expansion of QGC's CSG fields for domestic gas supply

QGC supplies CSG to the domestic market from its existing operations in the Surat Basin. Approximately 200 wells and associated gas processing infrastructure supply CSG to the Roma to Brisbane Pipeline. These business activities will continue in conjunction with the QCLNG Project. The petroleum tenures on which these activities take place will also be included in the QCLNG Project description as the wells will be developed on these tenures for the purpose of supplying CSG to the LNG Plant.

c. Gladstone LNG Project: CSG Field and Pipeline

Santos Limited proposes to develop a Liquefied Natural Gas (LNG) export facility on Curtis Island at Gladstone. The LNG facility will allow Santos to commercialise its Queensland CSG resources in the Comet Ridge and Roma region, with gas being transported to the Gladstone LNG facility via a 425 km gas transmission corridor and export in the form of LNG to overseas markets.

On 16 July 2007, the Coordinator-General declared the Project to be a 'significant project' for which an Environmental Impact Statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld).

On 31 March 2008 and 14 April 2008, the Commonwealth Government Minister for the Environment, Water, Heritage and the Arts determined that the five referrals relating to the Project are each a 'controlled action' pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

There is likely to be some overlap in the construction period between the Gladstone LNG Project and the QCLNG Project as the projects would be constructed and operated in close proximity to each other in the Surat Basin CSG fields, along the pipeline routes to Gladstone. There is potential for competition for resources and cumulative environmental and social impacts.

d. New Acland Coal Mine Stage 3 Expansion Project

New Acland Coal Pty Ltd (NAC) proposes to develop the New Acland Coal Mine Stage 3 Expansion project. The project involves the progressive expansion of the existing New Acland Coal Mine and associated infrastructure to increase coal production from 4 million tonnes per annum (Mtpa) to 10 Mtpa for the domestic and export markets. The mine is located 14 kilometres north-northwest of Oakey and 35 kilometres northwest of Toowoomba.

On 9 May 2007 the Coordinator-General declared the project a 'significant project' for which an Environmental Impact Statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld).

To satisfy their water requirements, the proponent is now proposing to expedite the EIS process for the pipeline to carry waste water from Toowoomba's Wetalla Waste Water Treatment Plant to the mine site.

The EIS for the mine is in progress. The EIS for the Wetalla Water Pipeline has been approved by the Coordinator-General.

e. Wandoan Coal Project

The Wandoan Coal Project is located 5 kilometres west of the township of Wandoan in the Western Downs Regional Council (WDRC) area in central Queensland. Xstrata Coal Queensland Pty Ltd will manage the operation of the project for the Wandoan Joint Venture.

The project would comprise a number of open-cut coal mines, with an estimated mine life in excess of 30 years. The project would initially produce approximately 30 million tonnes per annum of export steaming coal from resources that exist over mining lease applications 50229, 50230 and 50231.

On 21 December 2007, the Coordinator-General declared the Wandoan Coal Project to be a 'significant project' for which an EIS is required under the *State Development and Public Works Organisation Act 1971* (Qld).

The Coordinator-General released the EIS for public consultation and comments from 6 December 2008 to 2 February 2009.

The mining tenures of the Wandoan Coal Project overlap the petroleum tenures of QGC. As such, there is potential for both parties to try to access the coal resource simultaneously, with potential cumulative environmental, and social impacts. There may be some overlap in the construction period

between the two projects, with associated competition for resources.

f. Linc Energy Underground Coal Gasification

Linc Energy Ltd proposes to produce synthetic liquid fuels through the underground coal gasification (UCG) of coal resources. The project will be located on Linc Energy's mining and exploration tenements 20 kilometres south-west of Chinchilla, in southern Queensland. It will be developed in stages, progressing from a proposed four barrel per day (bpd) demonstration GTL plant (not part of the significant project declaration), to a commercially-viable GTL plant producing approximately 40 000 bpd of diesel, as well as using the syngas to produce 200 megawatt of power through a combined cycle power generation plant.

On 17 May 2007 the Coordinator-General declared the Linc Energy Underground Coal Gasification, Gas-to-Liquids and Gas-fired Power Plant project to be a 'significant project' for which an Environmental Impact Statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Act 1971* (Qld). The EIS is in progress.

The tenements of this project and the QCLNG Project overlap, with potential competition for the coal resource, leading to potential cumulative environmental and social impacts. There may be some overlap in the construction period between the two projects, with associated competition for resources.

g. Spring Gully Power Station

Origin Energy Power Ltd proposes to develop a 1000 mega watt (MW) combined cycle gas fired power station at Spring Gully, 80 kilometres north-east of Roma. The power station will be constructed in two 500 MW stages.

Part of the project involves construction of a high voltage double circuit overhead electricity transmission line to transport power into the national grid. Origin's preferred option involves constructing a 250 kilometre line to the Braemar substation near Kogan Creek. This project will be assessed and developed separately to the Spring Gully Power Station project.

The Coordinator-General declared the power station proposal a 'significant project' on 22 December 2004 and an Environmental Impact Statement (EIS) was developed by Origin and released for public comment up to December 2005. The EIS is complete and has been approved by the Coordinator-General.

With construction of the Darling Downs Power Station recently commenced, construction of the Spring Gully Power Station has been delayed.

There is limited potential for construction and operational activities of this project and the QCLNG Project to overlap, given the announced delay in construction of the Spring Gully Power Station, however cumulative impacts associated with the Spring Gully Power Station Project have still been considered in this EIS.

There is no geographical overlap with the QCLNG Project, however, there may be some overlap in the construction period between the two projects, with

associated competition for resources and transport impacts.

h. Felton Mine and Dimethyl Ether Pilot Plant Project

Ambre Energy (Felton) Pty Ltd proposes to develop the Felton Clean Coal Demonstration Project which entails development of a mine and dimethyl ether (methoxymethane) pilot plant. The proposed project is located near Felton, approximately 30km south west of Toowoomba and 10km south east of Pittsworth. The proponent proposes to operate an open cut mine and a dimethyl ether (DME) pilot plant to produce syngas. The mine for this project would be developed in two stages: the initial stage would involve the extraction of 800,000 tonnes a year of coal with the second stage expanding to 3.8 million tonnes a year.

The proponent applied for, and has been granted, approval to prepare a voluntary EIS for the EPA.

There is no geographical overlap with the QCLNG Project, however, there may be some overlap in the construction period between the two projects, with associated competition for resources and transport impacts.

i. Kunioon Project

Tarong Energy Corporation are examining the prospect of developing a new open cut coal mine, to be known as the Kunioon Project. This mine would be a replacement for the Meandu Mine which supplies coal to the Tarong and Tarong North Power Stations. The project is located on a Mineral Development Licence (MDL) area 201 located in the South Burnett district approximately 15 kilometres south of Kingaroy, 17 kilometres west of Nanango and approximately 150 kilometres northwest of Brisbane.

Key features of the project include:

- open cut coal mine;
- anticipated extraction rate approximately 10 MT/a of Run of Mine (ROM) coal;
- full production anticipated in early 2012;
- life of Kunioon Project planned for at least 25 years;
- overland ROM coal conveyor approximately 16 km to the Meandu Mine Coal Handling Plant; and
- civil works and ancillary facilities at Kunioon Project such as sediment dams, roads and power infrastructure as well as offices, workshops and ablutions.

Major project capital expenditure is estimated to be in the order of \$220 million with the number of construction jobs peaking at between 200 and 220 and jobs during full scale mining operations anticipated to be around 260.

The period of construction activity to bring the mine up to full production is estimated to be in the order of 12 to 18 months.

A voluntary EIS for the EPA is in progress.

There is no geographical overlap with the QCLNG Project, however, there may be some overlap in the construction period between the two projects, with associated competition for resources and transport impacts.

j. Central Queensland Gas Pipeline

Enertrade, a Government Owned Corporation, proposes to build, own and operate approximately 440 kilometres of high pressure gas transmission pipeline in Central Queensland from Moranbah to Gladstone. On 7 November 2007 it was announced that a joint venture of AGL and Arrow Energy had purchased the merchant gas business of Enertrade, the North Queensland Gas Pipeline and the Central Queensland Gas Pipeline project.

The EIS is complete and has been approved by the Coordinator-General.

There is limited geographical overlap with the QCLNG Project, except around Gladstone, where the pipeline routes may intersect, leading to potential cumulative environmental and social impacts. There may be some overlap in the construction period between the two projects, with associated competition for resources.

k. Gladstone – Fitzroy Pipeline

The Gladstone Area Water Board proposes to construct a pipeline from the Fitzroy River to Gladstone Area Water Board's existing water infrastructure at Yarwun.

The pipeline is intended to run within the proposed Stanwell—Gladstone Infrastructure Corridor for the majority of its length and then connect with existing Gladstone water infrastructure within the Gladstone State Development Area.

On 26 July 2007 the Coordinator-General declared the Gladstone – Fitzroy Pipeline project to be a 'significant project' for which an environmental impact statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Act 1971* (Qld). The EIS is in progress.

There is limited geographical overlap with the QCLNG Project, except around Gladstone, where the pipeline routes may intersect, leading to potential cumulative environmental and social impacts. There may be some overlap in the construction period between the two projects, with associated competition for resources.

l. Surat Basin Rail

The proposed Surat Basin Rail project is approximately 210 kilometres in length and starts on the Western Railway System near the township of Wandoan and joins the Moura Railway System near the township of Banana (located 130 kilometres west of Gladstone).

On 30 November 2007 the Coordinator-General declared the project to be a 'significant project for which an EIS is required' in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld). The EIS for this project is in progress.

There are potential overlaps of the rail line and the QCLNG Project pipelines with potential cumulative environmental and social impacts. There may be some overlap in the construction period between the two projects, with associated competition for resources.

m. Moura Link – Aldoga Rail

Queensland Rail (QR) is proposing a major expansion of its rail network in the less populated areas north of greater Gladstone. These works will be developed in parallel to and service a number of facilities, including the proposed new Wiggins Island Coal Terminal located in the Port of Gladstone.

On 26 September 2007 the Coordinator-General declared the Moura Link–Aldoga Rail project to be a ‘significant project’ for which an EIS is required in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld). The EIS is in progress.

There is limited overlap with the QCLNG Project except where the pipeline route may intersect the rail route around Gladstone, leading to potential cumulative environmental and social impacts. There may be some overlap in the construction period between the two projects, with associated competition for resources.

n. Nathan Dam and Pipelines

The proposed dam is located on the Dawson River near Nathan Gorge in Banana Shire, about 35 km north-east of Taroom. The dam will yield 70,000 megalitres per annum of high priority water at a full supply level of approximately 185.3 m Australian Height Datum based on a capacity of 880 000 megalitres. Fish ways and water outlets will be incorporated into dam design to allow for ongoing fish migration and water release.

SunWater, a Government Owned Corporation, is the proponent for all necessary studies and investigations up to securing approvals and development of a business case for the dam.

SunWater estimates approximately 200 jobs will be created during construction along with associated employment opportunities and skills development in the region, including targeted employment programs for Indigenous communities.

The project will provide a secure additional water supply source which will assist with industry and community expansion in the Surat Basin Region.

The Coordinator-General has declared the project to be a ‘significant project’ and an EIS is in progress.

There is potential geographical overlap of the Nathan Dam to Dalby Water Pipeline with the QCLNG Project petroleum tenures and gas pipelines, leading to potential cumulative environmental and social impacts. There may be some overlap in the construction period between the two projects, with associated competition for resources.

o. Boundary Hill Mine Extension Project

Anglo Coal (Callide Management) Pty Ltd proposes to expand the existing Callide Mine in Central Queensland to increase its life by 15 years. The Callide Mine is located approximately 20 km north of Biloela and 120 km south-west of the Port of Gladstone. The Project will contribute approximately 4 Mt/a of run of mine coal to Callide's total coal production.

Boundary Hill Mine Extension Project is to be mined by conventional open cut methods using dragline in combination with truck and shovel. Mining is proposed to occur 24 hrs per day, 5 days per week, with the dragline operating seven days per week. Existing mine infrastructure will be used for the Boundary Hill Mine Extension project with all coal to be processed at the existing Boundary Hill coal handling plant. The Boundary Hill Mine Extension project is to be staffed by current Callide Mine employees and will not increase the workforce.

The Boundary Hill Mine Extension Project is expected to disturb an area of 1500 ha. Progressive rehabilitation aims to return a native habitat to all disturbed areas.

The EPA has determined that an EIS is required and this is currently underway.

There is no geographical overlap with the QCLNG Project, however, there may be some overlap in the construction period between the two projects, with associated competition for resources and transport impacts.

p. Dawson South Stage 2 Coal Project

Anglo Coal Pty Ltd propose to develop an open cut coal mine in Central Queensland's Bowen Basin on Mining Lease ML 5657. The predominant product will be a high-energy thermal coal to be exported over the 20 year plus life-of-mine. The Moura Mine wash plant will be utilised for coal washing and product preparation. Coal will be transported approximately 220km by rail to the Port of Gladstone.

The Dawson South Stage 2 Coal Project is located within Banana Shire. The development will commence 10km northwest of the Theodore township and proceed in a southerly direction, adjacent to the Dawson River.

An EIS was prepared for the EPA and has been approved.

There is no geographical overlap with the QCLNG Project, however, there may be some overlap in the construction period between the two projects, with associated competition for resources and transport impacts.

1-6.1.2**LNG Plant****a. Gladstone LNG Project: LNG Facility (Curtis Island)**

Santos Limited proposes to develop a Liquefied Natural Gas (LNG) export facility on Curtis Island at Gladstone. The LNG facility will allow Santos to commercialise its Queensland CSG resources in the Comet Ridge and Roma region, with gas being transported to the Gladstone LNG facility via a 425 km

gas transmission corridor and export in the form of LNG to overseas markets. The LNG facility will initially be constructed to produce three to four million tonnes per annum (Mtpa) of LNG, with the potential for future expansion to a nominal ten Mtpa.

On 16 July 2007, the Coordinator-General declared the Project to be a 'significant project' for which an Environmental Impact Statement (EIS) is required in accordance with Part 4 of the *State Development and Public Works Organisation Act 1971* (Qld).

On 31 March 2008 and 14 April 2008, the Commonwealth Government Minister for the Environment, Water, Heritage and the Arts determined that the five referrals relating to the Project are each a 'controlled action' pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). The EIS for the Project was placed on public exhibition on 22 June 2009.

There is likely to be some overlap in the construction period between the Gladstone LNG Project and the QCLNG Project as the LNG facilities would be constructed and operated in close proximity to each other on Curtis Island in Gladstone. There is potential for competition for resources and cumulative environmental and social impacts.

b. Wiggins Island Coal Terminal

Gladstone Ports Corporation (GPC) and Queensland Rail propose to develop a coal terminal in the Port of Gladstone with an initial capacity of 25 Mtpa and upgrading to 70 Mtpa in the future. The terminal would service the coal mines in the southern Bowen Basin and potentially the Surat Basin. The Project cost is approximately \$1.8 billion.

Terminal development would include a stockyard with stacking and reclaiming conveyors and machines, outloading conveyors and three shiploaders. Marine works include reclamation of intertidal areas adjacent to Hanson Road, which are proposed to be bunded and infilled with dredge material, a two kilometre jetty structure, a six berth wharf (originally four berths), independent berthing and mooring structures and dredging from the Targinnie Channel to the new berth.

The project has been declared a "significant project" by the Queensland Coordinator General and a "controlled action" by the Commonwealth Minister for the Environment and Heritage. The EIS therefore addressed both State and Commonwealth requirements. The EIS has been completed and the Coordinator General has approved the project on 7 January 2008. The Coordinator-General decided that the project can proceed subject to certain conditions and recommendations contained in the Report.

Construction commences in 2009 and expected completion is late 2012. The proponents have advised that the direct peak employment during construction of stage 1 is expected to be around 500 persons over a period of approximately 42 months. Estimated operational personnel at completion of stage 1 for GPC is 130.

There may be some overlap in the construction period between this project and the QCLNG Project and the projects will operate in close proximity to each other, creating the potential for cumulative environmental and social impacts.

c. Gladstone Pacific Nickel (GPN) Refinery

Gladstone Pacific Nickel Limited are proposing to develop a nickel and cobalt laterite mine and High pressure Acid Leach (HPAL) plant to be sited at the Port of Gladstone in the Gladstone State Development Area. The plant will source upgraded ore directly from a proposed nickel and cobalt laterite mine at Marlborough, approximately 175 kilometres north west of Gladstone, via a dedicated ore slurry pipeline. This ore supply will be supplemented with higher quality nickel laterite ore to be imported from the South-West Pacific, a region with extensive nickel laterite reserves.

The refinery will initially be developed in two stages. It is anticipated that stage 1 will produce up to 64 000 tonnes per year (t/y) of nickel metal and 4800 t/y of cobalt metal. Stage 2 will produce up to 126 000 of nickel metal and 10 400 t/y of cobalt metal.

Stage 1 of the proposal involves:

- development of a greenfield HPAL plant and refinery in the Gladstone State Development Area;
- construction of slurry and water pipelines of approximately 175 kilometres to transport ore and sea water between the mine at Marlborough and the Gladstone State Development Area plant site;
- provision of a tailings storage facility in the Gladstone State Development Area; and
- provision of sulphur and ore handling facilities at the Port of Gladstone.

The project has been declared a “significant project” by the Queensland Coordinator General and a “controlled action” by the Commonwealth Minister for the Environment and Heritage. The EIS therefore addressed both State and Commonwealth requirements. The Coordinator-General’s Report has been completed and the project was approved on 15 January 2009 subject to certain conditions and recommendations contained in the Report.

The construction of the first stage is planned to commence in 2010. Construction workforce requirements will peak at 2600 persons during a 2.5 year construction period for stage 1 and at 1750 for stage 2. An operational workforce of approximately 385 persons is anticipated for stage 1 with an additional 40 to 50 persons for stage 2.

There may be some overlap in the construction period between this project and the QCLNG Project as they are proposed to operate in close proximity to each other, creating the potential for cumulative environmental and social impacts.

d. Fisherman’s Landing Port Expansion

The GPC proposes to reclaim an area of 153 ha adjacent to the existing port facility at Fisherman’s Landing, Port of Gladstone, to provide future adjacent wharves for transport, storage and loading and unloading facilities.

The planned six wharves plus backup land will serve export-oriented industries located within the Gladstone State Development Area and will be linked via the Materials Transport Corridor. The proposed reclamation is not within the GSDA.

The capital cost of the project (including dredging, construction of the revetment wall and capping) is estimated to be \$161 million (i.e. \$92 million for Stage 1 and \$69 million for Stage 2). Currently GPC proposes to use its existing workforce to undertake the bund construction but should demand for land increase then contractors will be engaged to expedite these works. Direct employment is estimated to be 30 man-years for the bund construction. Dredging would be staged over a number of years based on identified need. A total 35 man-years is estimated for this phase of the work and would be performed by contractors. The direct permanent employment resulting from the development of the reclamation is related to the nature of the product to be handled and as such is not quantifiable.

The project has been declared a “significant project” by the Queensland Coordinator General and final Terms of Reference have been issued for the EIS which is currently underway.

There may be some overlap in the construction period between this project and the QCLNG Project and the projects will operate in close proximity to each other, creating the potential for cumulative environmental and social impacts.

e. Boyne Island Aluminium Smelter Extension

Rio Tinto's (previously Comalco's) Boyne Island Aluminium Smelter is located on Boyne Island about 12 kilometres south-east of Gladstone. The Boyne Island Aluminium Smelter Extension of Reduction Lines Project (BISE) was planned to extend the three potlines increasing the smelter's annual capacity to 733 000 tonnes of aluminium product. The project would have entailed an investment of between \$700 million and \$800 million, engaged 650 people during peak construction and added another 100 jobs to boost the operational workforce to 1300 people.

The extension project has been deferred until market conditions improve, however, the Coordinator-General evaluated the Environmental Impact Statement (EIS) process for the project and decided, on 21 July 2003, that the project may proceed, subject to commercial considerations, in accordance with the conditions contained within the Coordinator-General's Report.

As the project has been approved and therefore may still proceed within the timeframes of the QCLNG Project, possible implications and cumulative impacts of the Boyne Island Aluminium Smelter Extension have been considered within the QCLNG Project EIS.

f. Aldoga Aluminium Smelter

Aldoga Aluminium Smelter Pty Ltd has completed preliminary site works for the construction of an aluminium smelter on the Aldoga Precinct of the Gladstone State Development Area.

The project was to have two phases:

- phase 1 of the project - production of 420,000 tonnes of aluminium from two potlines; and
- phase 2 of the project - 630,000 tonnes with a third potline at full production.

The project represented an investment of over \$3 billion and was to provide a peak construction workforce on site of 2250 and 900 permanent jobs in the smelter when operational. The project was expected to generate \$45 billion in export income over its life and create \$290 million per year of disposable income to central Queensland.

The project was declared a “significant project” by the Queensland Coordinator General and a “controlled action” by the Commonwealth Minister for the Environment and Heritage. An EIS was prepared which addressed both State and Commonwealth requirements. The project was approved by the Coordinator General on 6 February 2003 subject to certain conditions and recommendations.

In mid 2004 the company decided to suspend works pending a restructure. However, as the project has been approved and therefore may still proceed within the timeframes of the QCLNG Project, possible implications and cumulative environmental and social impacts of the Aldoga Aluminium Smelter have been considered within the QCLNG Project EIS.

g. Gladstone LNG Project (Fisherman’s Landing)

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 LNG plant at Fisherman’s Landing Wharf near Gladstone. CSG would be sourced from gas fields operated by Arrow Energy NL via the proposed Central Queensland Gas Pipeline. Wharf loading facilities at Fisherman’s Landing Wharf No. 5 would be upgraded. 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.

An EIS for the Gladstone LNG Project – Fisherman’s Landing has been prepared for the EPA in terms of Part 1 of Chapter 3 of the *Environmental Protection Act 1994* (Qld).

Competition for CSG resources do exist between the LNG projects proposed in the Gladstone area. There may be some overlap in the construction period between the Gladstone LNG Project at Fisherman’s Landing and the QCLNG Project and the projects will operate in close proximity to each other.

h. Sun LNG

Sojitz Corporation and Sunshine Gas Ltd propose to develop a LNG plant at Fisherman's Landing Wharf near Gladstone. The first stage would produce half a million tonnes per year of LNG. Stage 2 would increase the capacity of the LNG plant to one million tonnes per year. Wharf loading facilities at Fisherman's Landing Wharf berth five 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.

An EIS for the Sun LNG Project has been prepared for the EPA in terms of Part 1 of Chapter 3 of the *Environmental Protection Act 1994* (Qld).

Competition for CSG resources do exist between the LNG projects proposed in the Gladstone area. There may be some overlap in the construction period

between the Sun LNG and the QCLNG Project and the projects will operate in close proximity to each other.

i. Curtis Island Road / Bridge

The Department of Infrastructure and Planning are investigating the development of a road and bridge to connect the mainland with Curtis Island via a bridge crossing The Narrows (Curtis Island Road / Bridge). This would provide vehicular access to the Curtis Island Industry Precinct which has been gazetted as a new industrial precinct within the Gladstone State Development Area. The mainland section of road is proposed from the northern end of Landing Road, heading northwards along the foreshore and across the tidal flats to Friend Point on Kangaroo Island. The bridge is proposed between Kangaroo Island and Laird Point on Curtis Island. On Curtis Island the road would extend southwards towards Hamilton Point in order to provide access to the proposed Santos and QGC LNG facilities.

The project is currently at the Concept Design stage and the EIS process has not yet commenced.

The current schedule for the proposed construction of the Curtis Island Road / Bridge aims to have the road and bridge completed prior to the peak construction period for the QGC and Santos LNG facilities in order to provide vehicular access to Curtis Island for the construction of these LNG facilities.

j. Dredging of Swing Basins and Shipping Channels within the (Port of Gladstone

The GPC - 50 Year Strategic Plan anticipates expansion of the Port including construction of additional berths on southern Curtis Island and on the mainland along the south-western side of the Port. Furthermore, GPC are considering possible extension of port facilities to the north of Fisherman's Landing. These port expansions as well as the proposed marine facilities associated with the QGC and Santos LNG facilities on Curtis Island would require additional shipping channels and swing basins to be dredged in order for LNG tankers and other ships to access the QCLNG marine facilities. Spoil will need to be disposed of at approved locations. Studies are currently underway to determine the scope of dredging works required, to establish the quality of sediment to be dredged and to investigate spoil disposal options.

The QCLNG Project depends on the approval and permitting of the dredging and spoil disposal to be undertaken by GPC. GPC will undertake the EIS required for dredging works. The EIS process has not commenced.