



**Application for 15-year  
no-coverage  
determination under  
section 151 of the  
*National Gas Law***

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GLNG is a Santos PETRONAS Total KOGAS project.



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# 1. APPLICATION

## 1.1 Application for a no-coverage determination

GLNG Operations Pty Ltd (ACN 132 321 192) (**GLNG**), on behalf of Santos GLNG Pty Ltd (ACN 131 271 648), PAPT (Downstream) Pty Limited (ACN 147 649 205), KGLNG Liquefaction Pty Ltd (ACN 146 143 3P11) and Total GLNG Australia (ARBN 146 680 524) (each **Participants**), applies to the National Competition Council (**NCC**) under section 151 of the National Gas Law (**NGL**) for a no-coverage determination for the pipeline between Comet Ridge and Wallumbilla described in section 3.9 (**CRWP Loop**).

The Participants and their related bodies corporate listed in Annexure 3 (**GLNG Upstream Entities**) are developing the "Santos GLNG project" (**GLNG Project**), whereby coal seam gas (**CSG**) produced from gas fields (**Gas Fields**) held by the GLNG Upstream Entities and their joint venture partners is transported via a 420 km GLNG gas transmission pipeline (**GLNG GTP**) to a two-train liquefied natural gas (**LNG**) facility on Curtis Island (**LNG Facility**) for liquefaction and export to international markets.

The CRWP Loop connects the Gas Fields (Roma), the Participants' underground gas storage facility at Roma (**Roma Underground Gas Storage Facility**) and the hub located near the township of Wallumbilla (**Wallumbilla Gas Hub**) to the GLNG GTP. A map of the CRWP Loop is available at [http://www.santosglng.com/media/pdf5128/20150120crwp\\_loop\\_mapofroute.pdf](http://www.santosglng.com/media/pdf5128/20150120crwp_loop_mapofroute.pdf); further relevant maps are contained in Annexure 5.

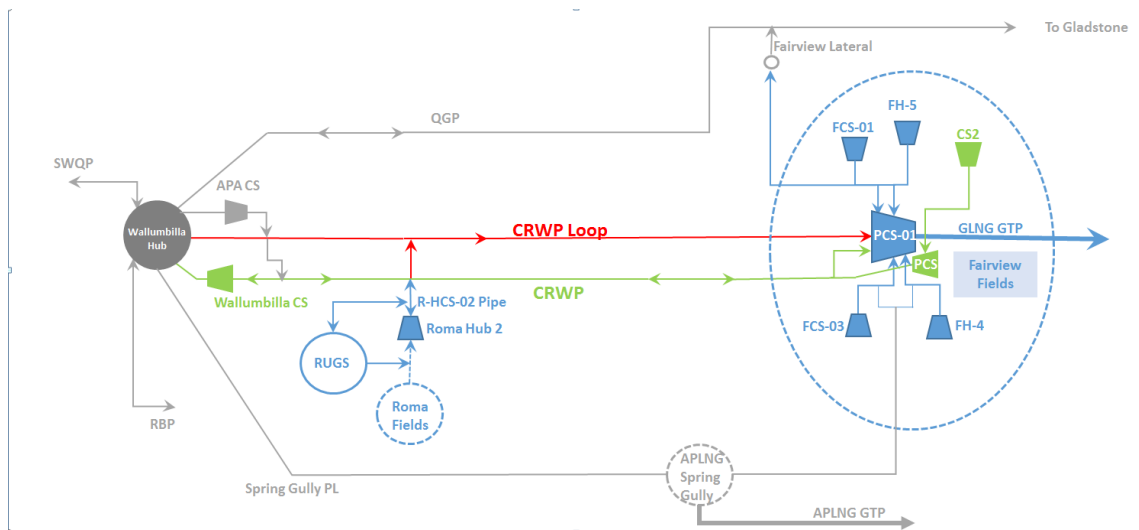
The GLNG GTP is the pipeline owned by the Participants described in GLNG's no-coverage application to the NCC on 12 March 2013 (**GLNG GTP Application**) for which a no-coverage determination was made by the Minister on 20 June 2013 (**GLNG GTP Determination**).

The development of the CRWP Loop allows the Participants to transport additional gas from the Gas Fields (Roma), gas from the Roma Underground Gas Storage Facility and gas purchased by the Participants from third parties to the GLNG GTP inlet and ultimately the LNG Facility. The CRWP Loop is therefore an integral part of, and is being developed specifically to facilitate, the GLNG Project.

An existing pipeline, the Comet Ridge to Wallumbilla Pipeline (**CRWP**), already transports gas along a route that is similar to the CRWP Loop. The CRWP is owned by the Participants and operated by GLNG. This application relates only to the CRWP Loop, which is a new pipeline and structurally separate from the existing CRWP.

The Participants have appointed GLNG as the Operator of the CRWP Loop along with the CRWP, the GLNG GTP and the LNG Facility. GLNG makes this application with the consent of each of the Participants. The consent of each Participant for GLNG to make this application is included in Annexure 1.

The following diagram shows a schematic representation of the CRWP Loop and surrounding infrastructure.



Source: ACIL Allen based on Santos GLNG Investor Visit Presentation, 25-26 June 2014

The Participants have also contracted to purchase natural gas for supply to the LNG Facility from various third party producers, one of which is a related body corporate of one of the Participants (Santos), holding interests in other gas fields in Australia (**Third Party Gas**).

Gas produced at the Gas Fields will be transported through a network of underground trunklines and flow lines to centralised hub stations for compression and dehydration. This gas, together with Third Party Gas, will be transported to the LNG Facility through the GLNG GTP from the Gas Fields, the CRWP or the CRWP Loop from Pipeline Compressor Station 01 (**PCS-01**), or from various receipt points along the GLNG GTP's route.

1.2 **Applicant's contact details – National Gas Rule 122(a)**

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**(b) Ashurst Australia**

Ashurst Australia is the legal representative of GLNG Operations Pty Ltd and the Participants.

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## 2. NO-COVERAGE APPLICATION

### 2.1 Consideration of application for a no-coverage determination

The greenfields exemption relevant to gas pipelines is found in the NGL. The NGL applies nationally through mirror legislation in each State, including the *National Gas (Queensland) Act 2008* (Qld).

Under the NGL, a service provider who is proposing to undertake (but has not yet commissioned) a greenfields pipeline project may apply to the NCC for it to recommend to the relevant Minister that the pipeline be granted a 15 year no-coverage determination. Relevantly, a greenfields pipeline project is a project in which a new pipeline that is structurally separate from any existing pipeline, such as the CRWP Loop, is to be constructed. The Minister must make a 15-year no-coverage application in relation to the CRWP Loop if the Minister is not satisfied that all of the pipeline coverage criteria set out in section 15 of the NGL are satisfied in relation to the CRWP Loop.<sup>1</sup>

If the Minister makes a no-coverage determination, the relevant pipeline cannot be determined to be a "covered pipeline" for 15 years after the pipeline is commissioned. This provides the applicant with regulatory certainty for the duration of the no-coverage determination.

The Minister must make this determination having regard to the national gas objective in section 23 of the NGL (**National Gas Objective**) and the NCC's recommendation, and taking into account submissions and comments made to the Minister.<sup>2</sup> The Minister may also take into account submissions and comments received by the NCC when considering this application under the National Gas Rules (**NGR**).<sup>3</sup>

### 2.1 National Gas Objective

The National Gas Objective is:<sup>4</sup>

... to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

The National Gas Objective requires the consideration and balancing of productive, allocative and dynamic efficiencies in the provision of pipeline services as well as upstream and downstream markets.<sup>5</sup> The NCC must take into account the economic efficiency focus of the National Gas Objective when making a recommendation on a no-

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<sup>1</sup> NGL, s 157(2)(b).

<sup>2</sup> NGL, s 157(1)(b)(i) – (iii).

<sup>3</sup> NGL, s 157(1)(b)(iv).

<sup>4</sup> NGL, s 23.

<sup>5</sup> NCC *Gas Guide* (October 2013) para 316.

coverage application. However, this economic efficiency focus cannot overrule the plain meaning of the coverage criteria set out in section 15 of the NGL.<sup>6</sup>

## 2.2 Application

This application first describes the CRWP Loop and the related components of the GLNG Project, and then provides background on the gas market and other Queensland LNG projects.

The coverage criteria are considered against this description and background having regard to the National Gas Objective. The analysis set out in this application considers each criterion taking into account the guidance provided by the NCC in its October 2013 publication *Gas Guide (Gas Guide)*.

This analysis commences with an examination of criterion (b), to identify the relevant pipeline services provided by the CRWP Loop and whether there is anyone who can profitably develop an alternative pipeline to provide those services. GLNG then uses this information to consider criterion (a), to examine any competitive effects of access to the pipeline services provided by the CRWP Loop on dependent markets. Finally GLNG will consider criteria (c) (health and safety) and (d) (public interest).

As explained below, GLNG submits that criteria (a), (b) and (d) are not satisfied.

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<sup>6</sup> NCC *Gas Guide* (October 2013) paras 317-8.

## 3. THE GLNG PROJECT

### 3.1 The GLNG Project – Background

The GLNG Project is a fully integrated, two train LNG project being developed by the Participants, whereby natural gas produced at the Gas Fields will be transported via the GLNG GTP to the LNG Facility at Curtis Island for conversion to LNG and export.

As part of the GLNG Project, GLNG has developed underground reservoirs at Roma to allow for additional temporary storage and flexibility in managing supply to the LNG Facility, particularly during the LNG Facility commissioning phase, Gas Fields ramp up stage and LNG Facility shutdowns. All gas temporarily stored by the Participants at the Roma Underground Gas Storage Facility is ultimately intended for delivery to the LNG Facility via either the CRWP Loop or the CRWP, and then the GLNG GTP.

A map of the GLNG Project, including the CRWP Loop, is contained in Annexure 4. More detailed maps showing the CRWP Loop's location vis-à-vis the Gas Fields, GLNG GTP, the CRWP, the Roma Underground Gas Storage Facility, the Wallumbilla Gas Hub and the Queensland Gas Pipeline (**QGP**) are contained in Annexure 5.

Gas produced at the Gas Fields will be transported through a network of underground flowlines and trunklines to centralised hub stations for compression and dehydration.

Gas produced from the Gas Fields (Fairview, Arcadia, Comet Ridge) will enter the GLNG GTP for transportation to the LNG Facility either at the GLNG GTP inlet via Pipeline Compressor Station-01 (**PCS-01**) (refer Annexure 5, Map 29) or at one of the various receipt points along the GLNG GTP route.

The CRWP Loop will connect to the Wallumbilla Gas Hub at a point adjacent to the APA Compressor Station (refer Annexure 5, Map 1), and the GLNG GTP inlet at PCS-01 (refer Annexure 5, Map 29). The CRWP Loop will also have one intermediate connection to the Roma Hub Compressor Station 02 (**R-HCS-02**) (refer Annexure 5, Overview Map). The lateral to R-HCS-02, the Roma HCS-02 Transmission Line (authorised by PPL 148) (**R-HCS-02 Transmission Line**) shown as the 'R-HCS-02 to CRWP Station Interconnect' in Annexure 5, Map 8, will connect the Gas Fields (Roma) as well as the Roma Underground Gas Storage Facility to the CRWP Loop. R-HCS-02 and the R-HCS-02 Transmission Line are expected to be commissioned in the first half of 2015.

The CRWP Loop will transport gas from the Gas Fields (Roma) and Roma Underground Gas Storage Facility (via the R-HCS-02 Transmission Line) as well as Third Party Gas (via the Wallumbilla Gas Hub) in a northerly direction to the GLNG GTP inlet and ultimately to the LNG Facility. It is not expected that the CRWP Loop will be utilised for the haulage of gas until the second half of 2015 when it is expected that cool down and start-up of the LNG Facility will commence. The CRWP Loop will be first used for the haulage of gas on a commercial basis to the LNG Facility (via the GLNG GTP) upon the



loading of the first LNG commissioning cargo, currently scheduled for the second half of 2015.

The CRWP follows a similar route to the CRWP Loop but connects the Wallumbilla Gas Hub to Compressor Site 2 (**CS2**) (refer Annexure 5, Map 31). CS2 lies approximately 6.5 km north-west of the GLNG GTP inlet. A manifold to tie the CRWP into PCS-01 has been constructed, such that the CRWP Loop will be manifolded into the CRWP in PCS-01 into a single connection to the GLNG GTP. The CRWP (14 inch diameter) has a much lower capacity than the CRWP Loop (24 inch diameter).

The CRWP has several existing intermediate connections to the Roma Underground Gas Storage Facility. Once commissioned, the R-HCS-02 Transmission Line will provide an additional connection from the CRWP to the Roma Underground Gas Storage Facility and the Gas Fields (Roma).

The CRWP is capable of bi-directional operation and currently transports gas in a southerly direction from the Gas Fields (Fairview) to the domestic market and the Roma Underground Gas Storage Facility. After first LNG cargo and export from the LNG Facility commences, the CRWP will generally transport gas in a northerly direction to the GLNG GTP for transport to the LNG Facility. However, particularly prior to start-up of Train 2 of the LNG Facility, the CRWP may, if required, transport gas on occasion in a southerly direction to the Roma Underground Gas Storage Facility or the domestic market to manage LNG Facility commissioning, Gas Fields ramp up and LNG Facility shutdowns.

The R-HCS-02 Transmission Line is also able to transfer gas in both directions, to allow gas from the Gas Fields (Fairview) to be sent to the Roma Underground Gas Storage Facility via the CRWP.

There is no intention to operate the CRWP Loop in a southerly direction. Its purpose is to provide additional capacity for the transportation of gas, northwards, to the LNG Facility, and GLNG intends to use all of the capacity of the CRWP Loop. Accordingly, GLNG has not developed the CRWP Loop for the purpose of earning revenue through the supply of services to third parties using that pipeline, and GLNG expects that it will earn no such revenue. The CRWP Loop will not be capable of operation in a southerly direction, unless additional compression were to be installed at Fairview. This is not planned. Similarly, although the R-HCS-02 Transmission Line can transfer gas in both directions, gas will only be transferred *from* the Gas Fields (Roma) and Roma Underground Gas Storage Facility *to* the CRWP Loop.

Although the CRWP and the CRWP Loop largely run in parallel for most of their length and both connect the Wallumbilla Gas Hub to the GLNG GTP inlet, they can each be operated entirely independently of the other, potentially in different directions, and with separate metering and pressure control.

Gas delivered to the Wallumbilla Gas Hub can be manifolded by a system of valves to either or both of the CRWP and CRWP Loop. Gas from the R-HCS-02 Transmission Line can also be directed to either or both the CRWP and CRWP Loop.

### 3.2 Use of Capacity in the CRWP Loop

For many wells in the Gas Fields, it is difficult to cease or turn down production at short notice due to the nature of CSG without jeopardising future production. The ramifications of an LNG Facility shutdown are compounded by the number of wells required to produce gas for the LNG Facility. Accordingly, as for the GLNG GTP, any capacity in the CRWP Loop from time to time which is not being used to transport gas to PCS-01 will be used by the Participants as line pack to provide additional flexibility and storage options, to reduce the impact on the Gas Fields and specifically, provide greater flexibility:

- to accommodate variable gas supply requirements during the LNG Facility commissioning phase;
- to manage Gas Fields ramp up during the initial years of the LNG Facility operation; and
- in the event of planned or unplanned LNG Facility maintenance and other shutdowns, particularly prior to commissioning of Train 2 (a second Train provides greater flexibility to manage LNG Facility shutdowns).

In these circumstances, the CRWP Loop will be line packed with gas from the Gas Fields and/or Third Party Gas. Without these storage options (CRWP Loop, CRWP, GLNG GTP and the Roma Underground Gas Storage Facility), GLNG may need, in some instances, to flare upstream gas production in the Gas Fields or, to the extent possible, turn down gas wells. This would involve wasted production opportunities, and, ultimately, foregone sales. The design, scale and configuration of these facilities reflects the Participants' decision to invest in capacity to deliver the flexibility they require to manage variability associated with commissioning, ramp up, maintenance and other shutdowns. This enables them to limit the potential for the lost production and sales that could be expected to be associated with a lower degree of operational flexibility.

All Third Party Gas will be delivered to the Participants either at:

- the Wallumbilla Gas Hub;
- PCS-01 or other connection points along the GLNG GTP; or
- the Roma to Brisbane Pipeline,

to be transported to the LNG Facility for processing.

The Gas Fields, GLNG GTP and LNG Facility as well as the Participants' contractual commitments to supply LNG are described in the following sections.

### 3.3 Gas Fields

CSG is essentially methane (natural) gas extracted at low pressure from coal seams. CSG produced in Australia typically has a high methane content (about 98%). In the past, natural gas was more often extracted from sandstone, generally at greater depths and higher pressure. CSG is formed as part of the same natural processes that produce coal over millions of years. The coal seams from which GLNG is producing are typically between 200 and 1,200 metres below the surface. The coal in these seams is naturally filled with gas and water, which keeps the gas trapped in the coal.

Santos began CSG exploration and production in the Surat Basin in 2002. The GLNG Upstream Entities' share<sup>7</sup> of the CSG currently being produced at the Gas Fields is sold by the GLNG Upstream Entities domestically with approximately 120 TJ/month sold to Gladstone and approximately 2,880 TJ/month sold at Wallumbilla. Most of the CSG currently sold at Wallumbilla is transported, by purchasers, west to Ballera in the Southwest Queensland Pipeline and then onto Mt Isa or Moomba and the southern markets of Sydney and Adelaide.

The development of CSG fields involves the drilling of exploration and production wells down into the coal seam. Water is pumped from the coal seam, reducing the pressure within the coal and allowing the CSG to be released. The CSG flows through coal cleats (small fractures or joints in the coal) toward the well bore. If the release of gas is not sufficient for commercial production, then processes such as hydraulic fracturing may be used to open the coal seams and increase the rate of CSG and water production. The average well can produce for up to 20 years, but the amount of CSG depends on the thickness of the coal, gas content and the depth of the coal seam. A typical CSG well produces mainly water for 12 months as water pressure is reduced, following which CSG flow rates increase and remain steady for a number of years.

The Gas Fields relevant to this application are those located at Fairview, Roma, Arcadia, Comet Ridge and Scotia as shown in Annexure 4. The existing Gas Fields at each of these locations, which are at various stages of development, will be further developed for the GLNG Project with GLNG currently having approval to develop up to 2,650 exploration and production wells in the Gas Fields over the life of the GLNG Project. GLNG also has commenced the environmental impact statement (**EIS**) process for the development of additional wells within the Gas Fields area.

The first and second trains of the LNG Facility will be supplied by gas produced from existing production wells in the Gas Fields (including upon the expiration of domestic gas contracts), gas produced from the further development of the Gas Fields and Third Party Gas.

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<sup>7</sup> As stated at section 3.8 of this application, APLNG group entities also hold an interest in some upstream joint ventures governing the Gas Fields. Currently the APLNG group entities transport their share of the CSG produced through existing pipelines (including the QGP Pipeline) for domestic sale.

In addition to the drilling of exploration and production wells and the construction of field gathering lines, the development of the Gas Fields also includes centralised compression and water treatment facilities, accommodation facilities, power generation, water management facilities and other incidental infrastructure and activities.

### 3.4 **GLNG GTP**

Gas produced at the Gas Fields and Third Party Gas will be transported to the LNG Facility through the GLNG GTP from the Gas Fields, the CRWP or the CRWP Loop from PCS-01, or from various receipt points along the GLNG GTP's route. The GLNG GTP is a 420 kilometre gas transmission pipeline designed to deliver gas from the Gas Fields to the LNG Facility. The GLNG GTP is a class 600 high pressure transmission pipeline with an external diameter of 1067 millimetres. It is designed to run at pressures up to 10.2 MPag.

The capacity of the GLNG GTP varies throughout the year as conditions, such as temperature and gas composition, change, however average capacity of the GLNG GTP has been estimated at 1400 TJ/d across the year.

On 12 March 2013, the Participants submitted the GLNG GTP Application to the NCC. On 22 May 2013, the NCC made its final recommendation in respect of the GLNG GTP Application recommending that (**Final GLNG GTP Recommendation**):<sup>8</sup>

#### "No-coverage recommendation

- 1.3 The Council is satisfied that the [GLNG GTP] is a greenfields project in that it involves the construction of a pipeline that will be structurally separate from any existing pipeline.
- 1.4 The Council is not satisfied that pipeline coverage criteria (a), (b) or (d) are met in relation to the [GLNG GTP]. The Council recommends that the relevant Minister decide to make a 15-year no-coverage determination. The Council's reasoning for its recommendation is set out in sections 6 to 9 of this report."

- NCC

On 20 June 2013, the relevant Minister, the Commonwealth Minister for Resources and Energy the Hon. Gary Gray AO MP, decided to make a 15 year no-coverage determination for the GLNG GTP, in accordance with the NCC's final recommendation.

### 3.5 **LNG Facility**

The LNG Facility cools natural gas to the point at which it turns into a liquid. At atmospheric pressure, natural gas becomes liquid at -162°C. Natural gas takes up significantly less space in its liquid state than in its gaseous state (approximately one 600th of the volume).

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<sup>8</sup> Final GLNG GTP Recommendation page 5.

While the process to convert natural gas to LNG differs between plants, the process is broadly the same: a LNG plant is essentially a large cooling system which lowers the temperature of the natural gas by using refrigerants. Natural gas is piped into the plant and is initially treated to remove impurities, carbon dioxide and water from the natural gas. The gas then undergoes a liquefaction process by using refrigerants to lower the temperature of the natural gas until it liquefies. The LNG is then stored in full containment LNG tanks at atmospheric pressure prior to shipping.

The LNG Facility consists of:

- a liquefaction facility which includes the on-shore gas liquefaction and storage facilities;
- marine facilities which include a product facility for loading LNG into tankers for export, and a facility and haul road for the delivery of equipment, plant, materials and personnel to and from the LNG Facility site; and
- a swing basin and access channel from the existing Targinie Channel in Port Curtis.

GLNG made the final investment decision to construct a two train LNG Facility at Hamilton Point West, Curtis Island Lot 1 on SP228454 with a nameplate capacity of 7.8 million tonnes per annum (**mtpa**) on 13 January 2011.<sup>9</sup> The LNG Facility may produce more or less LNG than the nameplate capacity at any point in time depending on feed gas composition, GLNG GTP/plant interface pressure and temperature, site ambient air temperature, refrigeration compressor and refrigeration gas turbine de-rating, refrigeration compressor gas turbine inlet air temperature and facility operating mode (ie whether concurrent ship loading is occurring) with an ultimate capacity of 8.82 mtpa under favourable conditions. Total LNG production in each year will also be affected by breakdowns of the LNG Facility and ship delays, amongst other things.

Bechtel Australia Pty Ltd and Bechtel Oil, Gas and Chemical Inc (**Bechtel**) have been contracted by GLNG under an engineering, procurement and construction contractual arrangement (**EPC Contracts**) to construct Train 1 and Train 2 of the LNG Facility. The first and second stages of the LNG Facility's development (Train 1 and Train 2) will each have a nameplate capacity of approximately 3.9 mtpa.

If the GLNG Project proceeds to full development (ie three trains), the LNG Facility will have a nominal capacity of approximately 10 mtpa. GLNG is yet to make a final investment decision on expanding the LNG Facility to include a third train. The Participants will also have to obtain or seek to amend the relevant secondary approvals before a third train can be constructed.

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<sup>9</sup> Santos Limited "GLNG Project sanctioned: Final investment decision on US\$16 billion 2-train 7.8 mtpa project" (13 January 2011) available at <http://www.santos.com/Archive/NewsDetail.aspx?id=1244>.

3.6 **GLNG LNG commitments**

GLNG has entered into two sale and purchase agreements with Petroliam Nasional Berhad (**PETRONAS**) (wholly owned by the Malaysian government) and two sale and purchase agreements with Korea Gas Corporation (**KOGAS**) (wholly owned by the South Korean government) (also being the parent companies of two of the Participants in the GLNG Project) - GLNG's two foundation customers – for a firmly committed offtake of [REDACTED]:

- PETRONAS has contracted to receive [REDACTED]  
[REDACTED]  
[REDACTED].
- KOGAS has contracted to receive [REDACTED]  
[REDACTED]  
[REDACTED].

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] Alternatively, GLNG will seek to sell LNG that is produced in excess of the contracted [REDACTED] on the spot cargo market.

It was on the basis of binding heads of agreement in relation to these contracts that the Participants made the final investment decision on the GLNG Project.

The LNG sold from the LNG Facility to these foundation buyers has been sold on a [REDACTED]  
[REDACTED]  
[REDACTED].

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED].

While the GLNG Project has firmly committed offtake for [REDACTED], the two train LNG facility will be built to a 7.8 mtpa name plate capacity design. As described above, this capacity will only be achieved in certain environmental and equipment conditions. Under some conditions more LNG may be able to be produced and in others less (ie both above and below the name plate capacity) up to an ultimate capacity of 8.82 mtpa.

### 3.7 Status of the GLNG Project

Construction of the CRWP Loop proper (clear and grade) commenced in March 2014 although some early works, such as construction of laydown areas and campsites, commenced in late 2013. The CRWP Loop is expected to be commissioned during first quarter 2015. Commissioning will involve initial nitrogen purging of the line, pigging of the line and gassing up the pipeline with CSG to a minimum safe pressure. Associated compression facilities will also be commissioned during the first half of 2015. It is not expected that the CRWP Loop will be utilised for the haulage of gas until the second half of 2015 when it is expected that cool down and start-up of the LNG Facility will commence. The CRWP Loop will be first used for the haulage of gas on a commercial basis to the LNG Facility upon the loading of the first LNG commissioning cargo, currently scheduled for the second half of 2015.

Development of the GLNG Project is continuing and is approaching 90 per cent completion. First gas has recently been introduced to the GLNG GTP for commissioning activities and the GLNG GTP is now gassed-up to Curtis Island. Delivery of first commissioning gas to the LNG Facility from the Gas Fields (Fairview) via the GLNG GTP, for testing of the LNG Facility, is imminent.

Following almost four years of construction work, the final modules of both the first and second LNG processing trains of the LNG Facility have now been delivered to site at Curtis Island and installed. Construction of the first and second trains of the LNG Facility and preparations for commissioning continues. The first cargo of LNG from the first LNG train is expected in the second half of 2015, and the first cargo of LNG from the second train is expected in 2016.

Over 600 wells have been spudded since the final investment decision was reached for the GLNG Project. Construction, and in some instances commissioning, of a number of hubs in the Gas Fields is also complete. In addition, GLNG is undertaking a further EIS process for the development of additional wells within the Gas Fields area (beyond the well numbers already approved through the initial EIS process for the GLNG Project). The EIS has recently been released for public consultation.

### 3.8 Participants

The Participants and the GLNG Upstream Entities are wholly owned subsidiaries of Santos Limited, PETRONAS, Total and KOGAS, respectively, as indicated in Figure 1 and Annexure 2. The percentage interest of the Participants in the GLNG Project is also included in Figure 1 and Annexure 2.

As indicated in Annexure 3, the GLNG Upstream Entities are the holders of the Gas Fields tenements<sup>10</sup>, which will supply most of the feed gas for the GLNG Project. The GLNG Upstream Entities are parties to a number of joint venture arrangements and under those arrangements have appointed a Santos GLNG Upstream Entity for each joint venture to operate the Gas Fields on their behalf.

The Participants are the owners of the 'downstream' components of the GLNG Project, namely the CRWP, the CRWP Loop, the GLNG GTP and the LNG Facility and related downstream infrastructure. The Participants have formed a joint venture and have appointed GLNG to operate the CRWP, the CRWP Loop, the GLNG GTP, the LNG Facility and related downstream infrastructure on their behalf. GLNG is owned by the downstream entity Participants in shares that equate to their respective interests in the joint venture.

The gas that will be transported through the CRWP Loop to the GLNG GTP for processing through the LNG Facility will be owned by the Participants. Each Participant's ownership interest equates to its respective interest in the GLNG Project.

In short, the LNG production process is vertically integrated with the Participants and their related bodies corporates (ie the GLNG Upstream Entities) owning the Gas Fields, the Roma Underground Gas Storage Facility, the CRWP, the CRWP Loop, the GLNG GTP and the LNG Facility.

The other pipeline infrastructure owned by the Participants as part of the GLNG Project is described above.

In addition, the Participants have entered into agreements with the APLNG Project and QCLNG Project, each of which is also separately developing a LNG facility at, and a gas transmission pipeline to, Curtis Island. QGC has recently announced the sale of its wholly-owned subsidiary QCLNG Pipeline Pty Ltd, being the owner of its gas transmission pipeline, to APA Group.

- The agreements with APLNG are for two pipeline connections as well as a number of gas swaps and are intended to make gas transportation more efficient between the two projects' gas fields in the Surat Basin as well as to reduce the need for additional pipeline infrastructure. The Participants have also

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<sup>10</sup> APLNG entities (otherwise unrelated to the GLNG Project) also hold an interest in some upstream joint ventures governing the Gas Fields.



contracted to purchase gas (ie Third Party Gas) from Origin Energy for supply to the LNG Facility (Origin entities have an interest in the APLNG Project).

- The agreement with QGC Pipeline Pty Ltd is for the construction of two interconnections between the GLNG GTP and QGC's gas transmission pipeline to provide additional flexibility and efficient operation of the LNG facilities.

Further, recently the Participants signed a Gas Transportation Agreement with APA Group to move gas between various receipt and delivery points on the South West Queensland Pipeline and the Roma to Brisbane Pipeline. The directional flow of gas is to and from Wallumbilla and Fairview.

Other than the Participants' relationship with APLNG, QGC and the APA Group as described above, neither the Participants nor GLNG have any relationship with other pipeline owners serving the area in the vicinity of the CRWP Loop, or other consumers of gas in that area or in the broader eastern Australian transmission network.

However, subsidiaries of Santos Limited have various interests in other upstream oil and gas tenements, which are not part of the GLNG Project as shown by the map in Appendix 2 of Annexure 2 and Santos supplies gas in Queensland (currently Mt Isa and Brisbane) and all other mainland Australian states and territories separately from the GLNG Project. These existing domestic supply arrangements are not intended to be served by the CRWP Loop or change as a consequence of the GLNG Project.

The Participants have also contracted for the supply of gas for the GLNG Project from a related body corporate of Santos. The gas to be supplied under this contract is not supplied from an area that will be served by the CRWP Loop.

More detailed background in relation to each of the Participants in the GLNG Project is set out in the following sections.

(a) **Santos**

Santos GLNG Pty Ltd (one of the Participants), Santos TOGA Pty Ltd, Bronco Energy Pty Ltd, Santos CSG Pty Ltd, Santos Queensland Corp, Santos TPY Corp and Santos TPY CSG Corp (all GLNG Upstream Entities) are all wholly owned subsidiaries of Santos Limited, an Australian, publicly listed oil and gas exploration and production company.

Santos' Annual Report for 2013 is provided in Annexure 2, Appendix 1.

Santos Limited has interests and operations in various Australian gas production projects other than the GLNG Project, including other interests in tenements in the Surat and Bowen basins that are not included in the GLNG Project and an 11.5% interest in the Bayu-Undan/Darwin LNG Project. Santos Limited also has interests in projects in Indonesia, Papua New Guinea, Vietnam, India,

Kyrgyzstan and Egypt. A map showing Santos Limited's non-GLNG Queensland oil and gas assets is provided in Annexure 2, Appendix 2.

Santos Limited is Australia's largest onshore domestic gas producer, supplying gas to Queensland (currently Mount Isa and Brisbane) and all other mainland Australian states and territories, ethane to Sydney, and oil and other liquids to domestic and international customers, including CSG from existing wells in the Bowen and Surat basins that are not part of the GLNG Project. Santos also supplies gas domestically in Queensland to customers in Mt Isa and Brisbane separately from the GLNG Project.

(b) **PETRONAS**

PAPL (Downstream) Pty Ltd (one of the Participants), PAPL (Upstream) Pty Ltd and PAPL (Upstream II) Pty Ltd (both Upstream Participants) are all wholly owned subsidiaries of PETRONAS, Malaysia's national petroleum corporation, which is wholly-owned by the Malaysian Government. Established in 1974, PETRONAS is now ranked among FORTUNE Global 500's largest corporations in the world and has a proven track record in integrated oil and gas operations spanning the entire spectrum of the oil and gas value-chain. PETRONAS has five subsidiaries listed on the Bursa Malaysia (Kuala Lumpur Stock Exchange) and projects and operations in more than 50 countries worldwide. Its business activities balance commercial, environmental and social objectives to ensure sustainable development for the benefit of communities wherever it operates and include:

- the exploration, development and production of crude oil and natural gas in Malaysia and overseas;
- the liquefaction, sale and transportation of LNG;
- the processing and transmission of natural gas and the sale of natural gas products;
- the refining and marketing of petroleum products;
- the manufacturing and selling of petrochemical products;
- the trading of crude oil, petroleum, gas and LNG products and petrochemical products; and
- shipping and logistics relating to LNG, crude oil and petroleum products.

PETRONAS is among the top five oil and gas companies (in terms of production) and the most profitable company in Asia. The company operates the PETRONAS LNG Complex in Bintulu, Sarawak, Malaysia, which is among the world's largest LNG production facilities in a single location with a total capacity of approximately 25.7 mtpa. In addition, construction of one of the world's first

Floating Liquefied Natural Gas facilities puts PETRONAS at the forefront of gas liquefaction.

PETRONAS' Australian operations, other than the GLNG Project, include equity interests in exploration and production permits in Western Australia and the Northern Territory.

PETRONAS' Annual Report for 2013 is provided in Annexure 2, Appendix 3.

(c) **Total**

Total GLNG Australia, Total E&P Australia, Total E&P Australia II and Total E&P Australia III are wholly owned subsidiaries of Total, a publicly-traded, integrated international oil and gas company and chemicals manufacturer. Total operates in more than 130 countries and has over 96,000 employees. Total is active in almost all LNG producing regions and main LNG markets.

Total's Registration Document for 2013 is provided in Annexure 2, Appendix 4.

The group produces LNG in Indonesia, Qatar, Yemen, the United Arab Emirates, Oman, Nigeria, Norway and Angola. Total markets LNG worldwide. In 2013, Total produced 12.3 Mt of LNG, representing 5.2% of the world LNG market.

In addition to Australia, Total participates in LNG projects under construction in USA and in Russia.

Total's Australian operations, other than the GLNG Project, include owning 30% of the Ichthys LNG Project which is currently under construction in the Northern Territory, Australia. It also holds interests in other exploration permits in offshore Western Australia and on-shore Queensland. Total Gas and Power Australia (100% Total) is currently developing gas trading activities from Brisbane in the eastern Australian gas market. In addition Total has various Australian affiliates engaged in activities outside the LNG and upstream gas markets.

(d) **KOGAS**

KGLNG Liquefaction Pty Ltd and KGLNG E&P Pty Ltd are wholly owned subsidiaries of KOGAS, a company listed on the Korean Stock Exchange. KOGAS was incorporated by the Korean Government in 1983. KOGAS is the world's largest LNG importer with revenue of KRW 28,493 billion in 2011 and over 3,026 employees worldwide.

KOGAS' Sustainability Report for 2013 is provided in Annexure 2, Appendix 5.

KOGAS imports LNG from around the world and supplies it to power generation plants, gas-utility companies and city gas companies throughout the Republic of Korea. KOGAS currently operates three LNG import terminals in Korea and a

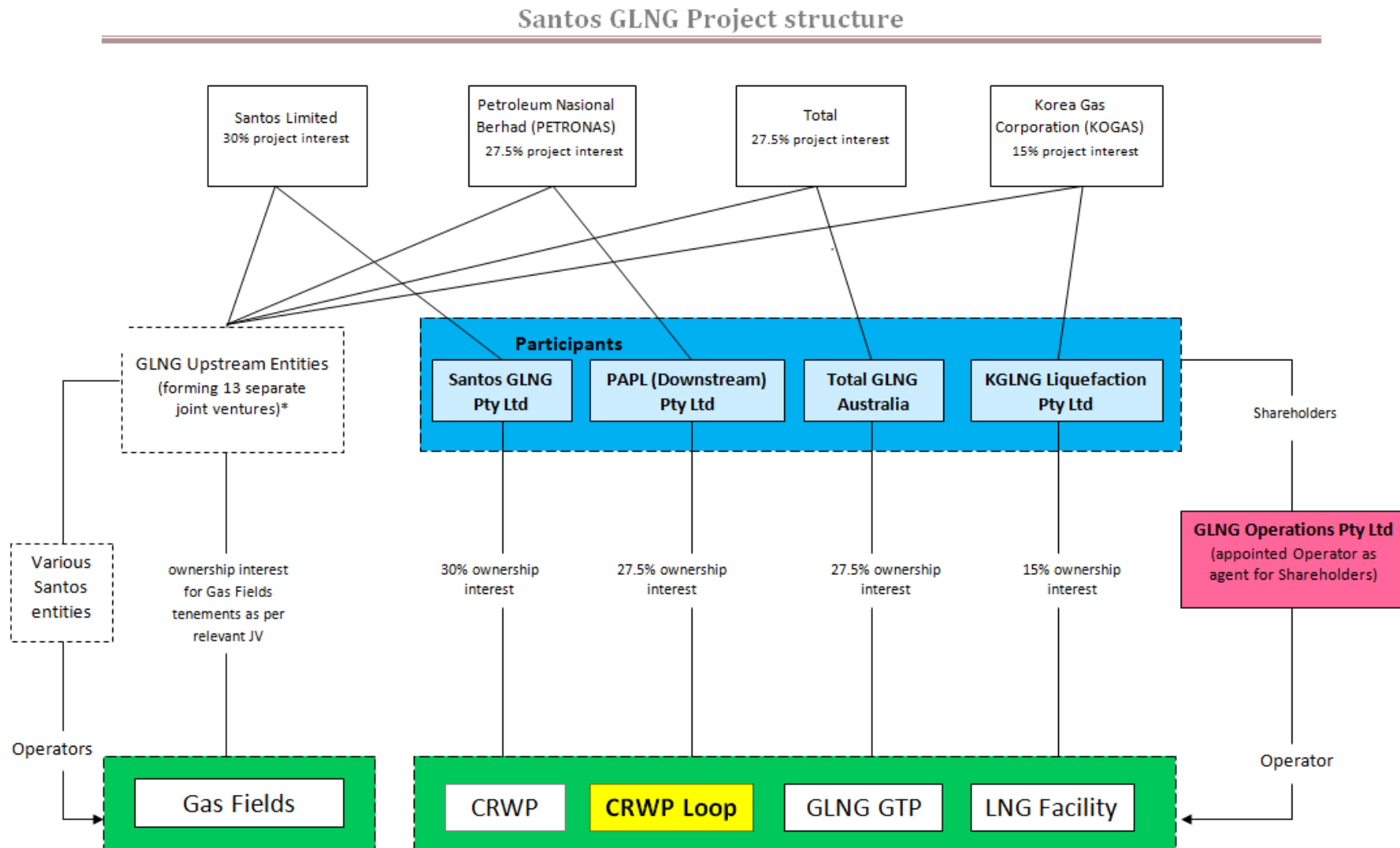
nationwide pipeline network spanning over 3,022 kilometres. KOGAS purchases approximately 33 million tonnes of LNG annually.

KOGAS, through another wholly owned subsidiary, has a 10% participating interest in the Prelude FLNG Project, which is a floating LNG project to be located in the Browse Basin, Australia. KOGAS also holds 5.51% of the shares in Blue Energy Limited, an Australian oil and gas exploration company with assets in Queensland and the Northern Territory.<sup>11</sup>

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<sup>11</sup> See Blue Energy Limited company profile available at: <http://blueenergy.com.au/company-profile>.

Figure 1 below shows pictorially the relationship between the Participants and the unincorporated joint venture structure.



\* refer to Annexure 2 for details of GLNG Upstream Entities and joint venture arrangements (note APLNG also holds an interest in some upstream joint ventures governing the Gas Fields)

3.9 **CRWP Loop**

The CRWP Loop will be a 119 km buried pipeline typical of a modern, medium diameter gas transmission pipeline designed to transport high pressure gas. The CRWP Loop will transport gas from the Gas Fields (Roma) and Roma Underground Gas Storage Facility (via the R-HCS-02 Transmission Line), and Third Party Gas (via the Wallumbilla Gas Hub), in a northerly direction to the GLNG GTP inlet and ultimately to the LNG Facility.

(a) **Design**

The CRWP Loop will be an API 5LX70 Electric Resistance Welded (ERW) steel pipe designed to transport high pressure gas with an external diameter of 610 millimetres (24 inches). It will have a maximum allowable operating pressure of 15,300 kPa and a design life of 40 years. The CRWP Loop will be designed, constructed and operated in accordance with the Australian Pipeline Standard AS2885 and constructed of high quality/high tensile strength steel to the API 5L standard. The CRWP Loop is to be buried to a depth of cover as prescribed by standards according to the use of the land within a particular location, but typically to a depth of 1.2 m in cross country sections, including roads and tracks.

The CRWP Loop design basis is more stringent than the National Gas Specification AS4654 and limited by two factors, namely the fracture control and the narrow gas design specification for the LNG facility. The CRWP Loop design limits apply in terms of water content (less than 65mg/Sm<sup>3</sup> for the CRWP Loop versus less than 112mg/Sm<sup>3</sup> for AS4654) and Higher Heating Value (less than 38.73MJ/Sm<sup>3</sup> for the CRWP Loop versus less than 42.3MJ/Sm<sup>3</sup> for AS4654). Furthermore, the total inerts AS4654 limitation is further limited under the CRWP Loop design basis to contain no more than 4mol% of N<sub>2</sub> (Nitrogen) and no more than 3mol% of CO<sub>2</sub> (Carbon Dioxide). The fracture control limit for the CRWP Loop is 10% C<sub>2</sub> (Ethane). Any breach of the fracture control limit risks the integrity of the CRWP Loop. There is a further limit of 5% C<sub>2</sub> (Ethane) on the GLNG GTP which cannot be exceeded for the fracture control on the GLNG GTP, noting that all gas transported through the CRWP Loop will enter the GLNG GTP.

[REDACTED]  
[REDACTED]  
[REDACTED]

] Accordingly, the CRWP Loop will not be able to accept gas up to the National Gas Specification AS4654; any gas received will need to meet the narrower design limit specification.

(b) **Capacity**

The CRWP Loop will have a design capacity of 750 tera joule (TJ)/d. This capacity will vary throughout the year due to factors such as ground temperature and gas composition with the CRWP Loop, like all pipelines, expected to have greater capacity in winter than in summer.

The capacity of the CRWP Loop is less than the GLNG GTP, which has an average capacity across a year of 1,400 TJ/d. GLNG intends to use all of the capacity of the CRWP Loop and delivery of gas equivalent in volumes equal to that capacity can be accommodated by the GLNG GTP. Any capacity that is not being used to transport gas to the LNG Facility from time to time will play a critical role in providing flexibility and storage options to assist in efficiently managing variability in the GLNG Project, and limiting the costs and risks that would be associated with reduced flexibility, as described in section 3.2 above.

(c) **Route**

The CRWP Loop route commences adjacent to the APA compressor station (kilometre point 0) (Longitude 149° 10' 54" E; Latitude 26° 41' 36" S) located at the Wallumbilla Gas Hub (south of the township of Wallumbilla). The route then travels northwest generally paralleling the existing CRWP and QGP (owned by Jemena) for 93 kilometres. The CRWP Loop will then travel northeast to PCS-01 (kilometre point 119) (Longitude 148° 55' 46" E; Latitude 25° 45' 13" S) where it will connect with the GLNG GTP inlet (PPLs 166, 167 and 168).

The CRWP Loop has been constructed within the CRWP's 25 metre easement wherever practicable.

A description and map of the CRWP Loop is available at the links below, and in Annexure 5:

- [http://www.santoslng.com/media/pdf5127/20150120crwp\\_loop\\_description.pdf](http://www.santoslng.com/media/pdf5127/20150120crwp_loop_description.pdf); and
- [http://www.santoslng.com/media/pdf5128/20150120crwp\\_loop\\_mapofroute.pdf](http://www.santoslng.com/media/pdf5128/20150120crwp_loop_mapofroute.pdf).

The operation of the CRWP is authorised by pipeline licence PPL 118, being a point-to-point pipeline licence, granted under the *Petroleum and Gas (Production and Safety) Act 2004* (Qld). On 23 April 2012 PPL 118 was amended to additionally authorise the construction and operation of the CRWP Loop. The Participants are the registered holders of PPL 118 in accordance with their respective project percentage interests.

(d) **Laterals**

The CRWP Loop will have one intermediate lateral connection (the R-HCS-02 Transmission Line) to R-HCS-02 at kilometre point 31 (measured from Wallumbilla), connecting the Gas Fields (Roma) and the Roma Underground Gas Storage Facility to the CRWP Loop.

The R-HCS-02 Transmission Line has a 500 mm (20 inch) diameter.

Gas from the Gas Fields (Roma) and the Roma Underground Gas Storage Facility will be transported through the CRWP Loop to the GLNG GTP inlet and LNG Facility via the R-HCS-02 Transmission Line.

(e) **Services**

The CRWP Loop will provide the following services to the Participants:

- gas transportation services from the Wallumbilla Gas Hub (from a point adjacent to the APA compressor station) to the GLNG GTP inlet (at PCS-01); and
- gas transportation services from the Gas Fields (Roma) and the Roma Underground Gas Storage Facility (at the R-HCS-02 Transmission Line tie-in at KP31) to the GLNG GTP inlet (at PCS-01),

for ultimate delivery of gas to the LNG Facility.

(f) **Cost**

The Participants have committed approximately [REDACTED] on the design and construction of the CRWP Loop as at October 2014. The Participants estimate that the design and construction of the CRWP Loop will cost [REDACTED] excluding compression.

GLNG is not constructing any compression facilities for the CRWP Loop. A compression facility for the CRWP Loop (to ensure that gas is injected at the required pressure) is currently being constructed and commissioned by APA at the Wallumbilla Gas Hub and will be provided by APA to GLNG [REDACTED].

The estimate of the cost to complete the CRWP Loop is based on the engineering and procurement contract price, the construction contract price, the Participants' management costs and other related activities. The Participants selected Fluor as the Engineering and Procurement Contractor and Murphy Pipe and Civil to construct the CRWP Loop through the following process:

- GLNG carried out concept engineering design with the assistance of AMEC for process engineering and route development work for the CRWP Loop, which was completed in the first quarter of 2012. The route selection was relatively straightforward as the CRWP Loop largely follows the same route as the CRWP, utilising the CRWP's existing easement where practicable.
- The Front End Engineering and Design (**FEED**) design was carried out by Fluor, who was initially selected by GLNG as the preferred design contractor following a two-year competitive tender process between two



tier 1 international contractors. Following the competitive bid process Fluor initially undertook the FEED and construction work for Phase 1 of the development of upstream GLNG Project gas supply infrastructure, and were mobilised for Phase 2 work which included the CRWP Loop. Fluor prepared a detailed open book cost estimate for the design and procurement elements of the CRWP Loop work undertaken by Fluor which was comprehensively assessed by GLNG. FEED work was undertaken by Fluor between June 2012 and March 2013 and detailed design and procurement work between March 2013 and March 2014.

- The pipeline construction strategy adopted for the CRWP Loop involved a competitive tender. GLNG pre-qualified five tenderers for a lump sum construction contract and an invitation to tender (**ITT**) was prepared based on the Fluor FEED work. Four tenderers submitted priced tenders in accordance with the scope of work and tender conditions.
- The ITT included a pre-defined procedure for evaluation of the EPC bids which was strictly implemented. GLNG technical and commercial evaluation teams were selected which then carried out their respective review (independently of the other) of the four tenderers based on commercial and technical criteria, each individually weighted.
- Based on the technical and commercial evaluation and scoring, two tenderers were short listed for further negotiation. Following further negotiations with the short listed tenderers, a recommendation was made for the award of the construction contract to Murphy Pipe and Civil, which occurred in November 2013.

GLNG's operation budget for the CRWP Loop for 2015 is [REDACTED].

(g) **Markets**

- (i) Background – area serviced by the CRWP Loop, and constraints and costs associated with use of the CRWP Loop.

The CRWP Loop is designed to transport gas from the Gas Fields and Third Party Gas, which has or has been blended to achieve the appropriate specifications, north from the Wallumbilla Gas Hub to PCS-01, and north from the Gas Fields (Roma) and the Roma Underground Gas Storage Facility to PCS-01, for transport on the GLNG GTP for ultimate delivery to the LNG Facility, where it will be liquefied for export.

The Participants have no sanctioned plans to develop further interconnects along the CRWP Loop. However, the CRWP Loop could in theory service any area along its route, subject to:

- there being capacity in excess of the Participants' requirements in the CRWP Loop – in practice, this would require either substantial (and presently un contemplated) expansion of the CRWP Loop (as described in section 3.9(i) below), or the use of the CRWP Loop being made available on an interruptible rather than firm basis (ie only during those intermittent and often unpredictable periods when the CRWP Loop was not being used for transport or storage in any of the ways described in section 3.2 above);
- it being economic to use or develop appropriate interconnections and/or gate stations at the relevant point(s) along its route;
- the gas meeting, or being blended or treated by the third party to meet, the specifications for the CRWP Loop (see section 3.9(j) above); and
- the gas being injected into the CRWP Loop at the appropriate pressure.

Accordingly, subject to these constraints and acceptance of the costs associated with managing them, in concept the CRWP Loop could be used to transport gas entering the CRWP Loop:

- at the Wallumbilla Gas Hub, the Gas Fields (Roma) or the Roma Underground Gas Storage Facility north for withdrawal at PCS-01; or
- from and to at any point north along that route at which appropriate interconnections and/or gate stations were developed.

In each case, the CRWP Loop could, in theory, be used in this way as a standalone service, or in combination with the use of the QGP or other pipelines (potentially for the purpose of relieving bottlenecks or other constraints on those pipelines). A list of other pipelines and pipeline licences in the vicinity of the CRWP Loop is set out in section 3.9(h) below.

In each case, the possible markets that the CRWP Loop could service, if used in this way, are the markets for upstream gas production, and downstream gas supply (including markets for domestic gas and LNG export). The key sources of gas for supply for downstream markets are the gas fields located in the Surat-Bowen basin (described in section 5.1). It may also be possible, through appropriate pipeline interconnections, to transport gas from other gas fields identified in that section to these downstream markets.

GLNG has commissioned ACIL to consider the services that might be provided by the CRWP Loop, and the markets which might use those services (see Annexure 7. ACIL identified that the CRWP Loop might notionally be used to

transfer gas injected at the Wallumbilla Hub or at an (as yet unconstructed) mid-line injection point, in a northerly direction for subsequent transfer:

- A. into PCS-01, either for injection into the GLNG GTP for onward carriage to the GLNG plant on Curtis Island, or for injection into the APLNG Fairview – Spring Gully Pipeline and the APLNG GTP for onward carriage to the APLNG liquefaction plant on Curtis Island;
- B. into the Fairview Lateral which connects to the QGP operated by Jemena for transport:
  - I to the north to Gladstone and Moura (via the Dawson Valley Pipeline), Rockhampton (via the QGP Rockhampton lateral) or Bundaberg, Maryborough and Hervey Bay via the Wide Bay Pipeline);
  - II to the south (backhaul) to Wallumbilla; or
- C. into the existing CRWP for backhaul to Wallumbilla (when the CRWP is operating in a southerly direction).

Options A and B.I. would allow the CRWP Loop to act as part of a system for delivery of gas to domestic gas markets in Central Queensland (Gladstone, Rockhampton, Bundaberg, Maryborough) as well as to LNG facilities on Curtis Island at Gladstone.

Options B.II and C could both, in theory, allow the CRWP Loop to act as part of a delivery system for carriage of gas to the Wallumbilla Hub, then to be delivered to markets throughout eastern Australia. However, in practice there is no apparent reason for any gas shipper to take gas from Wallumbilla, north through the CRWP Loop, only to return it to the Wallumbilla Hub for onward carriage to south-eastern Australian domestic markets. ACIL also considered whether the CRWP Loop might be used to relieve bottlenecks on the QGP, but considered that this use was unlikely.<sup>12</sup>

These uses of the CRWP loop are described as "notional" because there are several practical reasons why use of the CRWP Loop in this way may be impractical or unattractive, as described in this application.

(ii) Markets – upstream

In order to consider the extent to which the CRWP Loop might theoretically serve upstream production markets, it is necessary to consider the existing and potential CSG projects in the vicinity of the CRWP Loop.

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<sup>12</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services section 2.1.

Accordingly, GLNG commissioned ACIL to consider whether CSG producers, other than those associated with announced LNG projects, in the vicinity of the CRWP Loop, may benefit from having access to the CRWP Loop to successfully commercialise CSG within their exploration areas. In undertaking this analysis, ACIL considered independent producers within a 50 kilometre radius of the CRWP Loop that are not currently involved in one of the LNG projects being developed at Curtis Island<sup>13</sup> (the other LNG projects are described in section 4 below and the ACIL report is included at Annexure 7).

In summary, ACIL found that the only such exploration tenement within the 50 kilometre radius of the CRWP Loop is ATP 854, which is held by Eureka Petroleum, a wholly owned subsidiary of Blue Energy Limited.<sup>14</sup> Although (as stated in section 3.8(d) above) KOGAS has a 5.51% shareholding in Blue Energy Limited, it is appropriate to consider ATP 854 to be an "independent" tenement for the purpose of this application. This reflects the fact that KOGAS' interest in Blue Energy Limited is not a controlling interest and there are no commercial arrangements between the Participants and Blue Energy Limited regarding the development of ATP 854 or the supply of gas from that tenement to the GLNG Project.

Further, at this stage there are no proven, probable or possible reserves in ATP 854 with only a 3C contingent resource, which is less certain than reserves which are independently assessed. If the ATP 854 exploration tenement was commercialised independently of the major GLNG projects, it is likely that Blue Energy Limited would seek to connect to the QGP, because that pipeline passes through the relevant exploration area. In contrast, any connection to the CRWP Loop would have to cross the CRWP and may also have to cross the QGP; users of the CRWP Loop would also face constraints in the nature and extent of access that could be provided to that Loop, having regard to the factors described in section 3.9(g)(i), and the costs associated with managing those constraints. Accordingly, use of the CRWP Loop would appear to be a less attractive option than use of the QGP, should this tenement be developed. This aspect of ACIL's report is discussed in more detail in sections 7.5 and 7.6 below.

GLNG considers that it is very unlikely that any other gas producers that are directly or indirectly connected to the Wallumbilla Gas Hub will have any commercial need or desire to access the CRWP Loop. This is because the route of the CRWP Loop on a standalone basis is unlikely to be of any practical use to such third parties (noting that a no-coverage determination applies to both the GLNG GTP and APLNG GTP), and hence use of the CRWP Loop would require development of new connection points and/or interconnection with other

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<sup>13</sup> It is reasonable to proceed on the basis that the projects of CSG producers which are associated with the other announced LNG projects (ie the QCLNG and APLNG Projects) are not likely users of the CRWP Loop in any form, since those producers have strong incentives to maximise use of their own substantial investments in pipeline infrastructure, rather than seeking to use the CRWP Loop.

<sup>14</sup> ACIL *Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 62*.

proximate pipelines. In circumstances where the QGP traverses a similar route to the CRWP Loop and GLNG GTP, and is likely to have relevant exit points for any gas to be transported, this would appear to be a more attractive option for third parties than use of the CRWP Loop.

Nonetheless, to the extent that the CRWP Loop has capacity available, the Participants are prepared to make that capacity available to third parties, subject to the constraints identified in section 3.9(g)(i) above, and provided that the Participants' own legitimate business interests are not compromised.

(iii) Markets – downstream

A third party may seek to use the CRWP Loop in connection with the supply of gas to domestic customers, or to current or future LNG export facilities.

It appears unlikely that a third party would seek to use the CRWP Loop to obtain a transport service along the route over which the Participants will use the CRWP Loop. This is because the end point of that route is PCS-01 (located at the Fairview gas field), and absent use of the GLNG GTP (which is the subject of a no-coverage determination), a third party would need to bear the costs associated with developing a connection to another pipeline from that point in order to make use of the CRWP Loop.

A third party may be more likely seek to use the CRWP Loop over a route covering points between the start and end points of the route used by the Participants, in conjunction with the use of other pipelines and necessary connecting infrastructure, as identified by ACIL and summarised in section 3.9(g)(i) above. ACIL has identified that the downstream markets that might be serviced by the CRWP Loop if used in this way are:

- the domestic gas markets in the Gladstone, Rockhampton, Moura and Wide Bay (ie Bundaberg, Hervey Bay and Maryborough) regions; and
- the international LNG export markets.<sup>15</sup>

However, GLNG considers that use of the CRWP Loop in this way is unlikely.

Domestic customers in the regions identified are already served by the QGP without use of the CRWP Loop. The QGP traverses effectively the same route as the CRWP Loop and the GLNG GTP, and it is highly likely that third parties seeking to supply these customers would seek to use the QGP directly, rather than bearing the additional interconnection costs that would be required in order to seek to use a combination of the CRWP Loop and QGP, and then obtaining use of the CRWP Loop on an interruptible rather than firm basis and otherwise subject to the constraints described in section 3.9(g)(i) above. Accordingly, the QGP will be more cost effective for a third party to access these downstream

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<sup>15</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services section 2.1.

markets than a service involving use of the CRWP Loop. The cost effectiveness of this alternative to use the CRWP Loop is supported by ACIL's analysis of the costs of obtaining transport on alternative pipelines.<sup>16</sup>

Further, the use of the CRWP Loop is unlikely to be attractive to current or future proponents of LNG export facilities (other than the Participants' LNG Facility). In particular, the QCLNG and APLNG Projects can be expected to be served by the dedicated transmission pipelines developed by the proponents of those projects, rather than investing in further connecting infrastructure to allow use of the CRWP Loop on an interruptible rather than firm basis and otherwise subject to the constraints described in section 3.9(g)(i) above. Proponents of any future LNG projects could be expected to adopt a similar approach.

(h) **Other pipelines**

The CRWP Loop will connect to the Wallumbilla Gas Hub from a point adjacent to the APA compressor station. The following existing pipelines also connect to the Wallumbilla Gas Hub and are capable of delivering into the CRWP Loop:

- the SWQP (South West Queensland Pipeline) APA (PPL24);
- the BWP (Berwyndale to Wallumbilla Pipeline) APA (PPL123);
- the DDPL (Darling Downs Pipeline) Origin (PPL134); and
- the SGPL (Spring Gully to Wallumbilla Pipeline) Origin (PPL90).

The QGP (Jemena) (PPL30) and RBP (Roma Brisbane Pipeline) (APA) (PPL2) also connect to the Wallumbilla Gas Hub but are exit pipelines, such that gas can only flow out of Wallumbilla through these pipelines. GLNG expects that infrastructure will be built in future which will also allow the RBP to be used to transport gas into the Wallumbilla Gas Hub.

In addition to the CRWP, the R-HCS-02 Transmission Line and the GLNG GTP, the following pipeline licences are within 100 kilometres of the CRWP Loop (all points along the CRWP Loop route); these licences include licences for pipelines which connect to the Wallumbilla Gas Hub, as listed above:

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<sup>16</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services section 4.3.6.

	Tenement	Holder
1.	PPL 2	APT PETROLEUM PIPELINES PTY LIMITED
2.	PPL 3	OIL INVESTMENTS PTY LIMITED
3.	PPL 4	AGL GAS STORAGE PTY LTD
4.	PPL 7	ELGAS LIMITED
5.	PPL 11	AUSTRALIA PACIFIC LNG PTY LIMITED
6.	PPL 20	OIL INVESTMENTS PTY LIMITED
7.	PPL 22	ANGARI PTY LIMITED
8.	PPL 24	EPIC ENERGY QUEENSLAND PTY LIMITED <sup>17</sup>
9.	PPL 30	JEMENA QUEENSLAND GAS PIPELINE (1) PTY LTD
10.	PPL 55	ORIGIN ENERGY ELECTRICITY LIMITED
11.	PPL 58	AUSUM RESOURCES PTY LTD
12.	PPL 63	OIL INVESTMENTS PTY LIMITED
13.	PPL 74	APT PETROLEUM PIPELINES PTY LIMITED
14.	PPL 76	SANTOS TOGA PTY LTD
15.	PPL 87	AGL GAS STORAGE PTY LTD
16.	PPL 90	OIL COMPANY OF AUSTRALIA (MOURA) TRANSMISSIONS PTY LIMITED
17.	PPL 92	SANTOS TOGA PTY LTD
18.	PPL 93	AGL GAS STORAGE PTY LTD
19.	PPL 103	BRAEMAR POWER PROJECT PTY LTD
20.	PPL 123	APA PIPELINES INVESTMENTS (BWP) PTY LIMITED
21.	PPL 124	HUNTER GAS PIPELINE PTY LTD
22.	PPL 134	ORIGIN ENERGY WALLUMBILLA TRANSMISSIONS PTY LIMITED
23.	PPL 143	AUSTRALIA PACIFIC LNG CSG TRANSMISSIONS PTY LIMITED
24.	PPL 147	SANTOS GLNG PTY LTD
25.	PPL 152 (application)	FAIRVIEW PIPELINE PTY LTD
26.	PPL 163	AUSTRALIA PACIFIC LNG GLADSTONE PIPELINE PTY LIMITED
27.	PPL 164	SANTOS GLNG PTY LTD
28.	PPL 171	AUSTRALIA PACIFIC LNG CSG TRANSMISSIONS PTY LIMITED
29.	PPL 175	QGC (INFRASTRUCTURE) PTY LTD
30.	PPL 177	AUSTRALIA PACIFIC LNG CSG PROCESSING PTY LIMITED
31.	PPL 178	AUSTRALIA PACIFIC LNG CSG TRANSMISSIONS PTY LIMITED
32.	PPL 179	QGC (INFRASTRUCTURE) PTY LTD
33.	PPL 180	AUSTRALIA PACIFIC LNG CSG TRANSMISSIONS PTY LIMITED
34.	PPL 185	AUSTRALIA PACIFIC LNG CSG PROCESSING PTY LIMITED

Note PPL 76, PPL 92, PPL 147, PPL 152 and PPL 164 are held by either GLNG Upstream Entities or the Participants and form part of the GLNG Project downstream set of assets.

<sup>17</sup> It is understood that PPL 24 has recently been sold by Epic Energy Queensland Pty Limited to APA Group. This change in ownership is not yet reflected on the Queensland Government's MyMines Online portal. The tenement report obtained for PPL 24 on 12 January 2015 shows Epic Energy Queensland Pty Limited as the tenement holder.

(i) **Expansion options**

Expansion of the CRWP Loop is not currently contemplated by the Participants.

GLNG considers that it may be technically feasible to expand the CRWP Loop by adding compression or looping the pipeline.

Potentially, a compression station could be installed at the CRWP Loop mid-point to increase the design capacity from 750 TJ/day to 1075 TJ/day, but major modifications would also be required at each end of the pipeline to accommodate the increased gas flow. A preliminary estimate of the cost of these modifications and mid-point compression station would be [REDACTED]. Further intermediate compression, for example 30 km spacing of compressor stations, would be impracticable and render the CRWP Loop inoperable.

Partial looping for a relatively short pipeline such as the CRWP Loop is unlikely. Constructing a second loop of the same diameter for the entire length of the CRWP Loop would add design capacity of 750 TJ/day but would essentially provide no benefits compared to constructing a new pipeline. In particular:

- Whereas the CRWP Loop mostly utilised and obtained the benefit of the existing CRWP easement, expanding the CRWP Loop by a second loop would require another easement for the entire length of the route and would involve difficult construction in some locations. As the QGP lies immediately adjacent to the CRWP and CRWP Loop for 90km of their length (to the west of for 77 km and to the east of for 13 km), any second loop would need to be constructed east of the CRWP Loop. This creates a restriction on the ability to obtain easements and generally complicates construction of a loop.
- Similarly, the same environmental, land access, cultural heritage and other approvals would be required to loop the CRWP Loop, as would be required for constructing a stand-alone pipeline.

The estimated cost of constructing a 24 inch diameter pipeline adjacent to the CRWP Loop would be of the order of [REDACTED].

In addition, to increase the capacity of the CRWP Loop by either mid-point compression or looping, additional compression at Wallumbilla would be required. Currently, compression at Wallumbilla is provided by APA. An estimate of the cost to increase compression to 1,075 TP/day would be around

[REDACTED]  
[REDACTED]  
[REDACTED]

For these reasons, expansion of the CRWP Loop is unlikely to occur in practice.



(j) **Gas specification**

As explained in section 2.5 of the GLNG GTP Application, gas can generally be used interchangeably in most production processes provided it complies with AS 4564 Australian Standard Specification for General Purpose Natural Gas. However, the LNG Facility to be economical has been designed for gas of a much narrower specification reflecting the expected composition of the CSG in the Gas Fields. LNG receiving terminals also have narrow specification requirements with which the Participants need to comply under LNG offtake contracts entered into (described in section 3.6 above). The LNG Facility, including contaminant limit levels and removal units (eg acid gas removal units and mercury removal units) has been designed for feed gas of the average specification expected to be produced at the Gas Fields, [REDACTED].

Gas entering the CRWP Loop must meet the gas specification for the LNG Facility because the CRWP Loop will deliver gas to the GLNG GTP, which will then be transported to the LNG Facility. Accordingly, the CRWP Loop is not designed to accommodate the full range of gas specification allowable under AS 4564, and has a more stringent specification in terms of water content and higher heating value as set out in section 3.9(a).

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

- [REDACTED]

To the extent some of the Third Party Gas arrangements permit the supply of gas exceeding the LNG Facility design limits, the quality and quantity of gas received at Wallumbilla will need to be carefully managed by GLNG as part of the overall supply portfolio and blended with gas sourced from the Gas Fields. Other third parties seeking access to the CRWP Loop would need to meet the stringent gas specification applicable to the CRWP Loop, GLNG GTP and LNG Facility and it is likely they would need to further treat their gas prior to receipt into the CRWP Loop to ensure the comingled stream did not contaminate the GLNG gas portfolio.

(k) **Significance of the CRWP Loop to the GLNG Project**

The sole function and purpose of the CRWP Loop is to provide additional capacity for the transportation of gas from the Gas Fields as well as Third Party Gas to the LNG Facility to meet the Participants' LNG offtake commitments, including the operational flexibility facilitated by that additional capacity, during the life of the GLNG Project.

As for the GLNG GTP, any capacity in the CRWP Loop from time to time which is not being used to transport gas to PCS-01 will be used by the Participants as line pack to provide additional flexibility and storage options, as described in section 3.2 above.

Use of capacity in the CRWP Loop in this way enables the Participants to limit the potential for the cost and risks that could be expected to be associated with a lower degree of operational flexibility, as described in section 3.2 above; this assists in ensuring that the GLNG Project delivers the public benefits outlined in section 9.11 of the GLNG GTP Application and addressed in section 9 below.

### 3.10 Pipeline classification

The CRWP Loop is situated wholly within Queensland. It is not a cross boundary pipeline as a result.

GLNG further submits that the CRWP Loop should be classified as a transmission pipeline when assessed against the classification criteria in section 13 of the NGL.

The pipeline classification criterion in section 13(1) is:

whether the primary function of the pipeline is to:

- (a) reticulate gas within a market (which is the primary function of a distribution pipeline); or
- (b) convey gas to a market (which is the primary function of a transmission pipeline).

- NGL

The CRWP Loop does not reticulate gas within any markets. Instead, the sole purpose of the CRWP Loop is to facilitate conveyance of gas from the Gas Fields (Roma), Third Party Gas and gas temporarily stored by the Participants in the Roma Underground Gas Storage Facility to the GLNG GTP inlet where it will be transported to the LNG Facility and liquefied and exported to the global LNG market. Accordingly, as the primary function of the CRWP Loop is to convey gas to the global LNG market, GLNG submits that the CRWP Loop should be classified as a transmission pipeline.

This conclusion is reinforced by the factors set out in section 13(2) of the NGL, which the NCC must have regard to when determining the classification of the CRWP Loop:

- The CRWP Loop has no current classification status under the NGL.
- The CRWP Loop is linear and conveys gas from only two points – being a point adjacent to the APA compressor station at the Wallumbilla Gas Hub, and R-HCS-02 – to a single end point, PCS-01. The CRWP Loop is authorised by a 'point-to-point pipeline licence' under the *Petroleum and Gas (Production and Safety) Act 2004* (Qld).
- The external diameter (610 millimetres), design capacity (750 TJ/d) and maximum operating pressure (up to 15,300 kPa) are all larger than standard distribution pipelines and are consistent with, or greater than, the design features of modern transmission pipelines in Australia. As the NCC noted in the Jemena reclassification decision, "Generally transmission pipelines could usually be expected to have larger diameters than distribution pipelines".<sup>18</sup>
- The length of the CRWP Loop (119 kilometres) is consistent with other pipelines that are described as transmission pipelines by the Australian Energy Regulator.<sup>19</sup>
- Under current sanctioned plans, gas will be able to be injected into the CRWP Loop at a point adjacent to the APA compressor station at the Wallumbilla Gas Hub and at R-HCS-02.
- The area to be served by the CRWP Loop is the route between the APA compressor station and PCS-01, and the route between R-HCS-02 and PCS-01.

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<sup>18</sup> NCC "Jemena Pipeline Reclassification: Final Decision and Statement of Reasons" (29 June 2009) 8.

<sup>19</sup> Australian Energy Regulator "State of the Energy Market 2014" (December 2014) 112.

### 3.11 Structurally separate

A no-coverage determination is only available in relation to a "greenfields pipeline project" for which the Minister is not satisfied that all of the coverage criteria are satisfied. A "greenfields pipeline project" is defined in section 149 of the NGL as:

**greenfields pipeline project** means a project for the construction of—

- (a) a pipeline that is to be structurally separate from any existing pipeline (whether or not it is to traverse a route different from the route of an existing pipeline); or
- (b) a major extension to an existing pipeline that is not a covered pipeline; or
- (c) a major extension to a covered pipeline by means of which light regulation services are provided if that extension is exempted by the AER under section 19.

- NGL

The NCC's *Gas Guide* notes that this definition "captures a broad range of new pipeline investment", other than certain brownfields expansions.<sup>20</sup>

The CRWP Loop is structurally separate from any other pipeline, and therefore is a "greenfields pipeline project" under the first limb of the definition in section 149. Relevantly:

- The CRWP Loop does not connect directly to the CRWP, the GLNG GTP or any other pipeline: it is only able to connect to other pipelines by means of non-pipeline infrastructure, and so is structurally separate from those existing pipelines.
- The operation of the CRWP Loop does not depend on any existing pipeline: gas can enter and exit the CRWP Loop without co-mingling with gas from an existing pipeline.
- Consistent with the NCC's reasoning regarding its no-coverage recommendation in relation to the GLNG GTP, the fact that the CRWP Loop indirectly connects with other pipelines does not prevent the CRWP Loop from being structurally separate from those pipelines.<sup>21</sup>
- While part (a) of the definition of "greenfields pipeline project" requires the NCC to disregard the route of the CRWP Loop when considering whether it is a "greenfields pipeline project", key differences between the CRWP Loop and the CRWP (an existing pipeline, which largely run in parallel for most of the CRWP's length) reinforce the conclusion that the CRWP Loop is structurally separate from the CRWP:
  - the CRWP Loop and CRWP can each be operated entirely independently of the other, with separate metering and pressure control;

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<sup>20</sup> NCC, *Gas Guide* paragraph 5.4.

<sup>21</sup> Final GLNG GTP Recommendation 7.

- the CRWP is capable of bi-directional operation and is currently transporting gas in a southerly direction from the Gas Fields to the domestic market and the Roma Underground Gas Storage Facility. After first LNG cargo, the CRWP will generally transport gas in a northerly direction to the GLNG GTP for transport to the LNG Facility. However, particularly prior to start-up of Train 2 of the LNG Facility, the CRWP may, if required, transport gas on occasion in a southerly direction to the Roma Underground Gas Storage Facility or the domestic market to manage the LNG Facility commissioning phase, Gas Fields ramp up and any LNG Facility shutdowns. While unlikely to occur in practice, the CRWP would be technically able to transport gas in a southerly direction while the CRWP Loop transported gas north; and
- in contrast, the CRWP Loop, once commissioned, will only be capable of operation in a northerly direction.

If, contrary to GLNG's submission on this point, the CRWP Loop was determined not to be "structurally separate", then it would necessarily follow that the CRWP Loop was nonetheless still a "greenfields pipeline project", on the basis that it satisfied paragraph (b) of the definition of that term in section 149 of the NGL.

## 4. OTHER QUEENSLAND LNG PROJECTS

### 4.1 Other Queensland LNG projects

In addition to the GLNG Project, which is expected to produce 7.8 mtpa, there are several other major Queensland LNG projects which currently, or may in future, produce LNG:

- **QCLNG Project** (QGC Pty Limited (**QGC**), a BG Group plc (**BG Group**) company): Production has started from the QCLNG Project's first LNG train<sup>22</sup> and the first cargo of LNG was loaded to vessel in late December 2014. A second train is expected to start in the third quarter of 2015. At plateau production, expected during 2016, the QCLNG Project will have an output of around 8.0 mtpa.<sup>23</sup>
- **APLNG Project** (ConocoPhillips/Origin Energy/Sinopec): Construction of the main gas transmission pipeline for the APLNG Project was completed in 2014 and first export of LNG is now expected in mid-2015.<sup>24</sup> The project is expected to produce 9.0 mtpa.<sup>25</sup>
- **Arrow Energy LNG Project** (Arrow CSG (Australia) Pty Ltd, a joint venture between Royal Dutch Shell and PetroChina): The project initially comprised five sub-projects (each of which received State and Federal approvals), relating to the expansion of Arrow's gas fields and the construction of two pipelines and an LNG liquefaction plant.<sup>26</sup> On 29 January 2015, Royal Dutch Shell announced that the Arrow LNG greenfield project had been cancelled<sup>27</sup>, but that "work continues on development of Arrow's substantial gas resources in the Bowen & Surat basins".<sup>28</sup> Shell Australia also stated that it "continues to be driven by

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<sup>22</sup> QGC Pty Ltd media release titled "BG Group loads first LNG cargo from QCLNG" dated 29 December 2014 and available at: [http://www.qgc.com.au/media/362480/media\\_release\\_-\\_bg\\_group\\_loads\\_first\\_lng\\_cargo\\_from\\_qclng.pdf](http://www.qgc.com.au/media/362480/media_release_-_bg_group_loads_first_lng_cargo_from_qclng.pdf).

<sup>23</sup> QGC Pty Ltd media release titled "BG Group loads first LNG cargo from QCLNG" dated 29 December 2014 and available at: [http://www.qgc.com.au/media/362480/media\\_release\\_-\\_bg\\_group\\_loads\\_first\\_lng\\_cargo\\_from\\_qclng.pdf](http://www.qgc.com.au/media/362480/media_release_-_bg_group_loads_first_lng_cargo_from_qclng.pdf).

<sup>24</sup> APLNG "Australia Pacific LNG shows strong progress as key milestones achieved" (4 July 2014) available at [http://www.aplng.com.au/sites/default/files/040714\\_APLNG\\_key\\_milestones\\_Media\\_Release.pdf](http://www.aplng.com.au/sites/default/files/040714_APLNG_key_milestones_Media_Release.pdf).

<sup>25</sup> See the Australia Pacific LNG Project Fact Sheet available at: [http://www.aplng.com.au/pdf/factsheets/APLNG012\\_Fact\\_Sheet\\_The\\_APL\\_Project\\_FINAL.PDF](http://www.aplng.com.au/pdf/factsheets/APLNG012_Fact_Sheet_The_APL_Project_FINAL.PDF).

<sup>26</sup> See <http://www.arrowenergy.com.au/projects/project-assessment-eis>.

<sup>27</sup> See: fourth Quarter 2014 Results presentation titled "Balancing Growth & Returns", 29 January 2015, page 37, available at <http://s06.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/quarterly-results/2014/q4/q4-2014-analyst-presentation-slides.pdf>; Transcript of Fourth Quarter 2014 Results presentation, 29 January 2015 page 11, available at <http://s06.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/quarterly-results/2014/q4/q4-2014-analyst-presentation-transcript.pdf>.

<sup>28</sup> See Shell Australia website at: [https://twitter.com/shell\\_australia](https://twitter.com/shell_australia). See also Sydney Morning Herald article titled "Shell shelves Arrow LNG project in Queensland", dated 30 January 2015, available at: <http://www.smh.com.au/business/shell-shelves-arrow-lng-project-in-queensland-20150130-131sqe.html#ixzz3QXPNSFar>.

value and finding the best development option for Arrow. Discussions are ongoing on collaboration opportunities".<sup>29</sup>

- **Gladstone LNG Project – Fisherman's Landing** (LNG Limited/Huanqiu Contracting and Engineering Corporation (**HCEC**)): The project is subject to final investment decision and has received approvals for the development of a 3.0 mtpa LNG facility (LNG Limited intends, in due course, to apply to expand the facility to 3.8 mtpa).<sup>30</sup>

It is estimated that gas demanded by the APLNG, QLCNG and GLNG Projects will be approximately 1,500 petajoules (**PJ**)/a once ramp up periods have been completed.<sup>31</sup>

These projects are described in further detail at Annexure 8.

#### 4.2 The Future for Queensland

The development of LNG facilities at Curtis Island has led the Queensland Government to describe LNG as being "set to become one of the state's major exports"<sup>32</sup> with the ramp up in LNG production being forecast to lead to a surge in overseas exports of 22.5% in 2015-16 which, "combined with improvement in the domestic sector, is forecast to boost economic growth to an 11-year high of 6% in that year".<sup>33</sup>

In addition, the CSG and LNG industry is expected to generate 18,000 jobs, increase gross state product by over \$3 billion and provide over \$850 million in royalty revenue to the Queensland Government annually.<sup>34</sup> The Queensland Government has established a number of programs to support and grow the CSG and LNG industry, which are described in section 3.2 of the GLNG GTP Application.

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<sup>29</sup> See Shell Australia website at: [https://twitter.com/shell\\_australia](https://twitter.com/shell_australia). See also Sydney Morning Herald article titled "Shell shelves Arrow LNG project in Queensland", dated 30 January 2015, available at: <http://www.smh.com.au/business/shell-shelves-arrow-lng-project-in-queensland-20150130-131sqe.html#ixzz3QXPNSFar>.

<sup>30</sup> See: <http://www.lnglimited.com.au/irm/content/australia1.aspx?RID=262&RedirectCount=1>.

<sup>31</sup> ACIL Allen *Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services* 34.

<sup>32</sup> Queensland Government, Department of Natural Resources and Mines, <http://www.dnrm.qld.gov.au/mining/coal-seam-gas/about>.

<sup>33</sup> Queensland Government *State Budget 2014/15: Budget Strategy and Outlook (Budget Paper No. 2)* 30.

<sup>34</sup> Queensland Government, Department of Natural Resources and Mines, <http://www.dnrm.qld.gov.au/mining/coal-seam-gas/about/benefits>.

## 5. THE QUEENSLAND GAS AND LNG INDUSTRY

### 5.1 Production in eastern Australia

Current gas production from eastern Australian gas fields that are connected to the eastern Australian transmission market was 820 PJ for the year to June 2014 (made up of 524 PJ of conventional natural gas and 295 PJ of CSG).<sup>35</sup> The relevant gas fields for the production of conventional natural gas are the Cooper (South Australia-Queensland), Gippsland (Victoria), Otway (Victoria), Bass (Victoria) and Surat-Bowen (Queensland). According to the Australian Energy Regulator's (**AER**) 2014 *State of the Energy Market* report, the New South Wales basins did not produce conventional gas in the year ended June 2014.

CSG is currently being produced from the Surat-Bowen and New South Wales basins. The Surat-Bowen basin holds significant proved and probable (**2P**) CSG reserves of 41,156 PJ, and 131 PJ of 2P conventional natural gas reserves. The New South Wales basins hold 2,266 PJ of 2P CSG reserves and 17 PJ of 2P conventional natural gas reserves. The conventional natural gas fields (other than the Surat-Bowen and New South Wales basins) identified above hold approximately 6,370 PJ of 2P reserves.<sup>36</sup> 2P reserves of CSG are expected to rise with further exploration activity to support the LNG facilities being developed at Curtis Island, and if the New South Wales government relaxes restrictions on the development of CSG resources (discussed in section 5.5 below).

Gas production in eastern Australia is also expected to increase as LNG facilities ramp up at Curtis Island.

### 5.2 Domestic demand for gas in the Gladstone, Rockhampton, Moura and Wide Bay regions

Gas prices and demand in eastern Australia generally are affected by a wide range of factors, including restrictions on CSG development in New South Wales, higher production costs and higher demand from LNG facilities, and government policies relating to carbon, renewable energy and related matters. These factors are discussed in section 2.6 of ACIL's report.<sup>37</sup>

These and other factors also affect demand and pricing in the downstream domestic markets relevant to this application, as considered in section 2 of ACIL's report. As ACIL notes, demand for gas in these regions comes from a mix of industrial and retail customers; while there is potential for growth in demand in these regions, any such

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<sup>35</sup> Australian Energy Regulator "State of Energy Market 2014" (December 2014), 90. Note: Table 3.1 of this report states that the total amount of gas produced for the year to June 2014 in Eastern Australia was 820 petajoules, however the sum of the figures shown in the relevant column is only 819.

<sup>36</sup> Ibid.

<sup>37</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services section 2.6.



growth is considered to be speculative (as it relates to demand from industrial customers), or otherwise modest (in the case of potential increases in demand due to population growth in the Wide Bay region).

### Summary of current and projected demand in relevant downstream markets

	2010–11*	2014	2020	2025	2030
Gladstone	37.9	45.3	45.8	44.9	45.2
Rockhampton	1.6	1.6	1.6	1.6	1.6
Wide Bay	0.3	0.3	0.4	0.5	0.5
Moura	2.8	2.8	2.8	2.8	2.8
<b>TOTAL</b>	<b>42.6</b>	<b>50.0</b>	<b>50.6</b>	<b>49.8</b>	<b>50.1</b>
Industrial	35.3	36.4	36.3	36.4	36.3
Cogeneration (Gladstone)	6.7	13.0	13.6	12.5	12.8
Retail small customers	0.6	0.7	0.8	0.9	1.0

\* Demand in PJ per year; totals may not add due to rounding

Data source: Values for 2011, 2014 based on National Gas Market Bulletin Board throughput data for QGP plus ACIL Allen estimates for non-GBB facilities; forecast data from ACIL Allen's GMG Australia GasMark model

Source: ACIL Allen.

Further detail on demand and pricing in these regions is set out in sections 2.4 and 2.5 of ACIL's report.

### 5.3 The global LNG market

The global LNG market is expected to grow strongly over the next decade and beyond given the environmental attractiveness of LNG as a fossil fuel. Consumption is expected to increase from 113 trillion cubic feet (approximately 121,000 PJ) in 2010 to 185 trillion cubic feet (approximately 198,000 PJ) in 2040.<sup>38</sup>

This increase follows an approximately four fold increase in LNG trade in the 20 years leading up to 2012.<sup>39</sup> LNG at the end of 2012 accounted for approximately 10% of natural gas consumption worldwide.<sup>40</sup> LNG consumption by region for the 2012 year is shown in the following table:<sup>41</sup>

<sup>38</sup> US Energy Information Administration *International Energy Outlook* (2013) 41.

<sup>39</sup> Core Energy Group *Projections of Gas Demand for LNG Export from Eastern and South Eastern Australia* (2013) 12.

<sup>40</sup> Core Energy Group *Projections of Gas Demand for LNG Export from Eastern and South Eastern Australia* (2013) 12.

<sup>41</sup> Core Energy Group *Projections of Gas Demand for LNG Export from Eastern and South Eastern Australia* (2013) 13.

Country/Region	2012 LNG Demand	LNG % Share of Total Regional Gas Demand	Core Comment/Analysis
Japan	87 Mt	99%	Increased by 19 Mt over 2010 level as a result of nuclear capacity shutdown. This is approaching the practical limit of Japanese import capacity.
Europe	51 Mt	14%	Weaker economic performance is limiting LNG demand.
South Korea	37 Mt	100%	Government stated objective of reducing level of gas dependency.
North and South America	20 Mt	14%	Including 4 Mt in the USA which is expected to fall away as the USA begins LNG exports after 2015.
India	15 Mt	37%	Government plan includes increased gas use but high cost of LNG expected to be a limiting factor and level of growth in local production uncertain.
China	15 Mt	14%	Government plan includes increased gas use but high cost of LNG expected to be a limiting factor and level of growth in local production and pipeline imports is uncertain.
Taiwan	12 Mt	100%	Targeting 20 Mt by 2025.
Thailand	1 Mt	3%	First imports in 2012.
<b>Total World</b>	<b>241 Mt</b>	<b>10%</b>	

Malaysia, Indonesia, Singapore, Pakistan, Bangladesh, Sri Lanka, Vietnam and the Philippines are also expected to begin importing LNG by 2033.

Global LNG trade has shown strong growth over the last 20 years<sup>42</sup> and more than doubled from just under 5 trillion cubic feet in 2000 to just over 10 trillion cubic feet in 2010.<sup>43</sup> The market showed flexibility in adjusting to increased demand from Japan following the 2011 Fukushima disaster and to account for underutilisation of LNG liquefaction capacity in North Africa and Southeast Asia. This flexibility is reflected in the increase in liquidity and spot trading of LNG, which has increased "rapidly" over the last 15 years and now accounts for around one-third of global LNG trade.<sup>44</sup>

#### 5.4 LNG liquefaction capacity and the role of Australia

Little additional LNG capacity was brought on line between 2010 to 2015.<sup>45</sup> However, several Australian projects including the GLNG Project and others at Curtis Island will be commissioned in 2014 and 2015 with other projects in North America at various stages

<sup>42</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 6.

<sup>43</sup> US Energy Information Administration *International Energy Outlook* (2013) 56.

<sup>44</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 37.

<sup>45</sup> US Energy Information Administration *International Energy Outlook* (2013) 56.

of development.<sup>46</sup> Growth in LNG liquefaction capacity is also expected in Russia, Nigeria and Mozambique.<sup>47</sup> Collectively, LNG liquefaction capacity of a little over 117 mtpa is currently under construction.<sup>48</sup>

Australia produced 2450 PJ of gas in 2013-14, of which 57% was for the domestic market. The balance (ie 43%) was exported as LNG.<sup>49</sup> The proportion of gas exported from Australia will increase in the coming years as new liquefaction projects now under construction are commissioned, with 62 mtpa of the 117 mtpa of LNG liquefaction capacity being constructed in Australia.<sup>50</sup> By 2017, Australia is expected to have 86 mtpa of operational LNG liquefaction capacity. This represents 22% of the global total of 391 mtpa and will make Australia the world's largest LNG producer.<sup>51</sup> However, capacity increases beyond this point are likely to face significant competition from north American projects, which have access to low cost gas supplies and lower construction and operational costs.<sup>52</sup>

### 5.5 Government policies affecting gas supply and demand in eastern Australia

The Federal and State governments have implemented various policies, including the Renewable Energy Target (**RET**) Scheme and domestic gas market obligations, and the Federal government is in the process of implementing the "direct action plan" carbon policy, that will impact on gas supply and demand in eastern Australia.

These policies include:

- **Carbon policy:** The Australian Government has repealed the carbon pricing mechanism and is implementing a "direct action plan" to assist in meeting the Government's target of reducing emissions to achieve emissions equal to 5% below 2000 levels by 2020. The repeal of the carbon pricing mechanism that previously operated in Australia is expected to decrease demand for gas for electricity generation (as the cost of coal-fired generation reduces), leading to lower gas demand.
- **RET scheme:** The RET scheme is in two parts and encourages the installation of small scale photovoltaic panels and requires the liable electricity retailers to source 20% of the electricity that they sell from renewable sources by 2020. By requiring electricity to be generated by renewable sources, this policy reduces demand for gas from electricity generation. While gas peaking plants are required to match the intermittent nature of wind generation (constructed and

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<sup>46</sup> US Energy Information Administration *International Energy Outlook* (2013) 56.

<sup>47</sup> Core Energy Group *Projections of Gas Demand for LNG Export from Eastern and South Eastern Australia* (2013) 14.

<sup>48</sup> ACIL Allen *Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services* 39.

<sup>49</sup> Australian Energy Regulator "State of Energy Market 2014" (December 2014), 88.

<sup>50</sup> ACIL Allen *Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services* 39.

<sup>51</sup> International Gas Union *World LNG Report – 2013 Edition* (International Gas Union, Oslo) 49.

<sup>52</sup> ACIL Allen *Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services* 40.

likely to be constructed in Victoria and South Australia), the total volumes of gas required will be low relative to the demand for pipeline capacity in those states. The RET scheme has recently been the subject of an independent review, and may be the subject of amendment by the Australian Government.<sup>53</sup>

- **Policies restricting/encouraging on CSG development:**

- **Victoria**

Victoria currently has a hold on all new CSG exploration and mining licences. Additionally, the Victorian Government has put a hold on all new approvals for hydraulic fracturing (expected to remain in place until July 2015).

A number of companies have been granted licences to explore for coal seam gas. These exploration licences do not allow for commercial extraction or production of gas and the company would have to apply for a separate mining licence to extract CSG (provided the ban is lifted). Once it has been granted a mining licence, the Victorian Government estimates that it would take approximately five or more years for a project to commence commercial production.

- **New South Wales**

The New South Wales Coalition Government has imposed restrictions on CSG drilling in New South Wales. In particular, a 2 kilometre residential exclusion zone now applies to exploration and production activities for residential and village areas. Additionally, there is currently a hold on exploration and extraction of CSG in the "Special Areas" zone of the Sydney drinking water catchment, pending an investigation by the New South Wales Chief Scientist and Engineer on the impact of CSG activities in these areas.

- **Queensland**

The Queensland Gas Scheme closed on 31 December 2013. This scheme previously encouraged gas exploration and development by requiring electricity retailers and other liable entities to source 15% of their electricity from gas fired generation, and resulted in significant development of CSG resources in Queensland.

Other policies, such as domestic gas reservation policies, have been considered, but not introduced in eastern Australian states.

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<sup>53</sup> The Hon Ian MacFarlane MP, "Labor shatters bipartisanship by walking away from RET", Media Release, 12 November 2014, available at: <http://www.minister.industry.gov.au/ministers/macfarlane/media-releases/labor-shatters-bipartisanship-walking-away-ret>.

## 5.6 Transmission pipeline infrastructure

The eastern Australian gas transmission network has grown to match the increased gas production, covering over 20,000 km.<sup>54</sup> It is an interconnected pipeline network covering Queensland, New South Wales, Victoria, South Australia, Tasmania and the Australian Capital Territory.

The AER identifies the major gas transmission pipelines currently located in Queensland, New South Wales, the Australian Capital Territory, Victoria, Tasmania and South Australia in its *State of the Energy Market* report. This report does not include gas transmission pipelines that were not commissioned at the date of publication or other gas transmission pipelines such as the CRWP. The gas transmission pipelines identified in the 2014 *State of the Energy Market* report are summarised in the table and shown in the map below:

### Key pipeline infrastructure<sup>55</sup>

Pipeline	Length (km)	Capacity (TJ/D)	Covered?	Owner
<b>Queensland</b>				
North Queensland Gas Pipeline	391	108	No	Victoria Funds Management Corporation
Queensland Gas Pipeline (Wallumbilla to Gladstone)	629	142	No	Jemena (State Grid Corporation 60%, Singapore Power International 40%)
Carpentaria Pipeline (Ballera to Mount Isa)	840	119	Yes (light)	APA Group
Berwyndale to Wallumbilla Pipeline	113	-	No	APA Group
Dawson Valley Pipeline	47	30	No (revoked 2014)	Westside 51%, Mitsui 49%
Roma (Wallumbilla) to Brisbane	440	219	Yes (2012-17)	APA Group
Wallumbilla to Darling Downs Pipeline	205	400	No	Origin Energy
South West Queensland Pipeline (Ballera to Wallumbilla)	756	181	No	APA Group
QSN Link (Ballera to Moomba)	180	212	No	APA Group
Gladstone LNG Pipeline	435	1420	No	Santos; PETRONAS, Total, KOGAS
Queensland Curtis LNG Pipeline	334	1410	No	BG Group
Australia Pacific LNG Pipeline	362	1560	No	Origin Energy, ConocoPhillips, Sinopec
<b>New South Wales</b>				
Moomba to Sydney Pipeline	2029	420	Partial (light)	APA Group
Central West Pipeline (Marsden to Dubbo)	255	10	Yes (light)	APA Group
Central Ranges Pipeline (Dubbo to Tamworth)	300	7	Yes (2005-19)	APA Group
Eastern Gas Pipeline (Longford to Sydney)	795	268	No	Jemena (State Grid Corporation 60%, Singapore Power International 40%)

<sup>54</sup> Australian Energy Regulator "State of Energy Market 2014" (December 2014) 110.

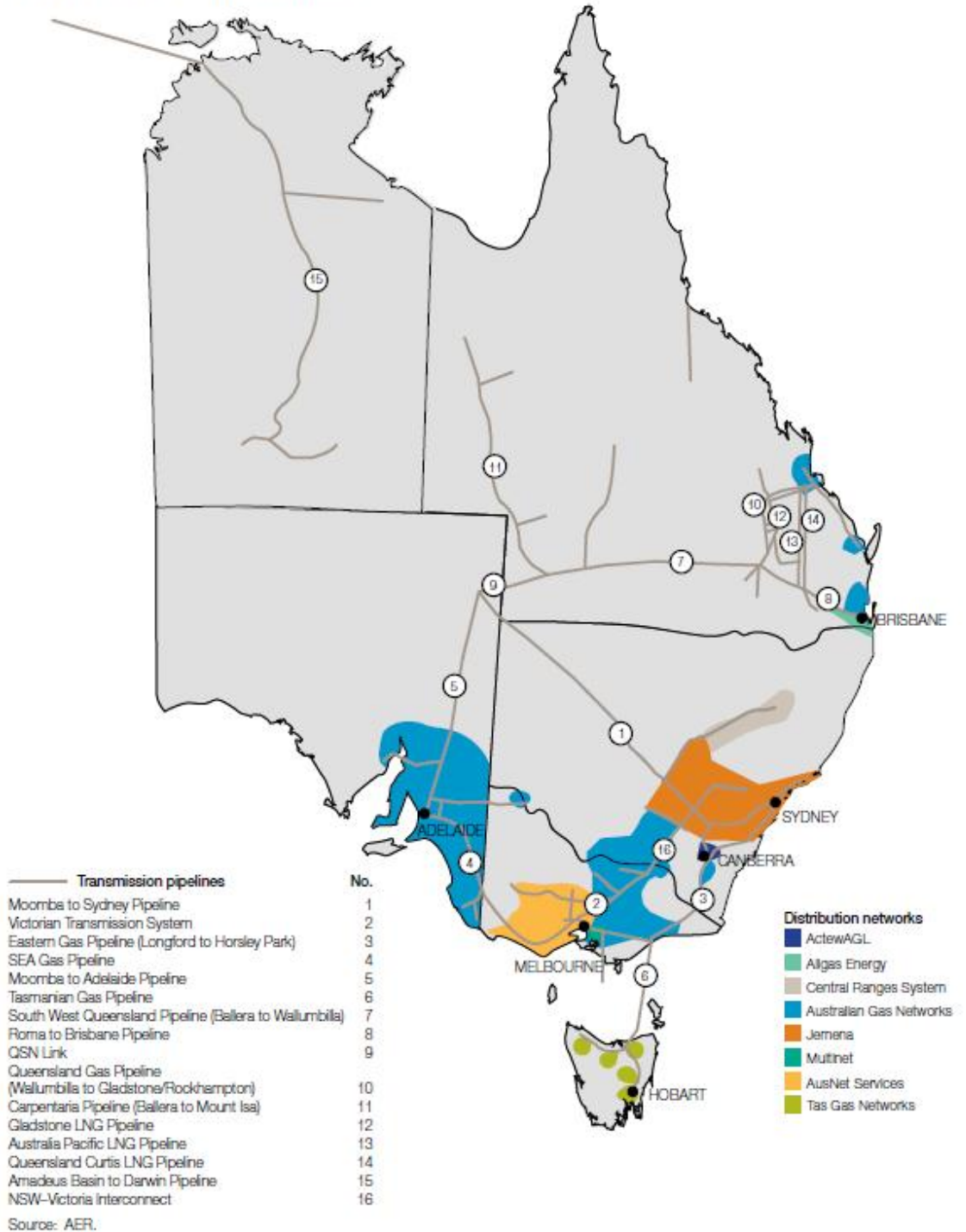
<sup>55</sup> Australian Energy Regulator "State of Energy Market 2014" (December 2014) 112.

Pipeline	Length (km)	Capacity (TJ/D)	Covered?	Owner
<b>Victoria</b>				
Victorian Transmission System (GasNet)	2035	1030	Yes (2013-17)	APA Group
South Gippsland Natural Gas Pipeline	250	-	No	DUJET Group
VicHub	-	150 (into Vic)	No	Jemena (State Grid Corporation 60%, Singapore Power International 40%)
<b>South Australia</b>				
Moomba to Adelaide Pipeline	1185	253	No	QIC Global Infrastructure
SEA Gas Pipeline (Port Campbell to Adelaide)	680	303	No	APA Group (50%), Retail Employees Superannuation Trust (50%)
<b>Tasmania</b>				
Tasmanian Gas Pipeline (Longford to Hobart)	734	129	No	Palisade Investment Partners

Figure 10: Major Gas Transmission Pipelines<sup>56</sup>

Figure 4.1

Major gas pipelines—eastern Australia



<sup>56</sup> Australian Energy Regulator "State of Energy Market 2014" (December 2014) 111.

## 6. CRITERION (B) – UNECONOMIC TO DEVELOP ANOTHER PIPELINE

### 6.1 Statutory Test

Under criterion (b) the NCC must recommend that the exemption be granted if it is not satisfied:

that it would be uneconomic for anyone to develop another pipeline to provide the pipeline services provided by means of the pipeline

- NCC

### 6.2 "Uneconomic"

In the High Court's decision in *The Pilbara Infrastructure Pty Limited v Australian Competition Tribunal* 246 CLR 379 (HCA) (**Pilbara HCA**), the High Court held that the correct approach to assessing criterion (b) of Part IIIA of the *Competition and Consumer Act 2010* (Cth) (**CCA**) is the private profitability test. In its decision, the High Court found that:

The better view of criterion (b) is that it uses the word "uneconomical" to mean "unprofitable". It does not use that word in some specialist sense that would be used by an economist. Further, criterion (b) is to be read as requiring the decision maker to be satisfied that there is not anyone for whom it would be profitable to develop another facility.<sup>57</sup>

...

By contrast, the "privately profitable test" (or to adopt a phrase used [73] by the Full Court, the "economically feasible" test) focuses only upon whether it is shown to be likely that anyone could profitably, and therefore would be likely to, develop another facility to provide the service. That is, the central assumption informing and underpinning this construction of criterion (b) is that no one will develop an alternative service unless there is sufficient prospect of a sufficient return on funds employed to warrant the investment. And criterion (b) is read as directing attention to whether there is "anyone" for whom it would be economical (in the sense of profitable, or economically feasible) to develop another facility to provide the service.<sup>58</sup>

- High Court of Australia

In applying this test, the High Court emphasised the importance of the return on capital from the development of another facility, such as a pipeline, and noted that this return may come as part of a larger project, such as a LNG project, for which the facility is necessary:

It would not be economical, in the sense of profitable, for someone to develop another facility to provide the service in respect of which the making of a declaration is being considered unless that person could reasonably expect to obtain a sufficient return on the capital that would be employed in developing that facility. Deciding the level of that expected return will require close consideration of the market under examination. What is a sufficient rate of return will necessarily vary according to the nature of the facility and the industry concerned. And if there is a person who could develop the alternative facility as part of a larger project it would be necessary to consider the whole project in deciding whether the development of the alternative facility, as part of that larger project, would

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<sup>57</sup> *Pilbara HCA*, para 77 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

<sup>58</sup> *Pilbara HCA*, para 83 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.



provide a sufficient rate of return. But the inquiry required by criterion (b) should be whether there is anyone who could profitably develop an alternative facility.<sup>59</sup>

- High Court of Australia

Criterion (b) of the pipeline coverage criteria in section 15 of the NGL, which must be applied in relation to an application for a no-coverage determination, is based on similar principles and drafting as criterion (b) of the regime in Part IIIA of the CCA considered by Pilbara HCA. The Australian Competition Tribunal (**Tribunal**) has previously commented that "nothing turns upon this difference in language" when interpreting the code that preceded the NGL.<sup>60</sup> The NCC agrees with this conclusion in the *Gas Guide*, where it states:

...in considering criterion (b) in the NGL it is necessary to consider whether there is anyone for whom it would be profitable to develop another pipeline to provide the pipeline services.<sup>61</sup>

- NCC

GLNG submits that High Court's interpretation of criterion (b) of the regime in Part IIIA of the CCA should apply to criterion (b) of the pipeline coverage criteria under the NGL.

### 6.3 "Anyone"

Criterion (b) requires an analysis of whether it is uneconomic for "anyone" to develop an alternative facility. In the High Court's view, the reference to "anyone" in coverage criterion (b) should be read:

... as a wholly general reference that requires the decision maker to be satisfied that there is no one, whether in the market or able to enter the market for supplying the relevant service, who would find it economical (in the sense of profitable) to develop another facility to provide that service.<sup>62</sup>

- High Court of Australia

"Anyone" therefore includes existing and possible future market participants."<sup>63</sup>

The Tribunal's previous decisions, which excluded the owner of the facility, "proceeded from an incorrect construction of criterion (b)" in the High Court's view.<sup>64</sup>

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<sup>59</sup> Pilbara HCA, para 104 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

<sup>60</sup> *Re Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2 (4 May 2001) para 58.

<sup>61</sup> NCC *Gas Guide* para 3.82.

<sup>62</sup> Pilbara HCA, para 77 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

<sup>63</sup> Pilbara HCA, para 105 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

<sup>64</sup> Pilbara HCA, para 105 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

#### 6.4 "To develop another pipeline"

While the terms "uneconomic"/"uneconomical" and "anyone" in the NGL should be interpreted in the same way as in Part IIIA of the CCA, the focus in the NGL is on developing "another pipeline" rather than "another facility". Importantly, the term "pipeline" is defined in section 2 of the NGL as follows:

**pipeline** means—

(a) a pipe or system of pipes for the haulage of natural gas, and any tanks, reservoirs, machinery or equipment directly attached to that pipe or system of pipes; or

(b) a proposed pipe or system of pipes for the haulage of natural gas, and any proposed tanks, reservoirs, machinery or equipment proposed to be directly attached to the proposed pipe or system of pipes; or

(c) a part of a pipe or system of pipes or proposed pipe or system of pipes referred to in paragraph (a) or (b),

but does not include—

(d) unless paragraph (e) applies, anything upstream of a prescribed exit flange on a pipeline conveying natural gas from a prescribed gas processing plant; or

(e) if a connection point upstream of an exit flange on such a pipeline is prescribed, anything upstream of that point; or

(f) a gathering system operated as part of an upstream producing operation; or

(g) any tanks, reservoirs, machinery or equipment used to remove or add components to or change natural gas (other than odourisation facilities) such as a gas processing plant; or

(h) anything downstream of a point on a pipeline from which a person takes natural gas for consumption purposes;

- NGL

There is no requirement in criterion (b) that "another pipeline" is a new pipeline. Any existing pipeline that provides the same pipeline service that will be provided by the CRWP Loop is "another pipeline" for the purposes of criterion (b). It follows that "another pipeline" can be developed through expansion of that pipeline by looping or the additional of compression stations.

#### 6.5 "Pipeline services provided by means of the pipeline"

The term "pipeline service" is also defined in the NGL. The NCC concludes in the *Gas Guide* that the pipeline's point to point service is the relevant service for determining whether it would be uneconomic to develop another pipeline for the purposes of coverage criterion (b).<sup>65</sup>

The "pipeline" by means of which the "pipeline services" are provided is the CRWP Loop. That is, for the purposes of assessing GLNG's no-coverage application, "the pipeline", in respect of criterion (b), is the CRWP Loop which is to be used as part of the GLNG

<sup>65</sup> NCC *Gas Guide* para 3.92.

Project, being the high pressure 119 km transmission pipeline, with an external diameter of 610 millimetres which is designed to run at pressures up to 15,300 kPa and with a design capacity of 750 TJ/d, described in section 3.9.

GLNG therefore considers that the relevant pipeline services are gas transportation services:

- from the Wallumbilla Gas Hub (at a point adjacent to the APA compressor station) to the GLNG GTP inlet (at PCS-01);
- from the Gas Fields (Roma) and the Roma Underground Gas Storage Facility (at the R-HCS-02 Transmission Line tie-in at KP31) to the GLNG GTP inlet (at PCS-01); and
- from and to any intermediate points on that route at which a third party may seek to interconnect with the CRWP Loop in the future.

## 6.6 **Gas Guide – Factors relevant to criterion (b) and GLNG's approach**

The *Gas Guide* sets out a series of factors that the NCC considers relevant when determining whether coverage criterion (b) is satisfied:<sup>66</sup>

(a) An applicant for coverage needs to demonstrate the basis on which it is unprofitable for it or anyone else (including the pipeline owner) to develop another pipeline to provide the service.

(b) In assessing profitability, information should be provided about:

- expected capital and operating costs of developing and operating a new pipeline
- projected use of the pipeline and revenue(s)
- the required rates of return on the debt and equity necessary to finance the development of the pipeline. Also the return on capital employed in developing the pipeline and the cost of that capital, and
- the basis for such estimates and underlying assumptions.

(c) The consideration of profitability of a new pipeline may seek to address the profitability of such a project relative to other uses of finance and other resources.

(d) The consideration of profitability of a new pipeline involves, at least in part, an assessment of the ability of such a pipeline to successfully compete to supply the pipeline services and thus attract sufficient revenue to be profitable.

(e) The estimation of the profitability of anyone developing a new pipeline will involve assumptions regarding among other things, the capital and operating costs of such a pipeline, likely levels of use and revenues and risks associated with such assumptions.

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<sup>66</sup> NCC *Gas Guide* para 3.88.

(f) Where it appears that the only party likely to be in a position to develop a new pipeline is the existing pipeline owner/incumbent, the assessment of the profitability of the new pipeline should:

- be based upon the development of a separate, new pipeline, and
- examine why the existing service provider would develop a new pipeline where the existing pipeline may be capable of servicing the requirements at lesser cost through augmentation, such as changes in compression and pumps used on the pipeline.

(g) Where development of a new pipeline may involve duplication of a natural monopoly, it may be appropriate to consider whether the new pipeline is more efficient than the existing pipeline and why that is so, perhaps due to cost advantage or technological improvement.

(h) Where a new pipeline is not profitable on a standalone basis, but only as an integrated part of a larger project, the assessment of profitability should consider the impact of the cost of developing the new pipeline on the overall profitability of the project and any cross-subsidisation.

- NCC

GLNG considers these factors, to the extent relevant to this application, below, bearing in mind that in this instance the NCC will be applying criterion (b) in the context of considering whether a no-coverage, rather than a coverage, recommendation should be made.

## 6.7 Profitable to develop another pipeline

### ***Evidence of substantial investment in surrounding transmission pipelines***

The purpose and effect of the 119km service provided by the CRWP Loop is to provide additional capacity for the transportation of gas to the LNG Facility to meet the Participants' LNG offtake commitments, including to provide the operational flexibility facilitated by that capacity.

There is ample evidence of recent and ongoing private investment in analogous transmission pipeline infrastructure which demonstrates the private profitability of construction of such pipelines to serve LNG projects in the vicinity of the CRWP Loop.

In particular, the existence of the QGP and the CRWP, both of which are non-covered pipelines which provide haulage services over a route which is substantially similar to the route covered by the CRWP Loop, suggests that it is privately profitable to develop an alternative pipeline, including much larger pipelines, to provide the services provided by the CRWP Loop.

Further, the transmission pipelines developed and planned to be developed to serve the LNG Facilities which depend on CSG from the Surat and Bowen basins in recent years demonstrate the assessment by the proponents in the GLNG and other major LNG projects (described in section 4 above) that the development of such infrastructure is privately profitable. In the terms used by the High Court, they reflect the reasonable expectation by those proponents that they could obtain a sufficient return on the capital employed in developing those much larger pipelines.<sup>67</sup>

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<sup>67</sup> Pilbara HCA para 104 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

In this context, there is no factual basis on which to suggest that it would be uneconomic (in the sense of not privately profitable) to develop another pipeline to provide the services to be provided by the CRWP Loop.

***Recent analogous investment in capacity expansions involving looping or compression***

There are also significant recent examples of investments to increase the capacity of transmission pipelines through looping or compression which suggest that it would be privately profitable to develop another pipeline to provide the pipeline services provided by the CRWP Loop. In particular:

- In early 2010 the QGP's capacity was expanded by 49 TJ/day to its current capacity of approximately 145 TJ/day. The expansion involved the addition of compressors at Rolleston and Banana and a 113 kilometre loop (400mm, 16 inch) between Oombabeer and Callide. This capacity was largely contracted for use in expansions of associated industrial facilities, such as Rio Tinto's Yarwun refinery.<sup>68</sup> The demand for that capacity is indicated by the fact that the average system load factor for the QGP (92%) is currently high.<sup>69</sup>
- A further expansion, looping 35km of the pipeline near Rolleston, is currently being considered, and would further increase the capacity of the QGP by approximately 10 TJ/d to 155 TJ/d.<sup>70</sup>

These expansions created/will create additional capacity for gas to be transported from Wallumbilla to Gladstone (including from Wallumbilla to any intermediate interconnection point, such as Fairview). In doing so, they demonstrate their proponents' assessment of the private profitability of those investments. Relevantly, Jemena is a private company owned by State Grid Corporation of China (a Chinese State owned corporation) (60%) and Singapore Power International (40%). Since the QGP is not a covered pipeline, Jemena is not subject to obligations to extend or expand the QGP on regulated terms under the NGL. Accordingly, it is reasonable to conclude that the undertaking of the expansions described above reflects a commercial assessment by Jemena that it could obtain a sufficient return on the capital employed in the expansions to render those investments profitable. This reinforces the suggestion that it would be privately profitable to develop the QGP to provide the pipeline service which will be provided by the CRWP Loop.

In addition, LNG Limited has also proposed a potential further expansion of the QGP by looping (including expansion of the section between Wallumbilla and Fairview), as part of its development of a LNG facility at Fisherman's Landing, near Gladstone.<sup>71</sup> This

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<sup>68</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 54.

<sup>69</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 55.

<sup>70</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 54.

<sup>71</sup> LNG Limited, Queensland Gas Pipeline Interim Feed Agreement (21 September 2011) ASX release.

proposal strengthens the conclusion that criterion (b) is not satisfied in relation to the pipeline services provided by the CRWP Loop.

***Costs associated with developing another pipeline to provide the pipeline services***

The fact that it would be privately profitable to develop an alternative pipeline to provide the pipeline services provided by the CRWP Loop is specifically illustrated by considering ACIL's analysis of the costs associated with obtaining haulage from the Surat Basin in the vicinity of the CRWP Loop to the relevant domestic markets.<sup>72</sup> As that analysis shows, those costs are estimated to be comparable to, and in some instances lower, than the costs estimated to be costs associated with haulage on the CRWP Loop, even before the full cost impacts of the constraints identified in section 3.9(g)(i) are taken into account.

**6.8 Conclusion**

In light of the information and analysis set out above, GLNG submits that there is no factual basis on which the NCC can conclude that criterion (b) would be satisfied in relation to the CRWP Loop.

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<sup>72</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services section 4.

## 7. CRITERION (A) – PROMOTION OF COMPETITION

### 7.1 Introduction

Under criterion (a), the NCC must recommend that the no-coverage determination be made if it is not satisfied:

that access (or increased access) to pipeline services provided by means of the pipeline would promote a material increase in competition in at least 1 market (whether or not in Australia), other than the market for the pipeline services provided by means of the pipeline

- NGL

### 7.2 Gas Guide

In the *Gas Guide*, the NCC describes the purpose of criterion (a) in relation to coverage as follows:

The purpose of criterion (a) is to limit coverage to circumstances where it is likely to materially enhance the environment for competition in at least one dependent market. Whether competition will be materially enhanced depends critically on the extent to which the incumbent service provider can and is likely, in the absence of coverage, to use market power to adversely affect competition in a dependent market(s). If the service provider has market power, as well as the ability and incentive to use that power to adversely affect competition in a dependent market, coverage would be likely to improve the environment for competition, offering the prospect of tangible benefits to consumers (including reduced prices and better service provision).<sup>73</sup>

- NCC

The *Gas Guide* then sets out the steps that the NCC will use to consider criterion (a) as follows:

- identification of the relevant dependent (upstream or downstream) markets;
- consideration of whether the identified market(s) is separate from the market for the pipeline service; and
- assessment of whether access (or increased access) would be likely to promote a materially more competitive environment in the dependent markets by considering whether the service provider has an ability and incentive to exercise market power in those dependent market(s).

### 7.3 GLNG's approach

GLNG considers the factors described in the *Gas Guide* for coverage as summarised above in the following sections having regard to the form of regulation factors set out in section 16 of the NGL.

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<sup>73</sup> NCC *Gas Guide* para 3.23.

#### 7.4 Identification of dependent markets

GLNG adopts the approach of the NCC set out in the *Gas Guide* to determining dependent markets according to product, geographic and functional dimensions.<sup>74</sup> GLNG does not propose to summarise generally how markets are to be defined, but comments as follows:<sup>75</sup>

- the product dimension of a market is determined by considering the substitutability among products;
- the geographic dimension is determined by considering the substitutability of products over a particular geographic area; and
- the functional dimension of the market is determined by considering the vertical levels of production and distribution and determining and identifying those that comprise the field of competition.

In addition to product, geographic and functional dimensions, the NCC may also consider the temporal dimension of a market. The temporal dimension will be relevant where there are likely to be market or technological changes in the "not too distant" future that may affect the market definition.

#### 7.5 Market definition – dependent markets and the market for the pipeline service

GLNG submits that the production of gas, the sale of gas to downstream domestic customers, the transportation of gas through transmission or distribution pipelines, LNG production and the sale of LNG gas are all functionally separate activities. Whilst the "markets" in which these activities occur are dependent, they are economically separate and distinct. In particular, the production of gas and the sale of gas either to downstream domestic customers or as LNG are economically separate and distinct from the market for pipeline services. The NCC acknowledged this in the Final QCLNG Recommendation, the Final APLNG Recommendation and the Final GLNG Recommendation.<sup>76</sup> Accordingly, the market for the pipeline service is separate from the dependent markets identified below.

In previous no-coverage recommendations for gas transmission pipelines serving LNG facilities, the NCC has concluded that the relevant dependent markets for determining whether access would promote a material increase in competition in another market are:<sup>77</sup>

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<sup>74</sup> NCC *Gas Guide* paras 3.26 to 3.32.

<sup>75</sup> See *Re Queensland Co-operative Milling Association Ltd* (1976) ATPR 40-012 at 17247 for a description as to how a market is determined.

<sup>76</sup> NCC "No-Coverage Determination for the Proposed QCLNG Pipeline: Final Recommendation" (May 2010) (**Final QCLNG Recommendation**) para 6.27; NCC "APLNG No-Coverage Determination: Recommendation to the relevant Minister" (17 July 2012) (**Final APLNG Recommendation**) para 6.17; NCC "GLNG Pipeline, Application for a 15-year no-coverage determination: Final Recommendation" (22 May 2013) (**Final GLNG Recommendation**) para 6.13.

<sup>77</sup> Final QCLNG Recommendation para 6.26; Final APLNG Recommendation para 6.19; Final GLNG Recommendation para 6.15.



- an upstream production market;
- a downstream domestic sales market; and
- a downstream LNG market.

GLNG submits that the same principles and broad market definitions are potentially relevant to the CRWP Loop. However, the pipeline services provided by the CRWP Loop will not be relevant to, or have any significant impact on, these markets, given that the route covered by the CRWP will not be useful to third parties on a standalone basis, there are no transport options available from PCS-01 to an LNG Facility (other than the GLNG GTP, which is subject to a no-coverage determination), third parties are able to use alternative pipelines, and the use of those alternatives is likely to be more attractive to third parties than use of the CRWP Loop.

These issues are explained more closely in the following analysis.

(a) **"Access (or increased access) to pipeline services"**

In criterion (a), "access" refer to access on such reasonable terms and conditions as may be determined under the NGL.

In the context of the CRWP Loop, access on reasonable terms and conditions would need to take into account the constraints associated with use of the CRWP Loop as outlined in section 3.9(g)(i) above (including the absence of spare capacity, the cost of expanding capacity, the need for services to be provided on an interruptible basis and the need for gas to meet relevant specifications), and the costs involved in managing those constraints.<sup>78</sup>

(b) **The upstream production market**

Product dimension

GLNG submits that the relevant upstream product market is the market for the production of gas for the purpose of supplying gas to downstream customers either as LNG (export) or for domestic consumption.<sup>79</sup>

Consistent with the Final QCLNG Recommendation, the Final APLNG Recommendation and the Final GLNG GTP Recommendation, there are no separate product markets for the production and sale of gas for LNG production

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<sup>78</sup> As noted in 3.9(i) above, there are two theoretical (but, in GLNG's view, unlikely) expansion possibilities:

- installation of a compression station to increase the design capacity of the CRWP Loop from 750 TJ/day to 1075 TJ/day – ie to create design capacity of 325 TJ/day – at an estimated cost of [REDACTED] for construction of the compression station, and an additional [REDACTED] to install necessary additional compression at Wallumbilla;
- full looping of the CRWP Loop, to construct a pipeline of the same diameter and length of the CRWP Loop, to create design capacity of 750 TJ/day, at an estimated cost of in the order of [REDACTED] for construction of the pipeline (this would require obtaining tenure and governmental approvals on a scale similar to those required for an entirely new pipeline), and an additional [REDACTED] to install necessary additional compression at Wallumbilla.

<sup>79</sup> Consistent with previous decisions of the Tribunal, there is currently no strong rivalry between gas and other forms of energy, such as electricity. See: *Re: Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2, para 79.

and the production and sale of gas for domestic supply. Gas could be transported through the CRWP Loop and other gas transmission and distribution pipelines for either purpose, and any relative increase in price in one market would likely result in producers increasing their supply to that market.<sup>80</sup>

The market for gas in Queensland is made up almost exclusively of CSG with limited amounts of conventional natural gas sold. However, even if substantial quantities of conventional natural gas were sold in Queensland, for the purposes of domestic consumption, the two products are sufficiently similar to be transported through the same pipeline (although gas for use in LNG liquefaction facilities and receiving terminals must meet the particular specifications requirements of those facilities).

#### Geographic dimension

The geographic boundary of the market for the pipeline service, and hence the area over which access to that service might affect competition in a dependent production market, is limited by the area within which producers of CSG can physically and cost effectively access the CRWP Loop.

As described in section 3.9(g)(i) above, GLNG commissioned ACIL to identify CSG producers near the CRWP Loop which might benefit from having access to the CRWP Loop. ACIL considered independent CSG producers that are located within a 50 kilometre corridor of the CRWP Loop south to Wallumbilla and the alignment of the Roma to Brisbane Pipeline and South West Queensland Pipeline.

In summary, ACIL found that the only third party producer who holds interests in tenements within that 50 kilometre corridor is Eureka Petroleum Pty Ltd (a wholly-owned subsidiary of Blue Energy Limited), which holds ATP 854.<sup>81</sup>

Although KOGAS holds a 5.51% interest in Blue Energy Limited, as noted in section 3.9(g)(ii) above, for analysis under criterion (a) proceeds on the basis that ATP 854 is an "independent" tenement, because KOGAS' interest is not a controlling interest, and there are no commercial arrangements between the Participants and Blue Energy Limited regarding the development of ATP 854 or the supply of gas from that tenement to the GLNG Project.

Several factors suggest that Blue Energy Limited is unlikely to seek access to the CRWP Loop for ATP 854.

- There are no proven, probable or possible reserves in ATP 854, and Blue Energy Limited describes ATP 854 as containing a 3C contingent

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<sup>80</sup> See NCC "No-Coverage Determination for the Proposed QCLNG Pipeline" (May 2010) paragraph 6.19; NCC "APLNG No-Coverage Determination: Recommendation to the relevant Minister" (17 July 2012) para 6.10; NCC "GLNG Pipeline, Application for a 15-year no-coverage determination: Final Recommendation" (22 May 2013) para 6.8.

<sup>81</sup> ACIL *Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services* 62.

resource. This means that the resource is less certain than it would be if developed to "reserves" status. Hence, although the resource may potentially be recoverable, it is not yet considered mature enough for commercial development due to technological or business hurdles.<sup>82</sup>

- In addition, Blue Energy Limited notes on its website that the QGP runs through the eastern portion of the permit and that "gas discovered in this block is therefore well located to access this infrastructure and move gas either through to Gladstone, or back to Wallumbilla and into the south eastern Queensland, South Australian or Sydney gas markets".<sup>83</sup>
- GLNG expects that access to the CRWP Loop within the constraints described in section 3.9(g)(i) above would be less attractive to a developer of ATP 854 than use of the QGP, which would not be subject to the same constraints as to interruptibility, gas specifications and related matters.

Even if there was unmet demand from independent upstream producers for gas transmission from the entry points of the CRWP Loop which is not identified in ACIL's analysis, the factors outlined above mean that it is highly unlikely that those producers would seek to use the CRWP Loop to meet that demand, given the availability of the QGP (including in connection with the other pipelines identified in section 3.9(g)(i) above, to facilitate transport to downstream dependent markets.

Nonetheless, if Blue Energy Limited (or any other third party) sought access to the CRWP Loop to develop ATP 854, then GLNG would be prepared to make capacity which GLNG did not reasonably anticipate requiring available within the constraints described in section 3.9(g)(i) above, provided that GLNG's legitimate business interests would not be compromised. This would involve for example, requiring that:

- GLNG would be able to maintain sufficient flexibility to manage its obligations under the gas supply agreements it has entered into, and the efficient operation of the LNG Facility;
- the third party would meet the costs of interconnection;
- the gas proposed to be transported by the third party would meet the relevant specification requirements for gas being transported on the CRWP Loop, and the third party would indemnify the Participants (and provide appropriate related security) for any loss they may suffer should gas be injected outside the specification;

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<sup>82</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 63.

<sup>83</sup> ACIL Allen Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services 63.

- the third party would inject the gas at the appropriate pressure; and
- the third party would compensate GLNG for any additional operational costs it may incur as a consequence of providing access and interconnection, including additional compression, and negotiating and implementing the commercial terms of access.

Accordingly, GLNG submits that criterion (a) is not satisfied.

(c) **The downstream markets for domestic gas sales to customers in the Gladstone, Rockhampton, Moura and Wide Bay regions**

Product dimension

The product dimension in this context is the supply of gas to customers in the downstream domestic market, including large industrial, small industrial and household consumers through retailers.

Geographic dimension

The area that is capable of receiving gas transported through the CRWP Loop comprises the Gladstone, Rockhampton, Moura and Wide Bay regions. This reflects the northward direction of the pipeline service provided by the CRWP Loop, and the potential for interconnection of the CRWP Loop with other pipeline infrastructure. As a matter of economics, the geographic dimension of the relevant downstream market may be broader, since, in concept, access to the CRWP Loop might be used in combination with other pipelines to reach a wider downstream market.<sup>84</sup> However, if (as GLNG submits) criterion (a) is not satisfied having regard to a market defined based on this narrower geographic dimension, consideration of a broader market will be unnecessary.

(d) **The downstream international LNG market**

Product market

The supply of LNG is in a separate product market to the supply of gas in the domestic market, which reflects the fact that gas supplied as LNG has undergone liquefaction to enable it to be shipped internationally.

GLNG agrees with the NCC's conclusion that there is unlikely to be a downstream market for the toll manufacture of LNG.<sup>85</sup> As noted by the NCC, it is unlikely that the significant investment required to construct a LNG facility would be undertaken without a secure source of gas to serve that facility. It is also unlikely that the long term offtake agreements necessary to underpin the investment could be procured without gas supply security.

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<sup>84</sup> ACIL Allen *Comet Ridge - Wallumbilla Pipeline Looping Project: Report on Relevant Markets and Demand for Services* section 2.1.

<sup>85</sup> See Final QCLNG Recommendation para 6.25; Final APLNG Recommendation para 6.18; Final GLNG Recommendation para 6.8.

### Geographic dimension

The NCC has previously commented that the downstream international LNG market has an Asian focus with a significant price differential and the majority of the LNG being produced in Australia being sold to Asia.<sup>86</sup> However the Minister's GLNG GTP Determination identified that the relevant downstream LNG market was the "downstream global LNG market".<sup>87</sup> GLNG considers that an international market, rather than an Asian market, is appropriate given that substitution between locations for the sale of LNG can and will occur to reflect price differences. However, GLNG agrees that if access to the CRWP Loop would not materially promote competition in an Asian-centred market, then it would also not materially promote competition in a broader international market.

## 7.6 Promotion of competition

Having identified the relevant markets, the NCC must consider whether access to the CRWP Loop would materially increase competition in any of those markets.

GLNG submits that there is no factual basis on which the NCC could be satisfied that access to the CRWP Loop would promote a material increase in competition in the relevant markets. In summary:

- **The upstream production market:** Upstream gas producers in the vicinity of the CRWP Loop already have a range of options for developing their projects which do not depend on access to the CRWP Loop – these include selling gas to or otherwise partnering with any of the major LNG Projects, and obtaining transport on the QGP, and other interconnecting pipelines as described in section 3.9(g)(i) above. Tenements associated with any of the major LNG projects could be developed using infrastructure already developed or to be developed, for those projects.<sup>88</sup> The only independent producer in the vicinity of the CRWP Loop, Blue Energy Limited, holds a tenement which as yet is only developed to the stage of identifying a contingent resource, and has identified the availability of transport on the QGP should this tenement be developed. The constraints that would apply if access was provided on the CRWP Loop (described in section 3.9(g)(i) above), and the costs associated with managing those constraints, mean that such alternative options are likely to continue to be more attractive to upstream gas producers than obtaining access to the CRWP Loop. Accordingly, access to the CRWP Loop would not increase the volume of, or otherwise have any effect on competition in relation, to upstream production.
- **The downstream domestic gas sales in the Gladstone, Rockhampton, Moura and Wide Bay regions:** Customers in these regions are already served by the QGP, including as it interconnects with the other pipeline infrastructure

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<sup>86</sup> Final GLNG Recommendation para 6.14.

<sup>87</sup> GLNG GTP Determination 3.

<sup>88</sup> See also GLNG GTP Determination 3.

identified by ACIL and summarised in section 3.9(g)(i) above. Any gas passing through the CRWP Loop would still need to travel through that existing infrastructure to reach those customers. The constraints that would apply if access was provided on the CRWP Loop (described in section 3.9(g)(i) above), and the costs associated with managing those constraints, mean that such alternative options are likely to continue to be more attractive for transport to domestic customers than obtaining access to the CRWP Loop. Accordingly, access to the CRWP Loop could not be expected to promote any increase in competition in relation to downstream domestic gas sales.

- **The downstream international LNG market:** the global LNG market is a competitive international market;<sup>89</sup> as such there is no factual basis on which to conclude that access to the CRWP Loop on any terms, let alone terms reflecting the operational constraints which apply to the CRWP Loop, could promote any increase in competition in that market.

In the following sections, GLNG describes this analysis in more detail, having regard to the approach outlined by the NCC in the *Gas Guide*.

#### ***Approach outlined in the Gas Guide***

The *Gas Guide* states that coverage criterion (a) should be analysed by considering whether the service provider has an ability and incentive to exercise market power in the relevant dependent market(s). In doing so, GLNG considers that it is helpful to also consider the relevant "form of regulation factors" in section 16 of the NGL. In GLNG's view, the section 16 factors relevant to this application are:

- the presence and extent of any barriers to entry into the market for gas pipeline services;
- the presence and extent of any network externalities (that is, interdependencies) between a natural gas service provided by a service provider and any other natural gas service provided by the service provider;
- the extent to which any market power possessed by a service provider is, or is likely to be, mitigated by any countervailing market power possessed by a user or prospective user;
- the presence and extent of any substitute, and the elasticity of demand, in a market for a pipeline service in which a service provider provides that service; and
- the presence and extent to which GLNG has an incentive to exercise any market power or co-ordinate with third parties to exercise any market power.

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<sup>89</sup> GLNG GTP Determination, 4.

GLNG submits that criterion (a) is not satisfied because GLNG does not have the ability or incentive to exercise market power in any dependent market when these factors are applied to the CRWP Loop.

***Promotion of competition in upstream production market***

GLNG submits that it does not have the ability to exercise market power in the upstream production market because there are alternative pipelines.

This includes:

- in relation to gas being shipped to Curtis Island, the pipelines being developed as part of the other major LNG projects, which are a key source of facilities based competition among LNG producers; and
- in relation to gas being shipped to domestic customers in the dependent domestic markets, the QGP, in conjunction as applicable with other pipelines such as the Dawson Valley Pipeline and/or the Wide Bay Pipeline.

The development of the QGP over recent years to meet increased demand (discussed in section 6.7 above) suggests that any barriers to entry not insurmountable for other providers of the pipeline service.

In addition, the commercial imperative of GLNG and the Participants is to use the CRWP Loop to maximise the output of the LNG Facility and meet the Participants' contractual offtake commitments as described in section 3.6. Even if GLNG had market power by means of its control of the CRWP Loop, this imperative means that GLNG would have no incentive to exercise market power in the upstream production market.

(a) **Barriers to entry**

The CRWP Loop is an integral part of, and will be fully utilised supporting, the GLNG Project. Any usage by a third party will necessarily be limited by the requirements of the Participants and capacity would only be available on an interruptible basis, and subject to the constraints and associated costs described in section 3.9(g)(i) above.

In this context there can be no suggestion that any economies of scale or other factors associated with the CRWP Loop give rise to any barriers to entry that could be said to create market power on the part of GLNG. Rather, any such barriers to entry, to the extent that they exist, are surmountable. This is demonstrated by the fact that the QGP has been expanded previously and further expansion is under consideration (as discussed in section 6.7 above). The QGP, including as it may be expanded, would provide a viable and preferable alternative to use of the CRWP Loop. This conclusion is strongly reinforced by the substantial recent investment in pipeline infrastructure in connection with the other major LNG projects described in section 4 above.

(b) **Alternative pipelines / substitutability of pipeline services**

There are alternative pipelines available to transport gas produced by upstream producers.

The large CSG producers in the Surat and Bowen basins have already constructed or proposed their own pipelines to serve their LNG facilities at Curtis Island. Those producers can be expected to use those pipelines in preference to seeking use of the CRWP Loop, and hence those pipelines are relevant alternative pipelines to be considered for this purpose.

Further, the QGP can be used to provide the same pipeline service which would be provided by the CRWP Loop. As noted, the only independent CSG producer within 50 kilometres of the CRWP Loop is Blue Energy Limited and the QGP runs through the eastern portion of the relevant authority to prospect (ATP 854).

In addition, access to the CRWP Loop within the constraints and with the associated costs identified in section 3.9(g)(i) is unlikely to be attractive to small CSG producers when compared to these alternatives. If ATP 854 were developed, it is highly likely that it would be more economic for it to be connected directly to the QGP rather than the CRWP Loop. Indeed, Blue Energy Limited's own statements suggest it would use the QGP.

(c) **Countervailing power**

There is a degree of artificiality involved in considering the countervailing power of upstream producers in circumstances where there does not appear to be any demand for use of the CRWP Loop.

Nonetheless, to the extent that there was demand from upstream producers for use of the CRWP Loop, those producers would have countervailing power in their dealings with GLNG, because of the opportunities for both small and large producers to economically bypass the CRWP Loop using the alternative pipelines described above. Independent producers would also have alternative means of developing their projects which would not rely on obtaining access, such as selling CSG to the other proponents of the major LNG Projects.

These alternative (and more attractive) options would limit GLNG's ability to exercise any market power that it might be alleged to have.

(d) **Interdependency concerns**

Santos sells gas domestically in Queensland to customers in Mt Isa and Brisbane from the Cooper Basin. These existing contractual arrangements will not change as a consequence of the GLNG Project. GLNG also submits that Santos' ownership in other gas tenements is not a competitive concern because Santos Limited, through its wholly owned subsidiary Santos GLNG Pty Ltd (being one of the Participants) only has a 30% interest in the GLNG Project. The other three



Participants, being wholly owned subsidiaries of PETRONAS, Total and KOGAS, will have the incentive to ensure that they maximise the use of the CRWP Loop and, in doing so, obtain the best price for any capacity in the event that capacity became available in the CRWP Loop to be sold to third parties. While the Participants own the CRWP, this will not affect the availability of other alternative pipelines to upstream producers, or the competitive constraint imposed on the Participants by the availability of those alternative pipelines in the region.

(e) **Coordinated conduct**

GLNG submits that there is minimal risk of coordinated conduct between pipeline owners regarding supply of pipeline services.

GLNG has no incentive to engage in coordinated conduct because GLNG's commercial incentive is to use the CRWP Loop to maximise the volume of gas supplied to the LNG Facility for liquefaction and export either under existing foundation buyer contracts or through spot sales. (As noted in the GLNG GTP Determination, GLNG has little incentive to restrict LNG production, because the global LNG market is already a competitive market, and it is unlikely that GLNG would be able to influence world prices.<sup>90</sup>) Given that the Participants intend to use all of the capacity in the CRWP, there is unlikely to be capacity available for third parties such as could be the subject of coordinated conduct (and any such capacity would be subject to the constraints and associated costs identified in section 3.9(g)(i)), and there is, at any rate, little if any potential demand for use of the CRWP Loop. Even if such demand existed, the existence of alternative pipelines to the CRWP Loop (including the QGP, which is not dedicated to any of the major LNG Projects), as discussed in section 7.6(b) above, means the prospect of any such coordination is at most remote.

***Promotion of competition in downstream domestic gas sales***

GLNG does not have market power, nor the ability or incentive to exercise market power, in the downstream domestic gas sales market for reasons similar to those set out above regarding the upstream production market.

In particular, purchasers in the downstream domestic gas sales market have other and more attractive alternative pipelines, and other gas resources (ie sources other than the Gas Fields) available to source supply. Use of alternative pipelines would not be subject to the same constraints and associated costs that apply in relation to the CRWP Loop. Any third party seeking to use the CRWP Loop would still depend on use of these other pipelines to reach domestic markets. The availability of the QGP as a viable and preferable alternative means that, GLNG does not have market power in the downstream domestic sales market.

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<sup>90</sup> GLNG GTP Determination 3-4.

(f) **Barriers to entry**

The discussion of barriers to entry in relation to the upstream production market is also relevant to the downstream domestic sales market. The existence and recent expansion of the QGP shows that there are no insurmountable barriers to entry to compete with the CRWP Loop as a means of servicing the downstream domestic market.

(g) **Alternative pipelines / substitutability of pipeline services**

As for the upstream producers discussed above, there are several alternative pipelines that serve the downstream Gladstone, Rockhampton, Moura and Wide Bay regions, including the QGP and pipelines able to be interconnected with it (such as the Dawson Valley Pipeline,) and the Wide Bay Pipeline. It is also relevant to consider any spare capacity that might be available on the other pipelines proposed by other parties intending to develop LNG facilities at Curtis Island, which might be able to be interconnected with those pipelines.

Any gas that meets the general specification for the Australian market (AS 4564 Australian Standard Specification for General Purpose Natural Gas) can service demand in the downstream domestic gas sales market and this gas may be transported from gas fields, both current and prospective, in a wide range of areas (see section 5.1 above).<sup>91</sup> As explained in section 7.5(b) above, the only independent CSG producer for which access to the CRWP Loop may be economic only has a contingent resource. It is highly unlikely that CSG produced from this resource would be transported through the CRWP Loop, and much more likely that it would be transported using the QGP.

(h) **Countervailing power**

Countervailing power in the downstream gas market varies from customer to customer depending on that customer's size and demand for gas. The key customers in these markets are described in section 2.14 of ACIL's report. GLNG submits that there is likely to be strong countervailing power held by downstream customers, given the availability of an alternative and pipeline, preferable and alternative sources of gas.

(i) **Interdependency concerns**

The same analysis discussed in section 7.6(d) applies regarding the downstream domestic gas sales market.

(j) **Co-ordinated conduct**

The lack of incentive for GLNG to engage in co-ordinated conduct discussed in section (e) above is also relevant to the downstream domestic market. Further,

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<sup>91</sup> Including for example, from all gas fields able to deliver gas to the Wallumbilla Hub.

the fact that GLNG expects to use all of the CRWP Loop's capacity to transport gas to the LNG Facility solely for export means it would have no incentive to engage in coordinated conduct in relation to this domestic market.

***Promotion of competition in downstream LNG market***

The downstream global LNG market is already a competitive international market,<sup>92</sup> and neither GLNG nor the Participants will have market power in this market. Further, even if it was possible to expand the capacity of the CRWP Loop, the incremental capacity created by that expansion would not be sufficient to support the development of new liquefaction facilities or an increase in production of LNG on a scale that could be material in the context of that market. Regardless, it appears highly unlikely that the CRWP Loop would be used by a third party to deliver CSG to an LNG Facility, and more likely that dedicated pipelines would be used for that purpose. Accordingly, access to the CRWP Loop is highly unlikely to affect competition in that market. This reflects the conclusions of the NCC in the Final QCLNG Recommendation, Final APLNG Recommendation and Final GLNG Recommendation, each of which related to pipelines with greater scale than the CRWP Loop (albeit still highly remote) and therefore a greater possibility of affecting downstream competition.

(k) **Barriers to entry**

The comments in relation to barriers to entry in section 7.6(a) apply similarly to the downstream LNG market.

The international LNG market is highly competitive. The market is supplied by multiple LNG facilities across the world, and more facilities are expected to be constructed to meet increasing worldwide demand as discussed in section 5.4 above. The recent and rapid expansion of supply into this market demonstrates that barriers to entry to this supply are readily surmountable.

(l) **Alternative pipelines / substitutability of pipeline services**

Two other LNG producers have constructed their own pipelines to transport gas to their LNG facilities at Curtis Island. This reflects the need for a secure gas supply (including secure and uninterrupted pipeline transportation) to support the significant investment decision required to proceed with construction of an LNG facility. It is likely that the proponents of any new or expanded LNG facility would prefer to develop or expand their own pipeline(s) rather than rely on access to the CRWP Loop given the relative size of the investment required to develop a pipeline similar to the CRWP Loop and an overall LNG project, the volume of feed gas required to be transported for supply to an LNG facility for such a facility to be viable, and the additional operational control that developing another pipeline would provide.

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<sup>92</sup> GLNG GTP Determination 4.

(m) **Countervailing power**

The number of alternative pipelines and LNG facilities that are expected to be built worldwide, the competitiveness of the international LNG market and the fact that purchasers of LNG are generally large with significant countervailing power (eg state owned enterprises) indicates that customers in the international LNG market will have strong countervailing power.

(n) **Interdependency concerns**

The same interdependency analysis applies in the downstream LNG market as in the upstream production market. However, these interdependencies are even less likely to have any competitive impact on the downstream LNG market because the effect of Santos' ownership of additional gas fields is negligible given the relatively small capacity of the CRWP Loop and LNG Facility in the context of the global LNG export market.

(o) **Coordinated conduct**

The discipline of competition in the global LNG market, and the commercial imperative of GLNG and other LNG producers to maximise LNG export volumes, fulfil their offtake commitments and earn a return on their substantial investment in their LNG projects means that there is extremely limited potential for co-ordinated conduct among GLNG and its competitors in the LNG export market.

Even if, contrary to the analysis above, there was material demand for access to the CRWP Loop, and the constraints and associated costs identified in section 3.9(g)(i) above did not exist, the maximum capacity to which GLNG estimates that the CRWP could be expanded is 1500 TJ/day – ie, an increment in design capacity of 750 TJ/day. Even in the unlikely event that all of this capacity was installed and available to third parties to deliver additional LNG to the international LNG market, it is highly unlikely that an increment of this scale could have any bearing on competition in the international LNG market, in which over 200 mtpa of LNG is already traded on an annual basis.

**Conclusion**

For the reasons outlined above, GLNG submits that access to the pipeline services provided by means of the CRWP Loop will not promote a material increase in competition in the upstream production, downstream domestic gas or downstream LNG markets identified. Accordingly, there is no factual basis on which the NCC can be satisfied that criterion (a) would be satisfied in relation to the CRWP Loop.

## 8. CRITERION (C) – HEALTH AND SAFETY

### 8.1 Statutory test

Under criterion (c), the NCC must recommend that the exemption be granted if it is not satisfied:

that access (or increased access) to the pipeline services provided by means of the pipeline can be provided without undue risk to human health or safety.

- NGL

### 8.2 Gas Guide

In the *Gas Guide*, the NCC states the following:

The rationale for this criterion is that coverage should not occur where access (or increased access) to pipeline services may pose a legitimate risk to human health or safety.<sup>93</sup>

- NCC

The NCC comments in the *Gas Guide* that access must be possible without compromising system and operational integrity, and safe scheduling must be feasible. The NCC and Minister have previously adopted an analysis of criterion (c) that is consistent with the view that the existence of relevant safety regulations in Queensland, and the NGL provisions relating to the safe operation of pipelines in the context of access arrangements, satisfy this criterion.<sup>94</sup>

### 8.3 Application of criterion (c) to the Pipeline

GLNG will operate the CRWP Loop in accordance with its petroleum pipeline licence, all applicable Queensland and Federal laws and good industry practice, which will ensure that human health and safety is not at risk as a result of the operation of the CRWP Loop.

### 8.4 Conclusion

GLNG does not consider that human health or safety would be at risk if parties were to access the services provided by the CRWP Loop.

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<sup>93</sup> NCC *Gas Guide* para 3.97.

<sup>94</sup> Final QCLNG Recommendation, para 6.89; Final APLNG Recommendation, para 8.4; Final GLNG Recommendation, para 8.4; Decision of the Hon Martin Ferguson AM MP, Commonwealth Minister for Resources and Energy on APLNG's no-coverage application (28 August 2012) 4-5. Decision of the Hon Martin Ferguson AM MP, Commonwealth Minister for Resources and Energy on QCLNG's no-coverage application (15 June 2010) 5.

## 9. CRITERION (D) – PUBLIC INTEREST

### 9.1 Statutory test

Under criterion (d), the NCC must recommend that the exemption be granted if it is not satisfied:

that access (or increased access) to the pipeline services provided by means of the pipeline would not be contrary to the public interest

- NGL

### 9.2 Gas Guide

In the *Gas Guide*, the NCC comments, in relation to the application of criterion (b) when determining whether a pipeline should be covered, that [footnotes omitted]:

The Council considers that the preferable approach to coverage criterion (d) is to seek to identify any matter that could mean access (or increased access) might be contrary to the public interest and then assess whether the likelihood and consequences of that matter lead to a conclusion that access is contrary to the public interest. The Council considers that this approach is consistent with the Pilbara HCA decision in that it involves a judgment that the Council is well able to advise on, and a Minister is well placed to make, rather than a detailed technical examination of costs and benefits for which only partial information is likely to be available.<sup>95</sup>

- NCC

In addition to the National Gas Objective, the *Gas Guide* lists a number of factors that the NCC is likely to take into consideration when considering the "public interest", including relevantly:

- efficiency;
- regulatory costs;
- disruption costs; and
- impact on investment.<sup>96</sup>

### 9.3 Relevant decisions

A finding that criterion (c) is satisfied does not depend on a finding that access would promote the public interest. Rather, criterion (d) tests whether access would not be contrary to the public interest, taking into account the overall costs and benefits of access.<sup>97</sup>

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<sup>95</sup> NCC *Gas Guide* para 3.112.

<sup>96</sup> NCC *Gas Guide* paras 3.114 to 3.134.

<sup>97</sup> *Re Duke Eastern Gas Pipeline* [2001] ACompT 2, in reference to criterion (f) of Part IIIA CCA.

The term "public interest" is not defined. The High Court in Pilbara HCA emphasised the broad nature of the inquiry that is to be undertaken by the Minister:<sup>98</sup>

Because so many different kinds of consideration may be relevant to an assessment of what is "contrary to the public interest", many if not all those matters which can be described as "social costs" *could* be relevant to that assessment. And the significance to be attached to such social benefits would, no doubt, be affected by the existence of any countervailing social benefits. But it is important to keep at the forefront of consideration that ... the Minister has been satisfied that access or increased would *not* be contrary to public interest.<sup>99</sup>

- High Court of Australia, Pilbara HCA

The NCC must undertake a similarly broad inquiry when making its recommendation to the Minister.

#### 9.4 **NCC's recommendation / Minister's decision in other applications**

In its Final GLNG Recommendation, the NCC said:

... the Council's finding that access would not promote a material increase in competition in any likely dependent market (in the absence of any other potential benefits) is critical. Given that there are some costs that would result from coverage of the GLNG Pipeline, the Council is not satisfied that access to the pipeline services would not be contrary to the public interest.

- NCC

In his decision on the application for a 15 year no-coverage determination for the GLNG GTP, the Minister noted the "not inconsequential" costs associated with regulation through coverage of the GLNG GTP, and found as follows:

... In light of my findings under criterion (a) that access to the pipeline is unlikely to promote a material increase in competition, without any other apparent public benefit, access is likely to be contrary to the public interest.<sup>100</sup>

- Minister for Resources and Energy

The NCC's and Minister's other no-coverage recommendations and determinations for the QCLNG pipeline and APLNG pipeline included similar conclusions in relation to criterion (d).

#### 9.5 **Our approach**

GLNG has submitted that criteria (a) and (b) are not satisfied with respect to the CRWP Loop as set out in sections 6 and 7 above. Consequently, GLNG submits that the application for a 15-year no-coverage exemption must be granted, and there is no further need to consider criterion (d).

Nonetheless, GLNG submits that, adopting the approach adopted by the NCC and the Minister in relation to the no-coverage determination regarding the GLNG GTP, the NCC cannot be satisfied of criterion (d) in relation to the CRWP Loop.

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<sup>98</sup> Pilbara HCA, para 111-112 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

<sup>99</sup> Pilbara HCA, para 111 per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

<sup>100</sup> Decision of the Hon Gary Gray AO MP, Commonwealth Minister for Resources and Energy on GLNG's no-coverage application (20 June 2013) 5.

In particular:

- There is extremely limited if any third party demand for use of the CRWP Loop, there are more attractive options available to any third party who might in theory seek to use the CRWP Loop, use of that service would at any rate provide an incomplete route to market, and accordingly, there is no prospect of any increase in competition occurring as a result of access to the CRWP Loop.
- In the absence of any promotion of competition as a result of access, there is no other possible public benefit from access to the CRWP Loop.
- Coverage of (and hence access to) the CRWP Loop would involve not inconsequential regulatory costs; it would also involve substantial further forms of costs, risk and investment disincentives, as described in sections 9.7 and 9.8 below.
- Accordingly, in the absence of a public benefit from access to the CRWP Loop, and the presence of not inconsequential costs associated with access, the NCC cannot be satisfied that access (or increased access) to the pipeline services provided by means of the CRWP Loop would not be contrary to the public interest, and so must find that criterion (d) is not satisfied.

GLNG submits that, even if GLNG is wrong in its submission that criterion (a) and (b) are not satisfied, the costs, risks and disincentives from access to the CRWP Loop are so substantial as to render access to the CRWP Loop contrary to the public interest, such that criterion (d) cannot be satisfied.

As support for this analysis, GLNG considers below the factors identified by the NCC in the *Gas Guide*, drawing on the conclusions of the Minister in previous no-coverage determinations. As this analysis shows, GLNG considers that there are no likely benefits, and substantial likely detriments, from access to the CRWP Loop.

## 9.6 Regulatory Costs

The NCC has recognised that the substantial regulatory costs sometimes associated with access regimes may outweigh the benefits of granting access.<sup>101</sup> The presence of regulatory costs, in the absence of any competition benefits from access, was determinative in the NCC's and Minister's analysis of criterion (d) in relation to the GLNG GTP.

GLNG has estimated that the regulatory costs that GLNG would likely and reasonably incur in the absence of a 15 year no-coverage determination in relation to the CRWP Loop, during the first five years following the Minister's decision not to make that determination, would include:

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<sup>101</sup> Final QCLNG Recommendation" para 6.97; Final APLNG Recommendation para 9.10; Final GLNG Recommendation" para 9.10.



- between AU\$365,000 and AU\$435,000 in relation to the initial development and implementation of an access arrangement (equivalent to an annual cost of \$73,000 to \$87,000 if amortised over the first five years of that period);
- an ongoing annual cost to comply with the requirements of full regulation under the NGL of AU\$130,000 to AU\$190,000; and
- between AU\$23,000 and \$36,000 per annum associated with tariff adjustments and access negotiations and disputes.

This equates to a total cost of AU\$226,000 to AU\$313,000 in each year of this initial five year period. Annexure 6 provides further details regarding calculation of this estimate.

This estimate is based on the experience and expertise of GLNG and the Participants. GLNG considers that these costs are a reasonable estimation of the likely regulatory costs from the CRWP Loop being covered, They are in no way based on a "worst case" scenario, or an estimate which is "very much at the high end" of those likely costs.<sup>102</sup>

There is no public interest benefit associated with requiring GLNG and the Participants to bear these costs in circumstances where there would be no competition or other public interest benefit from providing access to the CRWP Loop. Access would be contrary to the public interest in these circumstances. Even if, contrary to GLNG's submission, access would give rise to some promotion of competition such that the NCC considered that criterion (a) was satisfied, costs of the magnitude described in this section may nonetheless offset any such competition benefits, such that criterion (d) would not be satisfied in relation to the CRWP Loop.

#### 9.7 **Costs and risks associated with access to the CRWP Loop in the context of the GLNG Project**

The CRWP Loop is an integral part of the GLNG Project, and GLNG intends to use all of the capacity in the CRWP Loop to facilitate the transport of gas, and maintain the operational flexibility and storage, required for LNG production from that project (as described in section 3.2 above).

Third party access to the CRWP Loop in this context would give rise to the following costs and risks.

- (a) Access to the CRWP Loop would create substantial risks regarding the Participants' efficient use of the CRWP Loop in the context of the GLNG Project. In particular, if access was granted without material expansion, and creation of genuinely spare capacity, or otherwise on terms which reduced the Participants' ability to operate the full CRWP Loop efficiently and flexibly to manage variability associated with the GLNG Project, then the likely consequences would include substantial risk of:

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<sup>102</sup> Final GLNG Recommendation" para 9.10.

- (i) inefficiencies, in terms of reduction in the Participants' ability to manage variability during the LNG Facility commissioning phase, Gas Fields ramp up and planned and unplanned maintenance and shutdowns (particularly prior to commissioning of Train 2); and
  - (ii) wasted or lost production and/or sales (which could occur due to the need to undertake gas flaring, turn down gas wells and/or reduce Third Party Gas deliveries); lost revenue from foregone LNG exports; and contractual liability associated with delay in or failure to supply under offtake agreements, and/or to acquire contracted Third Party Gas.
- (b) Access to the CRWP Loop, even on terms which required third parties to comply with the necessary gas specifications, would materially increase the risk of off-specification gas entering the CRWP Loop, GLNG GTP and LNG Facility. As described in sections 3.9(a) and 3.9(j) the applicable gas specification for the CRWP Loop, GLNG GTP and LNG Facility is narrower than the National Gas Specification AS4654. [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

9.8 Investment uncertainty and disincentives

As noted above, in making his decision on the GLNG GTP Application, the Minister considered:

In line with the National Gas Objective, it is important to encourage efficient investment in capital intensive infrastructure assets such as gas transmission pipelines. The granting of a no-coverage determination improves regulatory certainty for investors.<sup>103</sup>

- Minister for Resources and Energy

The Minister also emphasised this issue in his decisions on the QCLNG Pipeline application and the APLNG Pipeline application.<sup>104</sup> The potential for access regulation and associated regulatory uncertainty to give rise to investment disincentives is well recognised.<sup>105</sup>

<sup>103</sup> Decision of the Hon Gary Gray AO MP, Commonwealth Minister for Resources and Energy on GLNG's no-coverage application (20 June 2013) 5.

<sup>104</sup> Decision of the Hon Martin Ferguson AM MP, Commonwealth Minister for Resources and Energy on QCLNG's no-coverage application (15 June 2010); Decision of the Hon Martin Ferguson AM MP, Commonwealth Minister for Resources and Energy on APLNG's no-coverage application (28 August 2012).

<sup>105</sup> Competition Policy Review, *Draft Report*, September 2014, 268, citing Productivity Commission 2013, National Access Regime, pages 215-216, 237-240.

If a no-coverage determination is not made for the CRWP Loop, significant regulatory and investment uncertainty would result. In particular:

- (a) As set out in this application, GLNG considers that coverage criteria (a), (b) and (d) are clearly not satisfied in relation to the CRWP Loop, such that a 15 year no-coverage determination should be granted in relation to the CRWP Loop. However, if the no-coverage determination was not granted in these circumstances, this would increase uncertainty about the meaning and application of the coverage criteria in future cases, and this uncertainty would be relevant to future decisions by GLNG regarding investment in pipeline and related infrastructure which appeared to satisfy the requirements for a 15 year no-coverage application.
- (b) Further, if the 15 no-coverage application was not granted, this would raise the prospect for GLNG and the Participants of incurring the costs associated with access described in sections 9.6 and 9.7. The uncertainty about whether and to what extent these costs might be incurred may impact future investment decisions regarding the GLNG Project, such as expansion opportunities.

In addition, uncertainty of the types outlined above may similarly impact on investment and related operational decisions<sup>106</sup> by participants in the wider LNG and pipelines industry in Australia. Increasing the uncertainty regarding whether 15 year no-coverage determinations will be granted may result in some parties reassessing the commercial viability of their proposed projects or later expansion plans, including related operational matters. This could substantially affect the industry's long term growth potential and would be contrary to the National Gas Objective. The fact that a pipeline investment may proceed notwithstanding that it is not granted a 15-year no-coverage determination, and/or becomes covered under the NGL, does not determine the question whether the associated regulatory uncertainty gives rise to investment disincentives and related costs. Rather, it is the fact of this uncertainty as to when no-coverage determinations will be granted, and the consequences for industry participants if they are not granted (such as those described in sections 9.6 and 9.7 above) which can negatively impact on investment and related operational decisions by a particular applicant such as GLNG, as well as by other industry participants and potential investors. In GLNG's view, this uncertainty, and its associated impact on investment decision making, is real and material, and should be taken into account as a dynamic efficiency loss under criterion (d).

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<sup>106</sup> For example, the decision by the Participants, described in section 3.2 above, to invest in capacity in the CRWP Loop to enable them to maintain flexibility and storage options to facilitate efficient operation of the GLNG Project.

## 9.9 Economic and regional development

The potential costs and risks associated with access to the CRWP Loop, as described in sections 9.7 and 9.8 above, will have flow on effects regarding the benefits in terms of economic and regional development which are expected to be created as a result of CSG and LNG investments in Australia.

These benefits are significant for a project the size of the GLNG Project, as set out in section 9.11 of the GLNG GTP Application. These include significant increases in Australia's gross domestic product and Queensland's gross state product, as well as increased revenue for the State of Queensland, increased employment and increased regional development, such as noted in section 4.2 above.

It is not possible to estimate precisely the foregone economic and regional development benefits arising from a decision not to grant a 15 year no-coverage determination for the CRWP Loop. However, to the extent that such a decision resulted in:

- (a) The costs and risks associated with:
  - (i) reduced operational flexibility and ability to manage variability in connection with the GLNG Project; and/or
  - (ii) [REDACTED]

as described in section 9.7 above; and/or
- (b) regulatory and hence investment uncertainty, and associated disincentives, for the GLNG Project and other CSG and LNG projects and investment in Australia, as described in section 9.8 above,

then the substantial economic and regional development benefits associated with CSG and LNG projects, such as those associated with the GLNG Project described in section 9.11 of the GLNG GTP Application, could be expected to be reduced commensurately.

## 9.10 Conclusion

There are no discernible benefits to the public expected to result from third party access to the CRWP Loop. As explained in section 7, there are only very limited (and contingent) independent gas resources in the area of the CRWP Loop which might give rise to demand for access to the CRWP Loop, and there are alternative pipelines that would be much more likely to be used to transport gas from that and any surrounding projects. Access to the CRWP Loop will not give rise to any benefits associated with competition in dependent markets.

Even if access to the CRWP Loop was said to give rise to some limited competition benefit, that benefit would be highly speculative and insubstantial at best, and would be far outweighed by the costs associated with the granting of access. As set out above, these costs include:

- regulatory costs incurred by GLNG if the no-coverage application is not granted;
- costs and risks associated with access to the CRWP Loop in the context of the GLNG Project;
- increased regulatory and hence investment uncertainty, and associated investment disincentives, both for the GLNG Project and other CSG and LNG projects in Australia; and
- consequent reductions in the economic and regional development benefits associated with the development of CSG and LNG Projects in Australia.

Therefore, GLNG submits that access to the CRWP Loop would be contrary to the public interest and that, consequently, criterion (d) is not satisfied.

## 10. COMPLIANCE CHECKLIST

The information required by rules 121 and 122 of the National Gas Rules (the **NGR**) is contained in this application as follows:

Rule	Requirement	Summary	Location in application
121(1)(a)	The route of the pipeline.	The CRWP Loop runs north and northwest for 119 kilometres from the Wallumbilla Gas Hub (south of the township of Wallumbilla) to PCS-01 (inlet to the GLNG GTP).	Section 3.9(c)
121(1)(b)	The end points of the trunk of the pipeline (i.e. the points defining the extremities, where the trunk begins and ends).	Longitude 149° 10° 54° E; Latitude 26° 41° 36° S (Wallumbilla Gas Hub) and Longitude 148° 55° 46° E; Latitude 25° 45° 13° S (PCS-01)	Section 3.9(c)
121(1)(c)	If a lateral forms part of the pipeline – the point where the lateral interconnects with the trunk and the end point of the lateral.	The CRWP Loop has one lateral, the R-HCS-02 Transmission Line (PPL148), at kilometre point 31 (measured from Wallumbilla). The lateral ends at Roma Hub Compressor Station 2 (R-HCS-02), near Roma, Queensland.	Section 3.9(d)
121(1)(d)	The range of diameters for the principal pipes (including laterals).	The CRWP Loop will have an external diameter of 610 millimetres (24 inches).  The R-HCS-02 Transmission Line (lateral) has a diameter of 500 mm (20 inches).	Sections 3.9(a) and 3.9(d)
122(1)(a)	The name and contact details of the applicant.	The applicants are Santos, GLNG Pty Ltd, PAPL (Downstream Pty Ltd), KGLNG Liquefaction Pty Ltd and Total GLNG Australia ( <b>the Participants</b> ). GLNG Operations Pty Ltd makes this application on behalf of the Participants as the Participants' agent. The applicants' contract details are set out in section 1.2.	Section 1.2

Rule	Requirement	Summary	Location in application
122(1)(b)	A short description sufficient to identify the pipeline and its route together with a website address at which a map of the route, and a description, of the pipeline can be inspected.	<p>A description and map of the CRWP Loop's route can be accessed at the links below:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.santosglng.com/media/pdf5127/20150120crwp_loop_description.pdf">http://www.santosglng.com/media/pdf5127/20150120crwp_loop_description.pdf</a>;</li> <li>and</li> <li>• <a href="http://www.santosglng.com/media/pdf5128/20150120crwp_loop_mapofroute.pdf">http://www.santosglng.com/media/pdf5128/20150120crwp_loop_mapofroute.pdf</a>.</li> </ul>	Section 3.9(c); Annexure 5
122(1)(c)	A statement of the basis on which the project for the construction of the pipeline is to be regarded as a greenfields pipeline project.	The CRWP Loop is a greenfields pipeline project because it will be structurally separate from any existing pipeline and able to operate independently of other existing pipelines.	Section 3.11
122(1)(d)	A statement of expenditure already made on the construction of the pipeline and an estimate of the expenditure yet to be made together with a statement of the basis on which the estimate has been made.	<p>The Participants have committed approximately [REDACTED] on the design and construction of the CRWP Loop as at October 2014. The design and construction of the CRWP Loop will cost an estimated [REDACTED] excluding compression.</p> <p>Compression will be provided by APA to GLNG [REDACTED]</p>	Section 3.9(f)

Rule	Requirement	Summary	Location in application
122(1)(e)	An estimate of the pipeline's capacity and an estimate of the extent to which the pipeline's capacity is likely to be utilised by the applicant or associates of the applicant.	The CRWP Loop will have design capacity of 750 TJ/d. The capacity of the CRWP Loop has been designed specifically to meet the requirements of the Participants for the supply of gas from the Gas Fields (Roma), the Roma Underground Storage Facility and Third Party Gas to the GLNG GTP and LNG Facility. The CRWP Loop has not been designed to have capacity in excess of the Participants' requirements.	Section 3.9(b)
122(1)(f)	A statement of the services to be provided by means of the proposed pipeline.	<p>Gas transportation services to the Participants:</p> <ul style="list-style-type: none"> <li>• from the Wallumbilla Gas Hub (at a point adjacent to the APA compressor station) to the GLNG GTP inlet (at PCS-01);</li> <li>• from the Gas Fields (Roma) and the Roma Underground Gas Storage Facility (at the R-HCS-02 Transmission Line tie-in at KP31) to the GLNG GTP inlet (at PCS-01)</li> </ul> <p>for ultimate delivery to the LNG Facility.</p>	Section 3.9(e)
122(1)(g)	A statement of the locations to be served by the proposed pipeline and, in relation to each downstream location, a statement of other sources of natural gas available at the relevant location.	<p>The CRWP Loop connects the Wallumbilla Gas Hub, the Gas Fields (Roma) and the Roma Underground Gas Storage Facility (at the R-HCS-02 Transmission Line tie-in at KP31) to the GLNG GTP inlet (at PCS-01) located at Fairview.</p> <p>The Participants will use the CRWP Loop to connect to the GLNG GTP in order to transport gas to the LNG Facility at Curtis Island.</p> <p>In theory, the CRWP Loop could also be used, in combination with interconnections to other pipelines, as part of a service to transport gas to other LNG Facilities at Curtis Island, and to domestic customers in the Gladstone, Rockhampton, Moura and Wide Bay regions. Other sources of gas available to customers at these locations are:</p> <ul style="list-style-type: none"> <li>• producers in the Surat and Bowen basins (supplying via the QGP, with appropriate interconnections to other pipelines as described in section 3.9(g)(i) above); and</li> <li>• producers in other areas able to connect to the QGP).</li> </ul>	Section 3.9(e) and 3.9(g)(i)



Rule	Requirement	Summary	Location in application
122(1)(h)	A statement of any existing pipelines, and any proposed pipelines of which the applicant is aware, that serve (or will serve) any of the same locations or that pass (or will pass) within 100 km of any of the same locations.	The pipelines within 100 kilometres of the CRWP Loop are listed in section 3.9(h).	Section 3.9(h)
122(1)(i)	An estimate of the reserves of natural gas available at any upstream location to be served by the pipeline and an estimate of the rate of production from that location.	<p>The AER estimates that the Surat-Bowen basin has 41,156 PJ of proved and probable CSG reserves and 131 PJ of proved and probable conventional natural gas reserves as at February 2014.<sup>107</sup></p> <p>It is not possible for GLNG to estimate the reserves of producers within 50 kilometres of the CRWP Loop.</p>	Section 5.1
122(1)(j)	An estimate of expected demand at each downstream location to be served by the pipeline including for each location a description of the expected customer base and an indication of the revenue expected from each location.	<p>There is no demand for gas anticipated at the gas field at Fairview (ie the location of PCS-014), independent of the demand from the Participants for transportation to the LNG Facility through the GLNG GTP).</p> <p>Estimated demand for gas in the Gladstone, Rockhampton, Moura and the Wide Bay regions is described in section 5.2.</p> <p>GLNG expects demand from the LNG facilities being developed at Curtis Island to be approximately 1,500 PJ/a (assuming that only the GLNG Project and the LNG facilities being developed by QCLNG and APLNG are developed). Estimated demand in the global LNG market is described in section 5.3.</p> <p>GLNG has not developed the CRWP Loop for the purpose of earning revenue through the supply of services to third parties using that pipeline, and GLNG expects that it will earn no such revenue.</p>	Section 3.1, 5.2, 5.3

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Australian Energy Regulator "State of Energy Market 2014" (December 2014), 90.

Rule	Requirement	Summary	Location in application
122(1)(k)	The identity of all parties with an interest in the proposed pipeline and the nature and extent of each interest.	The Participants and owners of the CRWP Loop are Santos, GLNG Pty Ltd, PAPL (Downstream Pty Ltd), KGLNG Liquefaction Pty Ltd and Total GLNG Australia.  GLNG Operations Pty Ltd is appointed as the Operator to construct and operate the CRWP Loop as agent for the Participants. The Participants have shareholdings in GLNG proportional to their joint venture interest.	Section 1.1
122(1)(l)(i)	A description of any relationship between the owner, operator and controller of the pipeline (or any 2 of them).	See above.	Sections 1.1 and 3.8
122(1)(l)(ii)	A description of any relationship between the owner, operator or controller of the pipeline and a user of pipeline services or a supplier or consumer of gas in any of the locations served by the pipeline.	Uncontracted gas from Santos' tenements in the Bowen and Surat basins that are not part of the Gas Fields could theoretically be sold as third party gas to the Participants for the GLNG Project.  Santos will continue to supply gas to customers in Mt Isa and Brisbane under existing contracts.	Section 3.8
122(1)(l)(iii)	A description of any relationship between the owner, operator or controller of the pipeline and the owner, operator or controller of any other pipeline serving any one or more of the same locations.	The Participants own the CRWP, which runs parallel with the CRWP Loop, and the GLNG GTP which both the CRWP and CRWP Loop connect to at Fairview. The CRWP and GLNG GTP serve a similar upstream production market location to the CRWP Loop.  PPL 76, PPL 92, PPL 147, PPL 152 and PPL 164 are also held by GLNG Upstream Entities or the Participants and form part of the GLNG Project downstream set of assets serving any one or more of the same locations	Section 3.8

Rule	Requirement	Summary	Location in application
122(1)(m)	A statement of whether it would be feasible to expand the capacity of the pipeline and, if so, an explanation of how the capacity might be expanded and an estimate of the cost.	<p>Expansion of the CRWP Loop is not currently contemplated by the Participants. GLNG considers it may be feasible to expand the CRWP Loop by adding compression or looping the pipeline.</p> <p>A compression station could be installed at the CRWP Loop mid-point to increase the design capacity from 750 TJ/day to 1075 TJ/day, but major modifications would also be required at each end of the pipeline to accommodate the increased gas flow. Preliminary estimated cost would be [REDACTED].</p> <p>Partial looping for a relatively short pipeline such as the CRWP Loop is unlikely to be considered. Constructing a second loop of the same diameter for the entire length of the CRWP Loop would add design capacity of 750 TJ/day but would essentially be no different to constructing a new pipeline. The estimated cost of constructing a 24 inch diameter pipeline adjacent to the CRWP Loop would be of the order of [REDACTED].</p> <p>For both expansion options, additional compression at Wallumbilla would be required. An estimate of the cost to increase compression to 1,075 TP/day would be around [REDACTED].</p>	Section 3.9(i)
122(1)(n)	An estimate of the annual cost to the service provider of regulation.	GLNG estimates the annual cost associated with regulation under the NGL to be between AU\$226,000 and AU\$313,000.	Section 9.6 and Annexure 6

## DICTIONARY

**2P** means proved and probable.

**AER** means the Australian Energy Regulator.

**APLNG** means Australia Pacific LNG Pty Ltd.

**APLNG Project** means the APLNG Project described in section 4.1.

**Bechtel** means Bechtel Australia Pty Ltd and Bechtel Oil, Gas and Chemical Inc.

**BG Group** means BG Group plc.

**CCA** means the *Competition and Consumer Act 2010* (Cth).

**CRWP** means the existing pipeline transporting gas between Comet Ridge and Wallumbilla, which is owned by the Participants and operated by GLNG as part of the GLNG Project.

**CRWP Loop** means the pipeline the subject of this application described in section 3.9.

**CS2** means Compressor Site 2.

**CSG** means coal seam gas.

**DES** means delivered ex ship.

**EIS** means Environmental Impact Statement.

**EPC Contract** means an engineering, procurement and construction contractual arrangement.

**FEED** means front end engineering and design.

**Final APLNG Recommendation** means the NCC's final recommendation to the Minister dated 17 July 2012 on APLNG's no-coverage application.

**Final GLNG GTP Recommendation** means the NCC's final recommendation to the Minister dated 22 May 2013 on GLNG's no-coverage application.

**Final QCLNG Recommendation** means the NCC's final recommendation to the Minister dated 5 May 2010 on QCLNG's no-coverage application.

**Gas Fields** means the coal seam gas fields owned by the GLNG Upstream Entities as shown in Annexure 4.

**Gas Guide** means a publication by the NCC entitled *A Guide to the functions and powers of the National Competition Council under the National Gas Law*, dated October 2013.

**GLNG** means GLNG Operations Pty Ltd.

**GLNG GTP** means the pipeline constructed by GLNG on behalf of the Participants to transport gas from Fairview to the LNG Facility at Curtis Island, which is the subject of a no-coverage determination by the Minister dated 20 June 2013.

**GLNG GTP Application** means the application for a no-coverage determination for the GLNG GTP submitted to the NCC by GLNG on behalf of the Participants on 12 March 2013.

**GLNG GTP Determination** means the 15 year no-coverage determination made by the Honourable Gary Gray AO MP, Minister for Resources and Energy, on 20 June 2013, including the statement of reasons provided with that determination.

**GLNG Project** means the Gladstone LNG project which is comprised of three inter-related and inter-dependent infrastructure facilities being the Gas Fields, the GLNG GTP, and the LNG Facility and related infrastructure such as the CRWP and CRWP Loop.

**GLNG Upstream Entities** means those entities identified as upstream entities in Annexure 2.

**ITT** means invitation to tender.

**KOGAS** means the Korea Gas Corporation.

**LNG** means liquefied natural gas.

**LNG Facility** means the Participants' facility at Curtis Island which cools natural gas to the point in which it turns into a liquid for export as described in section 3.5.

**Minister** means the Commonwealth Minister for Resources and Energy.

**Mtpa** means million tonnes per annum.

**National Gas Objective** means the national gas objective set out in section 23 of the NGL.

**NCC** means the National Competition Council.

**NGL** means the National Gas Law.

**NGR** means the National Gas Rules.

**Participants** means the parties described as such at section 1.1 and as otherwise identified as downstream entities in Annexure 2.

**PCS-01** means pipeline compressor station 01.

**PETRONAS** means Petroliam Nasional Berhad.

**Pilbara HCA** means the High Court's decision in *The Pilbara Infrastructure Pty Limited v Australian Competition Tribunal* 246 CLR 379.

**QCLNG Project** means the QCLNG Project described in section 4.1.

**QGC** means QGC Pty Ltd.

**QGP** means Queensland Gas Pipeline.

**PJ** means petajoule.

**R-HCS-02** means Roma Hub Compressor Station 02.

**R-HCS-02 Transmission Line** means the lateral to R-HCS-02, which is authorised by PPL148.

**RET** means renewable energy target.

**Roma Underground Gas Storage Facility** means GLNG's underground gas reservoirs at Roma.

**Third Party Gas** means gas that the Participants have contracted to purchase from third party producers holding interests in gas fields other than the Gas Fields in Australia.

**TJ** means tera joule.

**Tribunal** means the Australian Competition Tribunal.

**Wallumbilla Gas Hub** means the hub at which the various gas pipelines, including the South West Queensland Pipeline, the Queensland Gas Pipeline and Roma to Brisbane Pipeline, interconnect and at which gas is traded, located near the township of Wallumbilla in Queensland.

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## COMPANY MEDIA RELEASES AND ASX ANNOUNCEMENTS

### Arrow Energy

Arrow Energy website at: <http://www.arrowenergy.com.au/projects/project-assessment-eis>.

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### Australia Pacific LNG

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**LNG Limited**

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**QGC**

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QCLNG "BG Group signs heads of agreement for sale of QCLNG stake and new LNG supply" (31 October 2012) available at [http://www.qgc.com.au/media/199131/bg\\_group\\_signs\\_hoa\\_for\\_sale\\_of\\_qclng\\_stake\\_and\\_new\\_lng\\_supply.pdf](http://www.qgc.com.au/media/199131/bg_group_signs_hoa_for_sale_of_qclng_stake_and_new_lng_supply.pdf).

QGC LNG Project website: <http://www.qgc.com.au/qclng-project/on-curtis-island.aspx>

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**Royal Dutch Shell**

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**Santos Limited**

Santos Limited "GLNG Project sanctioned: Final investment decision on US\$16 billion 2-train 7.8 mtpa project" (13 January 2011) available at <http://www.santos.com/Archive/NewsDetail.aspx?id=1244>.

# ANNEXURE 1 – CONSENT OF PARTICIPANTS

## ANNEXURE 2 – GLNG PROJECT PARTICIPANTS

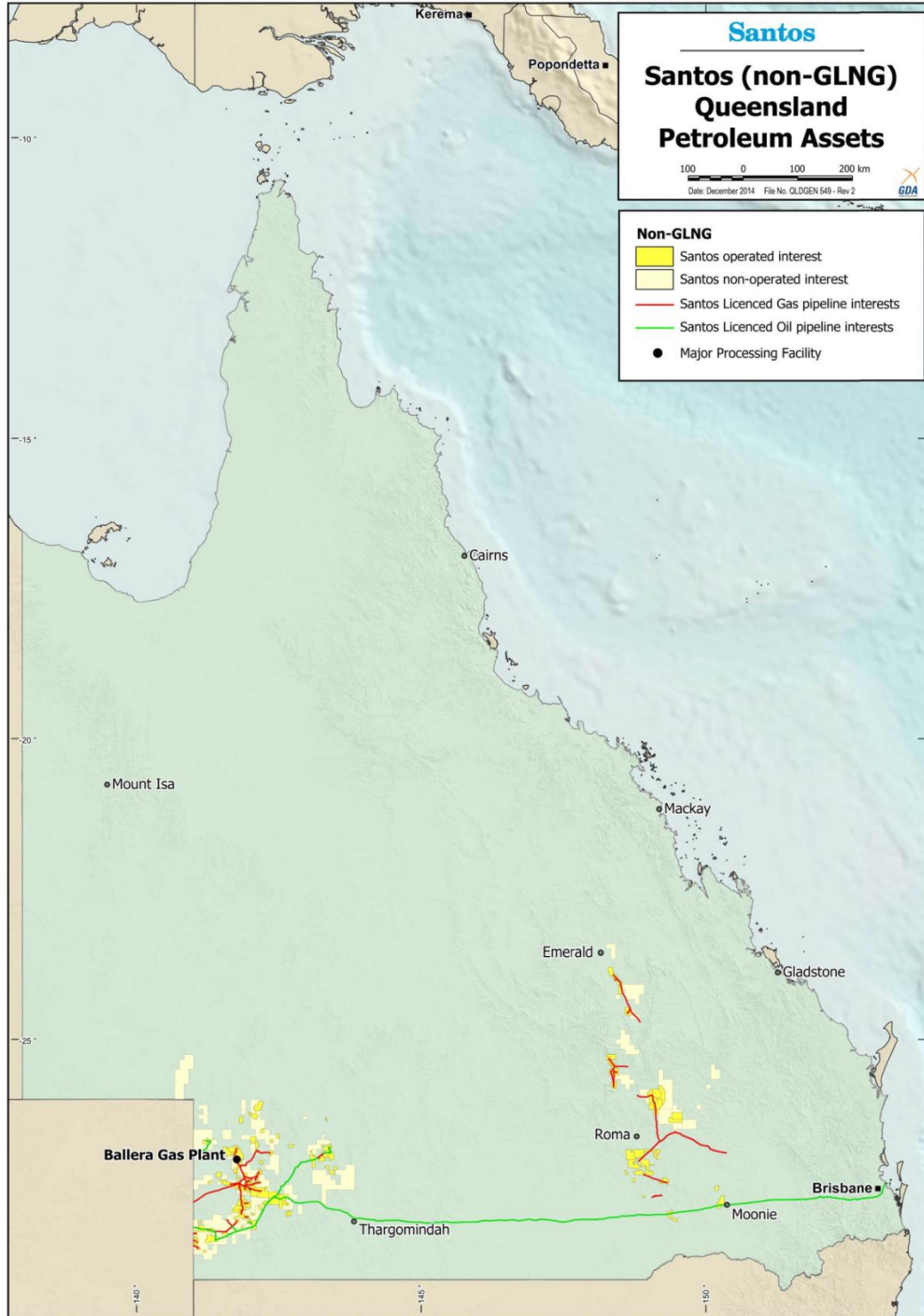
<b>Santos</b>		
<b>Percentage Interest in Project: 30%</b>		
Santos GLNG Pty Ltd (downstream entity)	ABN:	12 131 271 648
	ACN:	131 271 648
	Registered Office Address:	Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Santos TOGA Pty Ltd (upstream entity)	ABN:	46 077 536 871
	ACN:	077 536 871
	Registered Office Address:	Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Bronco Energy Pty Limited (upstream entity)	ABN:	70 121 979 664
	ACN:	121 979 664
	Registered Office Address:	Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Santos CSG Pty Ltd (upstream entity)	ABN:	72 121 188 654
	ACN:	121 188 654
	Registered Office Address:	Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Santos Queensland Corp. (upstream entity)	ABN:	75 111 733 969
	ARBN:	111 733 969
	Registered Office Address:	Santos International Holdings Pty Ltd Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Santos TPY Corp. (upstream entity)	ARBN:	102 958 707
	Registered Office Address:	Santos International Holdings Pty Ltd Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000
Santos TPY CSG Corp. (upstream entity)	ABN:	84 108 566 052
	ARBN:	108 566 052
	Registered Office Address:	Santos International Holdings Pty Ltd Ground floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000

<b>PETRONAS</b>		
<b>Percentage Interest in Project: 27.5%</b>		
PAPL (Downstream) Pty Limited (downstream entity)	ABN:	43 147 649 205
	ACN:	147 649 205
	Registered Office Address:	Level 36 Santos Place 32 Turbot Street BRISBANE QLD 4000
PAPL (Upstream) Pty Limited (upstream entity)	ABN:	58 131 318 888
	ACN:	131 318 888
	Registered Office Address:	Level 36 Santos Place 32 Turbot Street BRISBANE QLD 4000
PAPL (Upstream II) Pty Limited (upstream entity)	ABN:	90 146 203 901
	ACN:	146 203 901
	Registered Office Address:	Level 36 Santos Place 32 Turbot Street BRISBANE QLD 4000
<b>Total</b>		
<b>Percentage Interest in Project: 27.5%</b>		
Total GLNG Australia (downstream entity)	ARBN:	146 680 524
	Registered Office Address:	BGC Centre, Level 13 28 The Esplanade PERTH WA 6000
Total E&P Australia (upstream entity)	ARBN:	112 603 880
	Registered Office Address:	BGC Centre, Level 13 28 The Esplanade PERTH WA 6000
Total E&P Australia II (upstream entity)	ARBN:	149 617 167
	ABN:	52 149 617 167
	Registered Office Address:	BGC Centre, Level 13 28 The Esplanade PERTH WA 6000
Total E&P Australia III (upstream entity)	ARBN:	152 777 529
	ABN:	80 152 777 529
	Registered Office Address:	BGC Centre, Level 13 28 The Esplanade PERTH WA 6000
<b>KOGAS</b>		
<b>Percentage Interest in Project: 15%</b>		
KGLNG Liquefaction Pty Ltd (downstream entity)	ABN:	39 146 143 311
	ACN:	146 143 311
	Registered Office Address:	Level 11, 28 The Esplanade PERTH WA 6000

<b>KOGAS CONTINUED</b>		
KGLNG E&P Pty Ltd (upstream entity)	ABN:	31 146 143 339
	ACN:	146 143 339
	Registered Office Address:	Level 11, 28 The Esplanade PERTH WA 6000

# APPENDIX 1 – SANTOS 2013 ANNUAL REPORT

# APPENDIX 2 – MAP OF SANTOS' NON-GLNG QUEENSLAND OIL AND GAS ASSETS



# APPENDIX 3 – PETRONAS 2013 ANNUAL REPORT



# APPENDIX 4 – TOTAL 2013 REGISTRATION DOCUMENT

# APPENDIX 5 – KOGAS 2013 SUSTAINABILITY REPORT

## ANNEXURE 3 – GLNG UPSTREAM ENTITIES AND JOINT VENTURE ARRANGEMENTS

Field	JV	Permits	Operator	Participants
<b>Joint Ventures with Texan Operating Agreements</b>				
Fairview	Fairview JV	ATP 526P PLs 90-92, 99-100 PLs 232-236 PPLs 76,92	Santos TOGA Pty Ltd	Santos TOGA Pty Ltd Santos TPY CSG Corp Santos TPY Corp Santos Queensland Corp Bronco Energy Pty Ltd PAPL (Upstream) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd Australia Pacific LNG Pty Limited Australia Pacific LNG (Moura) Pty Ltd Australia Pacific LNG (CSG) Pty Ltd

Field	JV	Permits	Operator	Participants
Arcadia	Arcadia JV	PLAs 420, 421 & 440	Santos TOGA Pty Ltd	Santos TOGA Pty Ltd Santos TPY CSG Corp Santos TPY Corp Santos Queensland Corp Bronco Energy Pty Ltd PAPL (Upstream) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd Australia Pacific LNG Pty Limited Australia Pacific LNG (Moura) Pty Ltd Australia Pacific LNG (CSG) Pty Ltd
Comet Ridge	ATP 745P JV	ATP 745P	Santos TOGA Pty Ltd	Santos TOGA Pty Ltd Santos TPY CSG Corp Santos TPY Corp Santos Queensland Corp Bronco Energy Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd Australia Pacific LNG Pty Limited Australia Pacific LNG (Moura) Pty Ltd Australia Pacific LNG (CSG) Pty Ltd
Comet Ridge	ATP 804P JV	ATP 804P	Bronco Energy Pty Ltd	Bronco Energy Pty Ltd Santos CSG Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia III KGLNG E&P II Pty Ltd Australia Pacific LNG (CSG) Pty Ltd

Field	JV	Permits	Operator	Participants
Roma	ATP 631P JV	ATP 631P PLAs 281, 282	Bronco Energy Pty Ltd	Bronco Energy Pty Ltd Santos CSG Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia III KGLNG E&P II Pty Ltd Australia Pacific LNG (CSG) Pty Ltd
Scotia	ATP 803P JV	ATP 803P	Bronco Energy Pty Ltd	Bronco Energy Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia III KGLNG E&P II Pty Ltd
<b>Joint Ventures with AIPN Operating Agreements</b>				
Fairview	ATP 655P JV	ATP 655P	Santos CSG Pty Ltd	Santos CSG Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd
Roma	Roma JV	ATP 336P PLs 3, 6-9, 93, 309, 310, 314 and 315 (excludes Waldegrave, Drillsearch and Mascotte) PLAs 478-479 PLAs 313, 316-319 and 323	Santos CSG Pty Ltd	Santos CSG Pty Ltd PAPL (Upstream) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd
Roma	PLs 10&11 JV	PLs 10&11 (excludes Waldegrave & Snake Creek East)  PLAs 320, 321	Santos CSG Pty Ltd	Santos CSG Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd
Roma	ATP 708P JV	ATP 708P	Bronco Energy Pty Ltd	Bronco Energy Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia III KGLNG E&P II Pty Ltd

Field	JV	Permits	Operator	Participants
Roma	ATP 665P JV	ATP 665P	Bronco Energy Pty Ltd	Bronco Energy Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia III KGLNG E&P II Pty Ltd
Scotia	PL 176 JV	PL 176	Santos CSG Pty Ltd	Santos CSG Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd
Scotia	ATP 868P JV	ATP 868P	Santos CSG Pty Ltd	Santos CSG Pty Ltd PAPL (Upstream II) Pty Ltd Total E&P Australia Total E&P Australia II KGLNG E&P Pty Ltd

# ANNEXURE 4 – MAP OF GLNG PROJECT INCLUDING GAS FIELDS

## ANNEXURE 5 – DESCRIPTION AND MAP OF PIPELINE

The Comet Ridge to Wallumbilla Loop pipeline to be built as part of the GLNG Project (**CRWP Loop**) is approximately 119 km in length. It has been designed to transport gas from the Gas Fields (Roma), Roma Underground Gas Storage Facility (via the R-HCS-02 Transmission Line) and the Wallumbilla Gas Hub in a northerly direction to the GLNG GTP inlet via Pipeline Compressor Station-01 (**PCS-01**) and ultimately to the LNG Facility.

The CRWP Loop will be designed, constructed and operated to comply with the Australian Pipeline Standard AS2885 as well as other applicable standards and regulations.

Key engineering and design features of the CRWP Loop are provided in the table below. A map of the pipeline is available at:

[http://www.santosqlng.com/media/pdf5128/20150120crwp\\_loop\\_mapofroute.pdf](http://www.santosqlng.com/media/pdf5128/20150120crwp_loop_mapofroute.pdf).

Design Element	Preliminary Specification
Length	119 km
Pipeline Route and End Points	The CRWP Loop route commences adjacent to the APA compressor station (kilometre point 0) (Longitude 149° 10° 54° E; Latitude 26 41 36 S) located at the Wallumbilla Gas Hub (south of the township of Wallumbilla). The route then travels northwest generally paralleling the existing CRWP and Queensland Gas Pipeline (owned by Jemena) for 93 kilometres. The CRWP Loop will then travel northeast to PCS-01 (kilometre point 119) (Longitude 148° 55° 46° E; Latitude 25° 45° 13° S) where it will connect with the GLNG GTP inlet (PPLs 166, 167 and 168).
Laterals	The CRWP Loop has one lateral, the R-HCS-02 Transmission Line (PPL148), at kilometre point 31 (measured from Wallumbilla). The lateral ends at Roma Hub Compressor Station 2 (R-HCS-02), near Roma, Queensland.
External Diameter	The CRWP Loop will have an external diameter of 610 millimetres (24 inches). The R-HCS-02 Transmission Line (lateral) has a diameter of 500 mm (20 inches).
Wall Thickness	Approx. 12 mm – 15 mm
Line pipe specification	API 5LX70
Pipe manufacturing type	Electric Resistance Welded
Pipeline medium	Sales quality gas
Operational Pressure	Up to 15,300 kPa
Maximum Allowable Operating Pressure (MAOP)	15,300 kPa
Operational Easement width	25 m
Minimum depth of cover	Typically 1,200mm in cross country sections including roads and tracks
Pipeline Life	Design life 40 years
Buried Marker Tape	Marker tape will be buried at open cut road crossings and other crossings



## ANNEXURE 6 – ESTIMATED COST OF REGULATION

### Estimate of Annual Cost of Full Regulation

The estimated annual cost to the service provider of full regulation is AU\$226,000 – AU\$313,000.

This includes:

- one-fifth of the costs of developing and implementing the Access Arrangement and Access Arrangement Information (AU\$73,000 – AU\$87,000);
- the annual costs of complying with the requirements of full regulation (AU\$130,000 – AU\$190,000); and
- one-fifth of other costs incurred over the first five years of full regulation (AU\$23,000 – AU\$36,000).

### Estimate of the initial cost of developing and implementing the Access Arrangement and Access Arrangement Information

Description	Amount
<b>Preparation of Access Arrangement and Access Arrangement Information</b>	
Legal Costs <ul style="list-style-type: none"> <li>• addressing preliminary issues with regulator</li> <li>• preparation of access arrangement including capacity trading requirements, changes of receipt and delivery points, extension and expansion requirements and queuing requirements</li> <li>• preparation of access arrangement information including detailed financial and operational information</li> <li>• preparation of confidentiality guidelines</li> <li>• review and preparation of submissions in relation to draft determination</li> <li>• considering and responding to other party's submissions in relation to draft determination</li> </ul>	AU\$265,000- AU\$300,000
Expert report in relation to appropriate reference tariff	AU\$50,000 - AU\$60,000
Management costs <ul style="list-style-type: none"> <li>• addressing preliminary issues with regulator</li> <li>• director's time</li> </ul>	AU\$50,000- AU\$75,000
<b>TOTAL</b>	AU\$365,000 - AU\$435,000
<b>ANNUAL COST (amortised over the first five years of coverage)</b>	AU\$73,000 - AU\$87,000

**Estimate of the annual cost to the service provider of full regulation**

<b>Description</b>	<b>Amount</b>
<b>Marketing staff separate from Associate's related businesses</b>	
Cost of hiring one additional employee to carry out marketing responsibilities	AU\$100,000 - AU\$140,000
<b>Keeping consolidated and separate accounts</b>	
Management costs: <ul style="list-style-type: none"> <li>company secretarial</li> <li>maintenance of corporate records</li> </ul>	AU\$5,000 - AU\$10,000
<b>Annual reporting to the AER</b>	
Legal costs <ul style="list-style-type: none"> <li>preparation of annual compliance order</li> </ul>	AU\$10,000 - AU\$15,000
Management costs <ul style="list-style-type: none"> <li>company secretarial</li> <li>director's time</li> </ul>	AU\$10,000 - AU\$15,000
Management costs <ul style="list-style-type: none"> <li>maintenance of corporate records</li> <li>director's time</li> </ul>	AU\$5,000 - AU\$10,000
<b>TOTAL ANNUAL COST</b>	<b>AU\$130,000 - AU\$190,000</b>

**Estimate of other costs incurred over the first five years of full regulation**

<b>Description</b>	<b>Amount</b>
<b>Annual tariff adjustment</b>	
Management costs in relation to the maintenance of corporate records	\$3,000 - \$5,000
<b>Access disputes / application</b>	
Management costs	\$10,000 - \$25,000
Legal costs, including in relation to: <ul style="list-style-type: none"> <li>addressing preliminary issues with the regulator</li> <li>preparing submissions</li> <li>considering and responding to other party's submissions</li> <li>review and preparation of submissions in relation to the draft determination</li> </ul>	\$50,000 - \$75,000
Expert costs	\$50,000 - \$75,000
<b>TOTAL</b>	<b>\$113,000 - \$180,000</b>
<b>ANNUAL COST (amortised over the first five years of coverage)</b>	<b>\$23,000 - \$36,000</b>

# ANNEXURE 7 – ACIL REPORT

## ANNEXURE 8 – OTHER QUEENSLAND LNG PROJECTS

### 1.1 APLNG Project (ConocoPhillips/Origin Energy/Sinopec)

- (a) ConocoPhillips, Origin Energy and Sinopec (a subsidiary of Sinopec Group) are developing a two train LNG facility on Curtis Island called the APLNG Project.<sup>108</sup>
- (b) The APLNG Project was declared a 'significant project' by Queensland's Coordinator-General on 7 April 2009.
- (c) On 22 February 2011 the APLNG Project gained federal environmental approval.<sup>109</sup>
- (d) The APLNG Project relates to development of Australian Pacific LNG's gas fields in the Surat and Bowen Basins in south-west and central Queensland, construction of a 530 km gas transmission pipeline from the gas fields to an LNG facility on Curtis Island and construction of an LNG Facility on Curtis Island.<sup>110</sup>
- (e) APLNG made the final investment decision to build the first train of the LNG Facility and the common facilities for two trains with a total capacity of 9.0 mtpa on 28 July 2011 approving the AU\$14 billion first phase APLNG Project.<sup>111</sup> On 20 January 2012 APLNG and Sinopec signed an amendment to their existing LNG sales agreement for the supply of an additional 3.3 mtpa of LNG through to 2035. The marketing of the second train was finalised by this agreement.<sup>112</sup>
- (f) On 29 June 2012, APLNG entered into an agreement with Kansai Electric Power Company for the sale and purchase of approximately 1 mtpa of LNG for 20 years from 2016.<sup>113</sup>

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<sup>108</sup> Department of Employment, Economic Development and Innovation "Queensland Coal Seam Gas Overview" (February 2011) Queensland Government 6. See also The Australia Pacific LNG Project Fact Sheet available at: [http://www.aplng.com.au/pdf/factsheets/APLNG012\\_Fact\\_Sheet\\_The\\_APL\\_Project\\_FINAL.PDF](http://www.aplng.com.au/pdf/factsheets/APLNG012_Fact_Sheet_The_APL_Project_FINAL.PDF).

<sup>109</sup> Department of Employment, Economic Development and Innovation "Queensland Coal Seam Gas Overview" (February 2011) Queensland Government 6.

<sup>110</sup> Australia Pacific LNG "The Australia Pacific LNG Project" Fact Sheet, available at: [http://www.aplng.com.au/pdf/factsheets/APLNG012\\_Fact\\_Sheet\\_The\\_APL\\_Project\\_FINAL.PDF](http://www.aplng.com.au/pdf/factsheets/APLNG012_Fact_Sheet_The_APL_Project_FINAL.PDF).

<sup>111</sup> Australia Pacific LNG "Australia Pacific LNG project approved" (28 July 2011) Media release available at [http://www.aplng.com.au/sites/default/files/APLNG\\_FID\\_media\\_announcement.pdf](http://www.aplng.com.au/sites/default/files/APLNG_FID_media_announcement.pdf).

<sup>112</sup> Australia Pacific LNG "Australia Pacific LNG and Sinopec sign binding agreements for further LNG supply and an increase in equity to 25%" (20 January 2012) Media release available at [http://www.aplng.com.au/sites/default/files/APLNG-Sinopec\\_SPA\\_2\\_Joint\\_Media\\_Release\\_Jan\\_12.pdf](http://www.aplng.com.au/sites/default/files/APLNG-Sinopec_SPA_2_Joint_Media_Release_Jan_12.pdf).

<sup>113</sup> Australia Pacific LNG "Australia Pacific LNG and Kansai Electric sign 20 year LNG sale and purchase agreement" (29 June 2012) Media release available at [http://www.aplng.com.au/sites/default/files/120629\\_Australia\\_Pacific\\_LNG\\_and\\_Kansai\\_Electric\\_sign\\_20\\_year\\_LNG\\_sale\\_and\\_purchase\\_agreement.pdf](http://www.aplng.com.au/sites/default/files/120629_Australia_Pacific_LNG_and_Kansai_Electric_sign_20_year_LNG_sale_and_purchase_agreement.pdf).

- (g) APLNG submitted a no-coverage application for the APLNG Pipeline to the NCC on 1 May 2012. On 28 August 2012, APLNG was granted a 15 year no-coverage determination for this pipeline by the Minister.<sup>114</sup> APLNG announced it had commenced construction of the APLNG Pipeline on 24 September 2012.<sup>115</sup>
- (h) APLNG made the final investment decision to build the second train of the LNG Facility increasing the capacity of the LNG facility to 9.0 mtpa on 4 July 2012.<sup>116</sup>
- (i) APLNG announced it had laid down the first of more than 530 km of pipe as part of the pipeline construction on 29 October 2012.<sup>117</sup>
- (j) Construction of the main gas transmission pipeline was completed in 2014 and first export of LNG is now expected in mid-2015.<sup>118</sup>

## 1.2 QCLNG Project (BG Group/China National Offshore Oil Corporation)

- (a) QGC are developing a LNG facility at North China Bay on Curtis Island called the Queensland Curtis LNG Project.<sup>119</sup>
- (b) The QCLNG Project was declared a 'significant project' by Queensland's Coordinator-General on 4 July 2008.
- (c) On 22 October 2010 the QCLNG Project was given Federal environmental approval subject to various conditions.
- (d) QCLNG submitted a no-coverage application for its pipeline to the NCC on 19 January 2010. The Minister accepted this application and made a no-coverage determination for QCLNG's pipeline on 15 June 2010.<sup>120</sup>
- (e) The final investment decision of US\$15 billion to construct a two train LNG facility with capacity of 8.5 mtpa was made on 31 October 2010.<sup>121</sup>

<sup>114</sup> Decision of the Hon Martin Ferguson AM MP, Commonwealth Minister for Resources and Energy on APLNG's no-coverage application (28 August 2012).

<sup>115</sup> APLNG "Construction of Australia Pacific LNG's main pipeline begins" (24 September 2012) available at [http://www.aplng.com.au/sites/default/files/APLNG\\_first\\_pipe\\_weld\\_final.pdf](http://www.aplng.com.au/sites/default/files/APLNG_first_pipe_weld_final.pdf).

<sup>116</sup> APLNG "Australia Pacific LNG second train approved" (4 July 2012) available at [http://www.aplng.com.au/sites/default/files/APLNG\\_FID2\\_ASX\\_release.pdf](http://www.aplng.com.au/sites/default/files/APLNG_FID2_ASX_release.pdf).

<sup>117</sup> APLNG "Australia Pacific LNG pipe goes underground" (29 October 2012) available at [http://www.aplng.com.au/sites/default/files/APLNG\\_20121022\\_Pipe\\_goes\\_in\\_the\\_ground.pdf](http://www.aplng.com.au/sites/default/files/APLNG_20121022_Pipe_goes_in_the_ground.pdf).

<sup>118</sup> APLNG "Australia Pacific LNG shows strong progress as key milestones achieved" (4 July 2014) available at [http://www.aplng.com.au/sites/default/files/040714\\_APLNG\\_key\\_milestones\\_Media\\_Release.pdf](http://www.aplng.com.au/sites/default/files/040714_APLNG_key_milestones_Media_Release.pdf).

<sup>119</sup> Department of Employment, Economic Development and Innovation "Queensland Coal Seam Gas Overview" (February 2011) Queensland Government 6.

<sup>120</sup> Decision of the Hon Martin Ferguson AM MP, Commonwealth Minister for Resources and Energy on QCLNG's no-coverage application (15 June 2010).

<sup>121</sup> Department of Employment, Economic Development and Innovation "Queensland Coal Seam Gas Overview" (February 2011) Queensland Government 6; QCLNG "QCLNG Project" available at <http://www.qgc.com.au/qclng-project.aspx>.

- (f) On 7 March 2011, BG Group announced that it had signed a sales agreement with Tokyo Gas Co. Ltd for the supply of 1.2 mtpa of LNG for 20 years, commencing in 2015. The LNG will be supplied from both the QCLNG facility and BG Group's global LNG portfolio.<sup>122</sup>
- (g) On 6 May 2011, BG Group announced that it had signed a sales and purchase agreement with Chubu Electric Power Co. Inc (**Chubu Electric**) for the long term supply of LNG commencing in 2014. Under the agreement, Chubu Electric will purchase up to 122 cargoes over 21 years. The LNG will be supplied from both the QCLNG facility and BG Group's global LNG portfolio.<sup>123</sup>
- (h) On 31 October 2012 BG Group announced that it had signed a heads of agreement with China National Offshore Oil Corporation for the sale of certain interests in the QCLNG Project in Australia for \$1.93 billion.<sup>124</sup> The heads of agreement also provided for the sale of LNG from BG Group's global LNG portfolio.
- (i) On 3 April 2014 QCLNG Pipeline Pty Ltd advised the NCC that it had commissioned its pipeline. First export from QCLNG's LNG facility occurred in December 2014.
- (j) On 10 December 2014, BG Group announced that it had agreed to sell its wholly-owned subsidiary QCLNG Pipeline Pty Ltd to APA Group, for approximately US\$5.0 billion.<sup>125</sup>
- (k) The QCLNG Project loaded its first cargo of LNG in late December 2014. A second train is expected to start up in the third quarter of 2015. At plateau production, expected during 2016, QCLNG will have an output of around 8 million tonnes of LNG a year.<sup>126</sup>
- (l) Whilst the QCLNG Project can accommodate an expansion to ultimately supply up to 12 mtpa of LNG,<sup>127</sup> BG Group has indicated that it is 100% focused on getting and keeping its two existing trains full (in the most capital efficient way) and that it does not anticipate making a decision on the expansion in the

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<sup>122</sup> QCLNG "BG Group and Tokyo Gas sign 20-year LNG sales contract" (7 March 2011) Media Release available at <http://www.qgc.com.au/media/142261/bgandtokyosales.pdf>

<sup>123</sup> QCLNG "BG Group and Chubu Electric sign 21-year LNG sales contract" (6 May 2011) Media Release available at <http://www.qgc.com.au/media/142237/chubuspa6may2011.pdf>

<sup>124</sup> QCLNG "BG Group signs heads of agreement for sale of QCLNG stake and new LNG supply" (31 October 2012) available at [http://www.qgc.com.au/media/199131/bg\\_group\\_signs\\_hoa\\_for\\_sale\\_of\\_qclng\\_stake\\_and\\_new\\_lng\\_supply.pdf](http://www.qgc.com.au/media/199131/bg_group_signs_hoa_for_sale_of_qclng_stake_and_new_lng_supply.pdf).

<sup>125</sup> QCLNG "BG Group agrees sale of Australian pipeline for US\$5 billion" (10 December 2014) available at: <http://www.qgc.com.au/news-media/NewsDetails?id=5593>.

<sup>126</sup> QGC Pty Ltd media release titled "BG Group loads first LNG cargo from QCLNG" dated 29 December 2014 and available at: [http://www.qgc.com.au/media/362480/media\\_release\\_-\\_bg\\_group\\_loads\\_first\\_lng\\_cargo\\_from\\_qclng.pdf](http://www.qgc.com.au/media/362480/media_release_-_bg_group_loads_first_lng_cargo_from_qclng.pdf).

<sup>127</sup> See <http://www.qgc.com.au/qclng-project/on-curtis-island.aspx>

near future.<sup>128</sup> It has also been reported that BG Group dropped the possible expansion from a list of potential growth options.<sup>129</sup>

### 1.3 **Arrow Energy LNG Project (Arrow CSG (Australia) Pty Ltd, a joint venture between Royal Dutch Shell and PetroChina)**

- (a) Arrow Energy proposed to develop a LNG facility at Boatshed Point on Curtis Island, called the Arrow Energy LNG Project.<sup>130</sup>
- (b) The Arrow Energy LNG Project was declared a 'significant project' by Queensland's Co-ordinator General on 12 June 2009.
- (c) The Arrow Energy LNG Project comprised five sub-projects – two major expansions of its gas fields in the Surat and Bowen basins and two major pipelines that would transmit gas to a liquefaction plant on Curtis Island, off Gladstone.<sup>131</sup> The LNG facility was to produce up to 18 mtpa of LNG, and included the phased construction of up to four trains. Stage 1 was to include the construction of two trains of around 4 mtpa of LNG each.<sup>132</sup>
- (d) On 17 August 2012, Arrow Energy announced the award of the preliminary engineering design for the two pipelines to be built for the Arrow Energy LNG Project to WorleyParsons.<sup>133</sup>
- (e) Each of the five sub-projects had its own EIS process and all received State and Federal approvals.<sup>134</sup>
- (f) On 29 January 2015, Royal Dutch Shell announced that the Arrow LNG greenfield project was "cancelled";<sup>135</sup> Shell Australia also stated that "work continues on development of Arrow's substantial gas resources in the Bowen & Surat basins" and that "Shell continues to be driven by value and finding the

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<sup>128</sup> Transcript of BG Group - Q4 and Full Year Results Presentation, 4 February 2014 (available at [http://files.the-group.net/library/bggroup/files/transcript\\_502.pdf](http://files.the-group.net/library/bggroup/files/transcript_502.pdf))

<sup>129</sup> Matt Chambers "BG plans for LNG grown on hold" (6 February 2014) The Australian.

<sup>130</sup> Arrow Energy "Arrow LNG plant" available at <http://www.arrowenergy.com.au/projects/arrow-lng-plant> ; Department of Employment, Economic Development and Innovation "Queensland Coal Seam Gas Overview" (February 2011) Queensland Government 6.

<sup>131</sup> See: <http://www.arrowenergy.com.au/projects>.

<sup>132</sup> See <http://www.arrowenergy.com.au/projects/project-assessment-eis/arrow-lng-plant-eis>.

<sup>133</sup> Arrow Energy "Arrow lays design for 1150km pipelines" (17 August 2012) available at [http://www.arrowenergy.com.au/\\_data/assets/pdf\\_file/0015/2454/Arrow\\_lays\\_design\\_for\\_1150km\\_pipelines.pdf](http://www.arrowenergy.com.au/_data/assets/pdf_file/0015/2454/Arrow_lays_design_for_1150km_pipelines.pdf).

<sup>134</sup> See <http://www.arrowenergy.com.au/projects/project-assessment-eis>.

<sup>135</sup> Fourth Quarter 2014 Results presentation titled "Balancing Growth & Returns", 29 January 2015, page 37, available at <http://s06.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/quarterly-results/2014/q4/q4-2014-analyst-presentation-slides.pdf>.

best development option for Arrow. Discussions are ongoing on collaboration opportunities".<sup>136</sup>

#### 1.4 Gladstone LNG Project - Fisherman's Landing (LNG Limited/HCEC)

- (a) LNG Limited proposes to develop a mid-scale (3.8 mtpa) LNG plant at Fisherman's Landing Wharf in the Port of Gladstone. The Company has received all necessary approvals for a 3 mtpa plant and will, in due course, be submitting applications for the required approvals to increase the LNG plant production capacity to 3.8 mtpa.<sup>137</sup>
- (b) The Gladstone LNG Project – Fisherman's Landing has two stages. The first stage consists of operating a single processing train, providing LNG at a nominal capacity of 1.9 mtpa. The second stage involves the addition of a second train that will double the nominal capacity of the plant to 3.8 mtpa of LNG.<sup>138</sup>
- (c) On 7 May 2010, the Gladstone LNG Project was given environmental approval subject to various conditions.
- (d) On 2 August 2012, LNG Limited executed a non-binding letter of intent to acquire gas from PetroChina.<sup>139</sup>
- (e) On 2 November 2012, LNG Limited advised that PetroChina had completed the acquisition of Molopo's Queensland coal seam gas assets.<sup>140</sup>
- (f) As outlined in LNG Limited's January 2015 investor presentation:<sup>141</sup>
  - (i) LNG Limited's major focus remains to secure adequate gas supply for the first LNG train involving a minimum LNG production of 1.5 mtpa;
  - (ii) LNG Limited signed a non-binding memorandum of intent for gas supply with Tri-Star Petroleum Company;

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<sup>136</sup> See Sydney Morning Herald article titled "Shell shelves Arrow LNG project in Queensland", dated 30 January 2015, available at: <http://www.smh.com.au/business/shell-shelves-arrow-lng-project-in-queensland-20150130-131sqe.html#ixzz3QXPnsFar>. See also Shell Australia webpage at: [https://twitter.com/shell\\_australia](https://twitter.com/shell_australia).

<sup>137</sup> LNG Limited "Gladstone LNG Project – Fisherman's Landing" available at <http://www.lnglimited.com.au/irm/content/australia1.aspx?RID=262&RedirectCount=1>.

<sup>138</sup> LNG Limited "Gladstone LNG Project – Fisherman's Landing" available at <http://www.lnglimited.com.au/irm/content/australia1.aspx?RID=262&RedirectCount=1>.

<sup>139</sup> LNG Limited "Gas supply letter of intent signed with PetroChina Australia" (2 August 2012) available at <http://www.lnglimited.com.au/IRM/Company/Showpage.aspx/PDFs/1768-74125198/GasSupplyLetterofIntentSignedwithPetroChinaAustralia>.

<sup>140</sup> LNG Limited "Molopo Energy & PetroChina Australia" (2 November 2012) available at <http://www.lnglimited.com.au/IRM/Company/ShowPage.aspx/PDFs/1790-77618954/MolopoandPetroChinacompletionofQldAssetPurchase>.

<sup>141</sup> Liquefied Natural Gas Limited - Investor Presentation, January 2015, slides 3 and 26. Available at: <http://www.lnglimited.com.au/IRM/Company/ShowPage.aspx/PDFs/2235-10000000/InvestorPresentation>.



- (iii) LNG Limited is in on-going discussions with PetroChina regarding their letter of intent to help secure gas supply, and with third parties regarding gas sale and tolling agreements; and
  - (iv) LNG Limited has preliminary plans to progress the Fisherman's Landing LNG Project.
- (g) A final investment decision is yet to be made.