

Gladstone Liquefied Natural Gas (GLNG)

EIS Community Engagement and Consultation Report

Gladstone Liquefied Natural Gas (GLNG) Project
February 2009



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Acknowledgements

Santos would like to thank community members for giving up their time to attend and contribute to the community consultation activities conducted as part of the GLNG EIS process. Their input was invaluable and ensured that relevant issues and concerns could be addressed in a timely and pre-emptive manner.

Santos would particularly like to mention the contribution made by landholders. A great deal of valuable feedback was captured from this group in a range of forums designed to understand local issues and impacts; the patience, intelligence and foresight they brought to the process was very much appreciated.

1.0 Executive Summary

Background

The coal seam gas (CSG) industry is the fastest growing resource sector in Queensland. In 2007, Santos announced its \$7.7 billion Gladstone Liquefied Natural Gas (GLNG) project which involves:

- exploration and production of CSG in the Surat and Bowen Basin gas fields
- construction and operation of a 435km gas pipeline from the gas fields to Gladstone
- construction and operation of a gas liquefaction and export facility on Curtis Island plus associated infrastructure.

This proposal has been declared a significant project by the Queensland Government and is therefore subject to an Environmental Impact Statement (EIS). The EIS process has been under way since the beginning of 2008.

This report details the outcomes of the community engagement and consultation activities undertaken to support the EIS process.

Engagement and consultation approach

Santos' strategic and coordinated approach to engagement and consultation has provided a framework for productive and positive long-term relationships with stakeholders.

The Santos engagement and consultation methodology was based on:

- a project management approach
- management of stakeholder relationships
- selection of appropriate communication and engagement methods and processes to meet stakeholder needs and expectations and
- adherence to relevant legislative framework requirements.

Communication methods and activities

Santos collected the views of the community using a range of proven communication tools and methods including a 1800 freecall service and fax number, email address, dedicated website, freepost service, static display banners, survey forms, public meetings, stakeholder briefings, newsletters, fact sheets and print media.

Consultation outcomes

The high quality of participation is testament to the passion stakeholders have for their local communities. Stakeholders provided a rich source of feedback and ideas to ensure community issues were well understood.

The process of engagement was thorough and exhaustive. Stakeholders reported high levels of awareness via a phone survey conducted during the final stages of the consultation.

Participation and inclusiveness was demonstrated through a variety of consultation and engagement methods tailored to specific stakeholder groups. These methods and their outcomes are detailed in the body of this report.

It is important to note that while key issues have been captured and presented from consultation activities, there is a range of community attitudes for and against various aspects of the project. While there is growing trust that Santos is exploring the range of social and environmental impacts, there is still a degree of uncertainty over key issues such as water management, noise, number and location of wells, diminution of land value, compensation, air quality and a range of social impacts such as health services, housing and local employment. The public release of findings from these and other issues will form part of Santos' ongoing commitment to open and transparent communication with stakeholders.

Executive Summary (Cont...)

The feedback received over the life of the consultation and engagement process was fed back to the environmental consultants for detailed analysis. Their findings and mitigation proposals are submitted in conjunction with this report as part of the EIS.

Conclusion

Through the engagement and consultation processes, stakeholders have been made aware of the potential impacts and opportunities this project presents. Stakeholders have also been given the opportunity to provide feedback about their issues and concerns.

The highest levels of interest and engagement were experienced by landholders, the social services sector, state and local government and local business contractors. As the consultation program progressed, and understanding of the project improved, many stakeholders began to identify with the potential benefits the project could provide to local communities.

Notwithstanding, there are a number of critical areas requiring continued attention and discussion with relevant stakeholders. Santos will continue to monitor and address these issues as the project moves forward.

Glossary of Terms

TERM	MEANING
457 visa holders	The Temporary Business Long Stay - Standard Business Sponsorship Visa (Subclass 457) permits Australian employers to sponsor overseas candidates for a period of between three months and four years. This work visa enables Australian businesses to bring foreign workers into the country.
CM	Consultation Manager (a web-based database management system)
CSG	Coal seam gas
EIS	Environmental Impact Statement
GLNG	Gladstone Liquefied Natural Gas project
JTA	JTA Australia Pty Ltd (community consultation specialists)
Landholders	Owners and lessees of properties directly, indirectly or potentially affected by the project
LNG	Liquefied natural gas
Mtpa	Million tonnes per annum
ToR	Terms of Reference
URS	URS Corporation (environmental consultants)



2.0 Background

2.1 The project

The GLNG project has three components:

- coal seam gas (CSG) fields
- a 435km gas transmission pipeline from the gas fields to Gladstone
- a gas liquefaction facility on Curtis Island plus associated infrastructure.

Figure 1 below is a graphical representation of the project area.

The GLNG project will be the world's first large scale coal seam gas to liquefied natural gas project. It is anticipated that the project will create 3 000 jobs during construction and sustain more than 200 jobs during operation. This should stimulate further business development and employment opportunities in the Gladstone and Roma regions through increased demand for goods and services.

LNG is an energy source that has significant environmental benefits including substantially lower greenhouse gas emissions and water use when compared with other fossil fuels.

Figure 1 Geographic overview of GLNG



2.0 Background (Cont...)

The project will produce 3 to 4 million tonnes per annum (mtpa) of liquefied natural gas initially, with a maximum potential production of 10 mtpa. A final investment decision is expected to be made by early 2010, to enable first cargoes to be exported in early 2014.

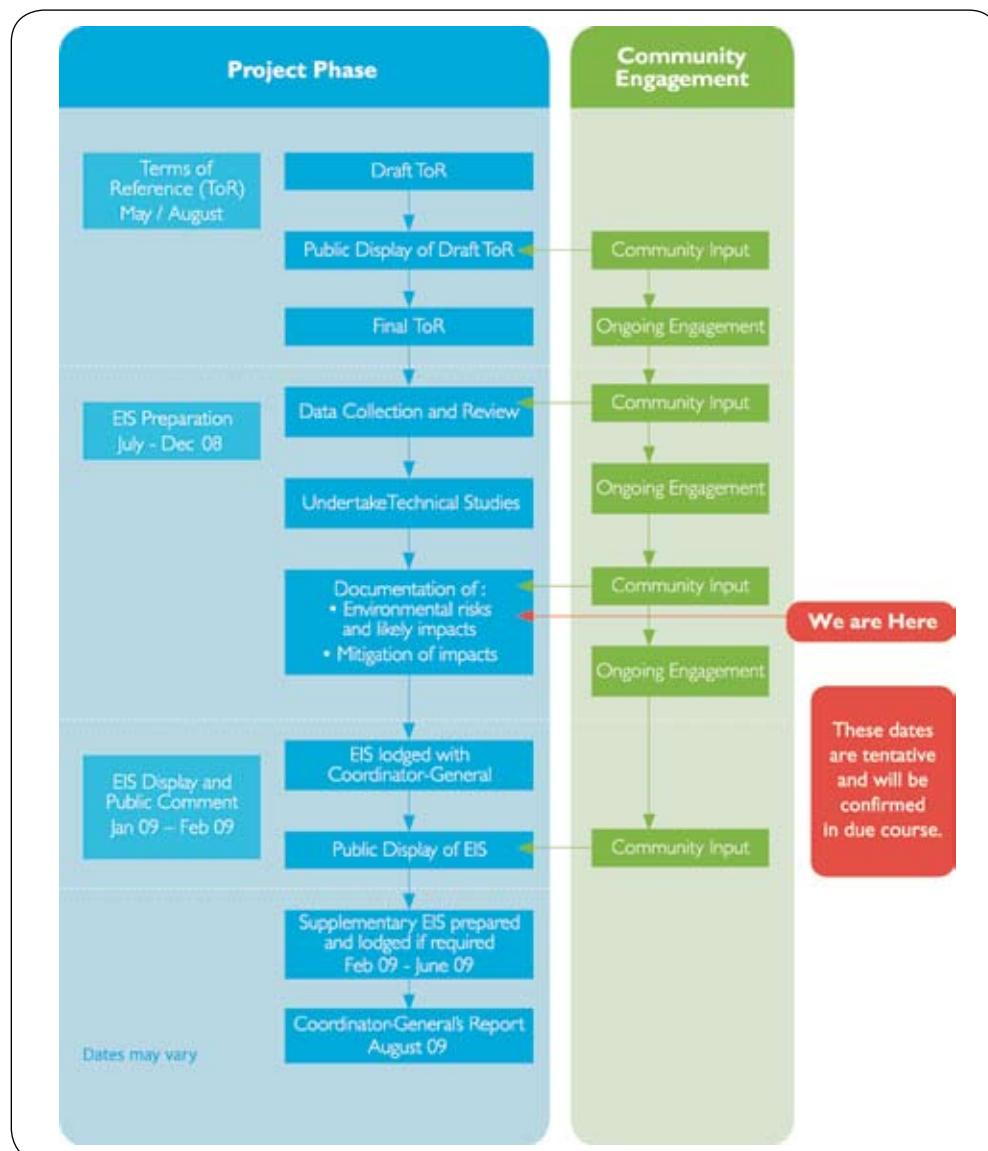
4 of the *State Development and Public Works Organisation Act 1971* (Qld). The EIS is also required to meet Commonwealth regulations as specified in the *Environmental Protection and Biodiversity Conservation Act 1999*. Figure 2 below represents the project phases.

2.2 Environmental Impact Statement

In July 2007 the Coordinator-General (CG) declared the project a 'significant project' for which an Environmental Impact Statement (EIS) is required in accordance with Part

This consultation report details the activities and outcomes up to and including the EIS preparation and submission to the CG.

Figure 2 Project phases diagram



3.0 Scope of Engagement

Community engagement activities commenced in April 2008 and will continue for the life of the project. This report covers activities occurring up to and including Friday 12 December 2008.

Santos contracted JTA Australia Pty Ltd to assist with the management of the community consultation process. Santos also contracted environmental consultants URS to undertake relevant environmental studies required for the EIS. Santos worked closely with these two organisations to ensure a coordinated approach to stakeholder engagement.

Impacted communities were identified by their geographical proximity to various sections of the project i.e. areas where coal seam gas is extracted, land across which the pipeline may be built, and areas where the pipeline and gas facility may impact Gladstone and Curtis Island residents.

During the period of consultation, team members travelled over 5 000km to provide over 300 hours of face-to-face contact with local community members and other key stakeholders. A large number of individuals, groups and organisations were consulted as part of the EIS process. Key stakeholders included the offices of state and federal elected representatives, employees of regulatory bodies, local council officials and others (e.g. local business organisations, peak agricultural and pastoral associations, social welfare networks, and members of environmental groups).

Santos developed a range of printed resource materials such as newsletters and fact sheets which were used in bulk mail-outs to stakeholders registered in the database. Santos is continuing to develop targeted community engagement strategies to support future stages of the project as illustrated diagrammatically in **Appendix A**.

3.1 Federal, state and local government consultation

Consultation with federal, state and local government included the following agencies:

Local government (councils):

- Gladstone Regional Council
- Banana Shire Council
- Central Highlands Regional Council
- Roma Regional Council
- Rockhampton Regional Council
- Dalby Regional Council

State government departments and agencies:

- Environmental Protection Agency
- Queensland Transport
- Department of Main Roads
- Department of Infrastructure and Planning
- Department of Primary Industries & Fisheries
- Department of Tourism, Regional Development and Industry
- Department of Emergency Services
- Department of Natural Resources and Water
- Department of Local Government, Sport and Recreation
- Department of Mines and Energy
- Queensland Health
- Department of Communities
- Department of Education, Training and the Arts
- Department of Housing

Federal government departments:

- Department of the Environment, Water, Heritage and the Arts
- Department of Climate Change.

3.0 Scope of Engagement (Cont...)

A range of communication strategies was implemented to ensure government stakeholders were well informed of the GLNG project. These strategies included:

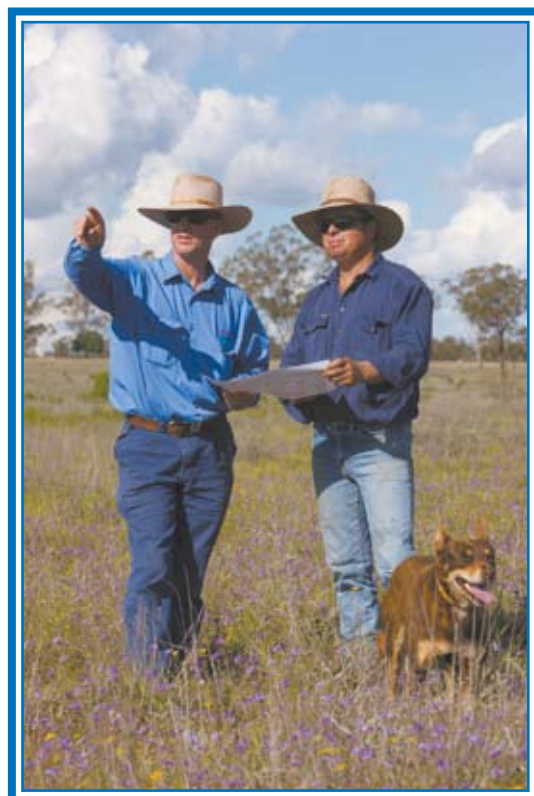
- presentations at regional council meetings
- presentations at regional managers' forums
- issue-specific workshops
- meetings with key project managers across the relevant agencies
- collaboration with government at public forums
- regular monthly project meetings with the Department of Infrastructure and Planning.

A list of the advisory agencies consulted, the date and the contact, is contained in **Appendix B**.

A summary of the main issues discussed with local, state and federal government agencies includes:

- GLNG project overview, progress and milestones
- EIS requirements
- potential 457 visa holders and the resulting settlement issues and community impacts
- impacts on social services such as accommodation and housing, health and welfare, children's services and law enforcement
- land access policies and practices
- landholder compensation fairness and equity
- potential for gas utilisation by local communities
- pipeline corridor location in the context of existing and planned government infrastructure
- air quality testing and monitoring
- traffic associated with all construction options and the impact on road infrastructure (including cumulative impacts)
- regional and rural incentives to attract skilled health practitioners

- training and skills development opportunities for local youth (particularly traineeships/apprenticeships) to retain them locally
- Santos' procurement policies to ensure local businesses have an opportunity to compete
- concerns over school enrolments declining in some of the affected communities
- teacher retention
- containment of the spread of noxious weeds with improved wash-down facilities
- opportunities to partner in community development programs
- local business concerns relating to loss of workers to oil and gas companies and
- CSG water management strategies (including discussion of Santos' irrigation trials).



3.0 Scope of Engagement (Cont...)

3.2 Landholders

Since the project's inception, Santos has increased its resources dedicated to landholder relations through the employment of additional land agents. These land agents service landholders in both the CSG fields and gas transmission pipeline.

The community consultation team worked closely with land agents to supplement the broader engagement and consultation processes for the EIS. Through ongoing contact with land agents, landholders were made aware of upcoming community information sessions and other opportunities for involvement. As a result, many of these sessions were well attended by landholders.

The key topics of interest raised by landholders included:

- diminution of land value and compensation
- land access
- land use
- proximity of gas infrastructure to property dwellings

- uncertainty around future number and location of wells
- noise of existing and proposed compressor stations
- dust and weed dispersal
- water storage and management and
- decommissioning of infrastructure past its useful life.

These and other issues remain the critical focus of ongoing relationships between landholders and Santos. A detailed description of the issues raised in relation to these topics is provided in section 6 of this report.

3.3 Indigenous consultation

Indigenous consultation was carried out as part of two separate EIS reports, the details of which can be found in:

- Social Impact Assessment (Section 6 Indigenous)
- Indigenous Cultural Heritage.



Dawson Ranges from Biloela

4.0 Engagement and Consultation Approach

4.1 Goals and objectives

The overall goal of engagement and consultation activities has been to support the GLNG project with an effective and successful EIS process through a comprehensive, integrated and well planned approach to engagement, information dissemination and consultation.

The objectives supporting this goal have been to:

- identify stakeholders, opinion leaders, project champions and opponents early
- identify and monitor likely issues and/or risks and develop strategies for their resolution and/or prevention
- provide accurate and credible information to stakeholders and the broader community
- build and maintain effective relationships with stakeholders and communities based on credible information, trust and ownership of the project and
- support government decision-making on the EIS by accurately and professionally presenting the range, significance and complexity of stakeholder issues and perceptions and GLNG's responses.

4.2 Engagement principles

The general principles that have guided consultation activities and the relationship between the community consultation team members (Santos/JTA/URS) have been:

- integrity and commitment to the clients and project
- professional planning and delivery
- transparency and accountability to clients and stakeholders
- effective and timely communication and activities and
- effective engagement strategies and tools.

Given the complexity of this project, the community consultation team has been mindful of the need to ensure that current, accurate and consistent information is available to those consulting with key government, business and community stakeholders, to field staff gathering information on the ground as part of EIS studies, and to the general public.

4.3 Engagement strategy

Santos' strategic and coordinated approach to engagement and consultation is building a framework for productive and positive long-term relationships with stakeholders.

A stakeholder engagement and consultation plan was finalised in April 2008. This document identified key stakeholders, issues and key messages, and presented the methodology to be adopted for the consultation process. This document was updated in July and included a comprehensive work plan and event schedule.

Engagement activities were continually adjusted over successive months to reflect the involvement of new stakeholders and communities, the additional knowledge elicited from the relationships formed as part of the process, and the changing and more complex requests for GLNG information.

4.4 Methodology

The Santos engagement and consultation methodology has been based on:

- a project management approach
 - o project initiation
 - o resource allocation, project planning, scheduling, budgeting, monitoring and control
 - o communication
 - o risk management
 - o review and evaluation

4.0 Engagement and Consultation Approach (Cont...)

- management of stakeholder relationships
 - o ongoing identification of key external and internal stakeholders
 - o profile of stakeholders in terms of their role and influence on the EIS process
 - o pre-emption and/or response to stakeholder issues
 - o monitoring of stakeholder issues and responses through an information database (Consultation Manager)
- selection of appropriate communication and engagement methods and processes to meet stakeholder needs and expectations
 - o targeted key stakeholder briefings
 - o establishment and promotion of community involvement opportunities, including a 1800 freecall phone number, fax number, email address and freepost service for public enquiries
 - o production and distribution of targeted project materials, community newsletters, fact sheets, posters, flyers
 - o provision of field kits and information to EIS consultants and Santos land agents
 - o promotion and management of community information sessions in key locations
- adherence to relevant legislative framework requirements.

4.4.1 Project management approach

Project initiation: In early June, a project planning workshop was held in Brisbane on community consultation and engagement. This workshop included senior GLNG representatives, URS study team leaders and project director, and JTA community consultation professionals.

The objectives of the workshop included:

- understanding the goals and objectives of the community engagement component of the project (as outlined by the Team Leader Environment Health and Safety (EH&S) for the GLNG project)
- introduction of key personnel working on the project
- understanding the various roles, responsibilities, organisational structures and lines of authority
- discussing the effective management of stakeholder communication
- discussing and agreeing on the format and frequency of project meetings for monitoring progress and raising issues
- formalising appropriate processes for capturing stakeholder information using the Consultation Manager database.

Resource allocation: The full list of community consultation personnel and their contribution to the EIS is provided in **Appendix C**.

Project plan: A comprehensive project plan was prepared for phase one and two activities. This plan has been progressively updated.

Budgeting and scheduling: A project budget and supporting schedule for phase one and two activities was developed and approved by GLNG. Santos has delivered the project requirements for these phases within schedule. *Table 1* is a summary of the key milestones achieved.

4.0 Engagement and Consultation Approach (Cont...)

Table 1 Milestone Summary

Month	Milestones achieved
April 2008	<ul style="list-style-type: none"> ✓ Community consultation commences ✓ 1800 freecall number takes first call ✓ Stakeholders identified ✓ Consultation manager database established
May 2008	<ul style="list-style-type: none"> ✓ Project plan approved ✓ Key messages drafted ✓ Initial stakeholder briefings completed ✓ Website (www.glng.com) goes live 24 May 2008
June 2008	<ul style="list-style-type: none"> ✓ Project planning workshop ✓ First round of community information sessions successfully completed <ul style="list-style-type: none"> • Biloela • Rolleston • Springsure • Roma • Wallumbilla • Injune • Taroom • Gladstone • Curtis Island ✓ Newsletter 1 developed, approved and distributed ✓ Fact sheets developed, approved and distributed <ul style="list-style-type: none"> • What is Liquefied Natural Gas? • What is an Environmental Impact Statement (EIS)? • What is Coal Seam Gas? • The Coal Seam Gas Field • The Pipeline Corridor • LNG Facility • Community Benefits • Santos and the Environment ✓ Static displays and promotional materials developed and deployed
July 2008	<ul style="list-style-type: none"> ✓ Continuation of key stakeholder briefings ✓ Phase 1 engagement and consultation report submitted ✓ Community information kits developed
August 2008	<ul style="list-style-type: none"> ✓ Newsletters 2 & 3 developed, approved and distributed ✓ Second round of community information sessions planned and scheduled ✓ Issue-specific Gladstone community information sessions on LNG safety successfully presented ✓ Additional two fact sheets <ul style="list-style-type: none"> • Shipping and Marine Traffic • About the Santos LNG Facility on Curtis Island

4.0 Engagement and Consultation Approach (Cont...)

Table 1 Milestone Summary (Cont...)

Month	Milestones achieved
September 2008	<ul style="list-style-type: none"> ✓ Additional fact sheets developed, approved and distributed <ul style="list-style-type: none"> • The GLNG Field Development • The GLNG Pipeline Corridor ✓ Second round of community information sessions successfully completed <ul style="list-style-type: none"> • Biloela • Rolleston • Roma • Wallumbilla • Injune • Curtis Island ✓ Roma water workshop (meeting 1) completed
October 2008	<ul style="list-style-type: none"> ✓ Roma water workshop (meeting 2) completed ✓ Wallumbilla water workshop completed ✓ Arcadia Valley water survey completed ✓ Additional stakeholder meetings
November 2008	<ul style="list-style-type: none"> ✓ Third round of community information sessions successfully completed <ul style="list-style-type: none"> • Biloela • Moura • Rolleston • Roma • Wallumbilla • Injune • Gladstone • Curtis Island
December 2008	<ul style="list-style-type: none"> ✓ Additional Gladstone stakeholder meetings held ✓ Final consultation report for submission with the EIS

Project communication: Several meeting formats were established to ensure regular communication across the various parties working on the project. These included:

- weekly status meetings between Santos/JTA/URS project managers
- fortnightly meetings between Santos/JTA/URS project directors
- weekly GLNG project team updates
- weekly EH&S team meetings
- monthly GLNG coordination meetings
- monthly GLNG project meetings with the Department of Infrastructure and Planning's EIS Project Manager.

4.4.2 Management of stakeholder relationships

Internal stakeholders

Table 2 on the following page lists the key internal Santos personnel who contributed to the stakeholder engagement and consultation process.

4.0 Engagement and Consultation Approach (Cont...)

Table 2 Internal stakeholders

Role (Santos)	Officer
Vice President GLNG	Rick Wilkinson
CEO GLNG Operations	Roger Kennett
Project Director	David Emslie
Manager Environment Land & Water	Bill Lazarus
Government and Media	Leisa Elder
Manager Communications	Julie Mitchell
Senior Communications Advisor	Stuart Symons
Team Leader – Produced Water	David McFarlane
Project Manager – Port Development	Steve Schoemaker
Planner Coordinator	Allan White
Senior Land Agent	David Wood
Land Agent	Dean Salter
Superintendent – Roma	Sam Klass
Team Leader – Landholder Community	Peter Sippe
Senior Landholder Advisor	Jon Warby
Landholder Advisor	David Lobb
Community Liaison Officer	Jamie Miller
Team Leader – Environment, Health & Safety	Dennis Reid
Environmental Engineer	Emma Hicks
Community Relations Advisor	Lorna McGinnis
Team Leader – Environment	Graeme Bartrim
Manager – Finance and Business Services	Craig Metters
Principal Advisor Indigenous Affairs	Craig Jones

On 29 May 2008, Malaysian government oil and gas company Petronas bought 40% of GLNG. As the partnership integration process moves forward, key Petronas personnel will be progressively added to the list of internal stakeholders.

Consultation partners

Environmental consultants URS were important partners in the delivery of consultation and engagement activities. A team of URS consultants worked closely with Santos and JTA in the planning and delivery of events. These consultants are listed in *Table 3*.

External stakeholders

Santos collated a list of opinion leaders and key stakeholders across the proposed project area. External stakeholders were classified by their geographical proximity to various sections of the project i.e. areas where coal seam gas is extracted, land across which the pipeline may be built, and areas where the pipeline and gas facility may impact Gladstone and Curtis Island residents. The list has continued to grow as stakeholders have self-nominated through consultation activities. These groups, organisations and individuals are broadly identified in *Table 4*.

Table 3 Key consultation partners

Role (URS)	Officer	Role (JTA)	Officer
Associate Environmental Scientist	Jim Barker	Project Director	Jan Taylor
Associate Environmental Scientist	Benita Blunden	Project Manager	John Phalen
Principal Water Engineer	Paul Wilkinson	Strategic Communication	Liz Edwards
Consultation Specialist	Chris Sunderland	Project Administration	Clare Beer

4.0 Engagement and Consultation Approach (Cont...)

Table 4 Summary of external stakeholder groups and individuals

External stakeholder groups and individuals	
Elected representatives	<ul style="list-style-type: none"> • Premier • Deputy Premier • Impacted Queensland Government Ministers • Local federal members • Local state members • Local councillors
Government agencies	<ul style="list-style-type: none"> • Queensland Government departments and agencies: <ul style="list-style-type: none"> ◦ Environmental Protection Agency ◦ Queensland Transport ◦ Department of Main Roads ◦ Department of Employment and Industrial Relations ◦ Department of Infrastructure and Planning ◦ Department of Primary Industries & Fisheries ◦ Department of Tourism, Regional Development and Industry ◦ Department of Emergency Services ◦ Queensland Fire and Rescue Service ◦ Department of Natural Resources and Water ◦ Queensland Police Service ◦ Department of Local Government, Sport and Recreation ◦ Department of Mines and Energy ◦ Queensland Parks and Wildlife Service ◦ Queensland Health ◦ QR ◦ Department of Communities ◦ Department of Education, Training and the Arts • Local governments (CEOs and senior officers): <ul style="list-style-type: none"> ◦ Gladstone Regional Council ◦ Banana Shire Council ◦ Central Highlands Regional Council ◦ Roma Regional Council ◦ Rockhampton Regional Council ◦ Dalby Regional Council • Federal government: <ul style="list-style-type: none"> ◦ Department of the Environment, Water, Heritage and the Arts ◦ Department of Climate Change • Regional agency forums
Major infrastructure owners	<ul style="list-style-type: none"> • Gladstone Ports Corporation • Gladstone Area Water Board • SunWater (Emerald)
Other mining/exploration industry/interests	<ul style="list-style-type: none"> • Origin/BG/Arrow Energy/Shell/Conoco Phillips/Rio Tinto/X Strata

4.0 Engagement and Consultation Approach (Cont...)

Table 4 Summary of external stakeholder groups and individuals (Cont...)

External stakeholder groups and individuals	
Industry and business representatives	<ul style="list-style-type: none"> • AgForce • Australian Petroleum Production and Exploration Association • Chambers of Commerce • Gladstone Area Industry Network • Gladstone Area Promotion & Development Limited • Industry associations • Peak business bodies • Queensland Seafood Industry Association • Queensland Farmers' Federation • Queensland Murray-Darling Committee • Significant local business operators and community progress associations • Sunfish
Regional communities (directly impacted)	<ul style="list-style-type: none"> • Arcadia Valley • Biloela • Curtis Island (South End) • Gladstone • Injune • Moura • Rolleston • Roma and surrounds • Wallumbilla
Regional communities (indirectly impacted)	<ul style="list-style-type: none"> • Banana • Calliope • Dalby • Emerald • Rockhampton • Springsure • Taroom • Theodore • Toowoomba
Indigenous groups	<ul style="list-style-type: none"> • Traditional owners • Land councils • Aboriginal corporations, including Kanolu Aboriginal Corporation, Central Highlands Aboriginal Corporation and Roma Aboriginal Corporation
Landholders	<ul style="list-style-type: none"> • Potentially several hundred individual landholders and lessees within the project area
Community and interest groups	<ul style="list-style-type: none"> • Area Consultative Committees and regional advisory committees • Landcare groups, natural resource management groups and wildlife preservation groups • Queensland Conservation Council • Great Barrier Reef Marine Park Authority • Recreational fishing groups • Yacht and boating clubs • Queensland Country Women's Association • Senior citizen groups • Gladstone Council of Clergy • St Vincent de Paul • Lifeline • Lions and Rotary clubs • Police and Citizens Youth Clubs • Regional environment groups • Community service groups and peak bodies
Media	<ul style="list-style-type: none"> • Print • Electronic

4.0 Engagement and Consultation Approach (Cont...)

4.4.3 Management of stakeholder information

A web-based database, Consultation Manager (CM), was used as the information system to record, monitor and report community consultation issues and actions. CM has played an important role in underpinning consultation activities by enabling the storage and retrieval of project issues and their associated interested parties.

Santos allocated a CM specialist to manage the classification and recording of consultation notes. Actions arising from consultation events were issued via email to the relevant respondent. Santos continuously monitored outstanding actions and issued monthly exception reports to the project leaders.

In addition to the recording and monitoring of actions, CM has enabled the project team to record stakeholder details, provide regular project updates and other information (such as invitations to events) to stakeholders, record attendance at events and issues raised, track stakeholder contact with the project team (whether through email, post, phone, fax or other personal contact), respond to stakeholder requests in an accountable and timely manner, analyse current and emerging issues and generate activity reports.



The screenshot displays the 'ConsultationManager' web application interface. At the top, there is a blue header bar with the text 'ConsultationManager' and the tagline 'Build Better Relationships' below it. A large, stylized blue 'X' logo is centered in the background. Below the header, there is a 'Client Login' button with a small icon of a person and an arrow. Underneath the button, there are three input fields: 'Location:' with a dropdown menu showing 'Australia', 'Username:', and 'Password:'. A 'login' button is positioned below the password field.

5.0 Communication Methods and Activities

5.1 Key messages

Key messages were developed to assist project team members discuss the project using common terminology, expressions, facts, figures and measurements. The content was consistent for all EIS information materials (print and electronic) and was delivered in plain English, with minimal technical jargon.

In response to stakeholder requests, messages about benefits and impacts were localised wherever possible to targeted communities.

The current version of key messages is provided at **Appendix D**.

5.2 Freecall and fax numbers, email and freepost address

Consultation commenced with the establishment of a 1800 freecall number, a fax number, a GLNG email address and a freepost service. Information collected through these contact points was recorded in the Consultation Manager database. Complex questions were referred to relevant specialists for resolution and response.

As at 12 December 2008, the freecall number had received 86 enquiries, 13 requests for information had been received through the freepost service and 116 enquiries had been received through the project's email address.

The number of enquiries received through these channels totalled 215. The following figures display:

- statistical breakdown of the key issues received (*Figure 3*)
- breakup of enquiry by contact point (*Figure 4*)
- breakup of enquiry by stakeholder type (*Figure 5*).

Figure 3 Issues raised through freecall, fax, email and post (1 Feb - 12 Dec 2008)

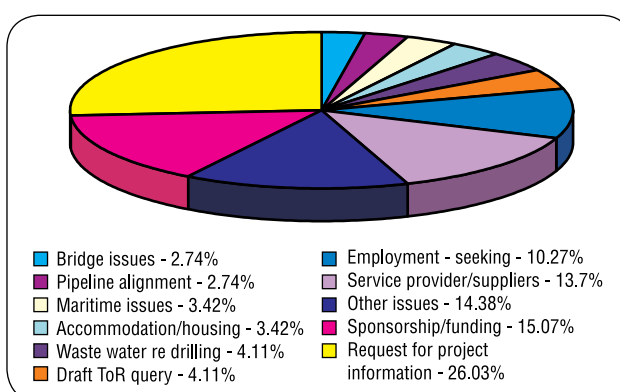


Figure 4 Breakup of enquiry by contact point (1 Feb - 12 Dec 2008)

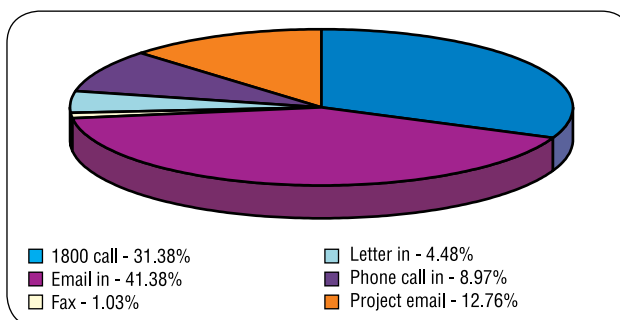
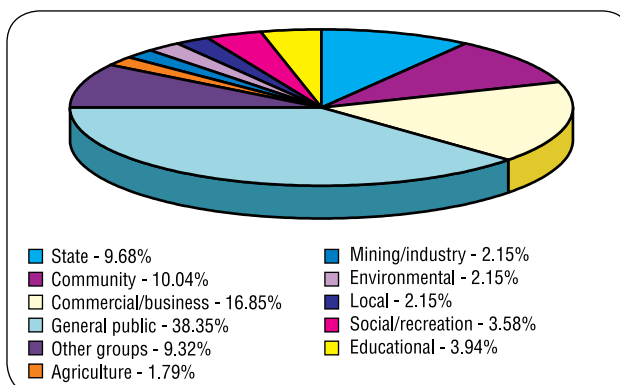


Figure 5 Breakup of enquiry by stakeholder type (1 Feb - 12 Dec 2008)



5.0 Communication Methods and Activities (Cont...)

5.3 Website

The GLNG project website (www.glng.com) went live on 24 May 2008 containing information about GLNG, the EIS process and opportunities for involvement in the engagement and consultation program. Site visitors could 'have their say', request a briefing for their stakeholder group, register for project updates or ask questions of a project team member via email or by completing an online form.

Community newsletters, fact sheets and details of community information sessions were also made available on the site. The website address was widely advertised on all GLNG materials.

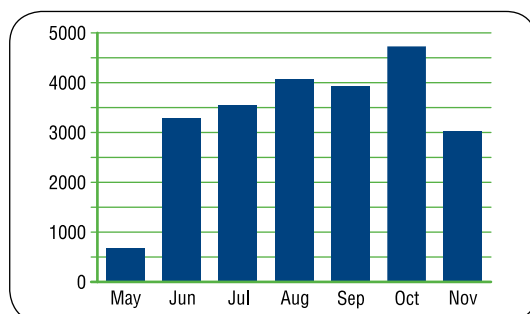
As at 12 December 2008 the website had received 23,248 unique visitors. On average, more than 100 people visited the site each day.

The breakdown of unique visitors per month follows.

Table 5 Total unique web visitors to www.glng.com

Month	Unique Visitors
May	665
June	3 274
July	3 545
August	4 073
September	3 932
October	4 728
November	3 031

Figure 6 Comparative web visitors by month



These statistics demonstrate a high level of interest in GLNG. The most visited page was *Careers* followed by *About the Project*, *LNG Facts* and *News Announcements*.



Example of a GLNG community newsletter

5.4 GLNG community newsletters

In June, the first edition of the GLNG newsletter was developed. It contained information about the proposed project, the EIS process, how to comment on the draft Terms of Reference and other ways to be involved and provide comment on the project. The newsletter also advertised dates, times and locations of community information sessions.

The first edition was distributed to 25 500 letter boxes in the project area, personally addressed and mailed to registered stakeholders, published on the GLNG website and handed out at information sessions and briefings. It was also distributed through libraries, council offices and various community groups.

Two GLNG newsletters were produced in September 2008, one tailored to the Gladstone region, and the other to gas field communities.

5.0 Communication Methods and Activities (Cont...)

Each newsletter contained generic content about the project, the GLNG timeline, community benefits and employment projections and opportunities, as well as addressing frequently asked questions or topics.

Both community newsletters were distributed through information sessions, static displays and the Santos GLNG office. They were mailed to registered stakeholders and published on the website. An additional 8 000 copies of the Gladstone GLNG newsletter were inserted into the *Gladstone Observer* on 30 November 2008.

The newsletters were distributed by Australia Post to private mailboxes in the following communities in October and November 2008:

Table 6 Australia Post direct mail

Community	Private boxes
Arcadia Valley	106
Banana	73
Biloela	1066
Injune	389
Moura	979
Rolleston	149
Roma	3 529
Surat	355
Taroom	598
Theodore	647
Wallumbilla	288
Wandoan	389

Community newsletters are provided in Appendix E.

5.5 GLNG fact sheets

An initial series of eight illustrated fact sheets was developed to support the first round of community information sessions and briefings. This resource material was also used by Santos, URS and JTA field staff when in contact with relevant stakeholders.

The fact sheets included the following topics:

- What is Liquefied Natural Gas?
- What is an Environmental Impact Statement (EIS)?
- What is Coal Seam Gas?
- The Coal Seam Gas Field
- The Pipeline Corridor
- LNG Facility
- Community Benefits
- Santos and the Environment.

Two further fact sheets were prepared in August 2008 to support the Gladstone public information sessions on LNG safety:

- Shipping and Marine Traffic
- About the Santos LNG Facility on Curtis Island.

A further two fact sheets were introduced to support the second round of community information sessions in September 2008. These fact sheets were developed in response to specific landholder questions on land access, exploration drilling, field development infrastructure, land remediation, the pipeline route and construction timetables:

- The GLNG Field Development
- The GLNG Pipeline Corridor.

The fact sheets can be found in **Appendix E**.



Example of a GLNG fact sheet

5.0 Communication Methods and Activities (Cont...)

5.6 Promotion of information sessions

Community information sessions were held in towns where people are most likely to be impacted by, or interested in, the project.

Prominent display advertisements, as well as public notices in appropriate newspapers, were the primary vehicles for promoting the information sessions. The mainstream print media used are listed in *Table 7*.

The first round of community information sessions was also advertised on radio when the opportunity to contribute to the Draft Terms of Reference was promoted. The September 2008 sessions promoted the availability of the final Terms of Reference, and the November 2008 round presented the availability of preliminary EIS study findings.

Schedules of all newspaper and radio advertisements are contained in **Appendix F**, along with sample advertisements.

Santos received feedback from stakeholders in smaller communities that newspaper advertising could not be relied upon as an effective form of communication. To ameliorate this perceived deficiency, the following additional promotional activities were undertaken:

- email alerts were sent from the CM database to registered stakeholders, advising them of session details
- hundreds of registered stakeholders without email addresses received session information in the mail
- posters were developed and provided (either by Santos land agents or JTA) to participating businesses and organisations
- advertisements were placed in school newsletters, often as a community notice
- phone calls were made to electorate offices, local councils and to a random selection of stakeholders on the database
- flyers were prepared and distributed to private post boxes in smaller communities.



The advertisement features the GLNG logo at the top left, which includes a stylized 'G' and 'LNG' text. To the right is a photograph of a large gas tanker ship. The main heading reads 'GLNG community information sessions'. Below this, a paragraph describes the proposed \$7.7 billion Gladstone Liquefied Natural Gas (GLNG) project, which involves taking coal seam gas from the Bowen and Surat basins by underground pipeline to a gas liquefaction and export facility on Curtis Island in Gladstone. It states that GLNG is a project of state significance requiring an Environmental Impact Statement (EIS) and that Santos has been consulting with affected communities. The sessions provide a further opportunity to hear about the project and contribute feedback for incorporation into the EIS prior to submission to the state government in December 2008. Each session will involve a presentation from one of the project's key staff members, followed by a question and answer session and light refreshments. The 'Session details' section lists two sessions: Gladstone on Friday 21 November (12:00pm-2:30pm and 5:30-8:00pm) at the Dining Room, Leo Zussino Building, Central Queensland University, Bryan Jordan Drive; and Curtis Island on Saturday 22 November (11:00am-2:30pm) at Capricorn Lodge, South End. A note mentions that light refreshments will be provided and an indication of interest would be appreciated to assist with catering. At the bottom, contact information is provided: Freecall Number 1800 761 113, Email info@glng.com.au, and Website www.glng.com. The Santos and PETRONAS logos are in the bottom right corner.

Example of a GLNG newspaper advertisement

5.7 Static displays

Several pull-up, freestanding display banners (see below) were used in June 2008 to support the community information sessions, and the draft Terms of Reference consultation. Santos is very thankful for the cooperation shown by local businesses and government agency service outlets for allowing the display of these banners during the course of the community consultation.



Static display at the Emerald Library

5.0 Communication Methods and Activities (Cont...)

Table 7 Newspapers displaying dates of community sessions

Newspaper	Coverage	Sessions promoted (2008)
Blackwater Herald	Blackwater and surrounds	June
Central Queensland News	Emerald and Central Highlands	June, September, November
Central Telegraph	Biloela and surrounds	June, September, November
Gladstone News	Gladstone	June, September, November
Gladstone Observer	Gladstone	June, August, November
Koori Mail	National	June
Port Curtis Post	Gladstone and surrounds	June, September, November
Queensland Country Life	Rural Queensland	June, September
Rural Weekly (Central and Southern editions)	Rural Queensland	June, September, November
The Morning Bulletin	Rockhampton	June
The Courier-Mail	Queensland	June
Western Star	Roma	June, September, November

Table 8 September 2008 static display venues

Community	Venue	2008 dates displayed
Biloela	Biloela Shopping World, Gladstone Road	12 Sept - 12 November
Calliope	Calliope Library, Don Cameron Drive	19 Sept - 22 October
Gladstone	Gladstone Library, 39 Goondoon Street	19 Sept - 22 October
	GLNG project office, 114 Goondoon Street	19 Sept - ongoing
Emerald	Emerald Library, 44 Borilla Street	15 Sept - November
Injune	Injune Library, Hutton Street	17 Sept - November
Rolleston	Rolleston Rural Transaction Centre, Warrijo Street	15 Sept - 13 November
Roma	Roma Library, Hawthorne Street	16 Sept - November
Springsure	Springsure Library, Eclipse Street	15 Sept - 14 November
Taroom	Taroom Library, 24 Yaldwyn Street	16 Sept - 16 October
Wallumbilla	Wallumbilla Information Centre, Warrego Highway	16 Sept - November

Samples of banner images and posters are provided in **Appendix G**.

6.0 Results from Engagement and Consultation Activities

6.1 Community information sessions

Community information sessions were conducted in a range of locations to generate greater awareness of GLNG, the EIS process and (initially) the draft ToR phase. The sessions were open to anyone to attend and were staffed by Santos, JTA and/or URS personnel.

At each session, stakeholders were provided with an information kit containing a number of project resource materials and brochures. Attendees were strongly encouraged to fill out the registration form and provide this to the community consultation team members at the end of the session. Those

who registered were included in the CM database, which enabled them to receive a copy of the meeting notes, and to be informed of project updates and future public consultation events.

Across the program of information sessions, Santos took notes of discussions and collated a profile of the comments, questions, issues raised, and responses. These summaries were subsequently distributed to those who attended as well as those unable to do so.

The program for the three rounds of community information sessions conducted from June to November 2008 is provided in the following *Tables 9, 10 & 11*.

Table 9 June 2008 community information sessions

Date	Centre	Venue
Tue 3 June 2008 4pm-6pm	Springsure	Meeting Room Bauhinia Memorial Hall, Springsure
Wed 4 June 2008 3.30pm-5.30pm	Rolleston	Rolleston Shire Hall Warrijo Street, Rolleston
Thu 5 June 2008 3.30-5.30 pm	Biloela	Biloela School of Arts Kariboe Street, Biloela
Tue 10 June 2008 10am-12pm	Wallumbilla	Wallumbilla CWA Hall 10 College Street, Wallumbilla
Tue 10 June 2008 4pm-6pm	Roma	Ernest Brock Function Room Roma Bungil Cultural Centre Cnr Bungil & Quintin Sts, Roma
Wed 11 June 2008 4pm-6pm	Injune	Injune Memorial Hall Hutton Street, Injune
Thu 12 June 2008 4pm-6pm	Taroom	Taroom Town Hall - Foyer 18-20 Yaldwin Street, Taroom
Fri 13 June 2008 4pm-6pm	Gladstone	114 Goondoon Street Gladstone
Sat 14 June 2008 10am-12pm	Curtis Island	Capricorn Lodge South End, Curtis Island
Fri 20 June 2008 5pm-7pm	Gladstone	114 Goondoon Street Gladstone
Sat 21 June 2008 12pm-2pm	Curtis Island	Capricorn Lodge South End, Curtis Island

6.0 Results from Engagement and Consultation Activities (Cont...)

Table 10 September 2008 community information sessions

Date	Centre	Venue
Fri 12 Sept 2008 6pm-8pm	Biloela	Gallipoli Room, Anzac Memorial Club 94 Callide Street, Biloela
Mon 15 Sept 2008 1pm-3pm	Rolleston	Rolleston Shire Hall Warrijo Street, Rolleston
Wed 17 Sept 2008 10am-12.30pm	Wallumbilla	Wallumbilla Memorial Hall Wallumbilla
Wed 17 Sept 2008 5.30pm-8.30pm	Roma	Ernest Brock Function Room Roma Bungil Cultural Centre Cnr Bungil & Quintin Sts, Roma
Thu 18 Sept 2008 2pm-4pm	Injune	Injune Memorial Hall Hutton Street, Injune
Sat 20 Sept 2008 11am-1pm	Curtis Island	Capricorn Lodge South End, Curtis Island

Table 11 November 2008 community information sessions

Date	Centre	Venue
Wed 12 Nov 2008 5.30pm-8.30pm	Biloela	Foyer, Civic Centre Cnr Rainbow & Prairie Sts, Biloela
Thu 13 Nov 2008 10am-12.30pm	Moura	Kianga Hall McArthur Street, Moura
Thu 13 Nov 2008 5.30pm-8pm	Rolleston	Rolleston Shire Hall Warrijo Street, Rolleston
Tue 18 Nov 2008 10am-12.30pm	Wallumbilla	Wallumbilla CWA Hall 10 College Street, Wallumbilla
Tue 18 Nov 2008 5.30pm-8pm	Roma	Ernest Brock Function Room Roma Bungil Cultural Centre Cnr Bungil & Quintin Sts, Roma
Wed 19 Nov 2008 11.30am-2pm	Injune	Injune Memorial Hall Hutton Street, Injune
Fri 21 Nov 2008 12pm-2.30pm 5.30pm-8pm	Gladstone	Dining Room, Leo Zussino Building Central Queensland University Bryan Jordan Drive, Gladstone
Sat 22 Nov 2008 11am-2.30pm	Curtis Island	Capricorn Lodge South End, Curtis Island

Santos implemented a range of consultation approaches including both informal 'drop-in' sessions and formal 'presentation' styles. It was noted early that stakeholders preferred the more formal approach which was followed by a question and answer session. All subsequent community information sessions were delivered in a presentation style followed by questions (and answers by the community consultation team). It was customary for project team members to remain at the venues after the close of the session to discuss additional questions one-on-one with community members.

6.0 Results from Engagement and Consultation Activities (Cont...)

All questions were recorded¹ along with the presenters' responses. The final meeting summaries were distributed to session participants who provided contact details, and relevant GLNG project team members. These notes were also made available to stakeholders registered on the CM database who were either unable to attend, or expressed interest in the outcomes of a particular meeting.

Despite comprehensive advertising and promotion through local networks, emails to stakeholder groups, posters in the windows of participating businesses and telephone calls to registered stakeholders, low RSVP numbers (only one or two in some cases) were received for most sessions apart from Gladstone. However, this proved to be no indication of the actual interest with between 23-35 people attending some of these sessions.

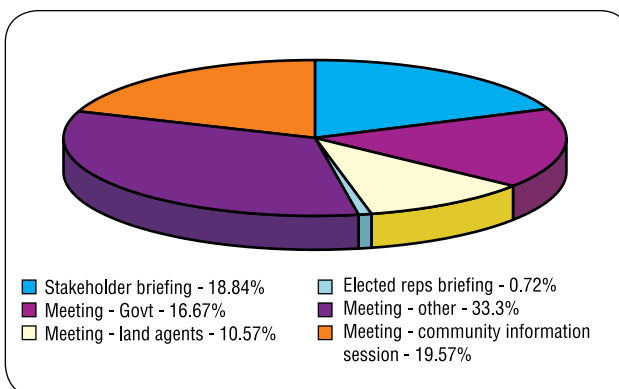
The notes from all three rounds of community information sessions are contained in **Appendix H**.

6.2 General project briefings

More than 140 project briefings were delivered during the consultation phase. Briefings started in April 2008, both prior to and as part of the public display of the draft Terms of Reference, and continued as the draft EIS was under development.

These briefings provided an opportunity to disseminate information about the project, promote ways to be involved in the EIS process, and develop relationships and confidence in the consultation activities. They also informed issues management activities and the content of communication materials. A general breakup of the type of project briefing is shown in *Figure 7*.

Figure 7 Breakup of project briefings



Santos will continue project briefings for the life of the project to maintain engagement with key stakeholders.

6.3 Issue-specific briefings

GLNG will impact different communities and stakeholders in quite distinct but diverse ways. A number of issue-specific briefings/workshops were held with particular target groups, often at their request, to discuss contentious problems or issues.

In addition to the community information sessions itemised in Section 6.1, the following issue-specific briefings were conducted. Some were invitation only, while others were available to the general public. Full summaries of all meetings are contained in **Appendix H**. These meeting notes were provided to registered stakeholders and others upon request.



¹ Santos did not use electronic recording devices at any community engagement session. Notes were handwritten and paraphrased. No criticism was ever made of the distributed summaries; quite the contrary as some stakeholder groups said the detailed summaries and their wide distribution distinguished the GLNG consultation from similar consultation being undertaken at the same time.

6.0 Results from Engagement and Consultation Activities (Cont...)

Maritime issues - Gladstone

Sixteen attendees met on 26 July 2008 to discuss the issue of bridge clearance (Gladstone to Curtis Island). A feature of the meeting was that the audience had a much broader interest in the project, and the majority of the allotted time was spent discussing the issue more broadly. The majority of the group did not accept that a bridge was essential and did not want any reduction in the current level of access and thoroughfare.

Landholder issues – Arcadia Valley

AgForce initiated and organised a public meeting on 21 August 2008 which was attended by approximately 40 Arcadia Valley stakeholders, including a representative from the Central Highlands Regional Council. Issues raised concerned land access, the gas transmission pipeline and associated drilling, noise, the diminution of land values, compensation and water. Concerns were also raised concerning the allocated feedback period for the draft EIS Terms of Reference and the likelihood that community comments would be included in the final consultation report to government.

LNG safety – Gladstone

In response to community concerns around the heightened media interest in the safety of LNG, and the perceived potential for a serious incident at the proposed GLNG Curtis Island facility, two public information sessions on safety were held on 25 August 2008 in Gladstone. The times were selected to allow shift workers to attend. About 75 people in total attended these sessions.

Land valuation – Roma and Arcadia Valley

Meetings were held in Roma and Arcadia Valley on 8 and 9 October 2008 respectively concerning issues associated with CSG field development and its influence on rural land values. A panel of specialists, including URS and its sub-consultants Devine Agribusiness, was on hand to answer questions about the land valuation study. The purpose of the meeting was to:

- define the issues associated with CSG field development and its impacts on land valuation
- explain the method and steps by which Santos would attempt to identify land valuation impacts
- introduce the specialists Santos has engaged to lead this work – URS and Devine Agribusiness
- gather input from landholders towards the land valuation study.

Approximately 50 people in total attended these sessions.

Beneficial uses of associated water – Roma/Wallumbilla/Arcadia Valley

A series of water workshops and landholder surveys (Arcadia) was conducted across August to November 2008 to discuss options for the beneficial use of associated water. The workshops were highly successful in obtaining the views and ideas from a mix of local council members, landholders, AgForce and Queensland Murray Darling Committee (QMDC) representatives, on the scope of opportunities that could be investigated.



6.0 Results from Engagement and Consultation Activities (Cont...)

A number of similar themes came out of these workshops including, but not limited to:

- water storage facilities to supply potable water to the local community
- water for irrigation of existing crops (reduce the draw-down on subsurface water supplies)
- establishment of new agriforestry projects including green spaces and recreational opportunities.

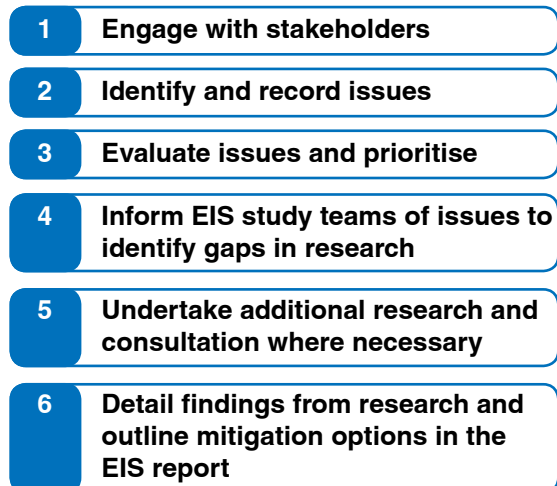
These key opportunities are currently being investigated further by Santos and are discussed in more detail in Chapter 6 of the EIS report.

6.4 Land access public forums

Santos participated in the Queensland Government's public information sessions on land access in Roma and Injune on 30 and 31 October 2008 respectively, culminating in a summit in Dalby in November 2008. These sessions were part of a program designed to stimulate discussion on the coexistence of farming and mining, and give landholders the opportunity to voice their concerns about land access directly to the government.

6.5 Key issues

A primary objective of the consultation process was to listen to, and take onboard, community views about the GLNG project proposal. The following framework was applied to all forms of consultation and engagement activities.



The following section of this report summarises the key issues arising from all forms of consultation. The issues have been broken down into the three major components of the project i.e. Coal Seam Gas Fields, Gas Transmission Pipeline and LNG Facility, together with the most interested stakeholder groups.

Table 12 Key issues arising from all forms of consultation

Key issues	Interested stakeholder groups	Relevant project component
General project information – There was extensive general interest from stakeholders in relation to what the GLNG project was about, and where and when it was planned to take place. There was also a keen interest from stakeholders to participate in the EIS process as evidenced through a number of enquiries via email and the 1800 freecall number.	<ul style="list-style-type: none">• General public• Government• Landholders• Community interest and environmental groups• Business and industry representatives	<ul style="list-style-type: none">• Coal Seam Gas Fields• Gas Transmission Pipeline• LNG Facility

6.0 Results from Engagement and Consultation Activities (Cont...)

Table 12 Key issues arising from all forms of consultation (Cont...)

Key issues	Interested stakeholder groups	Relevant project component
<p>Water – Stakeholders were concerned about the project's potential to deplete subsurface water sources currently supplying towns with their potable water supply. Landholders were further concerned about the type and size of water storage dams/ponds, as well as the associated construction methods and materials. Other issues included:</p> <ul style="list-style-type: none"> • quantity of water that would be produced from the gas extraction process • quality of the water and what opportunities were available for reuse • level of salt in the water and how this is dealt with • depth of interconnecting water pipes. 	<ul style="list-style-type: none"> • General public • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields
<p>Land use – At many community meetings held in smaller regional towns such as Wallumbilla, Injune and Arcadia Valley, the composition of attendees was largely local landholders. A concern expressed at these meetings related to the uncertainty of how much of their land would be rendered unusable as a result of gas exploration and production infrastructure (e.g. dams/gas wells/pipelines/access tracks etc).</p> <p>Another common question related to the extent of negotiation that could be undertaken with the landholder concerning the location of proposed infrastructure on privately owned properties. Landholders did not want to be left looking at unsightly steel structures from their primary residence. Furthermore, issues were raised in relation to land access protocols. Examples were provided at public meetings of gas companies not honouring written agreements with landholders that stipulated prior notice must be given before entering properties.</p> <p>A follow-on concern from the use of infrastructure was the condition in which the land would be left during operation and after its useful life. Questions were asked about the level of remediation and restoration that would be provided by Santos. The concerns were that this would not be undertaken within a reasonable period of time, if at all.</p>	<ul style="list-style-type: none"> • Landholders • Government • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline
<p>Land diminution and compensation – A heavily related concern to the land use issues expressed by landholders was the impact this activity would have on land values. It was felt that the current levels of compensation were not adequate when assessed against the value of health, happiness and wellbeing. It was stated at some meetings that the uncertainty around the location of wells, combined with a less than satisfactory industry reputation (generally speaking – not targeting Santos specifically) was leading to increased levels of stress. The point was made that landholder properties represent the current and future livelihood of families, and that due respect and attention should be paid to minimising health and wellbeing impacts caused by the project.</p>	<ul style="list-style-type: none"> • Landholders • Government • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline

6.0 Results from Engagement and Consultation Activities (Cont...)

Table 12 Key issues arising from all forms of consultation (Cont...)

Key issues	Interested stakeholder groups	Relevant project component
There was also a concern about what would happen to existing contractual agreements if Santos was taken over by another company (this was based on media reports highlighting the removal of the share cap on Santos Ltd). Would agreements be honoured to the same standard that Santos is currently promising?		
<p>Noise – The issue of noise was raised a number of times:</p> <ul style="list-style-type: none"> • Noise levels might be within acceptable tolerances but that doesn't mean the community wouldn't hear it, or that noise wouldn't be considered a nuisance by the local community. • How close would infrastructure be to dwellings; and what associated noise would come from construction and operation of drilling rigs, earthmoving equipment, wells, compressor stations and the LNG facility? • What would be the impact of noise on farm animals e.g. stress, eating habits, sleeping habits etc? • How would noise monitoring be undertaken? Could the community rely on the results being open and accountable (particularly to landholders with noise producing infrastructure on their properties)? 	<ul style="list-style-type: none"> • General public • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline • LNG Facility
<p>Air quality – The primary concerns relating to air quality were:</p> <ul style="list-style-type: none"> • dust generated from construction and vehicles accessing the infrastructure using dirt roads over the life of the project • LNG facility emissions, smoke and odours (and how they would affect the health of nearby residents). <p>Some landholders in the gas fields raised points of contention over the ability for gas companies to pollute the atmosphere through carbon emissions, while landholders were unable to fell trees on their own properties.</p>	<ul style="list-style-type: none"> • General public • Government • Landholders • Community interest and environmental groups 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline • LNG Facility
<p>Cumulative impacts – A concern expressed by the majority of stakeholders related to the cumulative impacts of future CSG projects over the next 20 years and beyond. It was clear from a stakeholder's perspective that common user infrastructure would have been the way to go. Stakeholders found it difficult to understand how the government could allow several pipelines to go through someone's property, as well as multiple LNG facilities on Curtis Island. Notwithstanding the environmental and aesthetic concerns, stakeholders were worried about a wide range of cumulative impacts relating to road and transport infrastructure, human services (including health services), housing and employment.</p>	<ul style="list-style-type: none"> • General public • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline • LNG Facility

6.0 Results from Engagement and Consultation Activities (Cont...)

Table 12 Key issues arising from all forms of consultation (Cont...)

Key issues	Interested stakeholder groups	Relevant project component
<p>Weeds – Concern was expressed over the potential for increased spread of weeds due to the amount of activity and number of transport vehicles used during construction. Anecdotal evidence was provided at some public meetings that certain companies were not observing wash-down procedures.</p>	<ul style="list-style-type: none"> • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline
<p>Social impacts – It was clear, in talking with stakeholders in communities, that they have a passion and love for the area. Hand in hand with this is a natural concern for the wellbeing of the community. Concerns were expressed over the fly-in, fly-out nature of the workforce and how this limits opportunities for the town's population to grow. Under this sort of an arrangement, spouses and children are not encouraged to reside in the local community. It was mooted that incentives should be provided to workers to encourage their families to settle locally.</p> <p>The potential impact on housing and accommodation, both from a pricing and availability perspective, was consistently raised by stakeholders in all communities. There was also a keen interest in how workers along the pipeline route would be accommodated (whether it be in camps or using accommodation providers in local towns).</p> <p>A social concern experienced by those directly affected by the project (i.e those living on Curtis Island, those with petroleum leases over their properties and those with gas transmission pipeline infrastructure on their properties) was the fear, anxiety and stress of the unknown. In terms of the CSG fields, it was fear over where and how many wells would be drilled on properties. In terms of the gas transmission pipeline, it was fear over how many more pipelines would be laid by other gas companies. And in terms of the LNG facility, it was fear over how much more industry would be allowed on Curtis Island.</p> <p>There were concerns expressed about the current and future impact of the project's workforce on local health services. It was felt that the workers' camps were not being included in the statistical calculations for doctors and nurse numbers.</p> <p>There were also concerns about the ability of local schools and child care facilities to handle increased numbers. Conversely, there were comments suggesting that numbers for these services were currently declining, putting pressure on their sustainability and subsequent availability.</p>	<ul style="list-style-type: none"> • General public • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline • LNG Facility

6.0 Results from Engagement and Consultation Activities (Cont...)

Table 12 Key issues arising from all forms of consultation (Cont...)

Key issues	Interested stakeholder groups	Relevant project component
<p>Questions were raised about local employment opportunities and whether Santos would actively source labour from the local community.</p> <p>Stakeholders also expressed a keen interest in the types of community investments that Santos planned to make over the life of the project.</p>		
<p>Business opportunities – A number of attendees at community information sessions were local business people seeking to understand the project and to register their interest as local suppliers. Stakeholders were very interested in Santos' local procurement policies, and which companies would be constructing the gas transmission pipeline and LNG facility.</p>	<ul style="list-style-type: none"> • General public • Government • Business and industry representatives 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline • LNG Facility
<p>Pipeline – Key issues raised relating to the pipeline included:</p> <ul style="list-style-type: none"> • the proposed pipeline route and when decisions would be finalised • pipeline construction materials and the depth of the buried pipe (there were some concerns the pipe might be exposed in certain parts) • the size and thickness of the pipe • how close to dwellings the pipe could be located • width of the easements and what landholders would be allowed to do on the easements • whether the timing of construction would take into account farming priorities e.g. avoiding harvesting and planting periods etc. 	<ul style="list-style-type: none"> • Government • Landholders • Business and industry representatives 	<ul style="list-style-type: none"> • Gas Transmission Pipeline
<p>Local use of gas – The question about why the gas was being sold overseas and not directed back into the Queensland/ Australian market was common across all components of the project.</p>	<ul style="list-style-type: none"> • General public • Landholders 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • Gas Transmission Pipeline • LNG Facility
<p>Traffic and transport – Stakeholders expressed concern over the potential impact on local roads due to the increased number of heavy vehicles servicing the project. Gladstone and Curtis Island stakeholders were concerned about the proposal to construct a bridge from Gladstone to Curtis Island. These concerns centred on the bridge design and height (whether it would restrict access to passing vessels); and bridge access (whether the bridge would be for the sole use of industry or made available to the public or Curtis Island residents). Concerns were also raised about shipping traffic and how frequently ships would be entering and leaving the loading facilities. Curtis Island residents said they did not want a view of ships queuing all the way to the horizon.</p>	<ul style="list-style-type: none"> • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • Gas Transmission Pipeline • LNG Facility

6.0 Results from Engagement and Consultation Activities (Cont...)

Table 12 Key issues arising from all forms of consultation (Cont...)

Key issues	Interested stakeholder groups	Relevant project component
Sponsorships – A number of requests were received for Santos to consider sponsorship opportunities.	<ul style="list-style-type: none"> • Community interest and environmental groups 	<ul style="list-style-type: none"> • Coal Seam Gas Fields • LNG Facility
Safety – Safety issues were a high priority for stakeholders in the Gladstone and Curtis Island communities. The key concerns raised were: <ul style="list-style-type: none"> • the potential for vessel collisions • the explosion potential of the gas, both in liquid and gas forms • terrorist threat potential • fire threats (bush fires or accidents) • leakage and spillage of hazardous waste and/or gas • emergency/evacuation plans for South End residents. 	<ul style="list-style-type: none"> • General public • Government • Landholders • Community interest and environmental groups • Business and industry representatives 	<ul style="list-style-type: none"> • LNG Facility
Why Curtis Island? – There was interest in how Curtis Island was selected as the preferred facility site. There were local views that alternative sites such as Port Alma would have been preferred options.	<ul style="list-style-type: none"> • General public • Landholders • Community interest and environmental groups 	<ul style="list-style-type: none"> • LNG Facility
Gladstone State Development Area (GSDA) – Concerns were raised by Curtis Island residents that they did not know how much industry would be allowed to operate in the GSDA. Santos was not in a position to comment on how many other LNG projects were likely to be on the island.	<ul style="list-style-type: none"> • General public • Landholders • Community interest and environmental groups 	<ul style="list-style-type: none"> • LNG Facility
Visual impact – Stakeholders were interested to know where the LNG facility would be located, and whether the flare stack would be visible from South End.	<ul style="list-style-type: none"> • General public • Government • Landholders 	<ul style="list-style-type: none"> • LNG Facility
Dredging – A number of questions were raised in relation to the proposed dredging of the channel to allow safe entry of LNG ships. Questions raised included: <ul style="list-style-type: none"> • What effect would dredging have on water quality? Would toxins be stirred up from the soils? • Where would the dredging spoil be located and what impact would this have on the marine ecology? • How often would the channel need to be dredged after the initial process? 	<ul style="list-style-type: none"> • Community interest and environmental groups • Business and industry representatives • General public 	<ul style="list-style-type: none"> • LNG Facility

7.0 Consultation Evaluation






Figure 8 below represents the community engagement evaluation model used by Santos to assess project outcomes.

Figure 8 Community engagement project evaluation model








7.1 Project report card






Assessment Rating:  **Met Objectives**  **Learning opportunity presented**

Indicators	Rating	Comments/Evidence Base
Stakeholder identification		
Were all key stakeholders identified?		A Stakeholder Management Plan (SMP) was developed using a combination of intelligence from Santos personnel and contracted professionals such as URS and JTA. As the project progressed, new stakeholders were added and the SMP updated accordingly.
		A total of 1 333 individual stakeholders were registered in the consultation database at the time of preparing this report.
Were all key stakeholders engaged?		100% of all stakeholder groups identified in the SMP were engaged about the project either directly or indirectly.
Issues management		
How effective was the process used for recording stakeholder issues?		At every consultation activity, written notes were taken summarising the discussions and follow up actions. This information was fed into a consultation database (Consultation Manager). A project officer was then dedicated to managing the accuracy of the data and following up actions with the relevant subject matter experts.
		It was noted that some users of the consultation database experienced frustration with the system design and its overall user-friendliness. Santos will address these issues going forward.




7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Were issues responded to by the subject matter experts in a timely manner?		<p>A number of processes were implemented to ensure stakeholder issues requiring attention were directed to the appropriate subject matter experts. This process was further reinforced with email alerts directly to the responsible officer, and monthly Outstanding Actions reports.</p> <p>A 48 hour turnaround was the benchmark set for stakeholder responses. Due to the complexity of issues raised, this timeframe was not met on a number of occasions. Santos will review this benchmark going forward to ensure timeframes are appropriate.</p>
Did stakeholders receive appropriate and timely responses to their issues?		<p>The number of requests for action resulting from stakeholder engagement events totalled 246. As at the preparation of this report, 56 actions of the 246 remain outstanding.</p> <p>Where issues were identified as a common and consistent theme e.g. water and safety, specific workshops were convened with local stakeholders to discuss in more detail.</p> <p>Santos received minimal complaints in regard to the quality and appropriateness of responses.</p>
		As raised previously, timeliness of responses is being addressed further.
Information provision		
Were appropriate key messages available to support the client in delivering information to stakeholders?		Key messages were developed and continually updated to ensure information accuracy, reliability and consistency.
		This process identified an opportunity to strengthen the lines of communication between the various GLNG staff and contractors who have an interface with GLNG stakeholders. This resulted in the establishment of a Community Engagement Working Group and Steering Committee to manage the flow of information in and out of the client organisation, with a view to minimising mixed messages and confusion amongst stakeholders.





7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Were appropriate resources developed to match the topics of interest identified by stakeholders?		<p>Three community newsletters were produced and distributed to over 25 000 letter boxes.</p> <p>Twelve fact sheets were produced in response to common stakeholder interests (see page 20 for details).</p> <p>Over 500 information kits containing various newsletters, fact sheets, regulatory information, contact details, brochures and pamphlets were distributed at stakeholder engagement events.</p> <p>A series of project banners was developed and displayed in public locations to increase community awareness of the project (see page 21 for details).</p>
		<p>It became apparent that a number of landholders likely to be directly impacted by future GLNG infrastructure did not fully understand what coal seam gas was and how the extraction process would impact their land. Santos did not have a plain English interpretation of the process to hand out. As a result, a <i>Landholder's Guide to CSG</i> is now in production for distribution early in 2009.</p>
Were the resource materials quality controlled, easy to read and matched to the targeted audience?		<p>All resource materials were subject to a quality review process prior to their release. This review process involved technical input, communications experts, community engagement specialists, professional editors, team leaders and management.</p> <p>Presentations used for stakeholder events were tailored to the location and the audience.</p> <p>Feedback from informal discussions at stakeholder meetings indicated the resource materials were improving people's understanding of the project.</p>
Was information about the project readily accessible by stakeholders?		<p>The following contact points were implemented to facilitate access to information about the project:</p> <ul style="list-style-type: none"> • freecall 1800 telephone number • dedicated fax number • website • email address • business cards. <p>All stakeholders who registered their details with Santos, JTA or URS received copies of meeting notes either in hard copy or via email.</p>
Relationship with the community		
Was a spirit of openness and honesty upheld with the community?		<p>There was a clear policy which was constantly demonstrated by community consultation team members when interfacing with the community. Where a question could not be answered, the team member would state – <i>I can't answer that or I can't comment on that.</i></p> <p>If the question was able to be followed up, it was documented in the meeting notes and registered in Consultation Manager for followup action.</p>







7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Was trust improved over the period of the consultation?		<p>Trust is a difficult issue to measure as it primarily relates to a person's sense of self security. Self security is influenced by social and psychological factors relating to honesty, ethics, fairness, personal values, fears etc. One of the biggest fears constantly voiced by community members was the 'fear of the unknown'. The unknown in this context referred to where the gas wells and transmission pipeline would be located, and how many LNG facilities might be approved on Curtis Island (to name a few).</p> <p>Throughout most of the consultation period, these issues were not able to be answered due to the complex way in which coal seam gas is explored and/or produced, and due to decisions outside the authority and/or control of Santos. Toward the end of the consultation period, planning of the gas transmission pipeline route was nearing completion, but the location and the exact number of wells was still undergoing analysis. Santos made it clear in public forums that it was not in a position to comment on how many LNG facilities would be approved for Curtis Island. Despite this uncertainty, the GLNG project team implemented a range of measures to address these insecurities. The measures included:</p> <ul style="list-style-type: none"> • a full round of community consultation focussing on preliminary findings from the EIS studies • dedicated land agents employed to build relationships with landholders and to have someone they can call upon at any time • a written record of concerns raised in community information sessions.
Was respect demonstrated to community members during the consultation process?		<p>All public information sessions were opened with an address from the facilitator acknowledging and thanking community members for giving up their time to take part in the event.</p> <p>Understandably, some community members were quite vocal in regard to their specific concerns about the project. The facilitators and presenters were always cognisant of the need to allow the time and space for meeting attendees to make their point, within boundaries that maintained the integrity of the meeting.</p> <p>When meeting participants became highly engaged, the project team members continued discussions for as long as it took (sometimes over five hours) to ensure community members had their issues heard.</p>
Was the integrity of project members upheld over the period of the consultation?		<p>There were no reported incidences of unethical behaviour or breaches of the Santos code of conduct during the community consultation.</p>





7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Did the project promote inclusiveness?		<p>A number of consistent themes were presented at public information sessions which led to the organisation of issue-specific workshops (these issues are discussed in more detail in the body of the report). The workshops were well attended by a cross section of stakeholders from various levels of government, not-for-profit organisations, local business, peak bodies and the community.</p> <p>Due to strong participation from attendees, these workshops were highly successful in obtaining useful ideas.</p>
Planning and delivery		
Were plans developed and submitted on-time?		All plans were submitted and approved by the due dates.
Were scheduled events delivered on-time?		98% of events planned went ahead as scheduled.
		<p>During the latter stages, there was some contention over whether communities needed a further round of consultation. The third and final round of public information sessions prior to the submission of the EIS report had been promised at the second round consultation sessions in September 2008. The meetings were subsequently organised and heavily promoted. More promotion was put into this round than any other due to the build up of contacts and networks from previous rounds.</p> <p>Despite this heavy promotion, the RSVPs were low – in some communities as low as one or two. The low RSVPs, together with the general feeling that the level of consultation to date had been more than adequate, brought about a decision to cancel the third round.</p> <p>It was decided the GLNG community consultation project manager would still attend each session in case any unexpected community members showed up on the day.</p> <p>At the first session in Biloela, it soon became evident that RSVP numbers were no indication of community interest. With only one RSVP registered for Biloela, the meeting received the largest turnout ever with over 25 people arriving for the session. On this basis, it was decided to proceed with the meetings as programmed. The keynote speakers from the project team were rapidly re-engaged overnight to present as per the original schedule.</p> <p>Despite the situation, the third round meetings proceeded without any problems and were the most heavily attended of all rounds.</p>






7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Were deliverables achieved to the appropriate level of quality?		<p>All milestones and deliverables achieved as part of the project plan required review and approval from the GLNG EH&S team leader.</p> <p>Following each event or milestone, the project team convened to discuss 'lessons learned' to ensure learning opportunities were captured and built into future processes.</p> <p>In addition to this, fortnightly and weekly meetings were held at both the strategic and operational levels to monitor project progress and to discuss and resolve project issues.</p>
Were project deliverables achieved on budget?		All project deliverables were achieved within budget.
Effective marketing and communication		
Were the media channels used to advertise community information sessions effective?		There was a sufficient range of media outlets to communicate public notices effectively (see page 22 for further details).
		<p>Feedback from landholders indicated that, given their work commitments, newspaper advertisements were not the most effective form of communication.</p> <p>With this in mind, Santos ensured supplementary processes were in place to maximise the communication of public notices. These processes included:</p> <ul style="list-style-type: none"> • eliciting the help of local community information hubs (newsagents/shopping centres/post offices/corner stores etc) • hard copy mail-outs to registered stakeholders • emails and phone calls to registered stakeholders • use of Santos local land agents to inform residents.
Were the marketing activities successful in creating good awareness about the project and its associated events?		<p>By the end of the consultation period for the EIS, discussions with registered stakeholders indicated that there was good awareness of the project. While conducting marketing sessions for the third round of public information sessions, team members talked to many stakeholders who indicated they were happy with the level of information and input they had already received.</p> <p>A number of stakeholders indicated they were looking forward to the results of the EIS and other studies to address their more specific concerns.</p>
		A lesson to be taken forward into future consultation activity will be a more formal mechanism for determining the success of marketing activities through the use of survey instruments and phone/face-to-face interviews with stakeholders.

7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Was the internal communication within the client organisation efficient and effective?		<p>Due to the nature and size of this project, a number of teething problems were experienced in the initial phases with regard to internal communication protocols. While GLNG is a new Santos project with its own identity and company, Santos has existing relationships with community members. These stakeholders often did not make the distinction between GLNG and Santos. As roles became better defined and new personnel appointed, the flow of communication began to improve.</p> <p>New structures are also being created to provide stronger oversight and management of:</p> <ul style="list-style-type: none"> • Indigenous stakeholders • government stakeholders • landholder stakeholders • operational stakeholders • community stakeholders.
Did the internal control processes facilitate efficient and effective decision-making?		<p>There was some difficulty experienced in the coordination of review and approval processes which put pressure on the quality and timeliness of deliverables. This issue was raised at strategic coordination meetings and has been subsequently addressed.</p>
Consultation		
Was the number of consultation events undertaken appropriate for the level of stakeholder interest?		<p>The number of registered consultations totalled 339.</p> <p>By the end of the consultation period, the feedback from stakeholders indicated they had been sufficiently informed of the project and that they were looking forward to the public release of the EIS report.</p>
Were consultations well organised?		<p>The following practices were implemented to maximise the success of consultations:</p> <ul style="list-style-type: none"> • display banners were positioned at venue entrances for ease of identification by attendees • attendees were greeted by project team members on arrival • facilitators and project staff were identified by name badges or corporate shirts • stakeholders who had registered in advance were given name tags • catering was organised through local providers • venues were opened in advance to organise seating arrangements • audio visual equipment was tested • pre-meeting briefings were held to ensure team members understood their roles • the purpose and objectives of the consultation meetings were made clear to attendees in the introduction by the facilitator.

7.0 Consultation Evaluation (Cont...)

Indicators	Rating	Comments/Evidence Base
Were the venues used to host stakeholder consultation events suitable?		The local community centres/halls provided highly suitable venues for public consultation sessions.
Were the resource materials relevant and appropriate?		Presentations and resource materials were tailored to the audience and location. Copies of audio visual presentations were always made available on request.
Was the timing of consultation meetings appropriate?		The average length of public consultation sessions was three hours. On occasions, some sessions went considerably longer at the request of attendees.
		<p>It became clear that in some regional centres, the time of day was an important consideration to ensure the meeting would be well attended.</p> <p>Low numbers at some sessions may have been influenced by the timing of the event. This resulted in further discussion with community members to ensure future events were timed to maximise attendance and involvement.</p>
How would you assess the quality of meeting facilitation and specialist presenters?		<p>Meeting facilitators adopted a consistent approach to delivering sessions which included:</p> <ul style="list-style-type: none"> • welcoming attendees • introducing facilitators and presenters • outlining the purpose and objectives of the session • describing the contents of the information kits • outlining the key contact details for the project • facilitating questions and answers • closing the sessions. <p>Meeting presenters tailored the style and content of their presentations to the audience well. All meeting presenters were respectful and gave the audience ample opportunities to ask questions and raise issues. The presenters used plain English terms and visual aids to support the audience's understanding of the project.</p> <p>Feedback from attendees after the close of sessions indicated a high level of satisfaction with the presenters, in particular Dennis Reid.</p>



7.0 Consultation Evaluation (Cont...)

7.2 Consultation evaluation summary

Was this project successful in meeting its intended objectives?

The key objectives outlined in section 4.1 have been achieved. This report provides the issues and findings from stakeholder consultation and engagement activities as evidence to support the achievement of these objectives.

The high quality of participation is testament to the passion stakeholders have for their local communities. Stakeholders provided a rich source of feedback and ideas to ensure community issues were well understood.

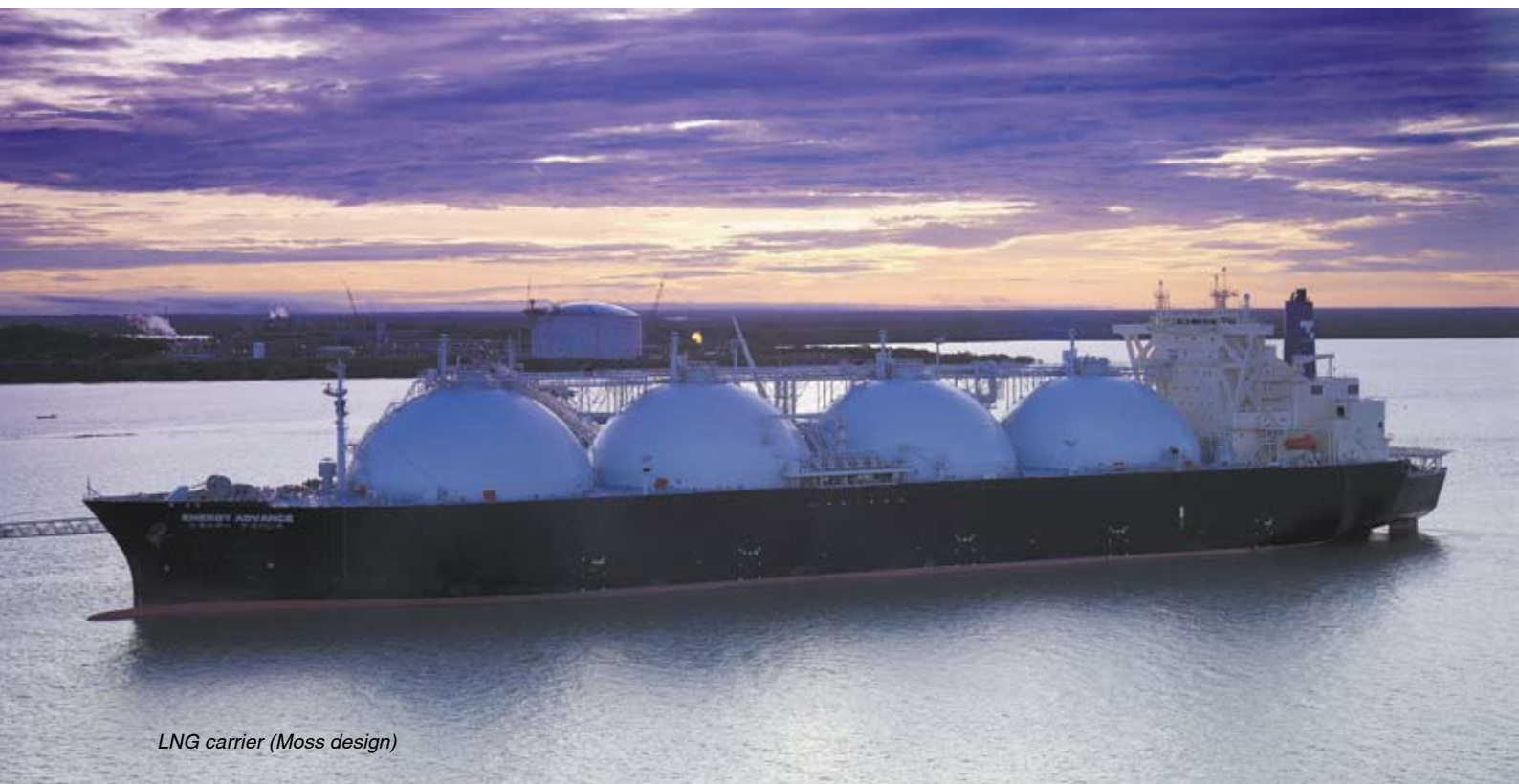
The process of engagement was thorough and exhaustive. Stakeholders reported high levels of awareness via a phone survey conducted during the final stages of the consultation.

Participation and inclusiveness was demonstrated through a variety of consultation and engagement methods

tailored to specific stakeholder groups. These methods and their outcomes are detailed in the body of this report.

It is important to note that while key issues have been captured and presented from consultation activities, there is a range of community attitudes for and against various aspects of the project. While there is growing trust that Santos is exploring the range of social and environmental impacts, there is still a degree of uncertainty over key issues such as water management, noise, number and location of wells, diminution of land value, compensation, air quality and social impacts such as health services, housing and local employment. The public release of findings from studies into these and other issues will form part of Santos' ongoing commitment to open and transparent communication with stakeholders.

The feedback received over the life of the consultation and engagement process was fed back to the environmental consultants for detailed analysis. Their findings and mitigation proposals are submitted in conjunction with this report as part of the EIS.



LNG carrier (Moss design)

8.0 Conclusion

Through the engagement and consultation process, stakeholders have been made aware of the potential impacts and benefits the GLNG project presents. Stakeholders have also been given the opportunity to provide feedback about their issues and concerns.

The highest levels of interest and engagement were experienced by landholders, the social sector, state and local government and local business contractors. As the consultation program progressed and understanding of the project improved, many stakeholders began to identify with the potential benefits the project could provide to local communities.

Notwithstanding, there are a number of critical areas requiring continued attention and discussion with relevant stakeholders. Santos will continue to monitor and address these issues as the project moves forward.

Santos is further demonstrating its commitment to ensure longer term community wellbeing and sustainability in the following ways:

- **Post-EIS report findings** – Santos is committed to maintaining an open and transparent relationship with stakeholders. This will be evidenced in a variety of ways as the project moves forward, but will commence with a full round of community information sessions and stakeholder briefings in early 2009. This round of consultation will focus on explaining the key findings from the environmental impact studies, and will give people the opportunity to ask questions of senior project team members and environmental professionals.
- **Wellbeing studies** – Santos has commissioned The Hornery Institute to undertake research into the level of community wellbeing in both Roma and Gladstone. A key part of this research will be to advise Santos on wellbeing indicators, which could be used as a basis for guiding future community investment.

The methodology used for the wellbeing report included (1) a wellbeing

framework, (2) literature review and (3) field audits. Each of these methods was used to better understand the existing local community, identify key community expectations and attempt to decipher values of individual and collective wellbeing.

- (1) The wellbeing framework was designed to clearly portray a model that treated the community as a unique and varying point of study. Therefore the effects of previous and existing social, economic and political experiences within the community were considered.
- (2) The literature review consisted of preliminary research prior to community consultation. The review provided an overview of historical, economic and environmental characteristics as well as a demographic profile.
- (3) Field audits of local facilities, services and events were used in conjunction with consultation with a broad range of stakeholders from the local communities.

- **Relationship building** – Santos is taking a number of steps to improve its interfaces with the community. For example, shop fronts in Roma and Gladstone have been established to provide a relaxed, community centred environment where members of the public, school children and business and government representatives can drop in and obtain information about Santos' operations (particularly the GLNG project). The shop fronts will also be places to advertise and hold community information sessions; deliver educational programs to students; host and launch community events; and capture local feedback (positive and negative) for ongoing improvement initiatives.

Further to the shop fronts, Santos has employed a number of new local land agents and officers who live and work within the communities they represent. These officers will provide a key contact point for discussing and addressing local issues in a timely manner.



For more information

If you have questions about the GLNG field development or other questions about the project, please contact the GLNG project team on:

Phone: Freecall 1800 761 113

Email: info@glng.com.au

Web: www.glng.com





GLNG
EIS CONSULTATION REPORT

Appendices

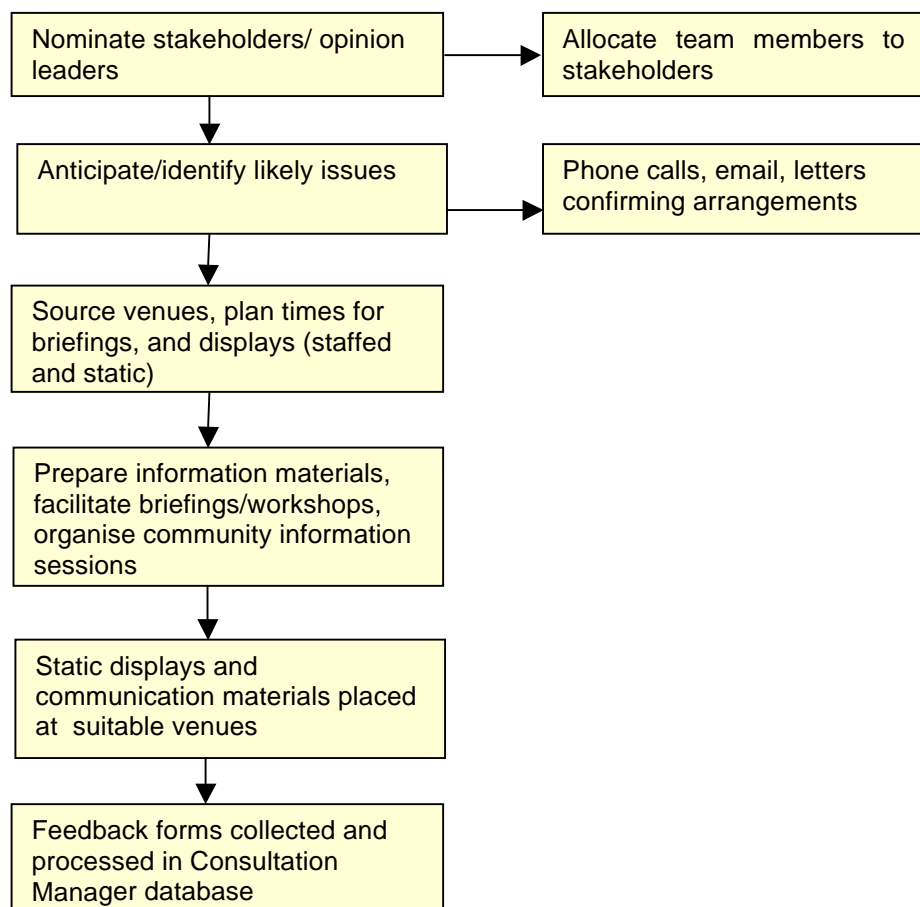
APPENDICES

- A Engagement and consultation flowchart
 - B Advisory agencies consulted with relevant contact(s)
 - C Community consultation personnel and their contribution to the EIS
 - D Key messages
 - E Fact sheets and community newsletters
 - F Sample advertisements and placement details
 - G Other project collateral (banners, posters)
 - H Materials from community information sessions and other public forums
-

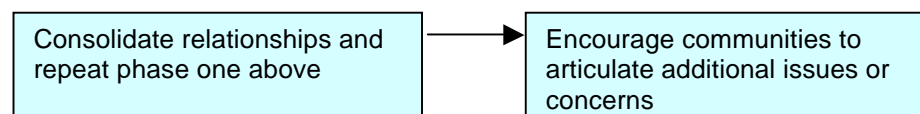
Appendix A

APPENDIX A – Consultation and engagement flowchart

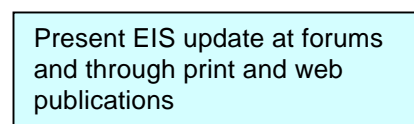
Phase one – public review and finalisation of EIS Terms of Reference (May – August 2008)



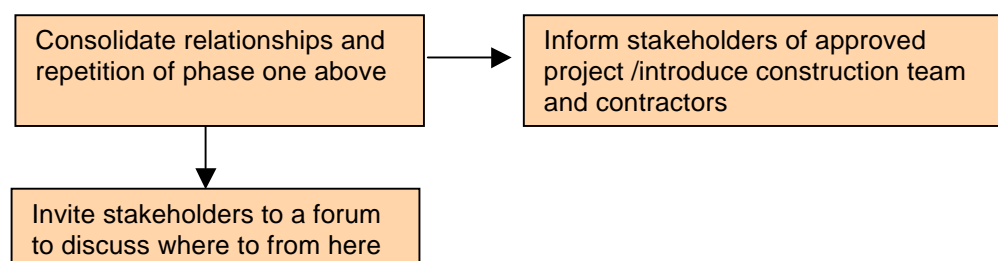
Phase two – EIS baseline studies and assessment activities (May – December 2008)



Phase three – EIS public comment and exhibition (A Um200- – >i bY 2009)



Phase four – post EIS, release of report and conditions of approval (Jan 2010+)



Appendix B

APPENDIX B – Advisory agencies consulted and relevant contact(s)

Start Date: 1 Apr 2008

End Date: 3 Dec 2008

Note: the following table includes the project briefings undertaken by Santos and JTA during the GLNG EIS consultation phase. It does not include the regular meetings between Santos and state and federal governments on policy and planning issues related to the project.

Stakeholder	Title and advisory body	Briefing date
Mr Ken Adsett	Principal Planning Officer Department of Natural Resources and Water (Rockhampton)	14 April 2008
Mr Luis Arroyo	Multicultural Community Relations Officer (LAMP) Gladstone Regional Council	10 April 2008 16 April 2008 24 June 2008 16 July 2008
Cr Jill Baker	Councillor Roma Regional Council	5 November 2008
Cr Jason Bartels	Councillor Roma Regional Council	5 November 2008
Ms Tracey Beath	Senior Environmental Officer Environmental Protection Agency (Rockhampton)	14 April 2008
Cr Vaughn Alwyn Becker	Councillor Division 6, Banana Shire Council	23 April 2008
Cr Greg Belz	Rockhampton Regional Council	16 April 2008
Mr Michael Bent	Implementation Manager Fitzroy Basin Association (Rockhampton)	23 April 2008
Ms Valeria Berry	Land management Officer, Department of Primary Industries and Fisheries (Biloela)	15 April 2008
Mr Eric Boardman	Regional Planner Department of Communities (Rockhampton)	16 July 2008
Mr Jason Bradshaw	CEO Banana Shire Council	23 April 2008
Mr Barry Braithwaite	Southern Inland Queensland ACC (Roma)	13 May 2008 14 May 2008 14 October 2008
Cr Patrick Brennan	Councillor Division 3, Banana Shire Council	23 April 2008
Cr Maxine Brushe	Councillor Gladstone Regional Council	15 April 2008
Mr Stuart Buck	Development Extension Office (Farming Systems) Department of Primary Industries and Fisheries (Biloela)	15 April 2008
Cr Matt Burnett	Councillor Gladstone Regional Council	15 April 2008
Cr Craig Butler	Councillor Gladstone Regional Council	15 April 2008
Cr Clyde Cameron	Councillor Gladstone Regional Council	15 April 2008
Mr Brian Carroll	Treasurer St Vincent de Paul (Roma)	14 May 2008 15 October 2008
Mr Brad Carter	Mayor Rockhampton Regional Council	16 April 2008
Mr Dan Casey	Manager Network Planning & Performance, Department of Main Roads (Rockhampton)	15 April 2008

Stakeholder	Title and advisory body	Briefing date
Cr Jan Chambers	Roma Regional Council	5 November 2008
Cr Colin Chapman	Councillor Gladstone Regional Council	15 April 2008
Mr Lance Christie	District Director Queensland Health (Roma)	22 July 2008
Cr Maureen Clancy	Councillor Division 5, Banana Shire Council	23 April 2008
Ms Mary Coman	Executive Director Community and Allied Health Queensland Health (Toowoomba)	29 April 2008
Mr Ray Conder	Venture Improvement (Rockhampton)	14 April 2008
Mr Rob Coomber		13 May 2008 14 October 2008
Cr George Creed (OAM)	Mayor Gladstone Regional Council	15 April 2008
Ms Susan Cunningham	Department of Natural Resources and Water (Rockhampton)	14 April 2008
Mr Peter Day	General Manager of Environment and Planning Central Highlands Regional Council	24 April 2008
Mr Cale Dendle	Director Environment and Community Services Gladstone Regional Council	23 May 2008
Cr Joy Denton	Councillor Roma Regional Council	23 May 2008
Mr Geoff Dickie	A/Deputy Coordinator-General Department of Infrastructure and Planning	5 June 2008 24 July 2008 5 November 2008
Mr Brian Duffy	District Administration Coordinator Department of Primary Industries and Fisheries (Biloela)	15 April 2008
Mr Steve Elson	Principal Planning Officer, Central Region Environmental Protection Agency (Rockhampton)	14 April 2008
Cr Neville Ferrier	Councillor Division 4, Banana Shire Council	23 April 2008
Ms Sandra Flanagan	Department of Natural Resources and Water (Rockhampton)	14 April 2008
Mr Ray Ford	Principal Advisor Queensland Transport – CQ (Rockhampton)	15 April 2008
Hon Andrew Fraser MP	Treasurer Queensland Government (Brisbane)	21 June 2008
Ms Katherine Gibson-Beier	General Secretary Roma Regional Council	14 May 2008
Ms Desley Goddard	Education Queensland	23 July 2008
Ms Barbara Grieve	CEO AXCEN (South Brisbane)	8 July 2008
Mr Peter Griffin	Regional Advisor (Strategic Planning) Department of Main Roads (Toowoomba)	29 April 2008
Cr Rick Hansen	Councillor Gladstone Regional Council	15 April 2008
Mr Lyle Harman	Group Manager Environment and Regulation Rockhampton Regional Council	14 April 2008 16 April 2008
Ms Leanne Harrington	Business Development Manager Community Employment Options Inc. (Rockhampton)	14 April 2008
Cr Tom Hartley	Deputy Mayor Roma Regional Council	5 November 2008
Mr Ian Herbert	President Capricorn Conservation Council (Rockhampton)	14 April 2008
Mr Jim Herbert	Manager Department of Natural Resources and Water	14 May 2008

Stakeholder	Title and advisory body	Briefing date
Mr Chris Hewitt	Manager (Corridor Land Management) Department of Main Roads (Rockhampton)	15 April 2008
Ms Prue Hinchliffe	A/Director Department of Tourism Regional Development and Industry (Rockhampton)	14 April 2008
Hon Howard Hobbs MP	State Member for Warrego (Roma)	5 November 2008
Cr John Hooper	Mayor Banana Shire Council	15 April 2008 23 April 2008
Mr Neil Hoy	Regional Project Officer Department of Mines and Energy (Rockhampton)	14 April 2008
Mr Peter Jaggard	Inspector Petroleum and Gas Department of Mines and Energy (Rockhampton)	14 April 2008
Mr Mike Kaiser	Chief of Staff Office of the Premier (Brisbane)	9 May 2008
Mr Graeme Kanofski	CEO Gladstone Regional Council	15 April 2008
Ms Anna Keetels	Executive Officer Central Highlands Regional Resources Use Planning Cooperative (Emerald)	24 April 2008
Ms Rosemary Kenny	Senior Advisor Water Services Department of Natural Resources and Water (Rockhampton)	14 April 2008
Mr Tony Klein	Council Community Development Officer Roma Regional Council	23 July 2008 15 October 2008
Ms Veronica Laverick	Manager Community Advisory Service Gladstone Regional Council	16 April 2008 23 May 2008
Mr Mark Longhurst	Manager Road System Corridor Department of Main Roads	14 May 2008
Cr Robert Sydney Loughnan	Mayor Roma Regional Council	5 May 2008
Hon Paul Lucas	Deputy Premier Minister for Infrastructure and Planning Through Office of the Coordinator-General (Brisbane)	8 May 2008 June 2008 5 November 2008
Cr Peter Maguire	Mayor Central Highlands Regional Council (Emerald)	24 April 2008
Ms Rebecca Martin	A/Inspector Projects Officer –CQ Region Queensland Police (Rockhampton)	14 April 2008
Ms Catriona McGregor	Regional Development Officer Toowoomba Department of Tourism, Regional Development and Industry	29 April 2008
Hon John Mickel MP	Minister for Transport, Trade, Employment and Industrial Relations	21 June 2008
Cr Warren Middleton	Councillor Division 2, Banana Shire Council	23 April 2008
Mr Patrick Mineely	Senior Advisor Environment Queensland Energy Resources Ltd.	11 November 2008
Ms Jos Mitchell	Project Officer Dawson Valley Development Association (Theodore)	14 April 2008
Ms Kellie Nilsson	Catchment Coordinator Dawson Catchment Coordinating Assoc. Inc.	23 April 2008
Mr John O'Kane	"Hay Roma" and Brindley Park	5 November 2008
Mr Bryan Ottone	CEO Central Highlands Regional Council	24 April 2008
Mr Brian Packer	President of the Conference St Vincent de Paul (Roma)	14 May 2008 15 October 2008

Stakeholder	Title and advisory body	Briefing date
Mr Rick Palmer	A/Chief Executive Rockhampton Regional Development Limited	14 April 2008
Mr Evan Pardon	Group Manager Infrastructure Rockhampton Regional Council	16 April 2008
Cr Lyn Paton	Councillor Gladstone Regional Council	15 April 2008
Mr Gavin Peck	Technical Manager Fitzroy Basin Association (Rockhampton)	23 April 2008
Mr David Pegg	Company Secretary Queensland Energy Resources Ltd	11 November 2008
Mr Ross Peroz	Infrastructure Services Gladstone Regional Council	17 July 2008
Mr Shaun Pobar	District Fisheries Advisor Department of Primary Industries (Rockhampton)	14 April 2008
Cr Maria Leone Price	Councillor Roma Regional Council	5 November 2008
Mr Bruce Radford	Senior Scientist Department of Natural Resources and Water (Biloela)	15 April 2008
Mr Ross Rieschieck	Planning Coordinator (Maritime & Infrastructure) Southern Region, Queensland Transport (Toowoomba)	29 April 2008
Mr James Robertson	President Gladstone Chamber of Commerce and Industry (Inc)	16 April 2008
Mr John Ross	Department of Natural Resources and Water	14 April 2008
Mr Simon Ross	Development Engineer, Major Projects Department of Main Roads	15 April 2008
Mr Jim Sands	Campus Manager Australian Agricultural College (Emerald)	24 April 2008
Mr Bill Sankey	Principal Regional Development Officer Toowoomba Department of Tourism, Regional Development and Industry	29 April 2008
Cr Gail Sellers	Councillor Gladstone Regional Council	15 April 2008
Mr Richard Seton	Manager Infrastructure Queensland Energy Resources	11 November 2008
Hon Kerry Shine MP	Attorney-General and Minister for Justice Department of Justice and Attorney-General	21 June 2008
Mr John Skerman	Project Officer Education Training Reforms for the Future Department of Education, Training and the Arts Darling Downs South West Queensland Region	29 April 2008
Mr Todd Sleeman	Director of Corporate Services Banana Shire Council	15 April 2008
Ms Veronica Slizankiewicz	Senior Regional Development Officer Department of Primary Industries and Fisheries (Toowoomba)	29 April 2008
Mr Dan Smith	President, Rockhampton Chamber of Commerce	14 April 2008
Mr Gary Stevenson	CEO Rockhampton Regional Council	16 April 2008
Hon Wayne Swan	Treasurer of the Commonwealth of Australia Australian Government	21 June 2008
Ms Amanda Thomas	Senior Service Officer Department of Local Government, Sport & Recreation (Toowoomba)	29 April 2008

Stakeholder	Title and advisory body	Briefing date
Ms Marie Thorne	SIQ Regional Coordinator AgForce (Roma)	15 October 2008 5 November 2008
Mr Craig Thornton	Natural Resource Management Officer Department of Natural Resources and Water (Biloela)	15 April 2008
Ms Rachel Waddell	Vegetation Management Officer SW Region Department of Natural Resources and Water	29 April 2008
Ms Di Walker	A/Regional Manager Great Barrier Reef Marine Park Authority (Rockhampton)	16 April 2008
Hon Craig Wallace MP	Minister for Natural Resources and Water Department of Natural Resources and Water (Brisbane)	8 May 2008 21 June 2008
Ms Noela Ward	Principal Manager Economic Development Roma Regional Council	23 July 2008
Cr Scott Wason	Councillor Roma Regional Council	5 November 2008
Cr Jeff Watson	Councillor Roma Regional Council	5 November 2008
Mr Shane Westley	Regional Coordinator Coastal and Marine Fitzroy River Basin Association (Rockhampton)	23 April 2008
Hon Geoff Wilson MP	Minister for Mines and Energy	8 May 2008 21 June 2008 5 November 2008
Ms Sandy Witheyman	Natural Resource Officer Department of Natural Resources and Water (Toowoomba)	29 November 2008
Mr John Wright	Regional Inspector Petroleum & Gas Department of Mines and Energy	14 April 2008

Appendix C

APPENDIX C – Community consultation personnel and their contribution to the EIS

The following community consultation personnel were involved in developing and delivering the extensive engagement and consultation activities to develop this GLNG EIS report.

Organisation	Title/Role	Contribution to EIS Consultation
Santos		
Dennis Reid	Team Leader, Environment Health and Safety	Overall management of EIS consultation activities, direct stakeholder consultation and presentations.
Leisa Elder	Principal Advisor, Government and Media	Government and media liaison, and presentation of community information sessions.
Steve Schoemaker	Project Manager, Port Development	Key project briefings and presentations at community information sessions.
Emma Hicks	Environmental Engineer	Key project briefings and presentations at community information sessions.
Lorna McGinnis	Community Relations Advisor	Coordination and management of consultation consultants, project administration, stakeholder relations, briefings and presentations.
Sam Klass	Superintendent - Roma	Key project briefings and presentations at community information sessions.
Jamie Miller	Community Liaison Officer	Attendance and support at community information sessions.
Peter Sippe	Team Leader, Landholder Community	Key project briefings and presentations at community information sessions.
David Wood	Senior Land Agent	Key project briefings and presentations at community information sessions.
URS Corporation		
Jim Barker	Associate Environmental Scientist	Project director for URS, oversight of environmental studies, presentations at community information sessions .
Benita Blunden	Associate Environmental Scientist	Day to day management of environmental study teams and support for consultation activities.
Chris Sunderland	Consultation Specialist	Social impact assessment.
Paul Wilkinson	Principal Water Engineer	Briefings, advice and presentations.

Organisation	Title/Role	Contribution to EIS Consultation
JTA Australia		
Jan Taylor	Project Director	Strategic oversight of engagement and consultation initiatives
John Phalen	Project Manager	Implementation of consultation plan, management of physical and financial resources, reporting and evaluation
Liz Edwards	Strategic Communication	Preparation of communication materials and other documents, promoting sessions
Greg Bourke	Consultation - Gladstone and Curtis Island	Facilitation/organisation of information sessions, community liaison
John Melit	Consultation - pipeline and gas fields	Facilitation/organisation of information sessions, community liaison
Clare Beer	Project administration	Database management, administrative support
Anita Parmar	Project administration	Schedule meetings, flights, administrative support
Ruth Kennedy	Scheduling and project support	Scheduling consultation activities, budget development, project support
Veronica Epstein	Communication support	Designing and editing materials, support with advertising placement
Michele Venables	Communication support	Events calendar research, material distribution, stakeholder liaison.
Kerry Reeves	Communication support	Support with plain English writing and presentations
Kery Sandvick	Financial administration	Financial management and advice

Appendix D

APPENDIX 8 – Key messages (current November 2008)

Messages have been developed in collaboration with Santos and URS and are being adapted and expanded throughout the project as circumstances require.

Content will be consistent in all EIS information materials and will be delivered in plain English with a minimum of technical jargon.

Messages will be as localised as possible to the targeted communities, and will identify the benefits that the community will receive from the project.

Santos corporate messages

- Santos Ltd is a major Australian oil and gas exploration and production company which was established in 1954. It has a market capitalisation of \$13 billion.
- Santos has operations throughout Australia and South East Asia.
- Santos is Australia's largest domestic gas producer, providing about 25% of the total market. It is the third largest producer of petroleum in Australia (after BHP and Woodside).
- Santos is one of the top 25 publicly-listed companies on the Australian Stock Exchange, with 1,600 employees and 85,000 shareholders.
- Santos has coal seam gas projects under way in Queensland (and exploration ventures in Asia) and is about to start exploration for coal seam gas deposits in the Gunnedah Basin.
- Santos is growing its business through both onshore and offshore operations to become a leading energy company in Asia.

PETRONAS Partnership

- PETRONAS has recently paid \$2.508 billion for a 40% stake in GLNG.
 - PETRONAS is Malaysia's national oil and gas company, and is the world's third largest LNG producer, and the largest LNG producer in Asia
 - PETRONAS' revenue is around \$US50 billion per annum (same as BHPB); and operator in more than 30 countries
 - PETRONAS operates the world's largest LNG facility – MLNG in Malaysia – with total capacity of 23mtpa from 8 trains. (GLNG – max 10mtpa; NW Shelf – 12mtpa)
 - It also owns and operates the world's largest LNG shipping fleet – 29 vessels.
 - PETRONAS has delivered more than 5,500 on-time cargoes.
 - PETRONAS has 33,000 staff world-wide.
 - PETRONAS' investment in GLNG doubles Malaysia's FDI levels in Australia
 - Santos will continue as the upstream operator; the joint operating company will develop and operate the pipeline and LNG plant, and undertake marketing.
 - The partnership helps to deliver GLNG through PETRONAS' strength of technical expertise and market position; and validates GLNG as the leading coal seam gas to LNG project
-

Overall project messages/benefits

- GLNG will extract coal seam gas across the Bowen and Surat basins and transport it 450 kilometres via underground pipelines to new plant and export facilities on Curtis Island, Gladstone. It is proposed that this pipeline will run in the easement of the existing Queensland Gas Pipeline to minimise disturbance and impacts.
- This is the first project in the world to convert coal seam gas to liquefied natural gas on a large scale.
- The proposal has been declared a 'significant project' by the state government and is therefore subject to an environmental impact statement (EIS).
- If approved, the project will have many economic benefits for Queensland, including job creation, royalties and tax income, enhanced export trade balances and increased regional local business.
- Santos is committed to working closely with local communities to deliver positive water management outcomes, social infrastructure solutions, benefits for communities through local procurement of goods and services, and training and employment opportunities.
- Santos' GLNG project will:
 - create 3,000 jobs during construction and sustain more than 200 jobs when the facility is at full capacity
 - generate a \$7.7 billion investment in Queensland's LNG industry and in the Gladstone and Central Queensland economies
 - stimulate further business development and employment opportunities in Gladstone, Roma and other regional centres
 - produce \$2 billion a year in exports and inject tax and royalty revenue into the local and national economy
 - unlock Queensland's abundant CSG resources and help cement Australia's position in the booming international LNG market.

Employment CreationDirect

At peak construction (2012), it is expected more than 3,000 additional workers will be employed on GLNG – approximately 500 in the gas fields, 300 constructing the pipeline and the remainder at the facility.

The project will sustain more than 80 full-time staff initially at the liquefaction facility on Curtis Island, and 200 jobs when the facility is at full capacity.

Already 134 staff are employed full-time with GLNG.

Early economic modelling suggests that a three million tonne per annum (mtpa) LNG industry in Gladstone will grow employment in Queensland by 1.9% while a 10mtpa industry will increase to 4.1%.

Indirect

A significant number of indirect jobs are also expected to result from the local procurement policy being developed for GLNG, informed by the *State (Qld) Procurement Policy 2008*. For example, Santos has joint ventured with Toowoomba-based company, Easternwell Group, to build local capacity to develop three new drilling rigs for the project. More than 140 additional jobs will be created by Easternwell/Santos joint venture to deliver the new rigs to the gas fields.

Prequalification program

GLNG will also include a pre-qualification program for relevant local suppliers at upstream, midstream and downstream areas of the project, expected to commence in late 2008.

Other economic benefits

Overall, the PETRONAS partnership will enable Santos to deliver GLNG and realise its full CSG potential, for which there are expected significant economic benefits to the state and parts of the state.

GLNG is also expected to generate:

- up to \$2 billion in trade for the State
- greater national security of energy supply
- growth of domestic gas demand and supply
- significant economic growth from a cleaner energy source
- training and employment programs (including Indigenous programs)
- local procurement
- positive social outcomes through a Community Fund arrangement

Government approval process

- The GLNG Initial Advice Statement (IAS) was assessed by the Queensland Government and declared a Project of State Significance Requiring an Environmental Impact Statement (EIS).
 - A draft Terms of Reference was published on May 24 (2008) for a single EIS to cover 5 separate areas of the project:
 1. Gas Transmission
 2. LNG Facility
 3. Jetty, MOF (material offloading facility) & Dredging
 4. Bridge & Roads
 5. Upstream CSG Fields
 - The final Terms of Reference document was released in late August 2008.
 - The EIS will not only assess the environmental impact, management and sustainability of the project, but is also examining its social impacts (including infrastructure; employment & training (including Indigenous) and local procurement); as well as short and long-term economic impacts.
 - About 60,000 possible stakeholders have been identified.
 - The EIS is the longest and most complex approval process for GLNG. If the EIS does not meet government requirements, the project is not assured to progress.
-

Coal seam gas messages

- Coal seam gas is a significantly cleaner energy resource than traditional energy supplies (coal).
- It has many uses including small-scale local use for gas-powered electricity generation and large scale electricity generation replacing coal-fired stations
- It can be transported through pipelines and liquefaction. Liquefied natural gas can be shipped vast distances.
- Continual improvement in technology is making gas extraction easier and more viable.
- CSG is helping to meet global demand for cleaner energy.
- Santos will play a significant role in supporting the evolution of clean coal fired power generation in Queensland through its geological reservoirs, existing infrastructure and technical knowledge.
- LNG investment will build further infrastructure and supply sources that will bolster Queensland's domestic supply security.
- The Queensland LNG situation differs starkly from WA – where gas resource is remote from the market (offshore); there are a small number of producers (4 WA v 20 Qld); there is limited infrastructure and the market is not integrated.
- Queensland has more than enough gas to support all current LNG projects. In 2009, Santos will prove more than four times the amount of gas Queensland uses in a year.
- The Australian Bureau of Agriculture and Resource Economics (ABARE) estimates that there are 250tcf (trillion cubic feet) of gas in the ground in Queensland, which is 100tcf more than Western Australia, where more reserves are being discovered each year.
- ABARE estimates that at eastern Australia's 2007 demand level, this represents more than 400 years of possible CSG reserves alone.
- Santos alone has an estimated 50-70tcf under exploration.
- The limiting factor on Australian gas production to date has been the size of the domestic market.

Domestic Gas

Santos retains a very significant independent CSG reserve and resource base post the 40% sale of its interest in the Fairview, Greater Fairview and Roma fields to PETRONAS.

The sale represents only 11% of Santos' total proven and probable (2P) oil and gas reserves and only 30% of Santos' existing CSG reserves and resources.

As an Australian company, Santos will not only retain control of GLNG, but continue to supply large volumes of gas into the domestic gas market over a very long period from its non-GLNG CSG portfolio.

Landowners

- Santos is working with landowners and land users to identify their needs and concerns and to minimise property intrusion and impact on land operations.
 - Access to properties for EIS studies are agreed with landowners in a respectful and cooperative manner
 - Special farming requirements are managed in consultation with landowners
 - A weed and pest management plan is in place for all operating locations.
 - Santos adheres to strict policies and procedures to mitigate the spread of weeds.
 - Santos is seeking to compensate landowners fairly.
-

Gas field residents**(Roma, Wallumbilla, Injune, Arcadia Valley, Rolleston, Taroom)**

- The potential development area encompasses seven different fields over a vast area stretching from Roma to Emerald and Mitchell to Taroom.
- Santos' existing CSG fields operating in the Surat and Bowen Basins (Roma and surrounds) comprise over 200 wells.
- The proposed GLNG project will expand the existing fields to provide sufficient supply over a 20+ year project life.
- Santos proposes to drill and complete enough development wells (about 2,000) to supply 5,300 petajoules (PJ) or 140 billion m³ of gas to phase one of the LNG facility (3 million tonnes per annum for 20+ years).
- The number of gas wells required on a property depends on coal seam formations and the ability to access the gas. It is always on a case-by-case basis. Some areas of field development will be more intensive than others, and field development plans are being developed.
- Santos will maintain its philosophy of minimising its environmental footprint by centralising activities and using existing roads, tracks and cleared areas.
- Santos will work with landowners to develop an appreciation of the extent and potential benefits of CSG activity on their land.
- Large volumes of water are yielded from the extraction of CSG and Santos is exploring options for the best use of this excess water. Active and potential options include:
 - planting a hardwood forest of three or four million native Chinchilla white gums on Santos land at Fairview, near Roma to stimulate a struggling local industry, create employment and return the water to the ground. Cost: \$50-million
 - Santos has planted Loo-cain-ah legumes, a rich food source for cattle where feedstock has become low in the region due to drought conditions
 - the water is already being used as drinking water for about 1500 livestock on the Fairview site.
- Other options include providing water for industrial use in the region; further agricultural use; and with some additional treatment, for residential water supplies in the area.

Pipeline residents**(Injune, Arcadia Valley, Biloela, Calliope, Gladstone)**

- The transmission pipeline is expected to be 450km in overall length and will link the gas fields to the proposed Gladstone LNG facility on Curtis Island.
 - Pipelines will be buried at sufficient depth for the surface to be safely restored to its original use (750mm for normal construction areas, 1200mm in areas of high consequence such as cropping).
 - Existing land use along the route is predominantly rural with a number of communities nearby including Injune, Arcadia Valley, Biloela, Banana, Bauhinia, Calliope and Gladstone).
 - Santos is investigating installing the pipeline adjacent to the existing Queensland Gas Pipeline easement from Wallumbilla to Gladstone to minimise the need for additional clearing and disturbance to land and existing uses.
 - Detailed route selection studies will identify the most appropriate alignment taking into account any topographical constraints.
 - Santos is implementing an intensive landholder consultation program to assess specific landholder requirements.
 - Construction will require earthworks, including access tracks, right-of-way clearing and grading, trenching, pipe laying, trench backfilling and restoration.
 - Issues associated with pipeline construction may include transport of pipe, construction plant and equipment, workforce accommodation and workforce movements as well as demands for services such as accommodation, catering, groceries, recreation, health and education.
-

- Due to the relatively remote location of parts of the pipeline route and the potential shortage of accommodation along the route it is anticipated the workforce will be accommodated in dedicated facilities.

Residents near the LNG facility (Gladstone, Curtis and other nearby islands)

Site selection

- The Gladstone Ports Corporation suggested locating the plant on Curtis Island because of the availability of freehold land and deepwater.
- At least 6 other sites were explored – Curtis Island presented the safest site – deep water protected from the weather.
- Port Alma was not an economically viable option. It would have required extensive piling to make the ground stable for the LNG tanks and extensive dredging.
- A skilled local workforce contributed to the decision. About 40% of the construction workforce for the Darwin LNG plant came from Central Queensland.
- Curtis Island was also selected by the Qld Government as the most suitable, and safe, position for an LNG precinct – in its LNG Precinct Study conducted on sites on Queensland's east coast. That study is available on the Department of Infrastructure and Planning's website (www.dip.qld.gov.au).

GSDA

- Santos was not involved in the Gladstone State Development Area (GSDA) extension announced by the state government in May 2008, and Santos has no knowledge of government plans for the area beyond publicly-available information.
- Government announced that 75% (4,592 hectares) of the GSDA will be preserved as an environmental precinct, which will maintain the pristine South End area and residential area.
- Santos owns the only freehold site on Curtis Island. Regardless, the project needs to meet the government's stringent EIS process before it can proceed.

Bridge and roads

- A draft design scope of the bridge to Curtis Island is being directed by a working group chaired by the state government. Santos, the Gladstone Ports Corporation, and other commercial companies are involved and are sharing the design costs.
- The current proposal for the transport corridor/bridge is for it to have two lanes, a speed limit of 90km an hour and be elevated (or opening) to allow fishing vessels to pass underneath.
- The particular design specifications will be informed by surveys of the marine traffic.
- The current position of the state government is that the bridge may be restricted to industry and not open to the public.
- A road will lead from the Curtis Island end of the bridge – directly to the proposed LNG sites at Hamilton Point West (Santos) and North China Bay (BG).

Social infrastructure

- Impacts on social infrastructure are an important part of the EIS approval process and all options are being explored fully.
 - Santos is exploring several options to minimise any social impacts on the Gladstone and Curtis Island communities during peak construction of the processing facility which is estimated at 2012 (up to 3,000 workers), and to maximise any advantages.
 - Santos is working with all levels of government, the Gladstone Ports Corporation and other economic and industry groups in Gladstone to explore housing and camp site options, including:
 - sites within the Gladstone area and near Calliope
 - discussions with other industries to use existing project housing
-

- and consideration of part-modularising the facility (pre-fabricating some areas of the facility offshore) to reduce the construction workforce.

Dredging

- Santos is working with the Gladstone Ports Corporation and shipping experts to map out the potential path for LNG ships into Gladstone Harbour.
- Further dredging is likely to widen the channel entry, but not necessarily deepen it. LNG ships carrying liquid are much lighter than coal ships but generally larger in width.
- Marine disposal of dredged material is the least preferred option, all options will be examined in the EIS.

Workforce

- Santos has made a commitment to South End residents that the construction workforce will be contained within the project area and will not be able to access South End facilities, to ensure impact on this area is minimised.
- Local qualified residents are encouraged to contact Santos if they are interested in working at the facility.

LNG health and safety

- The LNG industry has a proven safety record, 40+ years of shipping worldwide, 45,000 carrier voyages, no major incidents.
 - LNG is colourless, odourless, non-toxic and does not linger in the environment. It does not mix with water or soil or leave a residue.
 - It is not under pressure in the ships – the liquid is at 1 atmospheric pressure
 - As the LNG is not under pressure, it cannot explode or burn.
 - Protection of the public and workforce health and safety during both construction and operation of the plan is of paramount importance to Santos.
 - Identification and management of potential risks is the subject of substantial work. Potential health and safety risks will be identified and assessed by specialists.
 - A gas plant is technically classified as a hazardous facility but the relative risks are low. Safety monitoring systems and training will help ensure the consequences of incident are confined to the property boundary.
 - If LNG escapes, it turns into a vapour cloud. Any incident of this kind would most likely to happen at the point of loading the ship. If this was to take place, the gas would cause a temporary fog. As the gas warms up to -107°C from -161°C , the 'fog' will lift into the atmosphere.
 - It is possible to ignite a vapour cloud, but only a percentage of methane burns (and it will burn back to the source). However to Santos' knowledge this has never happened.
 - It is likely that there will be a small safety zone (i.e. 250 metres) around a loading ship to ensure there are no safety hazards encountered. When there are no ships at the facility, this will be relaxed.
 - Santos is currently modelling risks and safety response scenarios with the state government.
 - LNG tankers are double-hulled ships specially designed to prevent leakage or rupture in an accident.
 - Initially there will be one ship every eight to 10 days for phase one (3 million tonnes per annum). At full project capacity (10 million tonnes per annum) there will be one ship every two to three days.
 - The ships would be at the facility for around 14 hours at a time.
 - The Gladstone Ports Corporation is planning for this increase in shipping, and for the potential cumulative impact of increased shipping from other plants.
 - The efficiency and stability of operations will be maximised by the use of a high level of automation, regular preventative maintenance, and safeguards such as back-up systems, and the provision of safe emergency shut-downs.
-

Other messages

Project staging/timelines

- The draft Terms of Reference were released by the state government on 24 May 2008 and were on public display until late June. The final Terms of Reference document was released in late August 2008.
- The EIS technical, social and economic studies will be conducted between July and December 2008, in time for a first draft to be submitted to the Coordinator-General by approx. February 2009.
- The EIS will be released by the Coordinator-General for public exhibition before a decision is made on the project. This display period is expected to take place early in 2009.
- If approved, construction of the project is expected to commence in 2010, with start-up scheduled for 2014. The project has an anticipated 20+5 year life.

EIS studies and timing

- Santos is committed to minimising the environmental risk of the project via rigorous planning, assessment and management processes.
- Potential project impacts are being investigated in detail by Santos and its environmental consultants, URS Corporation, during the EIS phase and mitigation measures will be identified to address any issues or impacts.
- The EIS process includes extensive community consultation on environmental, social and economic factors.
- Santos is working collaboratively with government, local leaders and the community to identify and address issues which might impact on the project and local communities.
- Local communities are being invited to participate in identifying issues of concern and the consideration of mitigation strategies.
- A comprehensive environmental management plan will be developed, with community involvement, to document measures that reduce or mitigate project impacts.

Community investment

- Santos is looking for ideas on how it can contribute to local communities and enhance their wellbeing. If the project is approved, Santos will be part of the community for at least 20 years.
- To date, Santos' financial commitment to communities has been largely achieved through a structured sponsorship program that supports organisations and events that are valued locally and reflect Santos' values, particularly in the areas of the environment, the arts, education and youth.
- In addition, Santos contributes to not-for-profit organisations involved in community capacity-building through the Santos Community Fund. This fund also provides additional support to Santos employees who contribute their own time and resources to improve the community.

How to become involved or seek information

There are many ways to be involved and receive and access information. The project has a dedicated project team, website, call centre (freecall number), email and correspondence facilities. Enquiries will be handled promptly.

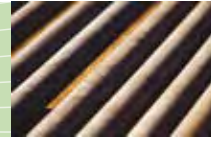
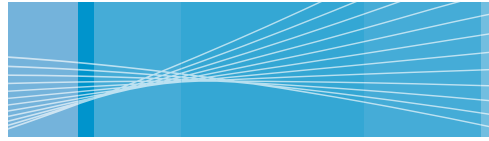
Appendix E

APPENDIX E – Fact sheets and community newsletters

This appendix contains the following GLNG fact sheets and community newsletters:

- Fact Sheet 12 The GLNG pipeline corridor
- Fact Sheet 11 The GLNG field development
- Fact Sheet 10 About the Santos LNG facility on Curtis Island
- Fact Sheet 9 Shipping and marine traffic
- Fact Sheet 8 Santos and the Environment
- Fact Sheet 7 Community Benefits
- Fact Sheet 6 LNG Facility
- Fact Sheet 5 The Pipeline Corridor
- Fact Sheet 4 The Coal Seam Gas Field
- Fact Sheet 3 What is Coal Seam Gas?
- Fact Sheet 2 What is an Environmental Impact Statement (EIS)?
- Fact Sheet 1 What is Liquefied Natural Gas?

- Newsletter 3 About GLNG – pipeline and gas fields communities
- Newsletter 2 About GLNG – Gladstone region
- Newsletter 1 Santos' 7.7 Billion Dollar Gas Project Taking Shape



Gladstone Liquefied Natural Gas (GLNG)

The GLNG pipeline corridor

The Gladstone liquefied natural gas (GLNG) project proposed by Santos involves developing coal seam gas (CSG) resources in the area around Roma, Queensland.

The CSG fields will supply gas for a proposed liquefied natural gas (LNG) facility on Curtis Island, near Gladstone. It is proposed to construct a pipeline to link the field and LNG facility.

The transmission pipeline will be a 435km underground pipeline which, where practical, will follow a similar route to the existing Queensland Gas Pipeline, with some exceptions made based on environmental, cultural heritage, terrain and land use considerations.

The pipeline corridor will be within the following local government areas: Roma Regional Council, Central Highlands Regional Council, Banana Shire Council, Dalby Regional Council and Gladstone Regional Council.



What is a gas transmission pipeline?

A transmission pipeline is a pipeline that is used to transport sales quality gas to a market. Most transmission pipelines are buried underground, made of steel and traverse long distances.

Transmission pipeline infrastructure

Following burial of a pipeline, the ground is reinstated and revegetated in the construction right-of-way (ROW), and little above-ground infrastructure will be visible other than the mainline valves and the marker posts to identify the location of the pipeline.

Pipeline warning signs will be posted along the route in accordance with Australian Standards.

At the very least, warning signs will be located in the following places:

- both sides of public roads
- both sides of railways
- each property boundary (at internal fence lines as appropriate)
- both sides of rivers
- vehicle tracks that are expected to be used
- each change of direction

- utility crossings (buried or above ground)
- the landfall of submerged crossings or subsea pipelines, and will be visible from a distance of at least 100m on the water side of the landfall
- the fences of all aboveground pipeline facilities.

Approximately four mainline valve stations will be located along the pipeline. They will be located within a fenced area of approximately 20m x 50m. Typical equipment in the compound will be a solar panel with radio tower or satellite dish, or a small hut. Further design work, followed by consultation, will determine where the mainline valve stations are required and the equipment needed at each location.

What work has to occur before the transmission pipeline is installed?

When selecting potential pipeline routes, a multi-criteria analysis is conducted for a number of social, environmental, physical and infrastructure constraints. Santos has completed this analysis for three potential pipeline routes and has verified the constraints by aerial survey.

The results of this work have narrowed the number of routes to one preferred route.

The gas transmission pipeline is planned to be installed in this ROW; however, detailed ground-proofing studies and landowner consultation are required to identify all potential impacts. Ground-proofing studies will include, but are not limited to: flora, fauna, soils, weeds, existing infrastructure and cultural heritage.

How is a transmission pipeline installed?

The pipeline will be a buried, high pressure, steel gas pipeline. It will be designed in accordance with the requirements of the relevant Australian Standard (*AS 2885 Pipelines – Gas and Liquid Petroleum*) and the *Australian Pipeline Industry Association (APIA) Code of Environmental Practice*.

The proposed pipeline will likely have a diameter of 91 cm and an operational pressure of eight to 10.6MPa (mega pascals), allowing a capacity of 700 TJ/day (terajoules) to be piped.

The standard construction width for the working easement will be 30m; however, this will be narrowed in sensitive areas to minimise potential impacts.

Other standard controls such as corrosion protection will be installed.





Pipeline installation at Scotia. Preservation of topsoil (far left), separation of soil types (left of trench) and protection of soils from vehicle movement can be seen.

A summary of the typical construction procedures and activities follows.

- Survey the pipeline route.
- Provide access tracks and temporary facilities. Existing roads will be used as far as practicable to minimise disturbance to the surrounding areas. Access track routes will be completed in consultation with landholders.
- Clear and grade of the ROW. The pipeline route will be marked, vegetation and other obstructions removed from the ROW, topsoil removed and stockpiled. Temporary fencing and gates will also be installed to allow easy access between properties.
- Excavate a pipeline trench.
- Lay out the pipe in preparation for welding and install pipe bends as required by terrain.
- Weld the pipe into long lengths, typically 700m, called pipe strings.
- Weld high density polyethylene (HDPE) lining and insert into the steel pipeline.

- Use the trench spoil, where suitable, as bedding and backfill for the pipes. The pipe will then be lowered into the trench using side boom tractors and the trench backfilled and compacted.
- Clean and gauge the pipeline, before it is hydrostatically tested for strength and potential leaks.

Once construction is complete, rehabilitation will involve removal of construction material, surface re-contouring and compaction relief, fence repair/replacement, re-spreading of topsoil and vegetation and seeding/ revegetation.

How will Santos manage weed seed spread?

Santos is committed to reducing the risk of spreading weeds along the pipeline route during installation and operation of the pipeline. Santos recognises the need to work with the local community to provide an integrated weed management approach.

During field investigations a weed survey will be done to identify all declared and environmental weeds along the pipeline corridor. Also, wash-down facilities will be installed (both permanent and temporary) to assist in the management of weed seed spread.

How long will work on the pipeline take?

Pipeline construction times can vary depending on the delivery of pipe and other materials, terrain and weather constraints. The transmission pipeline for GLNG could take 18 months to two years to be fully installed.

After the transmission pipeline has been installed, routine inspections of the line will take place. This is usually done by aerial inspections using a helicopter, but may require closer visual inspection, which will be completed by vehicle or on foot. The pipeline would be inspected for maintenance, weeds, erosion or third party interference.



Creek rehabilitation at Scotia. Contour banks (at back) installed to divert water from pipeline route and minimise erosion

Can I still use the land for activities such as cropping and grazing?

Current land use activities can continue after the pipeline has been installed. For normal construction areas the pipe will be buried at a depth of 750mm. However in areas of high consequence (i.e. cropping) the pipe will be buried to 1200mm to allow surface activities to continue.

As the pipeline travels for such a long distance it intersects many different

types of infrastructure and natural formations such as roads, railway lines, creeks and rivers. The pipeline depth under these services is 1200mm, although this may need to be greater for creeks and rivers.

These depths are the minimum expected depths and the cover at any location will be influenced by the location, crossing method (open cut or directional drilling), likelihood of external loads, risk of third party damage and risk of erosion or scouring.

In particular the cover at major stream crossings and other directionally drilled locations may be substantially greater than the minimum due to construction methods.

Once the pipeline is installed and operating, regular consultation will be maintained with land owners whose properties are traversed by the pipeline and a 'dial-before-you-dig' system for excavation and locations initiated.

Operational pipelines generally have very little environmental or landholder impact.

How will the pipeline cross from the mainland to Curtis Island?

A variety of shore-crossing techniques will be investigated at the point where the pipeline crosses from the mainland at Gladstone to Curtis Island. These can range from laying the pipe on the seafloor bed and securing it with a rock covering to horizontal directional drilling (HDD) the pipe under the seafloor.

The particular design specifications of the undersea crossing will be informed by marine traffic surveys which are being undertaken as part of a process to develop an Environmental Impact Statement (EIS).

This EIS will be completed later this year and is expected to be available for public comment in early 2009.



Pipeline rehabilitation at Roma

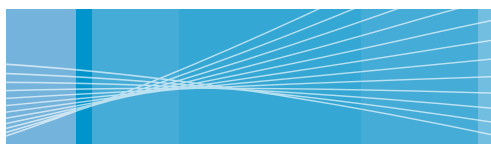
For more information

If you have questions about the GLNG field development or other questions about the project, please contact the GLNG project team on:

Phone: Freecall 1800 761 113

Email: info@glng.com.au

Web: www.glng.com



Gladstone Liquefied Natural Gas (GLNG)

The GLNG field development

The \$7.7 billion GLNG project proposed by Santos comprises:

- developing coal seam gas (CSG) resources in the area around Roma, Queensland
- constructing a 435km underground pipeline corridor to transmit the gas from the gas fields to a liquefied natural gas (LNG) facility
- constructing an LNG facility on Curtis Island off Gladstone, where the CSG will be changed from gas to liquid to enable greater quantities to be shipped to markets.

The CSG fields will contain sufficient development wells to supply about 5,300 petajoules (PJ) or 140 billion m³ of CSG (for stage one of GLNG) to meet growing international demand for this clean fuel.

Additional supporting infrastructure including field gathering pipelines, gas compressors, roads and water gathering networks will be installed.



Santos' existing CSG fields operating in the Surat and Bowen basins (Roma and surrounds) comprise over 200 wells. GLNG will expand the existing CSG fields to provide additional supply over a 20-25 year project life.

What is CSG?

CSG is a significant and environmentally-friendly energy resource that can be used for domestic and industrial purposes. CSG is stored within coal deposits or seams and is usually methane, with small amounts of ethane and propane, nitrogen and carbon dioxide.

Santos' reserves are almost pure methane.

CSG is formed as part of the same natural processes that produce coal over millions of years. It is held in coal by pressure and water. Because coal has a large internal surface area, it can potentially hold large volumes of gas.

How is CSG extracted?

Coal seams are naturally filled with water and it is the pressure of the water that keeps the gas bonded to the surface of the coal. Coal seams are not solid but are fractured and contain gaps. These gaps are known as 'cleats' and can vary in size.

The amount of gas produced from a coal seam depends on the thickness of the coal, its gas content, the size of the cleats and the depth of the coal seam.

The Santos coal seams that are being investigated are between 200m to 1,000m below the surface. Conventional gas generally lies deeper than this.

The water needs to be extracted from the coal before the gas can be removed. As the amount of water in the seam decreases, the production of gas increases. The amount of water produced declines over time and varies between wells.



Some CSG fields in Queensland expel only small amounts of water whereas others can expel over one megalitre per day.

Water quality can range from drinkable to brackish (slightly salty). Careful consideration is given to water management in the project planning stage of any CSG extraction project.

In this early stage, Santos is proposing a 3-4 million tree hardwood plantation of Chinchilla white gums which will not only re-use the significant amounts of additional water, but may reinvigorate the local hardwood industry and provide employment and educational opportunities.

Understanding the CSG field development tenure process

The development of CSG fields is conducted over Santos' petroleum tenures. These tenures give rights to certain activities occur over other existing land tenures. An Authority to Prospect (ATP) is a large tenure that is granted by the State Government to allow for the exploration of gas reserves.

The types of activities that occur in ATPs are seismic surveys and exploration holes.

Based on the results of this exploration, the ATP can be converted to a Petroleum Lease (PL). A petroleum lease allows for further development of the gas reserve by allowing more wells to be drilled. These wells are called production wells as they produce gas.

When the area is granted as a Petroleum Lease, this also triggers the requirement for public consultation and the implementation of codes and guidelines as to how the area is to be developed. These codes and guidelines are developed and implemented by the State Government's Department of Mines and Energy and the Environmental Protection Agency.

Both regulatory bodies must agree on the development planned and the environmental management controls for the Petroleum Lease.

The process of public consultation has had a long history in the oil and gas industry. The industry works on a multiple land use premise and realises that it must work with local communities to ensure that other land uses can continue while the gas reserve can be developed.

Traditionally public consultation has only been conducted with those directly impacted by development. However increased development of the CSG fields is requiring a far broader and

more intense level of consultation to ensure issues are identified and communities have the opportunity to express their concerns.

Santos values one-on-one communication with land owners and has a designated team to ensure this continues through the development of the field.

CSG field development infrastructure

To extract the CSG, Santos operations usually include a range of activities from geophysical investigations through to production and processing.

Current activities include:

- seismic and geophysical surveys
- exploration, appraisal, pilot and observation wells
- production wells
- a gas and water pipeline gathering system
- gas processing facilities
- water infrastructure and management
- support activities and infrastructure including:
 - workforce accommodation and associated infrastructure
 - land clearing and road construction
 - waste management
 - borrow pits
 - lay down and storage areas
- rehabilitation and decommissioning.

Infrastructure is installed across the Petroleum Lease, depending on the location of the underground gas reserves, environmental constraints and consultation with the landholder and the local community.

This consultation process starts at the exploration well stage and continues through the life of the project. Santos aims to place infrastructure in locations that have minimal impact on the environment and the community.

Seismic surveys

A seismic survey is the most common field geological assessment method and is often the first field activity undertaken. The vibroseis method is the preferred method for seismic surveys. This utilises a generator and vibrator pad and hydraulically transmits vibrations through a range of frequencies into the earth. However in areas where preservation of vegetation cover is important, the shot hole (dynamite) method is utilised.

Exploration drilling

Once a promising geological structure has been identified by seismic surveys, the only way to confirm the presence of a resource is to drill exploratory boreholes.

The location of a drill site depends on the characteristics of the underlying geological formations, and physical, environmental and social constraints.

A pad is constructed at the chosen site to accommodate the drilling equipment and support services. Typically, the largest drilling site configuration for a single exploration CSG well would be 100m x 100m.

Site preparation includes:

- clearing of surface vegetation and topsoil which is stockpiled for rehabilitation
- levelling the ground surface for the drill rig
- fencing the rig lease boundary
- constructing an earthen pit or sump to contain the cuttings removed from the hole



A well head

- constructing a flare pit to control the flare associated with the combustion of produced gas
- installing a cellar (a 2m³ space through which the drilling assembly passes) and surface conductor pipe.

Once the drilling rig is in place, drilling commences and continues on a 24 hour basis for approximately two to three days. The length of time is dependent on the depth of the well and the geology of the area.

Once drilling commences, drilling fluid or mud is continuously circulated down the drill pipe and back to the surface equipment. Its purpose is to balance underground pressure, cool the drill bit and flush out rock cuttings.

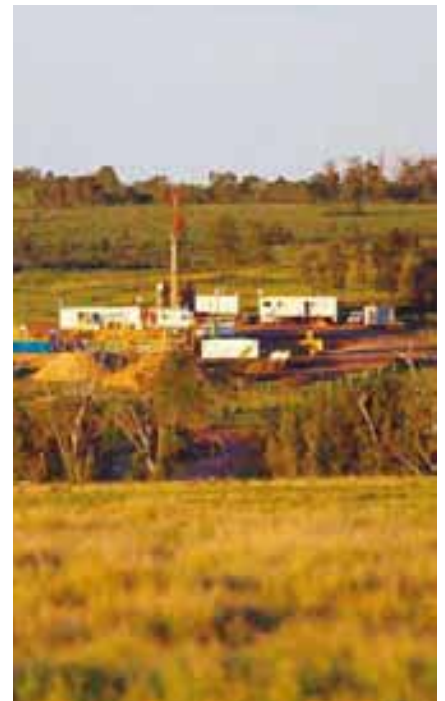
The risk of an uncontrolled flow from the reservoir to the surface is greatly reduced by using blowout preventers (BOPs), which are a series of hydraulically-actuated steel rams that can close quickly around the drill string or casing to seal off a well.

After drilling and initial testing, the rig is usually dismantled and moved to the next site. The support camp is self-contained and generally provides workforce accommodation, canteen facilities, communications, vehicle maintenance and parking areas, fuel handling and storage areas, and provision for the collection, treatment and disposal of wastes.

The camp typically occupies approximately 6,000m² and is located away from the immediate area of the drilling rig in a centralised location to reduce the environmental footprint of the drilling program.

Where a gas resource is found, initial well tests are conducted to establish flow rates and formation pressure. These tests have the potential to generate gas and water which require management and disposal as required.

If the exploratory drilling has discovered commercial quantities of gas, a wellhead valve assembly may be installed and a production casing string will be set.



Santos CSG development well at Scotia near Taroom

Once the casing is set, a surface production facility including a well pump, gas engine (used to drive the pump), separator (which separates production water from the gas) and a flare stack are set in place.

A typical CSG field includes the following:

Access roads

Access roads are built to allow inspection of well sites and other supporting infrastructure. Access roads are placed in areas that best suit both the impacted landholder and Santos. Roads are typically placed alongside fence lines to avoid disturbance.

Access roads are placed to avoid large trees, steep slopes and erosion prone soils. Access roads are rarely placed through cultivated paddocks or remnant vegetation.

Borrow pits and storage areas

Borrow pits will be required as gravel and other materials are needed for the CSG development program. This material is used to build well sites, roads and storage areas. Storage areas and lay down areas for equipment storage will also be required across the field; however, these are placed in central locations.



A compressor station at Scotia

Fencing

Fencing is used around well sites to exclude livestock and wildlife, and as a safety precaution. This fencing is also left after the well has been drilled to allow regeneration of the area. Once the area has been rehabilitated, the fence is removed and another fence is installed around the small wellhead area. This is used to keep livestock from the equipment and as a safety precaution.

Pipelines

There are two types of pipelines that are installed in the CSG field area. The first are the gas pipelines (often called a gathering network) that are used to collect the gas from around the Petroleum Lease and pass it into the main transmission pipeline. These pipelines are plastic and are buried.

The second are the water pipelines. These are similar to the gas lines but they collect water from around the Petroleum Lease and transport the water to the relevant water management option. The water pipelines are also plastic.

Compressors

Compressors are used to pressurise the gas collected from around the Petroleum Lease. The gas produced from CSG fields is not as high pressure as typical natural gas fields, therefore compressors need to be installed across the field area to 'boost'

the gas to a pressure that allows it to flow through the pipeline.

The location of compressors has to be close to the wells but far enough away from residents and community facilities (i.e. schools, workplaces). Before compressors are installed, noise modelling is conducted to determine the potential impacts. All Santos compressors have noise-reducing devices or engineering measures applied to their sites.

Accommodation

When a field starts to develop, certain infrastructure needs to be installed, i.e. the first access roads, the first wells. When workers are required to install infrastructure and equipment, their accommodation is installed in or near the working area.

Accommodation can be required for drilling crews, pipeline crews and CSG field operators. Accommodation can be temporary, relocated around the area or permanent.

Water

The volume of associated water produced will vary from well to well and with the duration of well production. The volume of water produced reduces over time. Associated water has the potential for beneficial reuse and Santos is considering a range of management options that can be adapted to the variability in quality and quantity of the water across the field.

A risk modelling approach will be used to compare the various management options and to identify the most sustainable strategy over the life of the field. It is expected that the selected strategies will vary from area to area and over time.

Options under consideration include:

- beneficial reuse
- irrigation
- injection
- discharge to streams
- stock watering
- evaporation.

The extent of infrastructure required to manage the associated water will vary according to the options selected.

How will Santos manage weed seed spread?

Santos is committed to reducing the risk of spreading weeds during its activities. Santos recognises the need to work with local communities to provide an integrated weed management approach.

During field investigations, a weed survey will be done to identify all declared and environmental weeds along the pipeline corridor. Also, wash-down facilities will be installed (both permanent and temporary) to assist in the management of weed seed spread.

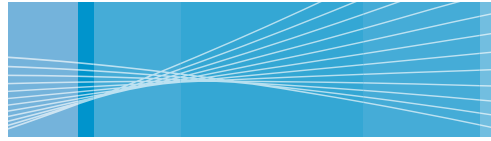
For more information

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Gladstone Liquefied Natural Gas (GLNG)

About the GLNG facility on Curtis Island

Santos' proposed site for a liquefied natural gas (LNG) facility on Curtis Island is approximately 5km north-east of Gladstone. The facility will be located within the Gladstone State Development Area (GSDA) declared by the state government.

The project still needs to meet the state government's stringent Environmental Impact Statement (EIS) process before it can proceed.

Coal seam gas extracted from Santos' reserves in the Bowen and Surat basins will be transported 435km via an underground pipeline corridor to the LNG facility. Here it will undergo a liquefaction process to transform the gas to liquid, reducing its volume 600 times, enabling vast quantities to be shipped to market.

LNG is in strong demand in carbon-intensive economies such as China and India because natural gas is the least carbon-intensive hydrocarbon-based energy source.

Gas-fired electricity generation produces about half the greenhouse gas emissions of coal-fired generation and uses a minute fraction of the water that coal-fired electricity requires.

This means that for every million tonnes of LNG that replaces coal-fired power generation, it is the equivalent of taking more than 500,000 cars off the road or powering 450,000 homes with renewable energy.

It is proposed that the GLNG facility will contain:

- separation, filtration and treatment equipment to purify the gas
- refrigeration and liquefaction equipment
- LNG storage tanks with vapour recovery
- utilities including water, steam and power generation
- flare systems for facility, storage and loading.

Accessing, constructing and operating the facility will require services and infrastructure, including:

- a bridge over 'the Narrows' linking Curtis Island (Laird Point area) with the mainland (Friend Point area)
- a proposed new access road on Curtis Island which will link the site to the bridge and existing mainland regional road network
- marine facilities including a jetty and LNG ship loading facility (some dredging will be required to provide ship access).

The bridge and road are expected to be used only by other commercial companies on the island.

Facility emissions

Resident located on Curtis Island and surrounding islands will not be affected by odours or fumes from the operational facility. No air toxics will be emitted from the facility.

CO₂

Approximately 900,000 tonnes of CO₂ per year will be emitted from the facility during its initial production phase of 3 million tonnes of gas per annum. In the context of Queensland's total emissions this equates to a 3% annual increase.

Light

Part of the EIS studies includes visual amenity. The facility will have a certain level of lighting at night, similar to other industrial facilities in Gladstone. Due to the undulating topography between South End and the site, the LNG facility will not be visible from South End apart from the flare stack which, at 10km away, will be barely visible.

Noise

Santos is currently modelling noise impacts and anticipates noise will be 50-65dB(A)* at the facility fence boundary. To put this in context, normal conversations are about 40dB(A), noisy conversations about 50dB(A).

Noise monitors have been placed at South End and surrounding islands to determine the baseline or current levels of existing noise, as part of the EIS noise monitoring study. Santos will study the effect of the prevailing breezes and their ability to carry sound across to neighbouring residents.

* dB(A) = decibels

What is liquefied natural gas?

Liquefied natural gas (LNG) is mostly methane gas that has been converted to a liquid through cooling to -161 degrees Celsius. This process significantly reduces the volumes to 1/600th of the original - similar to reducing the volume of a large beach ball to that of a ping-pong ball.

How will the LNG facility work?

The proposed LNG facility will include equipment to separate, filtrate, treat and purify the coal seam gas, LNG storage tanks, marine facilities, utilities (possibly including power generation) and safety flares.

Receiving the gas

The GLNG facility will receive coal seam gas (CSG) from the gas fields via an underground gas transmission pipeline. The gas is almost pure methane with very few impurities.

On entering the facility, gas from the transmission pipeline will pass through an inlet knockout drum to remove any liquids that may be present. The gas will then pass through inlet filters to remove any particles and/or mill scale that may be present in the gas.



Next the gas is heated in inlet gas heaters.

The final step in receiving the gas is gas metering. Metering facilities are used to measure the amount of gas received for use in pipeline monitoring and gas transfer accounting.

The facility will also be equipped with internal pipeline cleaning equipment which is typically spherical in shape with an outside diameter equal to the pipeline's inside diameter. This equipment is sent down pipelines for cleaning/maintenance purposes.

Treating the gas

After the gas is metered, it will enter the gas treating section to remove any impurities within the gas stream that are detrimental to the natural gas liquefaction process. These components are primarily carbon dioxide and water.

The first step in the gas treatment process will be the removal of CO₂ and trace sulphur-containing compounds (collectively called acid gas). If CO₂ is not removed, it will solidify (freeze) during the LNG liquefaction process plugging equipment and causing maintenance outages.

The feed gas stream containing CO₂ then enters the bottom of a unit called an amine absorber, which will absorb these unwanted acid gases. This process is often called gas sweetening.

After the gas leaves the amine treatment section it will be routed to a dehydration unit. As with CO₂, if water is not removed from the gas stream prior to liquefaction, it will freeze once temperatures are reduced and will plug equipment. The first stage of dehydration will be to chill the gas to about 17 degrees Celsius in order to condense and drop out a large percentage of the water.

The final gas treatment step will remove trace amounts of mercury (if present) in the gas. While the coal seam gas contains no measurable levels of mercury, if a small quantity is occasionally present it



could cause corrosion/damage of brazed aluminium heat exchangers located downstream in the process. These mercury removal beds will serve as a safeguard to help ensure the integrity of the downstream equipment.

Liquefying the gas

After treatment, the gas will be fed to the refrigeration system where it will be liquefied to produce the LNG product.

Ship loading facilities and processes

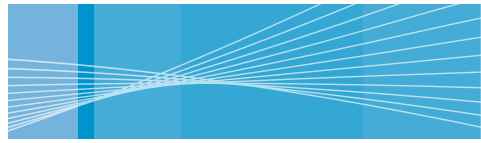
Loading of LNG on the ship will take approximately 14 hours. Ships will hold approximately 130,000-150,000m³ of LNG.

The dimensions of a standard 150,000m³ ship are about 300m long by 50m wide.

For more information

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Email: info@glng.com.au
Web: www.glng.com



Gladstone Liquefied Natural Gas (GLNG)

Shipping and marine traffic

GLNG includes the establishment of a liquefied natural gas (LNG) facility on Curtis Island. Coa seam gas would be piped to the LNG facility and refrigerated into a liquid.

In order to service this facility and other proposed future development on western Curtis Island, a bridge crossing from the mainland to Curtis Island is proposed.

These proposals will have impacts on marine activity around the location of the LNG facility and the bridge.

All aspects of the proposal are being thoroughly investigated through the Environmental Impact Statement (EIS). Where possible, it is a priority of Santos that any impacts are minimised or mitigated.



Why Curtis Island?

Before selecting Curtis Island, Santos investigated several sites along the Queensland coastline. These sites were reviewed against siting criteria and all had drawbacks.

These criteria showed that Curtis Island will provide:

- excellent proximity to the coal seam gas fields, compared with other deep water ports studied along the coast
- direct and safe coastal/port access and protected deep water for the LNG transport ships
- enough suitable land for a liquefaction facility
- a controllable site in terms of security and safety.

The availability of a local, skilled workforce also contributed to the decision. About 40% of the construction workforce for the Darwin LNG facility came from Central Queensland.

Curtis Island was subsequently selected by the State Government as the most suitable and safe position for an LNG precinct (this study can be accessed at www.dip.qld.gov.au).

The Gladstone Ports Corporation (GPC) also suggested Curtis Island due to the availability of freehold land and deep water.

The bridge to the western side of Curtis Island

Operation of the LNG facility will require transport access by bridge to the island. The bridge would provide access to the Gladstone State Development Area (GSDA), and in the future is expected to be used by other companies. As the bridge and roads would not be for the sole use of Santos, the State Government is leading a working group for this project. A draft design scope is being directed by the working group chaired by the State Government. Santos, the GPC, and other commercial companies are involved.

The bridge linking the mainland to Curtis Island is proposed to cross the southern extent of 'the Narrows'. The bridge will join Curtis Island to the south of Graham Creek, avoiding the need for a major creek crossing on Curtis Island. The environmental sensitivity and characteristics of these areas will be important considerations in the decision of where the bridge approaches are built.

It is currently proposed that the bridge has two lanes and is elevated or opening to allow vessels to pass underneath. Studies are currently under way to determine the usage of 'the Narrows' and Graham Creek to understand bridge clearance needs. This has involved surveys of marine craft height and width, marine traffic patterns, and broad consultation with the marine stakeholders.

The State Government has determined the bridge will not be open to the public. Any roads will be contained to

the built development area only, and not be continued across to South End. Santos understands that residents of South End enjoy a very peaceful and unique lifestyle. The company does not want this to be compromised. Santos has received suggestions that in emergency situations South End residents and people that have moored in Graham's Creek should have quick access to the mainland via the bridge. Santos considers that this is sensible, and has recommended this to the bridge working group.

Gas transportation to the Curtis Island LNG facility

Coal seam gas, sourced from Santos' reserves in the Surat and Bowen basins, will be transported to Gladstone by an underground pipeline.

A variety of options are being investigated for the crossing from the mainland at Gladstone to Curtis Island, but early studies suggest the pipeline will run under the water. The particular design specifications will be informed by marine traffic surveys currently being undertaken as part of EIS studies.

Other marine infrastructure

The GLNG site would be serviced by an LNG jetty on Curtis Island. Santos will initially transport earthmoving equipment to the site via barges, and Santos will be building its own construction jetty. South End will not be a thoroughfare to the Santos site.



Safety zones around the LNG infrastructure and shipping

The LNG would be transported by purpose-built LNG transport ships. These ships would be loaded at a purpose-built jetty adjacent to the LNG facility.

During loading of LNG ships there is expected to be a small safety zone (i.e. 250m). This distance will be determined through a preliminary safety assessment. When there are no ships at the LNG facility, this would be relaxed. Moving ship safety zones may be required and will be assessed through a risk assessment process.

Marine traffic

If approved, GLNG will be operational from 2014, and this will increase shipments in Gladstone harbour. Initially it is expected that there will be one GLNG shipment every eight to 10 days. At full project development, there would be one GLNG shipment every two to three days. The ships would be at the LNG facility for 16 hours at a time.

The GPC is planning for this increase and the potential cumulative impact of increased shipping from other industry as well. The increased traffic from GLNG will be analysed within the EIS.

Potential disruption to commercial and recreational boating in 'the Narrows' caused by bridgeworks will be studied in consultation with boat owners and relevant associations, businesses and port authorities.

LNG ships

LNG ships are double-hulled and are specially designed to prevent leakage or rupture in an accident. In the past 49 years of shipping, comprising 45,000 voyages, there has not been a single injury to the public or major loss of LNG.

The gas is not transported under pressure within the LNG ships. As a liquid, LNG cannot burn or explode.



Dredging

The water around the Santos site at Hamilton Point West (Curtis Island) is quite deep, but there will need to be some dredging to maintain a shipping channel and to allow the LNG ships to turn around. The current depth is generally 10m. Dredging depth will likely be to about 14m. The LNG ships require 12m of water and a 2m under-keel clearance is required.

If the current channel is made deeper and wider this will change water flow. The impact on tidal flows is being scientifically investigated as part of the EIS.

Santos is consulting with the GPC and shipping experts to map out the potential path for LNG ships into Gladstone Harbour.

For more information

If you have questions about shipping and marine traffic or other questions about the project, please contact the GLNG project team on:

Phone: Free call 1800 761 113
Email: info@glng.com.au
Web: www.glng.com

Detailed questions and answers:

Many questions and answers were recorded at the GLNG Gladstone and Curtis Island public forums which were held in June, August and September 2008. These were circulated to registered attendees. If you would like copies of these documents, please contact the project team



Santos



Gladstone Liquefied Natural Gas (GLNG)

Santos and the Environment

Santos is committed to minimising the environmental footprint of the GLNG through a rigorous planning, assessment and management process.

This includes developing detailed environmental assessment and management procedures at the design, planning approval, construction and operational stages of the project.

Santos has a rigorous Environmental, Health and Safety Management System for all Santos operations and complies with all applicable Australian Standards.

Santos has established a Greenhouse Policy and is committed to reducing emissions, pursuing energy efficient strategies and implementing opportunities to use either less greenhouse emitting or renewable sources of energy.

Working with land owners

Santos works with land owners and land users to minimise property intrusion throughout field exploration and development. Access to properties for Environmental Impact Statement (EIS) studies are agreed with land owners. The relevant government agencies oversee all steps in these procedures.

Special farming requirements, such as cattle care and farming needs, are managed in consultation with the land owner.

Weed and pest control

A weed and pest management plan is in place for all operating locations. Santos adheres to strict policies and procedures to mitigate the spread of weeds such as parthenium. A rigorous vehicle wash-down procedure is in place to prevent the spread of weeds.

Water

Investigations into impacts on surface, groundwater and marine waters will be undertaken as part of the EIS. The EIS studies will identify best practice methods to prevent run off, seepage, erosion, water contamination and changes to natural watercourses.

Construction and operation is expected to have minimal impact on groundwater quality or quantity. Water extracted from coal seams varies in quality and must be handled appropriately. The volume of water produced is variable; coal seam gas (CSG) fields in Queensland vary from no or minimal water production to over one megalitre per day. Water quality can range from drinkable to brackish. The method of using or treating water will vary depending on volumes produced, its quality and a

number of local environmental factors. Careful consideration is given to water and aquifer management in the project planning stages of any CSG production project. Santos is keen to work closely with the government to develop an effective use of CSG water for regional areas of Queensland.

Environmentally sensitive areas

The EIS will identify areas that are environmentally sensitive and are likely to become part of a protected area estate or are subject to any treaty.

Consideration will be given to aspects of national parks, conservation parks, wilderness areas, heritage/historic areas or items, national estates, world heritage listings and sites covered by international treaties or agreements, areas of cultural significance and scientific reserves.

"Sustainability is a way of doing business that improves outcomes for our employees, shareholders, business partners and the communities in which we operate.

"We do this by considering a comprehensive set of criteria beyond traditional economic measures that assess the full impact of Santos' activities and enable better business decisions through a deeper understanding of their impact.

"This company-wide program demands continuous improvement in our approach to exploration, development and production, and other key indicators of sustainability such as environment, health and safety, ethics and conduct, our people and community relations. *"Put simply, sustainability means doing the right thing".*

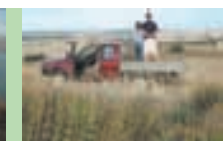
David Knox, Acting CEO

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Santos



Gladstone Liquefied Natural Gas (GLNG)

Community Benefits

Santos' GLNG will:

- be the world's first large scale coal seam gas (CSG) to liquefied natural gas (LNG) operation
- create 3,000 jobs during construction
- sustain more than 200 jobs during operation
- provide a clean and competitively priced energy source
- generate a \$7.7 billion investment in Queensland's LNG industry and in the Gladstone and Central Queensland economies
- stimulate further business development and employment opportunities in Gladstone, Roma and other regional centres
- produce an estimated \$1 billion a year in exports and inject tax and royalty revenue into the national economy
- unlock Queensland's abundant CSG resources
- accelerate the exploration and development of cleaner energy sources
- maximise Queensland's share of the expanding Australian energy market
- cement Australia's position in the booming international LNG market
- contribute significantly to the development of a new export industry for Queensland
- increase Australia's Gross Domestic Product
- position Queensland as a destination for international investment.

Santos is committed to working closely with local communities to deliver positive water management outcomes, social infrastructure solutions, benefits to local communities through local procurement of goods and services and training and employment opportunities.



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Santos



Gladstone Liquefied Natural Gas (GLNG)

LNG Facility

The proposed liquefied natural gas (LNG) facility on Curtis Island is approximately 5km north-east of Gladstone.

The LNG facility may include:

- separation, filtration and treatment to purify the gas
- refrigeration and liquefaction
- LNG storage tanks with vapour recovery
- marine facilities
- utilities including water, steam, fuel systems, control systems and possibly power generation
- flare systems for plant, storage and loading facilities.

Associated infrastructure

- Access is proposed via a bridge across 'The Narrows' linking Curtis Island (Laird Point area) with the mainland (Friend Point area).
- A proposed new access road on the western side of Curtis Island will link the site to the bridge and the existing mainland regional road network.
- Construction may require re-alignment and upgrade of several existing roads on the mainland.

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Why Curtis Island?

Curtis Island provides:

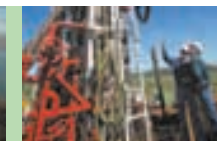
- excellent proximity to the coal seam gas field, as compared to other deep water ports studied along the coast
- direct and safe coastal/port access with suitably designated available land
- controllable site in terms of security and safety
- relatively low environmental, social and security risk perspective
- good opportunities for Santos to contribute to the local and regional community and its economy.



Top: Artist's impression of the LNG Plant on Curtis Island, and bulk carrier at export berth
Below: Artist's impression of the bridge across The Narrows



Santos



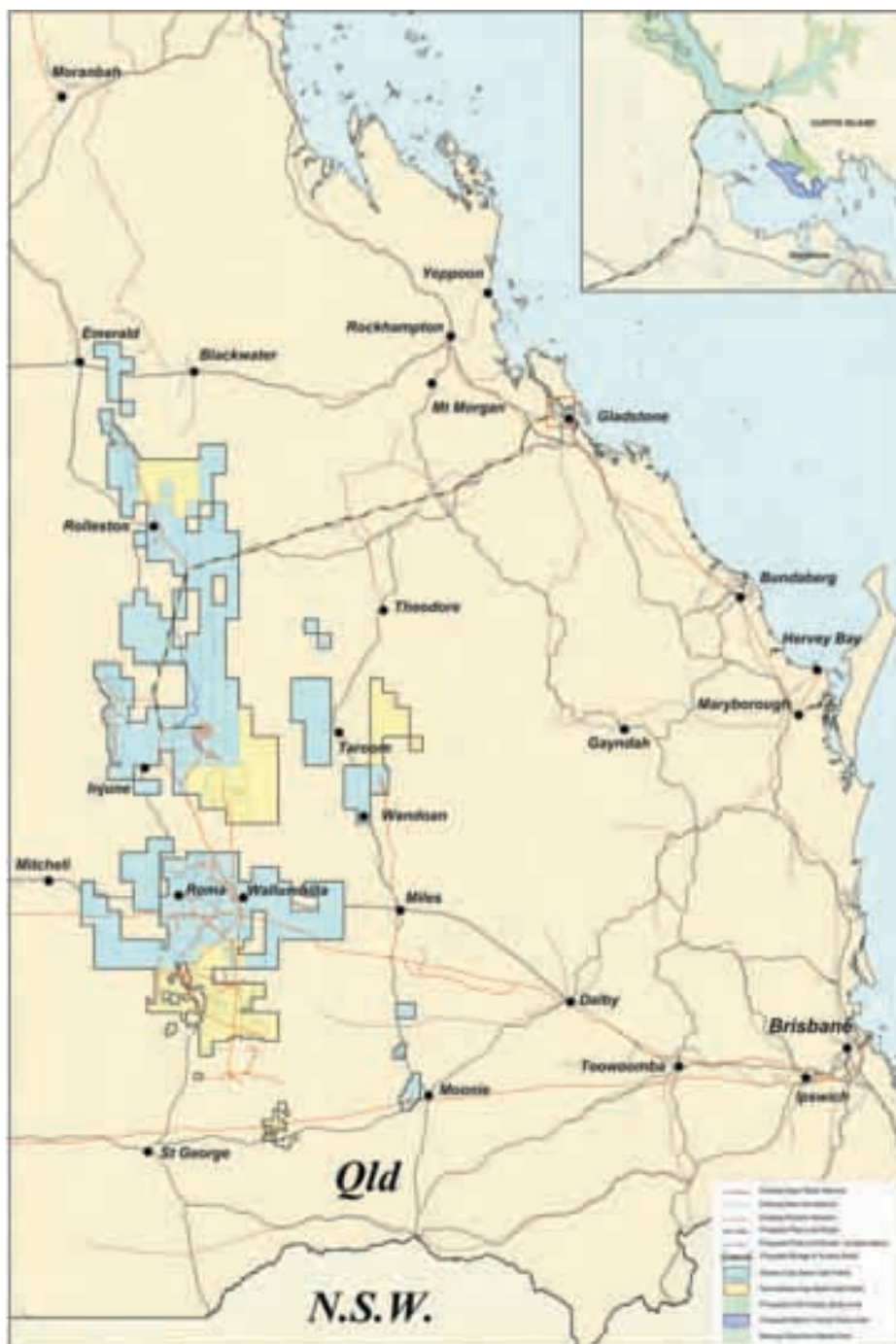
Gladstone Liquefied Natural Gas (GLNG)

The Pipeline Corridor

A 425 km underground pipeline corridor is proposed following a similar route to the existing Roma-Gladstone gas pipeline.

The new pipeline corridor would run from the coal seam gas fields to the gas liquefaction and export facility, on Curtis Island, 5 km north-east of Gladstone.

A variety of shore-crossing techniques will be investigated at the point where the pipeline crosses from the mainland at Gladstone to Curtis Island.



Right: The proposed pipeline corridor for investigation under the Environmental Impact Statement, with dashed line showing the main proposed deviation from the existing pipeline route.

For more information

Phone: Free call 1800 761 113

Email: info@glng.com.au

Web: www.glng.com.au



Santos



Gladstone Liquefied Natural Gas (GLNG)

The Coal Seam Gas Field

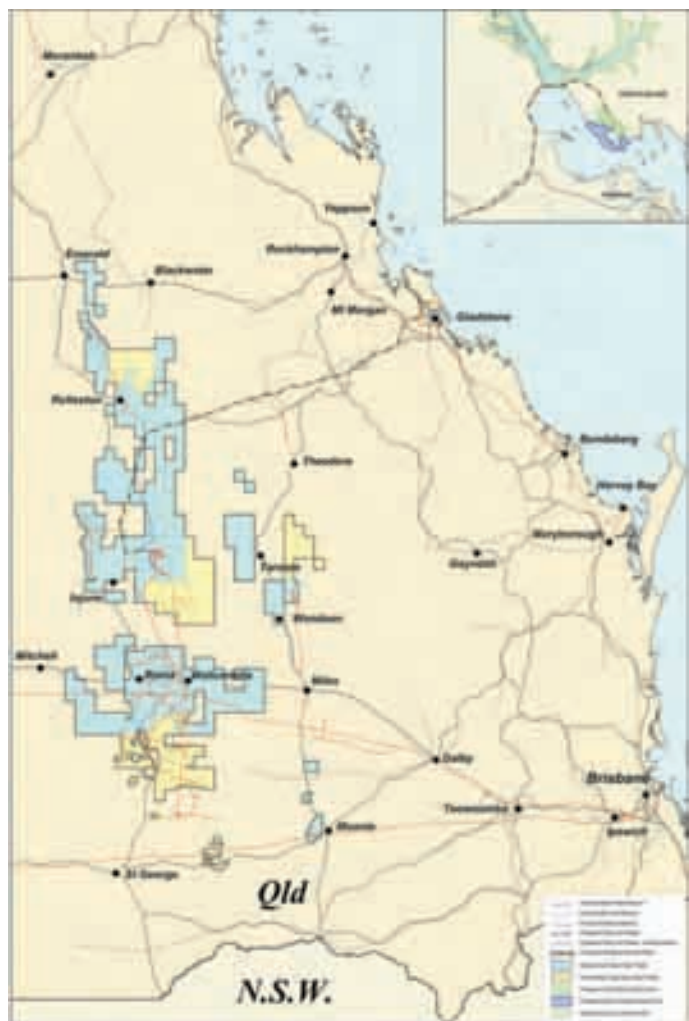
Santos' existing coal seam gas (CSG) fields operating in the Surat and Bowen Basins (Roma and surrounds) comprise over 200 wells.

GLNG will expand the existing CSG fields to provide additional supply over a 20+ year project life.

Development of the CSG fields

Involves:

- drilling exploration wells
- drilling and completing 600 production wells prior to 2015 and more than 1400 wells post 2015
- installing support infrastructure including:
 - access roads
 - fencing of lease sites
 - accommodation facilities for field workers
 - water gathering networks and water management facilities
 - in-field gas gathering pipeline networks (to transport gas from the wells to field compression stations)
 - field gas compression stations where required which pressurise the gas and direct it into the pipeline to the gas liquefaction and export facility



Left: Field development work will mostly take place in these areas

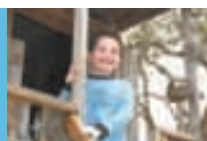
Above: A Santos CSG gas plant in operation in Queensland

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What is an Environmental Impact Statement (EIS)?

The purpose of an EIS is to assess the feasibility of a project by conducting thorough technical studies of potential environmental, social and economic impacts and to propose feasible ways to manage them.

The Queensland Government has declared the Santos GLNG to be a 'Significant Project requiring an Environmental Impact Statement (EIS)' which means Santos is now required to undertake an EIS involving stakeholder consultation and scientific studies to ensure the project is economically, socially and environmentally sound.

The Santos GLNG EIS

The EIS will describe the:

- existing social, economic, natural and built environments
- proposed project and development objectives
- potential impact of the project

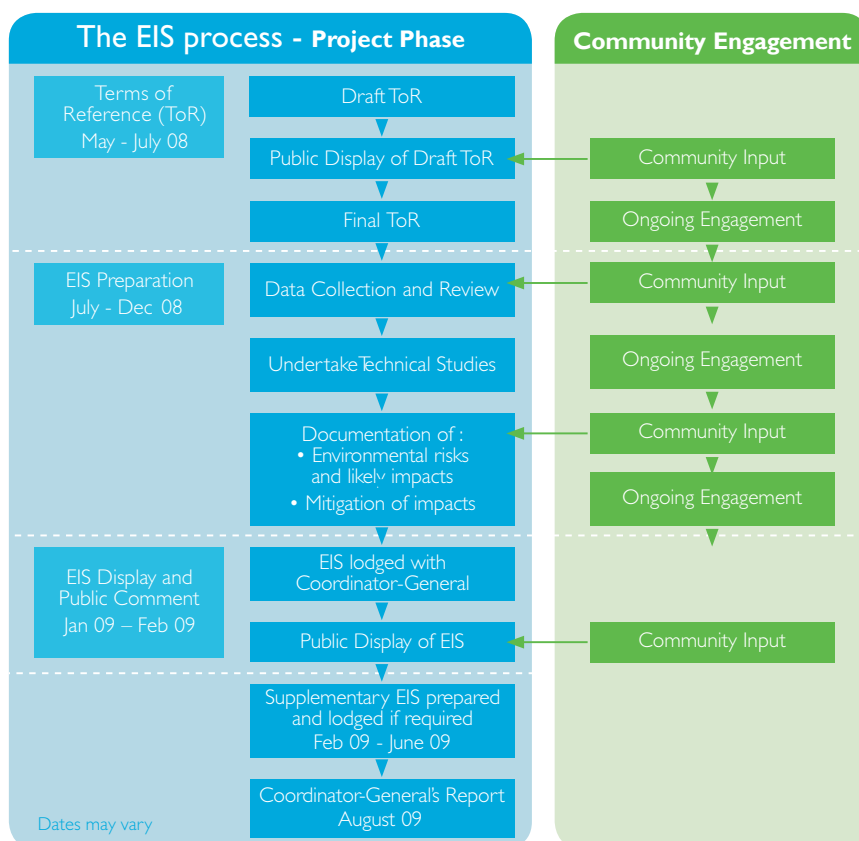
on the social, economic, natural and built environments

- need for, and scope of, any environmental management plans and/or operational plans to mitigate adverse impacts and enhance positive impacts
- measures proposed to mitigate potential adverse impacts and
- framework for approval conditions which will ensure environmentally sound development.

Government supervision

The EIS will be supervised by the Queensland Government's Coordinator-General who then makes recommendations and/or stipulates the conditions to be attached to the project's approvals.

For more information on the Santos GLNG EIS process, please visit the government website: www.dip.qld.gov.au



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Santos



Gladstone Liquefied Natural Gas (GLNG)

What is Liquefied Natural Gas (LNG)?

Liquefied natural gas (LNG) is a natural gas that has been converted to a liquid through cooling to minus 161 degrees Celsius. This process significantly reduces the volume to 1/600 of the original - similar to reducing the volume of a large beach ball to that of a ping-pong ball.

Natural gas is liquefied through cooling and stored at normal atmospheric pressure. This provides a safe way to transport bulk supplies to consumers in worldwide markets.

The liquefied natural gas (LNG) industry has a proven safety record – 40 years of shipping LNG across the world covering more than 1.5 million kilometres and 80,000 carrier voyages, with no major incidents.

Australia has an enviable track record for safety as an LNG supplier. Over 1700 shipments have been despatched without incident.

As a liquid, LNG cannot explode or burn.

Who produces Liquefied Natural Gas?

Leading producers of LNG include Qatar, Indonesia, Algeria, Malaysia, Trinidad, Egypt and Australia.

Australia is the third largest LNG producer in the Asia-Pacific and fifth largest in the world.

In addition to a strong reputation for safety, Australia has a long track record as a competitive, reliable and stable supplier of LNG.

In 2006, Australia exported approximately 13 million tonnes of LNG worldwide.

Australia's LNG exports are currently worth more than \$3.2 billion a year to the economy with decades of continued growth expected.

LNG and the environment

LNG is the cleanest burning fossil fuel. When compared with heavier hydrocarbon fuels, LNG reduces carbon dioxide emissions by 30–60 per cent. LNG also uses substantially less water than other fossil fuel energy generation processes and is non-toxic. If spilled

on water or land, LNG does not mix with water or soil or leave a residue - it does not 'pool' and disperses rapidly in the air.

LNG Shipping

LNG tankers are double-hulled ships specially designed and insulated to prevent leakage or rupture in an accident. The LNG is stored in a special containment system within the inner hull where it is kept at atmospheric pressure and -161°C.

The ship size is similar to that of a large coal ship but significantly smaller than that of a very large crude oil carrier. LNG tankers are generally more environmentally friendly than other shipping vessels because they burn natural gas in addition to fuel oil as a fuel source for propulsion.



LNG tankers are double-hulled ships specially designed and insulated to prevent leakage or rupture in an accident.

For more information

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Web: www.glng.com.au



Santos



Gladstone Liquefied Natural Gas (GLNG)

What is Coal Seam Gas?

Coal seam gas (CSG) is a significant and environmentally-friendly energy resource and can be used for domestic and industrial purposes.

CSG is stored within coal deposits or seams and is usually methane, with small amounts of ethane, propane and butane, nitrogen and carbon dioxide. Santos reserves are almost pure methane.

CSG is formed as part of the same natural processes that produce coal over millions of years. It is held in coal by pressure and water.

Because coal has a large internal surface area, it can potentially hold large volumes of gas. The amount of gas present in a coal seam depends on the thickness and depth of the seam.

What is it used for?

CSG can be used for the same purposes as other natural gases, including domestic heating and cooking and commercial uses. CSG can service households and industry, as well as being exported to other states or overseas.

Benefits

Throughout the world, CSG is increasingly being used as an environmentally-friendly energy source as it is a cleaner-burning fuel than other fossil fuels. Gas-fired electricity generation can release up to 40 per cent fewer greenhouse gas emissions and uses significantly less water than conventional coal-fired generation. The exploration and production process is less invasive than conventional mining activity, in terms of the amount of land disturbance and transportation of the product to processing and distribution facilities.

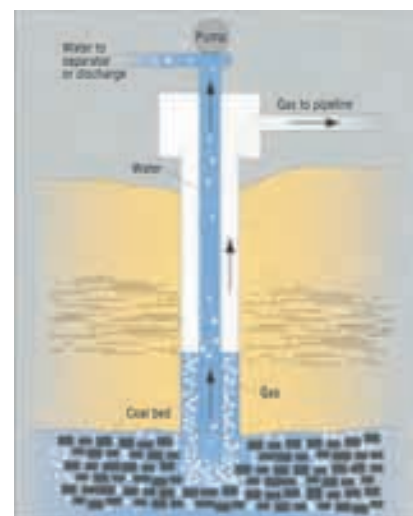


Diagram of coal seam gas well in operation

How is CSG produced?

In many cases, CSG can be extracted without major disruption to surface activities. While Santos is conducting tests within coal deposits, the target is gas not coal. These seams are usually between 200m and 1000m below the surface. CSG production is less invasive and a much lower intensity activity compared to coal mining. CSG is produced from wells which bring the gas to the surface where it is piped away, much like an irrigation network.

Water needs to be drawn off before the gas can be extracted. As the amount of water in the seam decreases, the production of gas increases. A well is used to pump water out of the seam so



Artist's impression of a coal seam gas well

that the gas can be extracted. The amount of water produced declines over time.

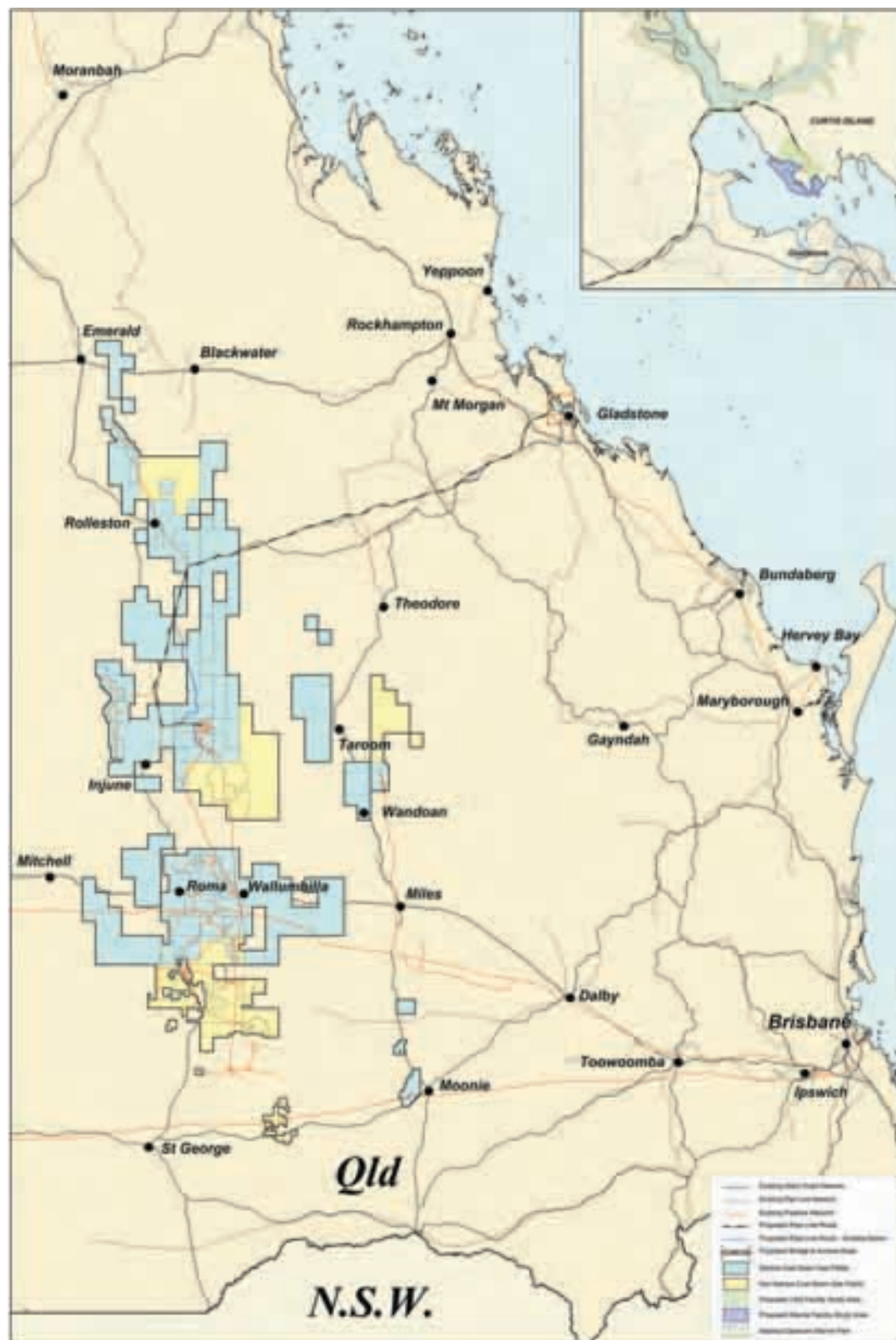
The volume of water produced is variable; CSG fields in Queensland vary from no or minimal water production to over one megalitre per day. Water quality can range from drinkable to brackish. Careful consideration is given to water management in the project planning stages of any CSG extraction project.

CSG in Queensland

Queensland has Australia's largest onshore reserves of CSG in the Bowen and Surat Basins, enough to adequately supply growing domestic demand and LNG export opportunities.

CSG is an important energy resource in Queensland and production now makes up an increasing proportion of Queensland's gas supply.

Surat and Bowen Basin CSG fields



For more information

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Email: info@glng.com.au
Web: www.glng.com.au



Gladstone Liquefied Natural Gas (GLNG)

GLNG newsletter

- **pipeline communities (Injune, Arcadia Valley, Biloela, Calliope, Gladstone)**
- **gas fields communities (Roma, Wallumbilla, Injune, Arcadia Valley, Rolleston, Taroom)**

About GLNG

GLNG proposed by Santos Limited will drive the development of a clean energy source and bring a significant new industry to Queensland.

Santos is a major Australian oil and gas exploration and production company, which has around 50 years experience in the Surat Basin. It is Australia's largest domestic gas producer, providing about 25% of the total market. It is also the third largest producer of petroleum in Australia.

GLNG will enable Santos to establish a significant gas industry in Queensland, stimulating local economies, business development and employment opportunities. It will help meet growing international demand for this clean and efficient energy source and contribute royalties and tax income to the state's economy.

The project involves extracting coal seam gas from Santos' reserves in the Bowen and Surat basins, and piping the gas about 450km underground to a new processing facility on Curtis Island, off Gladstone.



The project will need to meet strict government requirements before it can proceed.

Where practical, the proposed pipeline will parallel the existing Queensland Gas Pipeline (to minimise impacts) and it will cross 'the Narrows' to Curtis Island. The underwater section of the pipeline may sit on the seabed securely or it may be buried.

At the LNG facility, the coal seam gas will undergo a liquefaction process, where it is changed from gas to liquid, reducing the volume of the gas 600 times. This will enable greater quantities to be transported by ship. Purpose-built double-hulled tankers will be used to transport the LNG to market.

Santos' proposal includes constructing a bridge from the mainland to the inland side of Curtis Island to enable the development area to be accessed. The current position of the state government is that the bridge may be restricted to industry and not open to the public.

Santos is committed to minimising the environmental, economic and social impacts from the project on residents of affected communities in the gas fields, along the pipeline route and in the Gladstone region.

Santos expects to have a strong presence in Queensland for the next 20+ years and intends that communities will benefit from its presence.

Answering the questions



Communities in the gas fields and along the pipeline corridor have been actively involved in the consultation phase of the EIS. Santos has been advised by local communities that they are primarily concerned about pressure on their local infrastructure and services; land access and use; and water storage and reuse.

Many issues and concerns are being consistently raised on the following topics:

- extracting coal seam gas
- social infrastructure
- land access
- reduction in land that can be used by the land owner
- the number of gas wells needed
- and disturbance and quality of rehabilitation
- pipeline location
- weed dispersal
- water quality and reuse from the gas extraction process
- location of and noise from infrastructure
- local use of the natural gas
- Santos' community contribution.

The following information is provided in response. If you have other specific questions on GLNG, please contact the project team.

Extracting coal seam gas

Coal seam gas (CSG) is stored within coal deposits or seams. The CSG within Santos reserves are almost pure methane. There is no sulphur. This is a very clean gas that can be used for the same purposes as other natural gases, and in a liquefied form, it can be shipped vast distances.

Extracting CSG is a fundamentally different process from extracting conventional natural gas. Water is pumped from the coal seam, lowering pressure and releasing the gas. Large quantities of water are typically generated in the early life of a CSG well.

The amount of water released and the quality of that water depends on a range of factors, however the typical volume of water extracted per day from CSG developed from Surat Basin wells is generally 100 to 500bbl*, although some have been significantly lower and higher:

This quantity has generated a perception that Santos drills into aquifers. This is incorrect. The water is contained within the coal seam. It is analysed to determine its quality for possible uses.

Santos' reservoirs are generally located closer to the surface than conventional natural gas (200-1,000m). Conventional natural gas generally lies deeper. Because the depth of the well is relatively shallow,

the drilling rigs are smaller and the drilling process is quicker. For example, a natural gas well could take weeks to drill whereas a CSG well only takes three to seven days.

From the wells, the gas will be piped underground into a field gathering system of pipelines to a compressor station to increase the gas pressure. Once the pressure is increased, it can then be pumped into the main transmission line and then to the Santos GLNG facility on Curtis Island.

Social infrastructure

Identifying and limiting impacts on social infrastructure are an important part of Santos' business and community input is vital so that all known issues can be explored fully.

Santos is aware that the project will generate employment and local business opportunities, but will also place pressure on local services and infrastructure. Santos is currently conducting social and economic studies to understand impacts and opportunities and encourages community involvement so that local knowledge is captured.

The construction phase of GLNG is expected to generate 3000 jobs, comprising 500 in the gas fields, 300 in the pipeline corridor and the remainder in and around Gladstone to build the facility and other infrastructure.

Santos is analysing the workforce and accommodation needs for the project, and the associated impact on each community.

* bbl is the abbreviation for barrel, one barrel = 159 litres

With respect to the pipeline and gas fields there are two types of workforce accommodation, temporary and permanent. The pipeline will have temporary accommodation that will be moved along the pipeline route as work progresses.

The CSG field will have small permanent accommodation that will be positioned in strategic locations. Small temporary accommodation facilities will be used during the drilling stage.

Land access

Santos is working with land owners and land users to identify their needs and concerns, and to ensure it fully appreciates the potential extent and impact of CSG activity on their land.

Santos is committed to building and maintaining positive relationships with land owners, and is working to ensure strict protocols are followed by staff and contractors and that enquiries are answered as quickly and accurately as possible.

It is Santos policy that no field visits can commence until approval from the landholder has been granted. Initially, Santos staff with local and current knowledge consult the landholder before access is arranged.

Where a Santos contractor is accessing private land, Santos will advise them of any restrictions or conditions applicable for land access and will accompany them to the site.

Santos currently has agreements with land owners to establish gas wells on their properties. This has been done through personal contact and negotiation. Santos will continue to consult with land owners about access.

Special farming requirements are managed in consultation with land owners.

Reduction in land that can be used by the land owner

Santos always aims to minimise property intrusion and impact on land operations. If gas wells are eventually located on a property, access tracks

and well locations are negotiated with the land owner or manager to minimise interference.

Santos' well leases are fenced and range in size from 80m x 65m to 100m x 110m. Land owners do not generally find that the gas wells interfere significantly with their land operations as the area reduces to 10m x 10m 12 months after drilling, as does the fenced area.



Santos CSG development well at Scotia near Taroom

From time to time, Santos' staff check on the well and access is negotiated with the land owner or manager.

The location of wells is dependent on the underground gas reserve and also on the characteristics of the coal seam. The coal seam can be thick, thin, highly permeable or tight – all of these factors determine the spacing of the wells. However, generally the wells are spaced between 750–1,000m apart.



Santos CSG producing well at Scotia, showing partial rehabilitation

The number of gas wells needed

The number of gas wells that are proposed will depend on coal seam formations and the ability to access the gas. It is always on a case-by-case basis. Santos aims to ensure that there is a balance between gas extraction activity and the primary land use.

Santos proposes to drill and complete enough development wells (about 2,000) to supply 5,300 petajoules (PJ) or 140 billion m³ of gas to phase one of the LNG facility (3 million tonnes per annum for 20+ years.)

Some areas of field development will be more intensive than others and field development plans are currently being developed.

Santos is currently planning for about 20 years of gas production from the production wells.

Land disturbance and quality of rehabilitation

Santos will maintain its philosophy of minimising its environmental footprint by centralising activities and using existing roads, tracks and cleared areas. The laying of the pipeline and land rehabilitation will be of a high standard.

Pipeline location

It is proposed that most of the 450km underground pipeline to transmit the CSG to the Curtis Island facility will run, where practical, parallel to the existing Queensland Gas Pipeline easement to minimise disturbance and impacts.

Santos is implementing an intensive landholder consultation program to assess specific requirements of impacted landholders.

There will be some need to cross private property. In this case the pipeline would usually run alongside a boundary or road so as to minimise impact. Crossing cultivated land is not preferred, but where this needs to happen, the pipes will be buried more deeply and will have

signs installed along the fence line. Directly impacted landholders will be contacted personally.

The proposed pipeline route will be available at the community information sessions and displays.

Weed dispersal

Santos is very mindful of the prevalence of weeds such as Parthenium (below) and Prickly Pear; and understands activity on the land can further spread these weeds. Santos has strict weed management practices, including vehicle wash down procedures.



Water quality and reuse from the gas extraction process

Water is yielded from the extraction of CSG and Santos is exploring options for the best use of this excess water. Water extracted from coal seams varies in quality and is handled appropriately and re-used where possible. The water can vary from drinkable to brackish (slightly salty). The amount of water that is extracted varies from location to location.

The method of water management will depend on the volume produced, the quality and other environmental factors. Options for reuse include providing water for industrial use in the region and further agricultural use.

The water that is currently being extracted at Fairview, near Injune, is being used as drinking water for about 1500 livestock. This water may also be used to support a new proposed native gum plantation and to grow legumes as feedstock.

Santos is currently working with the state government and the community to develop effective strategies for the use of CSG water for regional Queensland.

Location of and noise from infrastructure

In the development of the CSG field, supporting infrastructure needs to be installed. This can include worker accommodation, storage areas and borrow pits (sites selected for extracting sand, gravel or other construction materials).

These are placed in a location that best suits the field development – they need to be central, easy to access and positioned to last for the long term. Their placement also needs to address infrastructure and community concerns.

The same process applies for compressor stations. These are located through the CSG field to 'push' the gas through the field pipelines to the main transmission pipeline.



Rehabilitated well

The location of compressors depends on how the gas field works and how much 'pushing' is required.

As with all supporting infrastructure, its location will need to reflect environmental and community concerns.

To identify potential concerns, Santos will conduct noise modelling in areas proposed for compressor stations, and the results will help determine where and how they will be located.

Local use of the natural gas

At this time, GLNG is specifically intended to develop LNG for export. Santos supplies gas to the domestic market, and there is already sufficient gas generation in Queensland to meet current domestic demand. Santos is currently Australia's largest onshore supplier of domestic gas.

Santos' community contribution

Santos actively supports a variety of organisations and events that are considered important by the communities to which it belongs. If this project goes ahead, Santos will continue to be part of the region for many years and is keen to contribute to its wellbeing.

A number of requests to fund local projects and provide sponsorships have already been received and these suggestions, as well as any other comments, are welcomed. Within the next few months, Santos will be able to assess these requests and determine the best way it can contribute to communities along the pipeline corridor and in the gas fields.

To date, Santos' financial commitment to communities has been largely achieved through sponsorships. Santos also contributes to not-for-profit organisations involved in community capacity-building through the Santos Community Fund.

This fund also provides additional support to Santos employees who contribute their own time and resources to improve the community.



Community benefits

Santos' GLNG project will:

- create 3,000 jobs during construction in total (about 500 employed in the gas fields, 300 constructing the pipeline and the remainder at the facility)
- sustain more than 80 full-time staff initially at the liquefaction facility and 200 jobs when the facility is at full capacity
- generate a \$7.7 billion investment in Queensland's LNG industry and in the Gladstone and Central Queensland economies
- stimulate further business development and employment opportunities for associated communities.

Santos will put in place a local procurement policy which is informed by the state government's *State Procurement Policy 2008*. This means that in the first instance Santos will seek goods and services locally. If local capacity is not enough, Santos may work with local providers to build their capability before seeking goods and services in other Queensland areas or further afield.

For example, Santos has joint ventured with Toowoomba-based company, Easternwell Group, to build local capacity to develop three new drilling rigs for the project. More than 140 additional jobs have been created by the Easternwell/Santos Joint Venture to deliver these drilling rigs to the gas fields.

A program to pre-qualify local contractors is expected to be in place later this year, well ahead of the 2010 construction activity. This program will be well promoted and information will be available on the project website: www.glng.com.au

Santos has a track record of financially contributing to the communities where it operates, and would do so in the communities impacted by the project.

GLNG timeline

GLNG is the first project in the world to convert coal seam gas (CSG) to liquefied natural gas (LNG) on a large scale.

GLNG has been declared a 'significant project' by the state government and is subject to an Environment Impact Statement (EIS). GLNG requires approval under state and federal legislation, and an EIS is being produced to inform these decisions.

Independent environmental consultants, URS Corporation, are developing the EIS. Baseline environmental studies are under way in the Gladstone area, in the gas fields and along the pipeline corridor to gather technical data and information. These studies include but are not limited to climate, land, visual amenity, nature conservation, sensitive environmental areas, terrestrial flora and fauna, water resources, air quality, greenhouse emissions and abatement, noise and vibration, waste generation and management, cultural heritage, community impacts, health and safety, hazard and risk.

URS is investigating potential project impacts and will identify mitigation strategies to address these impacts. These strategies may include design alternatives, different construction techniques and operational procedures, or engineering controls.

These studies will continue throughout 2008, with the EIS targeted for submission to the state government later this year.

The EIS will be released by the state government for public comment before a decision is made. This is expected to take place early in 2009 and will be well advertised.

If approved, work on the LNG facility will commence in 2010, with start up scheduled for 2014. GLNG is then expected to have a lifespan of 20+ years.

Have your say

Santos is working collaboratively with state and federal governments, local leaders and the community to identify and address issues of concern which might impact local communities and the project. It will continue to work with communities across the life of this project.

Community consultants, JTA Australia Pty Ltd, have been engaged to manage and promote extensive consultation opportunities on all aspects of the project, to accurately capture all community comments, questions and concerns, and to develop a report that will become part of the EIS.

Information sessions, briefings and advertising have started and more are planned. There are many ways to get information, make comments and speak directly to project team members.

You can use the freecall number, the website and the project team's email address to access up-to-date information, ask questions and to register for regular project updates.

Upcoming information sessions and displays will be advertised in local media and on the website. At these sessions, project experts provide updates on the EIS studies and any preliminary findings, and address community concerns.

They will provide an opportunity to ask questions and receive information first hand.

GLNG displays will be presented in public places in coming months, such as shopping centres and libraries, and at the Santos GLNG office at 114 Goondoon St, Gladstone. This office is staffed Monday to Friday from 9am to 3pm.

If you would like to make comments on the project or request a briefing for your stakeholder group, please contact the GLNG project team.

If you have questions on the EIS process, you should direct these to the state government:

Infrastructure and Economic
Development Group
Department of Infrastructure and
Planning
PO Box 15009 City East Qld 4002
Phone: 3224 4736
Email: iedg@dip.qld.gov.au



A pond at Fairview used for water storage

Get involved

- Send us your feedback via email or post.
- Register for ongoing project updates via email or post.

For more information

Phone: Freecall 1800 761 113
Fax: 07 3862 3722
Email: info@glng.com.au
Web: www.glng.com.au



GLNG newsletter for the Gladstone region

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Santos is committed to minimising the environmental, economic and social impacts from the project on residents of affected communities in the gas fields, along the pipeline route and in the Gladstone region.

Santos expects to have a strong presence in Queensland for the next 20+ years and intends that communities will benefit from its presence.

Answering the questions



The Gladstone and Curtis Island communities have been actively involved in the consultation phase of the EIS. Many issues and concerns are being consistently raised on the following topics:

- what is in coal seam gas
- locating the facility on Curtis Island
- impacts to the South End (Curtis Island) lifestyle
- the proposed bridge to Curtis Island
- harbour traffic
- LNG safety
- marine and Curtis Island ecology
- LNG facility effluent and emissions, including odour
- workforce location during construction
- Gladstone State Development Area (GDSA) extension
- Santos' community contribution.

Following is information in response to questions that are being raised. If you have other specific questions about GLNG, please contact the project team.

What is in coal seam gas

The coal seam gas contains about 97% methane, 2.5% nitrogen and 0.5% carbon dioxide. This is a very clean gas.

Locating the facility on Curtis Island

GLNG requires enough suitable land for a liquefaction facility that is very close to the deep and protected water needed for LNG ships. Santos

examined numerous other potential sites along the Queensland coast.

Curtis Island was identified as the most appropriate site and was also selected by the state government as the most suitable and safe position for an LNG precinct (this study can be accessed at www.dip.qld.gov.au).

The availability of a local, skilled workforce also contributed to the decision. About 40% of the construction workforce for the Darwin LNG facility, of which Santos is a partner, came from the Gladstone region.

During community meetings in June and July residents asked why Port Alma was not selected. Port Alma was seriously considered, however it would have required extensive work to make the ground stable for LNG tanks. The channel is too shallow for LNG ships and extensive dredging would be needed.

Impacts to the South End (Curtis Island) lifestyle

At all information sessions, South End residents expressed concern that the LNG facility could reduce the quality of their lifestyles. Questions were raised around odours and other emissions, possible visual impact, containment of workers to the facility and possible explosions.

Santos is aware that residents of Curtis Island and surrounding islands enjoy a very peaceful and unique lifestyle and the company does not want this lifestyle to be compromised.

The proposed LNG facility site is on the western side of Curtis Island and Santos expects this site represents minimal (if any) disturbance for residents.

Due to the undulating topography between South End and the site, the LNG facility should not be visible from South End. There will be minimal emissions and no odour from the facility.

Noise, pollution, health and safety, and disturbance during the facility's construction and operation, are among the issues being addressed through the EIS studies.

The proposed bridge to Curtis Island

Considerable interest has been expressed in the proposal to build a bridge to Curtis Island.

Constructing and operating the Santos facility on Curtis Island will require services and infrastructure including an access road, a bridge linking Curtis Island to the mainland and power, telecommunications and potable water supplies.

The bridge will cross the southern extent of 'the Narrows'. The eastern end of the bridge will join Curtis Island to the south of Graham Creek, avoiding the need for a major creek crossing on Curtis Island.

The environmental sensitivity and characteristics of these areas will impact the decision of where the approaches are built. A state government working group, which includes Santos, will develop and implement a construction

environmental management plan to establish environmental controls to minimise any impacts.

It is currently proposed that the bridge will have two lanes, a speed limit of 90km an hour and be elevated (or opening) to allow vessels to pass underneath. Due to this feature in particular, the gas pipeline will not be connected to the bridge. The pipeline would cross 'the Narrows' either sitting on the seabed (and highly protected) or placed in a trench and covered. The particular design specifications will be informed by marine traffic surveys undertaken as part of the EIS.

The bridge will provide access to future industrial companies. As the bridge and road would not be for the sole use of Santos, the state government is managing this project.

A draft design scope is being directed by a working group chaired by the state government (Coordinator-General's office). The government, Gladstone Ports Corporation (GPC), Santos and other industrial companies are sharing the design costs.

The state government has indicated the bridge may not be open to the public. A road will lead directly from the Curtis Island end of the bridge to proposed LNG plant sites at Hamilton Point West (Santos) and North China Bay (British Gas). It is currently proposed that any roads will be contained to the built development area only and will not be continued across to South End.

Harbour traffic

Gladstone residents in particular raised concerns about the increase of marine traffic in what is already a busy harbour.

If approved, the Santos LNG facility will be operational from 2014, increasing shipments in Gladstone Harbour. Initially it is expected that there will be one ship every eight to 10 days for phase one (3 million tonnes per annum). At full project capacity (10 million tonnes per annum), there would be one ship every two to three days.

The GPC is aware of the expected harbour traffic and is planning for the potential cumulative impact of increased shipping from other industries.

The increased traffic from GLNG will be analysed within the EIS. Santos is also supporting the GPC's work on a maritime traffic strategy. This strategy will help ensure the harbour can sustain the expected increase in demand for cross-harbour voyages.

Full LNG ship simulation activities will be carried out at the Australian Maritime College this year. This will be a significant aspect of the EIS studies.

LNG safety

While the LNG industry has been in operation since the 1940s, it is a new industry to the east coast of Australia.

Santos understands that there is concern around aspects of the production, storage and shipping of LNG, which are creating concerns in the community.

Protecting the public, the workforce and the environment during the facility's construction and operation is of paramount importance to Santos. Substantial work is currently under way to identify how potential risks can be managed. Any health and safety risks will be identified and assessed by Santos and government specialists.

The LNG industry: The LNG industry has a proven safety record. LNG has been shipped worldwide for 40+ years with no major incidents and no fatalities from 45,000 voyages. LNG production facilities, storage facilities and ships are designed to include numerous safeguard systems. There are very strict industry standards and government regulations which provide the foundations for the strong safety and security performance in the LNG industry.

LNG features: LNG is colourless, odourless, and non-toxic. It does not mix with water or soil or leave a residue. As a liquid, LNG cannot explode or burn. If LNG escapes, it warms immediately and the vapours become lighter than air and lift high into the atmosphere.

LNG vapour is only flammable if it is within the range of 5-15% natural gas in air. If it is less than 5% natural gas in air, there is not enough natural gas concentration in the air to burn. If it is more than 15% natural gas concentration in air, there is too much gas in the air and not enough air for it to burn.

Gas liquefaction and transport: The gas is liquefied but not placed under pressure within the LNG ships. As the LNG is not under pressure, it cannot burn or explode. LNG ships are double-hulled ships and are specially designed to prevent leakage or rupture in an accident. In the past 40+ years there has not been any reported release of LNG from a ship's cargo tank. Santos is currently modelling risks and safety response scenarios with the state government.

LNG facility: The operations at the LNG facility will pose relatively low risks. The efficiency and stability of LNG plant operations will be maximised through the use of high level of detection and safety systems and regular preventative maintenance. Security measures will include security patrols, protective enclosures, lighting and monitoring equipment.

Safety monitoring systems and training will help ensure any consequences of a potential incident are confined to the property boundary.

Marine and Curtis Island ecology

Santos is committed to minimising the impacts to the natural environment. Environmental studies will assist Santos understand the marine and land ecology and the habitat, prevalence of species and likely impacts on flora and fauna from project. Mitigation measures will be identified.

Santos is meeting with the GPC and shipping experts to assess the movement of LNG ships in the Gladstone Harbour. LNG ships carrying liquid are much lighter than coal ships and are generally the same size. Further dredging is likely around the proposed LNG facility. Dredged material management will be examined in the EIS.



The EIS team is considering the potential for any sediment run-off into the ocean. As part of the EIS process, detailed soil and terrain analyses (including soil dispersability, and the potential for soil and stormwater runoff into the ocean) are being conducted. There will be plans in place to manage any such impacts before work is done on site.

LNG facility emissions, including odour

Residents have raised concerns about emissions and questions have been consistently asked about the cumulative impact of development on Gladstone's air quality.

Air quality impacts associated with the Santos GLNG facility are being studied and management controls will be developed and introduced.

The production of LNG will result in emissions, mostly in the form of nitrogen oxides and carbon dioxide arising from the combustion of natural gas. A small quantity of the gas will be used for onsite electricity, especially needed to refrigerate and liquefy the gas. Air quality impacts are expected to be minimal. The gases are odourless and no impact is expected on nearby communities.

The state government requires that the EIS studies assess cumulative impacts where possible. This means Santos is required to explain what impact its activities will have in combination with emissions from existing industry, and how its emissions can be minimised or mitigated. This work is under way.

GLNG workforce

Questions on the size, location, accommodation and possible impacts on community infrastructure from the proposed GLNG workforce have been raised.

During construction, several thousand jobs will be created directly in the Gladstone region, the majority in construction, transport, infrastructure and the facility.

The impact on social infrastructure, especially housing, is being assessed as part of the EIS process. Santos is exploring ways to minimise social impacts in the local areas during peak construction in 2012.

Santos is working with all levels of government, the GPC and local economic and industry groups to explore housing options, including: sites within the Gladstone area and near Calliope; discussions with other industries to use existing project housing; and consideration of part-modularising the facility (pre-fabricating some areas of the facility offshore) to reduce the construction workforce.

About 80 workers will be required for the operation of the LNG facility for the first phase, with up to 200 people for full development.

Gladstone State Development Area (GDSA) extension

There has been widespread community perception that the Santos GLNG and recent proposed extension of the GDSA are the same or interrelated matters.

The state government announced its intended extension to the GDSA in May 2008. During community meetings and briefings since this time, this has been associated with the Santos proposal. Santos has not been involved in the GDSA and has no knowledge of government plans for the area beyond publicly-available information.

Government has now announced the extended GDSA will go ahead,

with 75% of the area (4,592 hectares) preserved as an environmental precinct. This will maintain the pristine South End area and the residential area, and has signalled that there is no intention by government to fully develop the declared area.

Santos owns freehold land on Curtis Island where the LNG facility is proposed.

Santos' community contribution

Santos actively supports a variety of organisations and events that are considered important by the communities to which it belongs. If GLNG goes ahead, Santos will be part of the Gladstone region for many years and is keen to contribute to its wellbeing.

A number of requests to fund local projects and provide sponsorships have already been received and these suggestions are welcomed. Within the next few months, Santos will be able to assess these requests and determine the best way it can contribute to the area.

To date, Santos' financial commitment to communities has been largely achieved through sponsorships. Santos also contributes to not-for-profit organisations involved in community capacity-building through the Santos Community Fund.

This fund also provides additional support to Santos employees who contribute their own time and resources to improve the community.

Detailed questions and answers

Many questions and answers were recorded at GLNG Gladstone and Curtis Island public forums held in June, July and August 2008. These were circulated to registered attendees. If you would like copies of these documents, please contact the project team.



Community benefits

Santos' GLNG project will:

- create 3,000 jobs during construction in total (about 500 employed in the gas fields, 300 constructing the pipeline and the remainder at the facility)
- sustain more than 80 full-time staff initially at the liquefaction facility and 200 jobs when the facility is at full capacity
- generate a \$7.7 billion investment in Queensland's LNG industry and in the Gladstone and Central Queensland economies
- stimulate further business development and employment opportunities for associated communities.

Santos will put in place a local procurement policy which is informed by the state government's *State Procurement Policy 2008*. This means that in the first instance Santos will seek goods and services locally. If local capacity is not enough, Santos may work with local providers to build their capability before seeking goods and services in other Queensland areas or further afield.

For example, Santos has joint ventured with Toowoomba-based company, Easternwell Group, to build local capacity to develop three new drilling rigs for the project. More than 140 additional jobs have been created by the Easternwell/Santos Joint Venture to deliver these drilling rigs to the gas fields.

A program to pre-qualify local contractors is expected to be in place later this year, well ahead of the 2010 construction activity. This program will be well promoted and information will be available on the project website: www.glng.com.au

Santos has a track record of financially contributing to the communities where it operates, and would do so in the communities impacted by the project.

GLNG timeline

GLNG is the first project in the world to convert coal seam gas (CSG) to liquefied natural gas (LNG) on a large scale.

GLNG has been declared a 'significant project' by the state government and is subject to an Environment Impact Statement (EIS). GLNG requires approval under state and federal legislation, and an EIS is being produced to inform these decisions.

Independent environmental consultants, URS Corporation, are developing the EIS. Baseline environmental studies are under way in the Gladstone area, in the gas fields and along the pipeline corridor to gather technical data and information. These studies include but are not limited to climate, land, visual amenity, nature conservation, sensitive environmental areas, terrestrial flora and fauna, water resources, air quality, greenhouse emissions and abatement, noise and vibration, waste generation and management, cultural heritage, community impacts, health and safety, hazard and risk.

URS is investigating potential project impacts and will identify mitigation strategies to address these impacts. These strategies may include design alternatives, different construction techniques and operational procedures, or engineering controls.

These studies will continue throughout 2008, with the EIS targeted for submission to the state government later this year.

The EIS will be released by the state government for public comment before a decision is made. This is expected to take place early in 2009 and will be well advertised.

If approved, work on the LNG facility will commence in 2010, with start up scheduled for 2014. GLNG is then expected to have a lifespan of 20+ years.

Have your say

Santos is working collaboratively with state and federal governments, local leaders and the community to identify and address issues of concern which might impact local communities and the project. It will continue to work with communities across the life of this project.

Community consultants, JTA Australia Pty Ltd, have been engaged to manage and promote extensive consultation opportunities on all aspects of the project, to accurately capture all community comments, questions and concerns, and to develop a report that will become part of the EIS.

Information sessions, briefings and advertising have started and more are planned. There are many ways to get information, make comments and speak directly to project team members.

You can use the freecall number, the website and the project team's email address to access up-to-date information, ask questions and to register for regular project updates.

Upcoming information sessions and displays will be advertised in local media and on the website. At these sessions, project experts provide updates on the EIS studies and any preliminary findings, and address community concerns.

They will provide an opportunity to ask questions and receive information first hand.

GLNG displays will be presented in public places in coming months, such as shopping centres and libraries, and at the Santos GLNG office at 114 Goondoon St, Gladstone. This office is staffed Monday to Friday from 9am to 3pm.

If you would like to make comments on the project or request a briefing for your stakeholder group, please contact the GLNG project team.

If you have questions on the EIS process, you should direct these to the state government:

Infrastructure and Economic Development Group
 Department of Infrastructure and Planning
 PO Box 15009 City East Qld 4002
 Phone: 3224 4736
 Email: iedg@dip.qld.gov.au



Get involved

- Send us your feedback via email or post.
- Register for ongoing project updates via email or post.

For more information

Phone: Freecall 1800 761 113
 Fax: 07 3862 3722
 Email: info@glng.com.au
 Web: www.glng.com.au





Santos' 7.7 Billion Dollar Gas Project Taking Shape

The coal seam gas (CSG) industry is one of the fastest growing resource sectors in Queensland. At the forefront of this growth is Santos, a major Australian oil and gas company which has world class coal seam gas resources, the feedstock for the proposed \$7+ billion Santos Gladstone Liquefied Natural Gas (GLNG) project announced in 2007.

The project is now moving forward on many fronts. It involves the:

- exploration and production of CSG in the Surat and Bowen Basin gas fields
- construction and operation of a 425km gas pipeline from the gas fields to Gladstone
- construction and operation of a gas liquefaction and export facility on Curtis Island and associated infrastructure.

This is planned to be the world's first large scale CSG to LNG project. It will cement Queensland's position in a booming international liquefied natural gas (LNG) market.

It is anticipated that GLNG will create 3,000 jobs during construction and sustain more than 200 jobs during operation. This should stimulate further business development and employment opportunities in the Gladstone and Roma regions through increased demand for goods and services.

LNG is an energy source that has significant environmental benefits including substantially lower greenhouse gas emissions and water use when compared to other fossil fuels.

The project will initially produce 3 to 4 million tonnes per annum (mtpa) of liquefied natural gas (LNG), with a maximum potential production of 10 mtpa.

Santos – the company

Santos Ltd was founded in 1954 and has been active in the energy business for more than 50 years.

Santos is one of Australia's top 25 companies and has major Australian oil and gas exploration and production operations, with vast CSG interests in Queensland and New South Wales.

Santos has interests and operations across Australia, as well as Indonesia, Papua New Guinea, Vietnam, India, Kyrgyzstan and Egypt and is the largest onshore domestic gas producer in Australia (some 25% of Australia's CSG).

Santos has a significant investment in CSG. In 2007 Santos invested approximately \$150 million in expanding its CSG business.

Environmental Impact Statement Underway - Have your say

The Queensland Government has declared the Project to be a 'Significant Project requiring an Environmental Impact Statement (EIS)' which means Santos is now required to undertake an EIS involving extensive stakeholder consultation and scientific study to ensure the project is economically, socially and environmentally sound.

The EIS will be supervised by the Queensland Government's Coordinator-General who then makes recommendations and/or stipulates the conditions to be attached to the project's approvals.

The Queensland Government has released draft Terms of Reference for the Project EIS which will provide guidance on the studies that are required.

The draft Terms of Reference are now available for public comment from stakeholders and the community.

Santos is committed to meaningful community engagement on this project. This includes:

- meetings with key stakeholder and community groups
- community information sessions
- regular information updates through newsletters and project website
- opportunities to provide feedback by phone, email and post.

For more details on the community information sessions, see back page.



GLNG information registration and feedback

Thank you for your interest in Santos' proposed Gladstone Liquefied Natural Gas (GLNG) project.

Would you like to be registered to receive notice of future updates on the project?

☐ Yes

 No

Preferred mode of contact:

 Post

 Email

Please complete the form below to register for more information.

Name

Organisation (if applicable)

Phone/mobile number

Email address

Postal address _____ Postcode _____

Signature

This information will be held by Santos and the community consultants and will not be made available to any other organisation.

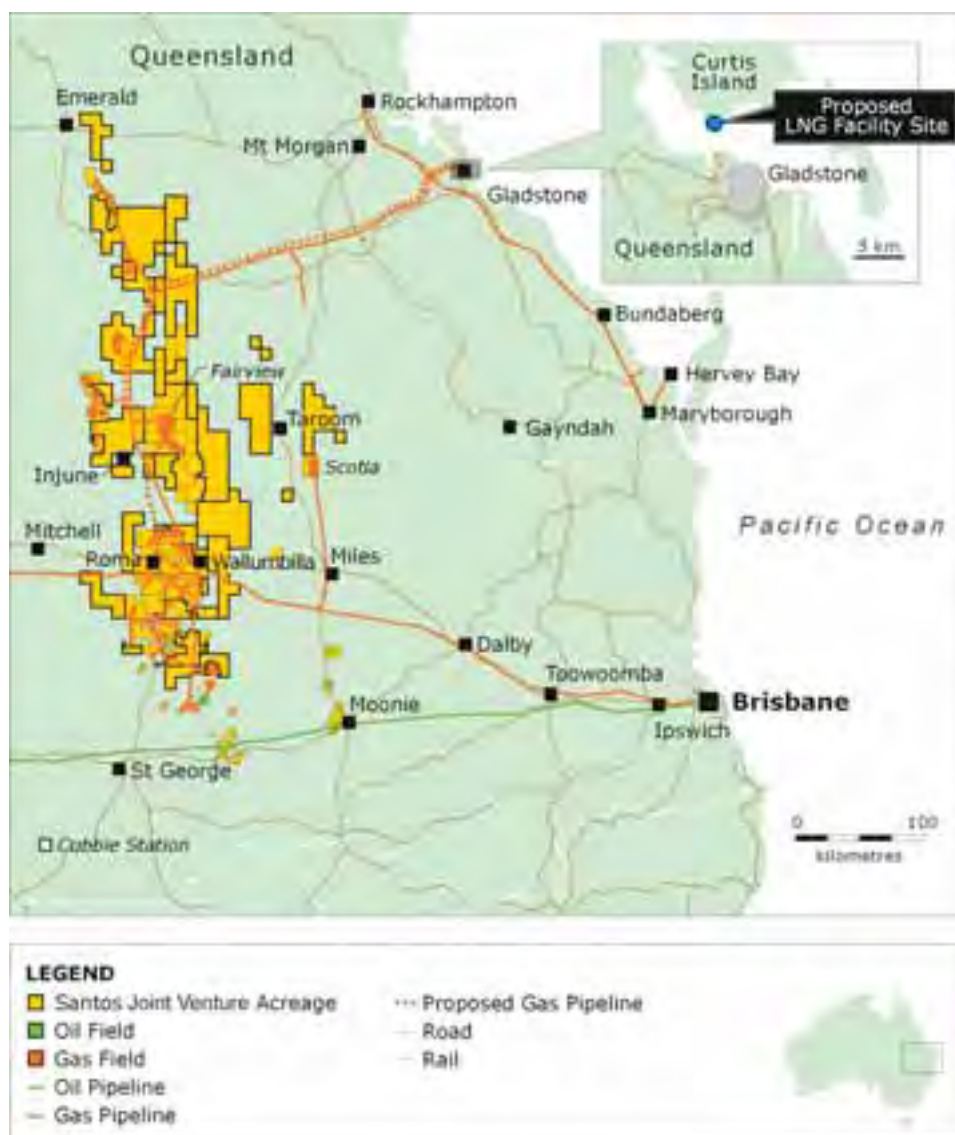
Santos encourages you to provide feedback on the Draft Terms of Reference.

A complete copy of the draft Terms of Reference can be viewed at www.dip.qld.gov.au or you can request a copy by phoning 1 800 761 113 or emailing info@glng.com.au.

Submissions addressing the draft Terms of Reference must be made direct to the Coordinator-General. Please see the section in this newsletter, *How to make a submission addressing the draft Terms of Reference*.

Should you have a more general enquiry or feedback, please include your comments in the section below. Outline any particular interests or issues associated with the Santos GLNG project you would like more information about:

The EIS Study Area



The study area for the Environmental Impact Statement covers:

- the coal seam gas fields in the Surat and Bowen Basins
- the corridor of the underground pipeline to Gladstone
- the site of the LNG facility on Curtis Island and associated infrastructure.

What is Coal Seam Gas (CSG)?

- CSG is extracted from underground coal seams. To recover CSG, coal extraction is not required.
- CSG is usually methane, with small amounts of ethane, propane, butane, nitrogen and carbon dioxide. Santos reserves are almost pure methane.
- At the LNG Facility, CSG is reduced in temperature to -162°C , liquefied and stored at normal atmospheric pressure, providing a safe way to ship bulk supplies.

CSG in Queensland

- Queensland has Australia's largest onshore reserves of CSG in the Bowen and Surat Basins; enough to adequately supply growing domestic demand and LNG export opportunities, and ensure the long-term supply of competitively priced gas in Australia.
- CSG is an important energy resource in Queensland and production now makes up an increasing proportion of Queensland's gas supply.
- World demand for LNG is expected to



What is LNG?

LNG is essentially natural gas that has been liquefied by an industry proven process of cooling it to -162°C , significantly reducing the volume (to 1/600 of original volume) for transportation. This is similar to reducing the volume of a large beach ball of air to that of a ping-pong ball of liquid.

- LNG is the cleanest burning fossil fuel and reduces carbon dioxide (CO_2) emissions by 30–60% in comparison with heavier hydrocarbon fuels.
- LNG is colourless, odourless, non-toxic and does not linger in the environment.
- When spilled on water or land, LNG does not mix with water or soil or leave a residue; it disperses rapidly in the air.

Project terms

EIS _____ Environmental Impact Statement

LNG _____ liquefied natural gas

CSG _____ coal seam gas

mtpa _____ million tonnes per annum

What is an EIS?

An EIS assesses the feasibility of a project by conducting thorough technical studies of potential environmental, social and economic impacts and proposes feasible ways to manage them.

The EIS will describe the:

- existing social, economic, natural and built environment
- proposed project and development objectives
- potential impact of the project on the social, economic, natural and built environment
- need for, and scope of, any environmental management plans and/or operational plans to mitigate potential adverse impacts
- measures proposed to mitigate potential adverse impacts
- framework for setting approval conditions to ensure environmentally sound development.

The Queensland Government, in consultation with the community and other key stakeholders including relevant advisory agencies, determines the matters to be studied for the EIS and this is formalised in the Terms of Reference.

Community Engagement

Santos is committed to engaging the community and is actively pursuing community and stakeholder input and feedback separate from the formal EIS process for the GLNG project.

The purpose of Santos' consultation with the community is to:

- provide ongoing information about the proposed project
- gain community views on the potential impacts of the proposal
- ensure a positive contribution by the community towards achieving a sustainable project

The consultation will continue throughout the EIS process, as shown in the diagram (right):

The Draft Terms of Reference

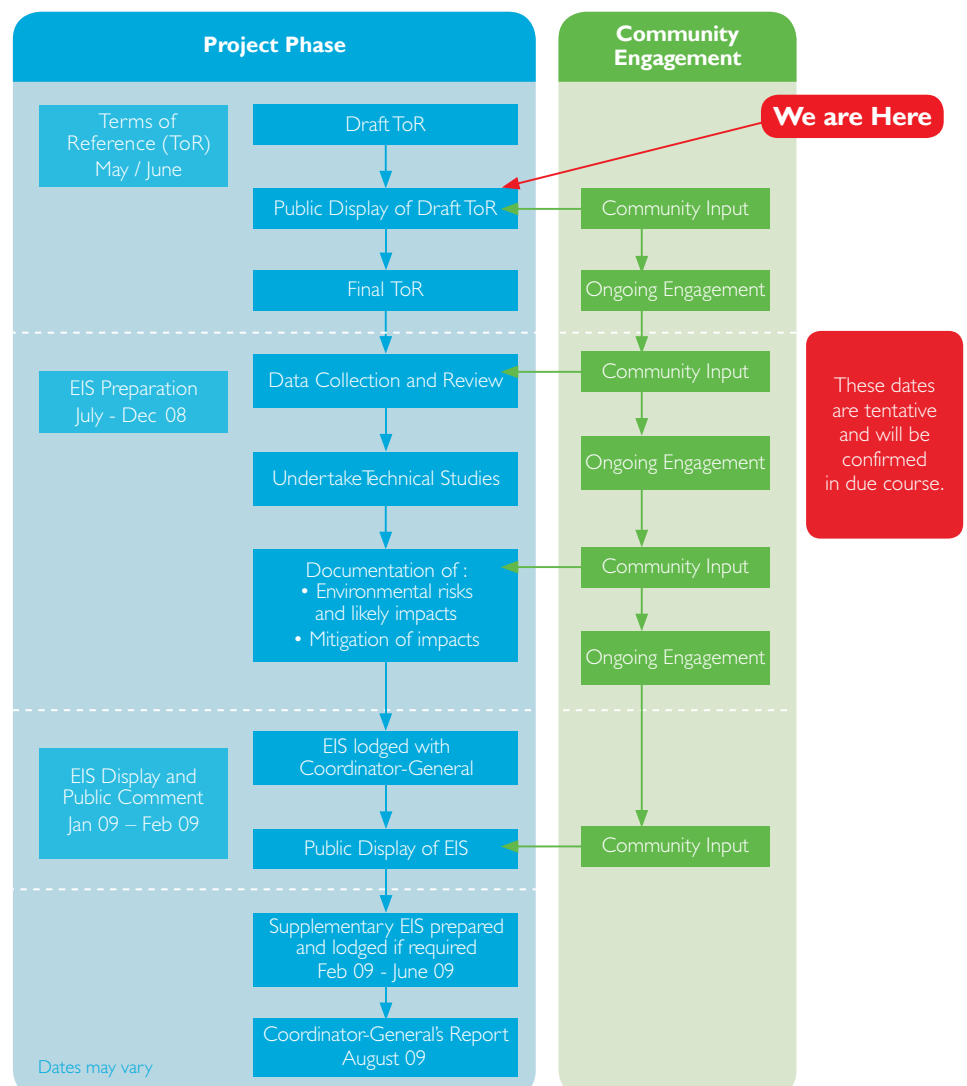
The Draft Terms of Reference provides an overview of the project, its component parts and requirements and the process for EIS public consultation and participation.

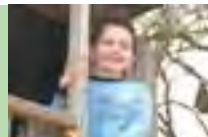
A study of the following potential impacts is required:

- climate
- topography and geomorphology
- geology & soils
- land use and infrastructure
- visual amenity
- nature conservation
- terrestrial flora & fauna
- aquatic flora & fauna
- water resources
- surface waterways

- coastal environment
- air
- greenhouse gas emissions
- noise and vibration
- waste generation & management
- transport methods & routes
- road infrastructure alterations
- cultural heritage
- socio-economic environment
- hazard & risk
- health & safety
- cumulative impacts

Other impacts may be identified through community feedback and require further study.





Santos Gladstone LNG Project
Reply Paid 372
Clayfield Q 4011

PO Box 372
Clayfield Q 4011

No stamp required
if posted in Australia

FOLD HERE

Please send your feedback form to us using
the reply paid address overleaf. Thank you.

STAPLE /TAPE HERE

STAPLE /TAPE HERE




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Appendix F

APPENDIX F - Advertisements and placement schedules

Sample advertisement – June community information sessions



Santos



Santos' Gladstone Liquefied Natural Gas (GLNG) Environmental Impact Statement

Santos is proposing a \$7.7 billion Liquefied Natural Gas (LNG) Project at Gladstone (GLNG).

GLNG will take coal seam gas from the Bowen and Surat Basins by underground pipeline to a liquefied natural gas processing plant and export facility on Curtis Island in Gladstone.

The Queensland Government has declared the Project to be a 'Significant Project requiring an Environmental Impact Statement (EIS)' which means Santos is now required to undertake an EIS involving extensive stakeholder consultation and scientific study to ensure the project is economically, socially and environmentally sound. The draft Terms of Reference as set out by the Queensland Government will guide the EIS studies and are now available for public comment.

Santos is committed to a comprehensive schedule of community engagement throughout the whole project and is actively pursuing input and feedback.

Come along to the community information sessions that Santos is holding as part of the public display of the draft Terms of Reference. The sessions will provide an opportunity to meet members of the EIS project team and learn more about the project.

Santos GLNG EIS community information sessions

Springsure	Tuesday 3 June 2008, 4.00pm-6.00pm Meeting Room, Bauhinia Memorial Hall, 29 Eclipse Street
Rolleston	Wednesday 4 June 2008, 3.30pm-5.30pm Rolleston Shire Hall
Biloela	Thursday 5 June 2008, 3.30pm-5.30pm Biloela Civic Centre - Foyer, cnr Rainbow & Prairie Sts
Wallumbilla	Tuesday 10 June 2008, 10.00am – 12.00pm Wallumbilla CWA Hall, 10 College St
Roma	Tuesday 10 June 2008, 4.00pm-6.00pm Ernest Brock Function Room, Roma Bungil Cultural Centre, Cnr Bungil & Quintin Sts
Injune	Wednesday 11 June 2008, 4.00pm-6.00pm Injune Memorial Hall, Hutton Street
Taroom	Thursday 12 June 2008, 4.00pm-6.00pm Taroom Town Hall - Foyer, 18-20 Yaldwin Street
Gladstone	Friday 13 June 2008, 4.00pm-6.00pm 114 Goondoon Street
Curtis Island	Saturday 14 June 2008, 10.00am-12.00pm The Capricorn Lodge, South End

Comments on the draft Terms of Reference must be received by the Coordinator-General by COB Friday 20 June 2008.



To view the draft Terms of Reference, visit the website www.dip.qld.gov.au.

For further information on the project, or to request a copy of the draft Terms of Reference:

Phone 1800 761 113 Email info@glng.com.au Website www.glng.com.au	Fax 07 3862 3722 Post Santos Gladstone LNG Project, Reply Paid 372, Clayfield QLD 4011
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TC18091

Sample advertisement – August 'Introduction to LNG' presentation



Santos GLNG presents 'An Introduction to LNG'

Santos' proposed \$7.7 billion Gladstone Liquefied Natural Gas project (GLNG) will pipe coal seam gas from the Bowen and Surat Basins to a new gas liquefaction and export facility on Curtis Island, Gladstone.

Santos is holding information sessions to introduce the Gladstone community to LNG as a new industry for the region.

Two sessions will be held in Gladstone next week.

A short presentation will be given and specialist project staff will then be available to answer your questions and talk one-on-one.

Date: Monday 25 August 2008

Times: 12.30pm and 6.00pm

Venue: Leo Zussino Building
Central Queensland University
Bryan Jordan Drive (opposite Gladstone marina)

RSVP: Light refreshments will be provided. An indication of your interest would be appreciated to assist with catering.

Freecall Number 1800 761 113
Email info@glng.com.au
Website www.glng.com.au

TC19771

Sample advertisement – September community information sessions



Santos



Santos' GLNG

Santos' proposed \$7.7 billion Gladstone Liquefied Natural Gas project (GLNG) will take coal seam gas from the Bowen and Surat basins by underground pipeline to a gas liquefaction and export facility on Curtis Island in Gladstone.

Santos is holding information sessions in communities that may be impacted by the project. A short presentation will be given and specialist project staff will then be available to answer your questions and talk one-on-one.

Community Information Sessions

Biloela	Friday 12 September 2008, 6.00pm-8.00pm Gallipoli Room, Anzac Memorial Club, 94 Callide Street
Rolleston	Monday 15 September 2008, 1.00pm-3.00pm Rolleston Shire Hall, Warrijo Street
Wallumbilla	Wednesday 17 September 2008, 10.00am-12.30pm Wallumbilla Memorial Hall
Roma	Wednesday 17 September 2008, 5.30pm-8.00pm Ernest Brock Function Room, Roma Bungil Cultural Centre Cnr Bungil and Quintin Streets
Curtis Island	Saturday 20 September 2008, 11.00am-1.00pm Capricorn Lodge, South End

As light refreshments will be provided, an indication of your interest would be appreciated to assist with catering.

Freecall Number
Email
Website

1800 761 113
info@glng.com.au
www.glng.com.au


Displays will also be placed in selected shopping centres and public venues in the project area.

The state government has now released Terms of Reference for the development of an Environmental Impact Statement for the project. This document is available from the Department of Infrastructure and Planning's website: www.dip.qld.gov.au

Note: an additional session was run in Injune on 18 September, to accommodate significant local interest.

Sample advertisement – November community information sessions (pipeline/gas fields)





GLNG community information sessions

The proposed \$7.7 billion Gladstone Liquefied Natural Gas project (GLNG) will take coal seam gas from the Bowen and Surat basins by underground pipeline to a gas liquefaction and export facility on Curtis Island in Gladstone.

Santos is holding further information sessions in many communities that may be impacted by the project. This is an opportunity to hear information about the project from those directly involved. If you have attended previous sessions, you are most welcome to come again as updates will be provided on the environmental impact studies.

Each session will involve a presentation from one of the project's key staff members, followed by a question and answer session and light refreshments.

Session details

Biloela	Wednesday 12 November; 5.30pm–8.00pm Foyer, Civic Centre, Cnr Rainbow and Prairie Streets
Moura	Thursday 13 November; 10.00am–12.30pm Kianga Hall, McArthur Street
Rolleston	Thursday 13 November; 5.30pm–8.00pm Rolleston Shire Hall, Warrijo Street
Wallumbilla	Tuesday 18 November; 10.00am–12.30pm Wallumbilla CWA Hall, 10 College Street
Roma	Tuesday 18 November; 5.30pm–8.00pm Ernest Brock Function Room, Roma Bungil Cultural Centre Cnr Bungil and Quintin Streets
Injune	Wednesday 19 November; 11.30am–2.00pm Injune Memorial Hall, Hutton Street
Arcadia Valley	Thursday 20 November; 11.30am–2.00pm Meeting room, Arcadia Valley Primary School, Arcadia Valley Road

As light refreshments will be provided, an indication of your interest would be appreciated to assist with catering.

Freecall Number 1800 761 113

Email info@glng.com.au

Website www.glng.com

Note: the Arcadia Valley session planned for 20 November did not proceed due to local interest.

Sample advertisement – November community information sessions (Gladstone region)

GLNG community information sessions

The proposed \$7.7 billion Gladstone Liquefied Natural Gas (GLNG) project will take coal seam gas from the Bowen and Surat basins by underground pipeline to a gas liquefaction and export facility on Curtis Island in Gladstone.

GLNG is a project of state significance which requires an Environmental Impact Statement (EIS) to be developed. As part of this process, Santos has been consulting with affected communities over the course of the study period. The sessions below provide a further opportunity to hear about the project and contribute feedback for incorporation into the EIS prior to submission to the state government in December 2008.

Each session will involve a presentation from one of the project's key staff members, followed by a question and answer session and light refreshments.

Session details

Gladstone	Friday 21 November; 12.00pm–2.30pm and 5.30–8.00pm Dining Room, Leo Zussino Building Central Queensland University, Bryan Jordan Drive
Curtis Island	Saturday 22 November; 11.00am–2.30pm Capricorn Lodge, South End

As light refreshments will be provided, an indication of your interest would be appreciated to assist with catering.

Freecall Number	1800 761 113
Email	info@glng.com.au
Website	www.glng.com

Santos | **PETRONAS** 

Advertising placement schedule - June information sessions (print)

Paper	Areas	Circulation	Ad Date	Size of Ad
The Courier-Mail	Queensland Metro	220,850	Wed 28 May	19 x 3 Cols
News Ltd		305,215	Sat 31 May	19 x 3 Cols
		305,215	Sat 7 June	19 x 3 Cols
		220,850	Tue 10 June	19 x 3 Cols
		305,215	Sat 14 June	15 x 3 Cols
The Western Star	Roma	3,100	Tue 27 May	19 x 3 Cols
APN		3,400	Fri 30 May	19 x 3 Cols
		3,100	Tue 3 June	19 x 3 Cols
		3,400	Fri 6 June	19 x 3 Cols
		3,100	Tue 10 June	19 x 3 Cols
		3,400	Fri 13 June	16 x 3 Cols
		3,100	Tues 17 June	13 x 3 Cols
Central Queensland News	Emerald and Central Highlands	4,694	Wed 28 May	19 x 3 Cols
APN		4,694	Fri 30 May	19 x 3 Cols
		4,694	Wed 3 June	19 x 3 Cols
		4,694	Fri 6 June	19 x 3 Cols
		4,694	Wed 11 June	18 x 3 Cols
		4,694	Fri 13 June	16 x 3 Cols
Central Telegraph	Biloela & surrounds	3,573	Fri 30 May	19 x 3 Cols
APN		3,573	Fri 6 June	19 x 3 Cols
			Fri 13 June	16 x 3 Cols
Gladstone Observer	Gladstone & surrounds	9,762	Sat 24 May	19 x 3 Cols
APN		7,227	Wed 28 May	19 x 3 Cols
		9,762	Sat 31 May	19 x 3 Cols
		7,227	Wed 4 June	20 x 3 Cols
		9,762	Sat 7 June	19 x 3 Cols
		7,227	Tue 10 June	19 x 3 Cols
		9,762	Sat 14 June	15 x 3 Cols
		7,227	Tues 17 June	13 x 3 Cols
		7,227	Wed 18 June	19 x 3 Cols
		7,227	Thurs 19 June	19 x 3 Cols
		7,227	Fri 20 June	19 x 3 Cols
Port Curtis Post	Gladstone & surrounds	15,043	Mon 2 June	19 x 3 Cols
APN		15,043	Mon 9 June	19 x 3 Cols
		15,043	Mon 16 June	13 x 3 Cols
Blackwater Herald	Blackwater & surrounds	1,700	Tue 27 May	19 x 3 Cols
APN		1,700	Tue 3 June	19 x 3 Cols
		1,700	Tue 10 June	19 x 3 Cols
		1,700	Tue 17 June	13 x 3 Cols
Rural Weekly	Rural Queensland	76,416	Fri 30 May	19 x 3 Cols
(Southern and Central Editions) APN		76,416	Fri 13 June	16 x 3 Cols
Rockhampton Morning Bulletin	Rockhampton region	18,106	Wed 4 June	20 x 3 Cols
APN		24,804	Sat 7 June	19 x 3 Cols
		18,106	Tue 10 June	19 x 3 Cols
		24,804	Sat 15 June	13 x 3 Cols
		18,106	Tue 17 June	13 x 3 Cols
Koori Mail	National	9,077	Wed 4 June	20 x 3 Cols
APN		9,077	Wed 18 June	13 x 3 Cols

Advertising placement schedule - June information sessions (radio)

Station	Market	Time zone	Dur	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	No. of Spots			
				S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M				
				May- June 2008																																		
30 SEC BMAD SPOTS																																						
Hot 95.1	Roma	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3														36			
4ZR	Roma	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3														36			
4CC	Gladstone	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3	3	3	3											45			
Sea 95.1	Gladstone	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3										45			
Breeze	Remote Qld	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3										45			
Rebel	Remote Qld	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3										45			
4HI	Emerald	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3										45			
Hot 94.7	Emerald	BMAD	45							3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3										45			
																																			1			
Total Spots:																																						343

Advertising placement schedule - August LNG presentation - print media

Paper	Areas	CIRC	Ad Date	Size of Ad
Gladstone Observer	Gladstone & surrounds	7,227	Wed 20 Aug	19 x 3 Cols
APN		7,227	Fri 22 Aug	19 x 3 Cols

Advertising placement schedule – September community information sessions (print)

Paper	Areas	CIRC	Ad Date	Size of Ad
The Western Star	Roma	3,100	Tue 9 September	19 x 3 Columns
APN				
Central Queensland News	Emerald and Central Highlands	4,694	Wed 10 September	19 x 3 Columns
APN				
Central Telegraph	Biloela and surround	3,573	Wed 10 September	19 x 3 Columns
APN				
Queensland Country Life	Roma	25,000	Thurs 11 Sept	19 x 3 Columns
(Southern)				
Rural Press				
Gladstone News	Gladstone	16,500	Fri 12 September	19 x 3 Columns
Independent				
Rural Weekly	Rural QLD	76,416	Fri 12 September	19 x 3 Columns
(Southern and Central Editions)				
APN				
Port Curtis Post	Gladstone and surround	15,043	Mon 15 September	19 x 3 Columns
APN				

September community information sessions were also advertised in participating school newsletters.

Advertising placement schedule – November community information sessions (print)

Paper	Areas	CIRC	Ad Date	Size of Ad
The Western Star	Roma	3,100	Tue 4 Nov	19 x 3 Columns
APN		3,100	Tue 11 Nov	19 x 3 Columns
		3,100	Tue 18 Nov	19 x 3 Columns
Central Queensland News	Emerald and Central Highlands	4,694	Fri 31 Oct	19 x 3 Columns
APN		4,694	Wed 5 Nov	19 x 3 Columns
		4,694	Wed 12 Nov	19 x 3 Columns
Central Telegraph	Biloela and surrounds	3,573	Fri 31 Oct	19 x 3 Columns
APN		3,573	Fri 7 Nov	19 x 3 Columns
Rural Weekly				
(Southern and Central Editions)	Rural QLD	76,416	Fri 31 Oct	19 x 3 Columns
(Southern and Central Editions)		76,416	Fri 7 Nov	19 x 3 Columns
(Southern and Central Editions)		76,416	Fri 7 Nov	19 x 3 Columns
(Southern Edition only)		51,076	Fri 14 Nov	19 x 3 Columns
Gladstone Observer	Gladstone and surround	9,762	Fri 14 Nov	19 x 3 Columns
APN		7,227	Tue 18 Nov	19 x 3 Columns
Port Curtis Post	Gladstone and surround	15,043	Mon 17 Nov	19 x 3 Columns
APN				
Gladstone News	Gladstone	16,500	Fri 14 Nov	19 x 3 Columns
Independent				

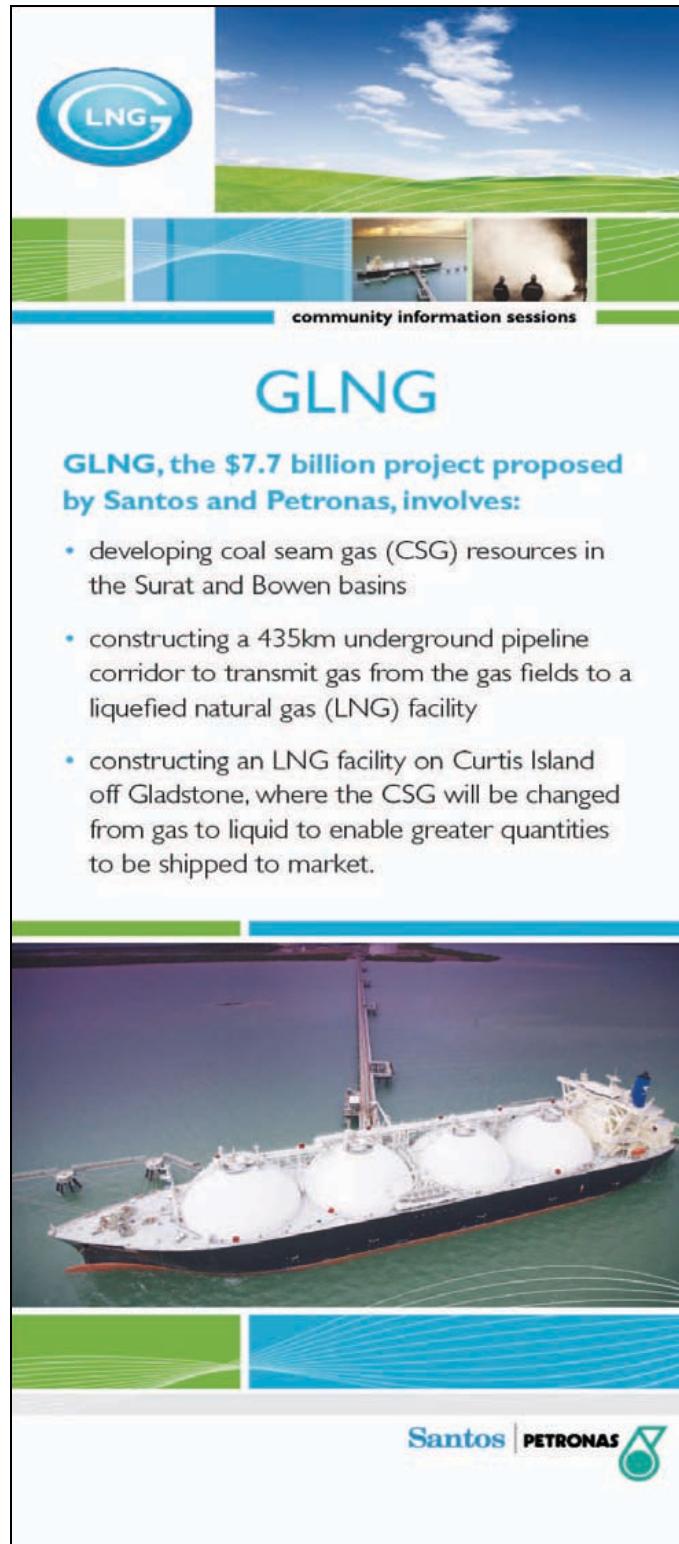
November community information sessions were also advertised in participating school newsletters.

Appendix G

APPENDIX G – Other project collateral

Sample banners

The three banners following were used to promote the most recent (November) round of community information sessions.



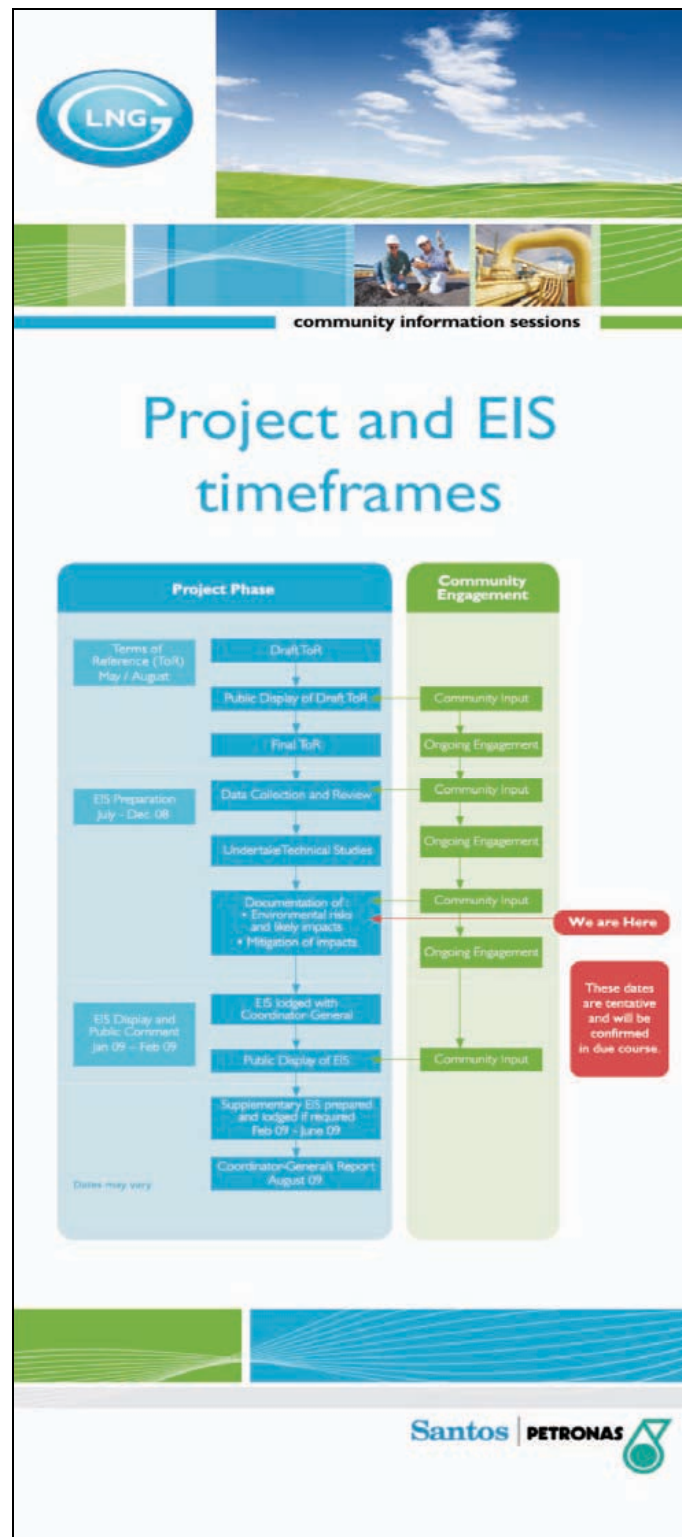
The banner is a vertical rectangular graphic. At the top left is the GLNG logo, which consists of a blue circle with 'LNG' inside and a stylized 'G' to its right. To the right of the logo is a landscape image of green rolling hills under a blue sky with white clouds. Below the logo and landscape is a horizontal strip containing three small images: a green field, a blue abstract graphic, and a photo of an industrial facility. Below this strip is a blue bar with the text 'community information sessions' in white. The main body of the banner is white and contains the text 'GLNG' in large blue letters. Below this is the text 'GLNG, the \$7.7 billion project proposed by Santos and Petronas, involves:' in blue. This is followed by a bulleted list of three items. At the bottom of the banner is a large photo of an LNG carrier ship with four white spherical tanks, docked at a pier. Below the photo is a horizontal bar with green and blue abstract graphics. At the very bottom is a white bar with the Santos and Petronas logos.

GLNG


GLNG, the \$7.7 billion project proposed by Santos and Petronas, involves:

- developing coal seam gas (CSG) resources in the Surat and Bowen basins
- constructing a 435km underground pipeline corridor to transmit gas from the gas fields to a liquefied natural gas (LNG) facility
- constructing an LNG facility on Curtis Island off Gladstone, where the CSG will be changed from gas to liquid to enable greater quantities to be shipped to market.

Santos | PETRONAS





Sample posters

Santos' GLNG

Santos' proposed \$7.7 billion Gladstone Liquefied Natural Gas project (GLNG) will take coal seam gas from the Bowen and Surat basins by underground pipeline to a gas liquefaction and export facility on Curtis Island in Gladstone.

Santos is holding an information session on Thursday 18 September in Injune. A short presentation will be given and specialist staff will then be available to answer your questions and talk one-on-one.

Community Information Session


Injune

Thursday 18 September 2008, 2pm–4pm
Injune Memorial Hall, Hutton Street

As light refreshments will be provided, an indication of your interest would be appreciated to assist with catering.

Freecall Number	1800 761 113
Email	info@glng.com.au
Website	www.glng.com.au

Further information will also be available from a display at the Injune Information Centre, Hutton Street.





GLNG community information sessions

The proposed \$7.7 billion Gladstone Liquefied Natural Gas (GLNG) project will take coal seam gas from the Bowen and Surat basins by underground pipeline to a gas liquefaction and export facility on Curtis Island in Gladstone.

GLNG is a project of state significance which requires an Environmental Impact Statement (EIS) to be developed. As part of this process, Santos has been consulting with affected communities over the course of the study period. The sessions below provide a further opportunity to hear about the project and contribute feedback for incorporation into the EIS prior to submission to the state government in December 2008.

Each session will involve a presentation from one of the project's key staff members, followed by a question and answer session and light refreshments.

Session details

Gladstone Friday 21 November, 12.00pm–2.30pm and 5.30–8.00pm
Dining Room, Leo Zussino Building, Central Queensland University
Bryan Jordan Drive

Curtis Island Saturday 22 November, 11.00am–2.30pm
Capricorn Lodge, South End

As light refreshments will be provided, an indication of your interest would be appreciated to assist with catering.

Freecall Number 1800 761 113
Email info@glng.com.au
Website www.glng.com



Appendix H

APPENDIX H – Questions and answers from community information sessions and other public forums

This appendix contains published Q&As from the following consultation events:

- 20 June 2008 – Gladstone community information session
- 21 June 2008 – Curtis Island community information session
- 26 July 2008 – Gladstone region maritime stakeholders meeting
- 21 August 2008 – Arcadia Valley public meeting organised by AgForce
- 25 August 2008 – ‘Introduction to LNG’ – two Santos-run public forums in Gladstone
- 12 September 2008 – Biloela community information session
- 15 September 2008 – Rolleston community information session
- 16 September 2008 – Roma water workshop (second)
- 17 September 2008 – Wallumbilla community information session
- 17 September 2008 – Roma community information session
- 18 September 2008 – Injune community information session
- 20 September 2008 – Curtis Island community information session
- 8 October 2008 – Roma land valuation impacts meeting
- 9 October 2008 – Arcadia Valley land valuation impacts meeting
- 18 October 2008 – Wallumbilla water workshop
- 12 November 2008 – Biloela community information session
- 13 November 2008 – Moura community information session
- 13 November 2008 – Rolleston community information session
- 18 November 2008 – Wallumbilla community information session
- 18 November 2008 – Roma community information session
- 19 November 2008 – Injune community information session
- 21 November 2008 – Gladstone community information session
- 22 November 2008 – Curtis Island community information session.

This appendix also contains a sample of presentations made.

**SANTOS Gladstone Liquefied Natural Gas (GLNG) Project
Gladstone Community Information Sessions
Friday 20 June 2008**

Facilitator: Jan Taylor, JTA Australia

Presentations:-

Gladstone LNG: Dennis Reid, Santos

Gladstone LNG EIS overview: Jim Barker, URS

Questions and Issues Raised

- Questions raised by attendees
- Answers provided by Dennis Reid (Santos), Steve Schoemaker (Santos) and Jim Barker (URS consultants, responsible for the Environmental Impact Statement studies)

Following are the questions and answers from the GLNG information session held in Gladstone.

Does the Gladstone State Development Area (GSDA) expedite the process of the Environmental Impact Statement (EIS) in any way, as you're not going through local government?

The EIS process is administered and coordinated through the Coordinator-General's office (Queensland Government) for legislative reasons. It has nothing to do with other processes currently around the GSDA.

Do you have sufficient land for buffer zones within the Santos 80ha on Curtis Island?

The size of the property and the distance between the LNG plant and the Santos property boundary will ensure any site operational issues are managed within the Santos site.

In order to construct the pipeline would you need to acquire more land and if so from whom would you purchase it?

Santos will create a pipeline corridor to the LNG plant; and any land requirements and approvals will be negotiated with the State Government within the conditions of the Gladstone State Development Area (GSDA).

Would you erect a bridge or pipeline under the Narrows?

It is intended that a bridge is built from the mainland across to Curtis Island to provide for vehicle access. The gas pipeline would either be placed on the sea bed or under the sea bed, but this is yet to be determined.

Would a bridge interfere with the tidal flows?

Expert advice will of course be taken to ensure there are no unintended effects.

Were you aware that Kangaroo Island was selected as a potential future airport site?

Yes but this has been ruled out due to the high risk of bird strikes. It is also noted that the location of airports is not a Santos matter.

If the GSDA stalled would your project also stall?

No, the continuation of our project is not dependent on the GSDA.

***What existing environmental and cultural values studies are you looking at?
What other government reports are you looking at?***

We will be looking at all the studies/reports that we are aware of. The study teams are seeking to access all available reports pertinent to the project area for the EIS, including government databases and reports, and land use planning studies.

Have you considered the narrows as an important path for migratory birds, especially in the evening?

Yes, migratory bird studies are included in the EIS process.

What sort of impact will the escape of methane have on air quality?

None or negligible

The EIS can be a huge document containing a number of volumes. Have you thought about this?

Santos and the EIS consultants (URS) understand that EIS reports are usually very long. This is because of the detail that needs to be provided to meet the EIS terms of reference and demonstrate to government and the community that thorough research has been conducted. To assist readers there will be an executive summary and indexation.

At the point of extraction of the gas, are there any atmospheric emissions?

Yes, small quantities of methane are initially vented. However, there is not enough methane to ignite.

If there was severe escape of gas, what would be the risks?

Hazard and risk reports are part of the EIS, and studies will be carried out on this. The community will be able to see the outcomes of this research. After the government reviews and assesses the EIS, the community will be able to see what development conditions are placed on Santos to reduce the likelihood of these events and other safety measures. Santos is very, very committed to the safety of residents and workers.

Is the gas noxious?

No, the gas is primarily methane which is not noxious. Most concerns are that it is a climate change gas. The facility will also emit nitrogen oxides, which in sufficient quantities can contribute to smog when it combines with other gases and pollution.

Is Santos paying for the Bridge?

At this stage that has not been decided. Santos is paying a portion of the design cost via the state government and is seeking clarification about the construction costs. Once this information has been made available to Santos the Gladstone and Curtis Island communities will be advised.

Are the bridge studies part of this EIS, are they being done in isolation?

Yes, the impact of the proposed bridge is included in this EIS.

Will the results from any EIS studies on the bridge be fed back into the Co-Ordinator-General's bridge working group?

Yes, information gathered from the EIS will be sent to the working group. This group is made up of Queensland Government representatives, Santos and other companies with a potential interest in the bridge

There was mention of other industry on Curtis Island, do you know what else is being considered?

At this stage there are no other firm proposals for developments on Curtis Island but there have been reports of other interested parties.

Are you aware that Graham Creek is used for shelter by ships during storms and cyclonic weather? Will the bridge deny access to these vessels and will Santos consult the Port Authority and regional council to gain local knowledge?

Yes, Santos is aware that ships use it. However, the bridge will not impact on access to Graham Creek and Santos is working closely with all the authorities. Different bridge design options are being considered, either an elevated bridge or an opening bridge. Access will be available to the creek. Santos has consulted with these groups and will continue to do so.

In the Initial Advice Statement (IAS) Santos states it is looking at a pipeline running above the ground to the Island?

The Santos GLNG IAS (2007) included a number of options. However, an above ground option is neither favoured nor likely. We will bring the gas to Gladstone via a 425km underground pipeline. From here, Santos is considering two options re the piping of the gas from the mainland to Curtis Island: laying the pipeline on the sea bed or burying it under the sea bed. The EIS will advise on the best option after consideration of matters such as environmental management, safety, and cost.

Have you been in negotiations with the government about funding the bridge?

Santos has not formally entered into negotiations about the potential funding of the bridge. At this stage Santos has agreed to share the cost of the design study.

The bridge will cross the sailing boat channel, will mast heights be considered?

Santos and the government recognise that the thoroughfare of water craft through the narrows is very important. This includes yachts. The bridge design will take this into account and to assist this process a marine traffic survey will be undertaken so that we understand what bridge height or opening facilities are necessary. Santos wants to minimise the impact on people who travel around and/or through the narrows.

If there are a number of gas plants, plus shipping from Wiggins Island, how will the shipping congestion be controlled? There is only one channel.

Santos recognises that shipping congestion in the Gladstone Harbour is a concern. A marine traffic study is part of the EIS and the Port Authority will also need to consider the

impacts. With regard to the size of the LNG ships, they don't have deep draughts (about 12m) so the vessels should be able to sail on all tides.

Is Santos fully Australian-owned or are the profits going overseas?

Yes, Santos is fully Australian owned but Santos has recently formed a joint venture with Petronas (a Malaysian company). However, Santos retains a majority interest in the project.

Is Petronas owned 100% by the Malaysian Government?

The Malaysian Government has an interest in Petronas but I don't know the percentage of ownership. *(The official Petronas website states it is wholly-owned by the Malaysian Government.)*

Western Australia recently had a major incident with Apache Energy on Varanus Island off WA; Apache probably initially said nothing could go wrong. It was obviously poor maintenance practices and I know Santos has an interest in Apache so how can we be assured that Santos will have audits and proper processes in place? What contingency plans have been considered in case of a major disaster?

The WA authorities don't yet know the cause of this incident but Santos is interested in the analysis and findings. With all industry, risk assessment and risk mitigation is undertaken. Further risk management measures are likely to be applied to the Apache Energy plant. For the Santos GLNG plant there would be very stringent safety measures that take account of risk, and the likelihood and consequence of potential incidents. Santos is very committed to the safety of residents and workers. Emergency response plans will be put in place.

Will there be a coordinated approach to emergency responses. Will the resources of the Gladstone Port Authority be utilised?

Yes. Santos has its own emergency response teams but arrangements are always in place to work with local emergency teams as well.

If there is public money going into the construction of a bridge, why is there no public access?

The payment for the construction of the bridge has not been decided. However, as the bridge will provide access to an industrial site, the government has determined at this point that there should not be public access.

I was surprised to hear that no locals would be hired to work at the liquefaction plant; shouldn't they be trained for positions?

With a specialist facility like this it is expected that the initial workforce will be experienced LNG operators. These people may not exist in Gladstone. Beyond the start-up phase, Santos wants to recruit and develop a local workforce to ensure Gladstone benefits from this investment. There will be full training provided when the plant becomes operational.

Why have you chosen Gladstone, why not Port Alma?

Port Alma was also considered and was the second choice. The channel at Port Alma was too shallow and would have involved extensive dredging. The land on which an LNG plant stands must be solid ground to support the weight of the tanks. The available land at Port Alma would require extensive piling to make the ground stable. Curtis Island is more economically viable than Port Alma.

What will Santos be contributing to Gladstone?

Part of the EIS process is to look at all the social impacts and opportunities. This part of the study is called a social impact assessment. Santos wants to be a true part of the Gladstone community and will look to contribute to community wellbeing. The plant will provide employment of course, but we will be looking at ways to support and invest in the community.

What are the gas emissions from the plant and what happens to the pollutants?

The emissions from the plant will include both carbon dioxide and nitrous oxide, both of which are generated from the combustion of natural gas.

How do we input into decisions about the Gladstone State Development Area (GSDA)?

The GSDA is a matter for the Queensland Government and Santos cannot make any submissions on behalf of the community or individuals. You will need to contact the Department of Infrastructure and Planning to notify it of your intention to make a submission. The relevant contact is russell.davie@dip.qld.gov.au.)

**SANTOS Gladstone Liquefied Natural Gas (GLNG) Project
Curtis Island Community Information Session
Saturday 21 June 08, 12.00-2.00 pm**

Facilitator: Jan Taylor, JTA Australia

Presentations:-

Gladstone LNG: Dennis Reid, Santos

Gladstone LNG EIS overview: Jim Barker, URS Australia

Questions and Issues Raised

- Questions raised by attendees
- Answers provided by Dennis Reid (Santos), Steve Schoemaker (Santos) and Jim Barker (URS; environmental consultants responsible for conducting the Environmental Impact Statement Study)

Following are the questions and answers from the GLNG information session held at Curtis Island

Why did you consider/favour Curtis Island?

It was the Port Corporation's suggestion to move to Curtis Island because it has freehold land there, and also because of the availability of deepwater and land. We looked at sites up and down the coast. Port Alma was also considered and was the second choice. The channel at Port Alma was too shallow and would involve extensive dredging. The land on which an LNG plant stands must be solid ground to support the weight of the tanks. The available land at Port Alma would require extensive piling to make the ground stable. Curtis Island is more economically viable than Port Alma. The availability of skilled labour is another reason for our choice of Gladstone as a site. About 40% of the construction workforce for the Darwin LNG plant came from Gladstone.

Are we going to have an industrial area next to South End? Do you know what government is doing and why isn't it talking to us?

We have not been told what is planned either, and have learned about the 'Environmental Zone' from the Gladstone Observer today (21 June). We can advise about Department of Infrastructure and Planning consultation when and if we know about it. Santos has nothing to do with the design of the GSDA or any decisions to do with it.

Because your project is important to the state, Santos will possibly have the 'ear of government'. Will you be able to find out more information on the Gladstone State Development Area (GSDA)?

We will continue to seek more clarity, and can make an undertaking to find out more information and let you know the results but we know as much as you do at this stage. We have relayed to the state government that this community wants more information and more say in relevant decisions.

With respect to the Environmental Impact Studies, are you aware of the fact that there are endangered species on the northern end of Curtis Island?

Yes, we are aware of that. The environmental studies will assess the impact on rare and endangered flora and fauna.

While a long way away from the plant, what happens if a flare goes up and there are strong south-easterly winds? How far can it travel and can it ignite forestry/land?

A stack from this type of gas liquefaction plant is normally 100 metres high. No foliage could ignite because of the height. Under the influence of very strong winds it is possible that the flame would move horizontally; however this would not present any fire risk. There is an option to place a flare on the ground which would have a large number of vents. Any flare would have a large safety zone around it. This is part of the current design work.

Is heat radiation a problem from the flare stack?

Heat is emitted from the flare stack. Under the flare stack there is a 'sterile exclusion zone'. This is to maintain the safety of people, animals and materials.

Will we inhale toxic fumes, especially when there are strong winds?

No.

Do you know where British Gas is being placed?

It will probably go near the Santos GLNG plant, but Santos has limited information about the intentions of this company. At this stage, Santos is the only company on Curtis Island to publicly declare its intentions, and is the only company which has lodged an Initial Advice Statement, has draft Terms of Reference, and has started consultation on an EIS).

Will all LNG plants be in the same area?

It is our understanding that if other companies proceed the smaller ones will be located at Fisherman's Landing; the Santos plant, and perhaps the British Gas plant, will be in the Queensland Government-recommended precinct. The port has freehold land to the south, so it is likely there will be industrial development at some time in the future.

Within your area of land, are you including a buffer zone around your plant and how big will it be?

What we have is not really a buffer zone. Our property will be fenced in. Risk analysis will be carried out to determine the most likely hazards and risks (i.e. we are modeling what would happen if there was a fire in the plant) and there will be a safety zone within the fenced property. The size of the property and the distance between the LNG plant and the Santos property boundary will ensure any site operational issues are managed within the Santos site.

Who will own the bridge?

We don't know the answer to that as yet. Santos is one of four parties sharing the bridge design costs, and is part of a working group with the Queensland Government and other commercial interests. Formal negotiations have not yet commenced on who will own it.

We wouldn't like to see the bridge open to the public

The state government's current position is consistent with this. However, we received a good suggestion yesterday (20 June) that the bridge should be available to the public for emergency access, eg in a cyclone, and we will be passing this idea to the working group. We will take note of your comments and feed that information back to the working group.

Is the 2% of the CO₂ within the coal seam gas vented into the atmosphere?

Yes.

What is the tonnage of CO₂ in the coal seam gas fed to the plant that is expelled per year?

Approximately 8000 tonnes will be the emissions for the first 3 million tonne facility; this is very minor in the context of full emissions from Queensland.

CO₂ is a global warming gas isn't it? Isn't that a lot getting back into the atmosphere?

Yes it is a global warming gas and we expect that our CO₂ emissions will increase the Australian CO₂ emissions by about 1-2% and the Queensland emissions by about 3%. This is a global issue, not a South End issue. And as stated, the use of LNG is far friendlier than the use of other hydrocarbon-based energies.

We're worried about the local area, so what will the impact of the CO₂ be on us?

There should be no direct impacts on the local area.

Are you qualified to say that? Are you an expert?

No I am not. However, CO₂ can have an impact on global climate change, which may have an impact on global temperatures or sea levels, which in turn may have an indirect impact on the local area. To the best of my knowledge, the correlation of our emissions to the indirect impacts on the local area cannot definitely be made by science.

The LNG ships are fairly big. Do you know how many ships there will be per month/per annum? And what about at the time of the plant's maximum operations?

The ships are the same size as a normal coal ship. The difference is the depth of water they require (much less for LNG carriers). During stage one there will probably be one every 1½ weeks. At full project development, there will be one every 2-3 days.

Are residents on other islands aware of this project?

We are currently going through the process of informing all relevant stakeholders. Please spread the word, as we would like to involve as many people as possible. All of the ways to contact the project team are on the business cards and print material within your information packs.

When you were referring to CO₂ emissions you were referring to the plant. What about from the gas fields

The bulk of CO₂ emissions come from the combustion of the coal seam gas, not from the gas wells in the field.

We are concerned about the noise released. What will we hear from this area (South End)?

The noise will be 85dB at the fence boundary. To put this in context, normal conversations are about 40dB, noisy conversations about 50db. Noise monitors are being placed here to determine the baseline or current levels of existing noise, as part of the EIS noise monitoring

study. We will study the effect of the prevailing breezes and their ability to carry sound across to South End.

Will you be driving piles down as foundations (for the bridge)?

We are looking for appropriate bedrock so that in the construction of the bridge piles will not have to be driven deeply.

You are a fair way off the main channel, will you be dredging, and where is the spoil going? Is it going onto reclaimed land? Will it be pumped out somewhere or dumped into the ocean?

Yes, there will be some dredging to allow the ships to access the marine facilities adjacent to the LNG plant. The Port has an ocean disposal dumping area, but this is almost full. Marine disposal is our least preferred option. Ideally, we would like to use the spoil for a useful purpose on the land. We are aware of concerns about the use of spoil and silting. No decision has been made at this time.

There is a rumour in Gladstone that you will never say that your plant will ever have an accident, because if it does, it would be like another Hiroshima. What are the risks of a serious incident?

You can never say 'never'. A gas plant is a hazardous facility but the relative risks are low, and the consequences of an explosion should be confined to the property boundary. On the internet there is information on the excellent safety records of similar plants operating around the world. Cities like Boston and Tokyo have these ships in the harbours safely transporting LNG. The gas is not under pressure and will not ignite like a bomb as suggested.

Gas is a liquid. If it escapes, it heats up and becomes a vapour cloud. Can this be ignited by the flare or by a spark? Is it correct that this can travel 20km as a fireball, or that the fireball could fall back to the plant?

Liquid natural gas can turn into a vapour cloud. An incident is most likely to happen at the point of loading the ship. If this takes place, the gas will cause a fog. This fog will only be temporary. At -107degrees the fog will have warmed up and lifted into the reaches of the atmosphere. We are currently modelling this in association with the Department of Emergency Services. It is likely that there will be a couple of hundred metre safety zone around a loading ship to ensure there are no sparks. Yes, it is possible to ignite a vapour cloud but only a percentage of methane burns, and it will burn back to the source. However, to our knowledge this has never happened.

Will the design of the plant take lighting into consideration? Will the plant glow?

Part of the EIS study includes visual amenity. The plant will have a certain level of lighting at night, such as other industrial facilities in Gladstone. If the flare is utilised at night for emergency purposes, it will light up the night.

What sort of monitoring systems will you have in place for the LNG plant?

Comprehensive gas and fire monitoring systems are in place in these types of plants.

Are monitoring systems in the plant or just the service equipment?

There are many types of monitors related to production and safety. There are monitors near possible sources of a gas leak.

Is gas compressed or liquefied?

The gas is liquefied through cooling and is under no pressure.

Will you be levelling the entire site when constructing the facility? What extent of levelling will be carried out?

The “footprint” of the plant will have to be cleared. Cut and fill will be carried out, which is likely to include some blasting and site leveling. We don’t know the extent of the earthworks at this time.

There is potential for soil run-off into the ocean; how will you manage this?

Our EIS team is considering this. Some staff were on the island during the recent rain. As part of the EIS process, detailed soil and terrain analyses (including assessing the dispersability of the soil and other soil characteristics) are being conducted. We are also looking at the quality of stormwater runoff (including sediment load), and how best to manage this. There will be plans in place (including appropriate engineering design) before there is any work done on site.

Are you building the bridge before you commence earthworks? How will you access the facility, will it be through South End?

We will get the primary earthmoving equipment to the site through port property via barging operations, and we will be building our own construction jetty. South End will not be a thoroughfare.

Will the construction workforce have access to the rest of the island?

No. During work time they will be confined to Santos’ property.

Who does the principal planning and designing of the LNG plant?

We are currently running a dual design competition with two competitors who are specialists in liquefaction technologies. The contracting strategy for the detailed design hasn’t been determined as yet as we are in the concept phase right now.

How many people will be employed during construction, and will there be a road to South End?

There will be no road established between the site and South End. All workers will access the plant from the mainland side. There will be a maximum of 3000 people at the project’s peak, for approximately four months. During operation, 60 people will be required to run and maintain the plant. If the plant construction is modularized, the construction workforce will be fewer.

Will there be a camp on the island for construction workers?

We are currently evaluating whether we need a small camp versus daily travelling. We are looking at all options. Nothing has been decided.

We are concerned about our community. What is going to stop people sneaking up to South End at night and having a few drinks?

We are looking at ways of helping the community and the opportunities we have to improve the wellbeing and amenity of the South End community, and would welcome ideas. Santos doesn't believe that more people will access South End because of this proposal. The site will be fenced and there will be limited access to vehicles on the island.

Will the bridge really be restricted access or is that just to appease us for the time being?

No, the fact that the bridge has no public access comes from the state government.

Has that statement been made public?

No, the government has told the bridge working party, and it is one of the bases of the design.

How often does the flare stack get used?

Perhaps between one and ten times a year.

How hot does it get under the stack?

Very hot.

What noise does the flare generate when it goes off?

It's an ultrasonic flare which is difficult to quantify. It is blast off air. The noise is similar to a jet engine but not high pitched, it's more like a release valve.

Will we hear the flare from South End?

Probably not, but we are looking to assess this.

Is the ground flare noisier?

Yes, it's a lot noisier.

Winds can change and they are not always prevailing. Is your modelling considering the impacts of north easterlies for three months of the year for example? Has the effect of this change been taken into consideration with regard to the flare?

Yes, all of these are being considered in the EIS studies.

Do you take into consideration not just the emissions from your plant, but the cumulative impacts of CO₂ and other emissions from other industries in the area?

There are some commercial confidentiality issues around our ability to access cumulative data from other commercial sources, and there is a strong role for the state government in this process. However where we can use existing information, yes, we are considering cumulative emissions in our studies.

With respect to the Darwin LNG plant, how far are the closest communities?

They are fairly close, but we will check exactly for you.
According to map references, the LNG facility at Wickham Point is approximately 15 kilometres by road and a little over 5 kilometres directly to the Darwin CBD.

What is Santos going to do for the communities of Curtis Island and Gladstone?

We are currently trying to identify the positives and negatives of this plant from the community's perspective, and will develop some sustainability criteria around community wellbeing and health. As part of this process, we are keen to hear your ideas on how Santos can positively contribute, and we are looking at ways to improve the communities' wellbeing. Santos will be here for 25 years if this goes ahead, so we really want to be as much a part of the community as you are.

Gladstone is an industrial city, everyone knows that. Many are happy you are coming, and are happy our property values will increase. We may need to discuss how/if we can speak to you with one voice.

If that is what the community wants, we would welcome it.

Dennis Reid, Santos
Graeme McIlwain, Cardno

Questions and answers following the presentations from Dennis and Graeme

Why didn't Santos choose to locate at Port Alma?

Santos considered Port Alma. The GLNG project requires that there is enough suitable land for a liquefaction plant and that the plant is located very close to navigable and protected water for the LNG ships. Santos examined potential sites along the Queensland coast to meet these needs. Six other sites were explored and considered. Curtis Island was identified as being most suitable, especially as it has deep water protected from the weather.

Port Alma was considered but proved not to be economically viable. The land would have required extensive work and stabilisation to make suitable foundations for the LNG tanks. A lot of piling would be needed to stabilise the ground, especially for the LNG tanks. In addition the channel is too narrow for LNG ships and extensive dredging would have been required. Santos was also offered a site on Wiggins Island but there was not enough available land.

If the port was to be dredged and made more accessible, would this remove Santos' objection to Port Alma? (This action is planned)

We don't know enough about the plans at the port. When we looked at this 18 months ago there were no plans explained to us. The information you have provided is new to me.

Port Alma would also have the benefit of drawing workers from Gladstone and Rockhampton?

Yes, I can see that this would be a benefit.

Will there only be one bridge or will each industry and company have their own crossing?

An important aspect of the development area is that there will be "common user infrastructure"; that is, the roads and bridge that might service the island will be used by companies other than Santos. Decisions about the bridge will be made by the state government. At this stage, Santos only knows about the proposal for a common bridge, and so there is very little likelihood or need for other crossings.

This bridge will have a lot of traffic then. It will be a busy road. It will be less likely to be open (if it is an opening structure) and there will be too much demand to keep it closed.

That depends on the level of development. Just how busy a bridge will be that hasn't been built to a development area that hasn't been defined is not possible to say at this time. Today we want to talk about the bridge clearance to see what is needed to get marine traffic through. It may not be an opening bridge. Also, we need to confirm that it is the government's position that this will not be a public bridge: it will be for industry purposes only. This may influence your assessment that it will be a busy bridge.

What about a rail bridge? This has been proposed before.

Santos understands that some companies have proposed this in the past; we have no hard information on this. Rail to Laird point has been ruled in and out a few times from our understanding. At this time, we understand that it has been ruled out. Obviously, if Santos seriously thought that there was going to be a rail bridge, we wouldn't be here today talking about bridge clearance. As you would know, rail operates on a maximum 1° gradient variance. If this was seriously being considered then it would be a flat bridge.

Will the bridge be built to service the LNG plant during construction?

No. The bridge will probably be built in 2011, and we hope that the Santos plant will be completed in 2014. We would expect that the majority of material will be sent by barge to the Santos site. We expect that a jetty will be built to service the construction phase. The construction staff may also need to be ferried to the site.

Why do you need a bridge then? Oil rigs use fly-in and fly-out staff by helicopter and obviously they don't have the use of a bridge. There are numerous examples of remote access methods, especially in Australia. In terms of access to the Santos site, has the use of barges being thoroughly considered? Bridges are very expensive to build, and there are a number of good barge services from Gladstone. It would also provide good business opportunities for these or other companies. Surely the use of barges and water craft to service the construction and operational needs of your plant would be far cheaper than building a bridge. Think too of the business that you would generate and contribution to the local economy. Has this been considered?

It may be cheaper. I don't know. It is not a Santos bridge though, because as you have heard other development is being proposed. It is more than cost however. There are other practicalities to do with safety. If there is an emergency such as a fire or cyclone, we would need to get workers off the island quickly. But there will be cost-benefit analysis on the need for the bridge and other alternatives.

If you are going to use barges initially, will there be a tender process?

Yes, and we very much want to support local businesses. Within a couple of months we are going to hold a pre-registration exercise in Gladstone. We will outline our service needs and we want local businesses to register with us. There are significant work and contracting opportunities. All attendees will be sent information about this if they have registered to receive more information at the session.

Do you know what services you need to build the LNG plant?

Santos will not build the plant. We will contract a company to build the plant, and when it is complete "take the keys." There is currently a dual-design competition between the two LNG plant companies: Foster-Wheeler and Bechtel.

What dredging is going to be necessary?

The water around the Santos site is deep, but there will need to be dredging to maintain a shipping channel and to allow the LNG ships to turn around. This is being investigated at the moment. Dredging depth will likely be to about 14m. The LNG ships require 12m of water and the Harbour Master requires 2m of underkeel clearance.

What sort of exclusion zone will exist around the LNG plant and jetty? There is a 1000m exclusion zone at Woodside in WA and 500m zone at Darwin.

During loading of the LNG ship there would be an exclusion zone of between 200-250 metres. This was determined through a preliminary safety assessment.

What number of employees will be required at the plant?

There will be about 60 employees per day at the plant. In terms of the earlier question about traffic, it is our intention that a bus may run for every shift at the plant. This is not so much about traffic as the fact that a large number of incidents within Santos are associated with vehicle traffic. This is a health and safety issue for us, and this would be a protection measure for our staff.

During your marine studies are you going to establish “no-go areas?”

Santos wants to have minimal impact on people, their business and the environment. There will be some restrictions around the LNG loading facility, just like the coal loading facility. But if there are no ships, we would hope there will be minimal exclusion areas.

My observations are that the area you are describing is very hilly, and that you will need to flatten these hills to establish your plant. Will the material be used for reclamation?

The site we have selected will need minimal work as it is relatively flat, but there will be some ground levelling. It is in our best interest to minimise the amount of ground levelling works on the site, purely because of cost. The material will likely be used onsite. This will have to go somewhere. It is Santos' preference that the material goes onto land.

Why didn't you locate at Fisherman's Landing? It seems to me that there is a lot of land there. We have been told by government for years that land has been set aside for industry around there and the GSDA, and yet now we are seeing industry proposed for Curtis Island.

Yes there is land within the GSDA but there is a mining lease over much of the land. We have asked those that hold these leases whether we could have our pipeline through this area, and this has been rejected, so we have been forced to look elsewhere. This restricts access to the water, where our LNG ship would need to berth. On the suggestion to locate at Fisherman's Landing there is insufficient land for Santos as there are other plants planned for there, and there would need to be further reclamation. This reclamation would cover high-density seagrasses and on environmental grounds this is unacceptable to us.

But this will probably go ahead. So if the land is going to be reclaimed and the seagrasses covered, why not use this site? It would be better and cheaper than building a bridge and removing trees etc on Curtis Island.

We looked at this as stated previously, but we were not prepared to use this land because of the reduction of seagrasses. As fishermen you understand the importance of these resources. We couldn't secure the amount of land we needed on the existing Fisherman's Landing.

What about Kangaroo Island?

When we looked at this site it was being seriously considered as a new airport site. Also, this site was on the current flight path to the existing airport. We have obtained this information from CASA. This is a restriction for us. The height of the flare stack, the flare and the thermal effect from the flare would potentially interfere with air traffic. Again, this makes this site unsuitable.

If the development involves the removal of mangroves, this will impact on fisheries. We would expect compensation.

During the environmental impact statement (EIS) we will be identifying impacts and trying to mitigate against them. We will be looking at all environmental impacts. As for compensation I can't comment or commit to this today.

How much will the approach road be a combination of causeway and bridge?

We are looking at these needs. We are studying and modelling tidal flows and water velocities. We don't know yet.

Will the bridge uprights be placed square to the tidal flow?

We understand that this should generally be so. However the bridge will be designed for navigational benefits.

What is the extent of intended development on Curtis Island?

The government has proposed to extend the development area, and another company, BG proposes to locate a LNG plant on Curtis Island as well. But Santos doesn't know what the extent of development will be.

What is the balance of opinion on whether the public should be able to use the bridge?

From our perspective it seems to be 50-50.

Will the bridge be open to public use at all?

We have received the suggestion that for emergencies such as cyclones that South End residents might get access via the bridge and also to allow people that have moored in Graham's Creek to get back. These are sensible suggestions that we have passed on to the bridge working group.

If there is extensive dredging, this will influence tidal flows?

Yes I assume that is the case. Santos is seeking to find out what this change might be. I understand that if the channel is deeper and wider that this will change water flow. We need to understand these impacts, and are currently seeking to do so. We are currently participating in some modelling specific to this issue. When the model has been tested – and we will test the model against actual behaviour - several scenarios will be run. We will then be in a position to predict the impacts.

How can you model the tidal flow, when the causeway hasn't been built?

The model will have capacity to simulate the existence of channels, and we will run these scenarios.

How many jetties will there be on the inland side of Curtis Island?

Santos will have two LNG jetties and one construction jetty. If there is other development by other parties there may be other jetties.

The passage through the narrows and use of Graham's Creek as cyclone anchorages must be considered. In the design of the bridge it must be understood that during cyclone events the tides reach very high levels due to the drop in atmospheric temperature.

Yes, this is known.

You need to consider the impact of tidal surge on top of high tide and account for global warming.

This would be factored in. It may be that with a high tide of 4m, plus a storm-surge of 2m, this means a consideration of up to 6m. I don't know that global warming will impact on this to a significant extent; there are timeframes of 100-200 years for a rise of 0.1 – 0.2 m (from memory) but I don't know all of the science.

Will the pipeline cross the passage close to the bridge alignment?

At this time, yes.

Will the pipe be on the bottom or underground?

We are considering all options, including laying the pipe on the bottom, trenching it in, and horizontal drilling. Our base case will be that the pipeline is on the bottom. We would be reaching the limit of the technology to horizontally drill under the seabed.

I assume then that we won't be allowed near this pipeline. When you add it up you are taking a fair slice of water away from us, when the jetty, pipeline clearance and the bridge are added up.

I am unclear whether or not fishing is allowed over the pipeline. Access around the pipeline and bridge may be the decision of the harbour master. Yes there will be some impacts.

Some have suggested that there will be an exclusion zone of 900m to a kilometre.

I can't see that this will be the case. It is more likely to be 250m, and only when a LNG ship is in. At this stage, we estimate that at the start we would have a ship every 1 ½ weeks, for 12 hours. Moving ship safety zones are not known at this time but are expected to follow normal vessel separation schemes. The earlier reference to 1000 metres for the Woodside plant is specific to LPG where the gas is under pressure. LNG is not. Also, in Darwin they elected to have a 500 metre safety zone because they had space. In fact they only need approximately 248 metres).

But at the public meeting, it was stated that there would be 360 LNG movements a year. To me that sounds like one every day.

That is only if all five LNG projects get up.

You have said there are other parties involved in the bridge, but it is really your LNG proposal that is introducing the idea of a bridge to Curtis Island. Without your proposal, there wouldn't be discussion about a bridge at this time. Especially as you have said that there will not be public access.

Possibly that is the case. I can see your point of view.

What is the timing for the construction of the bridge?

At the moment we are in "concept phase." If it is approved, construction will probably start in 2010 and be finished in mid-2011. In terms of the concept, an opening bridge is probably the last resort, as the administration and maintenance will present on-going costs and issues.

If this is not going to be a Santos bridge, how much sway will you have on the eventual bridge design?

That is hard to say, but we have got some very good information today, and Graeme's study will be very informative. The information gathered today and the study findings will be sent to the bridge working group.

So that means that the bridge won't be finished for Santos to use for the start of construction?

As it stands, yes that is the case.

Other statements from the meeting

I don't want any reduction in access. The vessels that currently access the narrows should be permitted to do so. If industry can be looked after, so should we. The bridge should not make what is currently navigable, unnavigable, or even restrict navigation. We do not want our current rights compromised. It would not be fair for new arrangements to suit some of the boats some of the time.

In terms of the bridge height, you need to understand that the barges carry construction equipment. There have been cranes of up to 30m taken through the narrows.

Some large equipment and plant has to be taken out of the marina and moored in Graham's Creek during cyclone threats. I know of a 150 tonne crane that would stand at about 30m. This needs to be factored in.

We think that width is an important issue as well. Some of the barges for example have widths of 18metres. We wouldn't want it too tight; I'd say that 30 metres in width would be needed as well. Vessels may have a difficult time navigating out of Graham's creek into the strong currents of the narrows. The navigational width needs to consider this.

Some of the high frequency aerials are at 17m and they sit above the deck; so that is a high clearance need as well.

You need to understand that there is downwards movement through the narrows as well. All the traffic does not originate from Gladstone.

The average trawler height and clearance considerations would be between 15-20m.

I hope that the bridge design will consider future needs. What about in 50 years' time? So much has changed in the last 50 years that wouldn't have been imagined. If the

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Key comments, and questions and answers

bridge is put in, it will be forever. We should look at future shipping needs. What might future mast heights be? The Gateway Bridge in Brisbane was thought to be high enough when it was built; now that is not the case and some international cruise ships have to dock close to the river mouth.

You will have to consider maintenance issues with an opening structure. There are some problems from time to time with the opening bridge in Auckland Creek.

When areas are dredged, mangroves are removed and estuaries are disturbed there is a flow on effect to fisheries and impacts on people who make their livelihoods from these environments such as through fishing. This is difficult to account for of course, but must be accounted for in some way.

A fixed bridge would be best; it can be hard to fit in with opening times when you are running late or held up.

**Santos Gladstone Liquefied Natural Gas (GLNG) Project
Arcadia Valley public meeting organised by AgForce
Thursday 21 August 2008, 10.00am to 3.30pm**

A meeting was held at the Arcadia Valley Community Hall on Thursday, 21 August. Arcadia Valley attendees, and Santos and JTA representatives, met at 10.00am for morning tea and the formal meeting started at 10.30am.

Malcolm Groat chaired the meeting and the following people were in attendance.

Malcolm Groat, Chairman
Arcadia Valley attendees (31+) plus
Cr Ross Rolfe from Springsure, Marie Thorne and Mary Crouch from AgForce
Dennis Reid, Santos, Environment, Health, and Safety Team Leader, Santos
Steve Schoemaker, Project Manager Pipelines, Santos
John Warby, Landowner Advisor, Santos
Jan Taylor, Principal, JTA Australia
John Melit, Senior Consultant, JTA Australia

The chair thanked everyone in attendance and welcomed Cr Ross Rolfe from the Central Highlands Regional Council.

The Chairman made it clear that he hoped for a win/win outcome from the meeting. He and his neighbours were concerned at the lack of consultation to date and hoped that many local concerns and issues could be addressed at this meeting.

Dennis Reid (DR) had prepared a presentation and hard copies were distributed to everyone present. In addition, photocopies of the Draft EIS Terms of Reference process were distributed.

Some questions were answered by Steve Schoemaker and/or Jon Warby but the bulk of them were handled by Dennis Reid. No distinction has been made as to which Santos person provided the response.

Following are the questions and answers from the GLNG information session held at Arcadia Valley. Comments from the audience are also included.

How can JTA call itself independent when it is paid by Santos (addressed to Jan Taylor of JTA Australia)

Yes, JTA is paid by Santos but as a firm it prides itself on its reputation for independence and integrity in community consultation and stakeholder management. While it might be paid by Santos that certainly doesn't mean that it can't keep Santos on the straight and narrow in terms of its relationship with the community. One of JTA's roles is to ensure that **every** community issue and concern is reflected in the consultation report that JTA writes for inclusion in the EIS. Additionally, JTA will do whatever it takes to make sure the community receives the information that it needs.

Concern was expressed that there was no reference to the Draft Terms of Reference at the Injune Community Information Session on 11 June which meant it was difficult for locals to make submissions.

At this point Dennis Reid asked if copies of the Draft Terms of Reference process (which were available as posters and fact sheets at the Injune session) could be photocopied. These were then distributed. Electronic copies are also available for those interested.

Over on the western side of the valley Bow Energy is drilling some exploration wells. Would Santos ever allow that company to put its gas into the Santos pipeline?

At this time it's a private pipeline although that may change. Technically it will be difficult to allow other suppliers to use the pipeline because the proposed GLNG plant has very precise requirements in terms of the composition of the gas it will use (e.g. Santos gas is 97% plus methane).

Some towns have also asked if they can get offtakes from the pipeline for their own local needs.

In short, it may be possible to accommodate other companies if the gas composition matches that of the Santos gas and if the government makes third party access to the pipeline easier.

Why is the price of gas going up?

I'm not an economist but if the cost of oil goes up then so does gas. However, it's interesting that Queensland currently has the lowest gas price not only in Australia but possibly in much of Asia.

Comment: I'm not interested in what it's worth but what a Santos presence like a compressor station will do to our land and quality of life.

What matters is what Santos will look at as part of the EIS and how important is it that the period for comment on the Draft Terms of Reference has expired?

Santos will study whatever needs to be studied. If this community has issues which are currently not the subject of an EIS investigation then there is still the scope for that to happen. You need to pass that information onto Santos so that the issue can be looked at. The EIS studies are not restricted to the Terms of Reference.

In fact although the EIS Terms of Reference are not yet available, Santos has already begun a number of studies and investigations. For example, the last Agforce meeting out here clearly showed that diminution of land value was an issue. As a result, Santos has now commissioned a study into that. If there's the potential for a significant economic impact on the community, Santos can undertake the work that is needed.

The website for the Department of Infrastructure Planning describes the GLNG EIS as being 'active' but you have said that it has not yet started.

Once the state government declares something 'a significant project' it immediately becomes an 'active' one for the purposes of that project.

In terms of the pipeline will there be consultation with every affected landowner.

Yes, for both the pipeline and the field development.

I'm concerned that the Draft Terms of Reference made only one mention of the cattle industry and industries in it.

All economic, social and environmental impacts are considered – and that applies to the pastoral industry as well.

Does that mean that AgForce can make a submission from the pastoral industry perspective.

Yes, and so can individual pastoralists.

Back to diminution in land values I accept that Dennis wants a good relationship with us but Santos is starting a long way behind the line. I estimate that Santos has already cost me a million dollars.

I understand that Santos is there to make a profit but devaluation was never mentioned. The yearly return on capital for primary industry is already miniscule; the only real potential gain for us is capital gain.

I can't comment as I am not familiar with your situation.

Comment: feedback is requested soon. It's not a good outcome if Santos benefits but some pastoralists are wiped out.

Santos identified this issue as a key one at the last meeting and it will be followed up.

You're not seriously suggesting that devaluation has not come up previously?

Yes, that is what I am saying.

Comment – devaluation and compensation are two separate things.

Re the pipeline and associated drilling, how can you drill if the EIS isn't finished?.

The drilling that is currently being done is conducted under an existing exploration permit called an Authority to Prospect (ATP). With these permits, we are obliged to do a certain amount of work in a prescribed timeframe, much the same as a grazing lease. An EIS is not required for these exploration permits. Following exploration and confirmation of a viable gas resource, a production permit would be required.

Comment: But you're on freehold lease here so it's a lot easier for Santos.

Does the pipeline touch on any freehold?

Yes it does. Numerous options have been looked at, and some have been discarded. The easy thing to do is to build the pipeline in a straight line but there are too many constraints. Most of you know David Wood; he now has two other people to make sure there's enough landowner consultation.

David has been asked to put on his landowner hat in ensuring that your views are considered. The only absolute is that the pipeline can't go through national parks.

Remember, this is just the beginning of the consultation process. There'll be an opportunity to express your views as to where the pipeline goes. Bill Stanford from National Parks has had a look and offered some advice. (e.g. like the amount of sediment going into the Dawson) . He helped Steve take two kilometres out of the pipeline length.

What advice would you give to a grazier who wants to buy more land but doesn't want it impacted by a pipeline?

I would say there are no guarantees at this time; once the pipeline route is identified then you will know.

Comment: but it's the uncertainty that makes us uncomfortable. At the earlier AgForce meeting, it was clear that graziers were not excited about the pipeline but they would work with Santos.

Once it's in, then it's relatively low impact...but the gas field is different.

I agree with that and understand that the surface facilities will be the issue for the next ten or twenty years.

Comment: you talk about returning the land to what it was after the pipeline goes through but that could take five years in this part of the country.

That's why Santos is obligated to provide compensation as part of that. Loss of income needs to be considered via individual discussions.

Comment : I know Devine has been engaged to look at the diminution of land value but they don't talk about improved pasture or brigalow land.

Let's say there's an overwhelming response to the EIS. Is it possible hypothetically for the project to be stopped then? What about those people who have already been impacted. This is one of the 'take home questions'. You're looking at impacts over two to five years; how will people be compensated for loss of income and depreciation of land if the project doesn't proceed?

Re compensation, that is paid at the point of the core well going in.

But that doesn't cover the depreciation of the land?

Current compensation doesn't include diminution of land value but that is now being studied.

Comment: it's important that individuals are looked after as part of this process.

Why can't the pipeline go through National Parks?

It would be a lot easier if we could but there are regulatory restrictions and it is likely that these restrictions will increase as that's the way the environmental pendulum is swinging.

What is the scope and timeline for the Devine study, and the agenda for going forward!!

Roma is a good example. It's switched from cattle to oil and gas. Devine is trying to look at historical data to see what the land value swings are as industries change. It's trying to narrow down all the other factors like drought and just base it on what oil and gas can do. The US experience is also being examined.

The deadline for the study is 15 November.

I don't want to overcomplicate matters but does Santos understand there are going to be impacts?

Yes but we are happy to accept your advice on how best to do the study.

Perhaps you could consider the notion of rent.

There is an annual rental already.

Comment: even though it's only a small area that's being used by Santos, it's impacting on the whole operation of the land.

If I have a second pipeline on my land, will there be two easements (I already have one pipeline running diagonally across my property)?

Before the pipeline deviates over the eastern end of the route the two pipelines will run in parallel (a total of approx 60m). The preference near Gladstone has been for the pipelines to be as close to each other as possible.

Comment: last time a pipeline was dug on my property four paddocks of cattle were cut off from water.

These types of issues will need to be sorted out beforehand, and they can all be raised with David Wood and his team.

Is now the time to raise these specific issues?

No, these are the things that need to be sorted out with David Wood and co. Talk to David rather than putting it in the EIS.

Comment from AgForce: it should also go into the EIS to ensure it isn't ignored.

Then put it into the EIS but also make sure it's raised with the land agents.

If the US experience is being looked at as part of the scope of the Devine study, is the difference being taken into account i.e. that in Australia landholders have no rights to what's under the ground?

Isn't the valley the easy option?

Yes, but that sounds terrible.

And it is! Perhaps the fact that a route through the valley will save Santos money should be considered in terms of compensation amounts.

Are there any other forms of compensation? We've heard that landowners with wind farms sited on their land are being paid \$10 000 per tower. Optus pays \$40 000 apparently for each telephone tower.

Comment: Santos pays \$350

We hear what you're saying – the level of compensation needs to be reviewed. Don't forget there's also an annual payment for a producing well. I think this is one of those issues where you need to let us walk away from here and come back to you.

Comment: we really want to have an open relationship with Santos. In the past it's been famous for what it doesn't tell people (e.g. the second pipeline along the route). Consideration should be given to two payments – one for purchase of land and one for disruption to business.

Comment: Santos should be more upfront in telling the valley landowners what might happen.

Once the gas wells begin to decline in production, will you put more wells in between the existing ones. We have to know.

It's impossible to answer that at this stage.

In terms of Devines, it's really important that we're totally comfortable with what Devine is doing or we'll have to go to the expense of employing someone else to do it as well. I've been given a five line explanation. Is there more?

Yes, the scope of the study was about three pages in length.

We need to know all the information: the lighting, noise etc. We don't know anything about those things which makes it very difficult.

What Devines has given us so far gives us no faith in the outcome.

I see a lot of value in your having more information. Perhaps one way to approach it is to have a working group which could provide input to the work scope.

Comment: it's important such a working group not be too narrow, we all have interests.

Don't forget that the Devine study is only about the value of the land, which may feed into the compensation issues.

Is a working group the way to go? Doesn't it disenfranchise those who aren't on it. And perhaps issues other than compensation should be considered by the working group.

We'll never get anywhere then because there'll be too many different issues. I am open to suggestions on how best to address the issue.

We're not happy that we've been asked to sign confidentiality agreements.

It's a protection for you against Santos going public with information about the compensation paid to you. There is nothing to stop you discussing it with an advisor, be it your friends and neighbours.

If I knew Santos was going to pay me a percentage each year for any loss then that would cover any devaluation (i.e. the disruption is balanced with an income and that will help me when it comes to selling the property). Any income stream is saleable.

I have seen local ads for property sales where an oil and gas income stream is included as part of the value.

I don't have any authority to talk compensation. However, I'm happy to take it away for consideration by others.

I'm aware that Santos has already bought some properties (from private landowners as well as the Queensland Government) but I've also heard that no one is happy about that. If Santos can come up with something acceptable re compensation this could prevent the need to purchase more land. What's Santos' impact likely to be on local infrastructure like roads? We're lucky if it's graded twice a year at the moment.

Comment: the road is about to be surfaced with bitumen. Santos' trucks could destroy that.

Santos checks local roads before any equipment comes in; if the road needs to be upgraded that will happen. And maintenance is ongoing. Road accidents are one of the biggest problems for Santos so we take road quality seriously.

I want new infrastructure provided. I understand that you want the working group restricted to land diminution issues but will Santos talk to us regularly about other matters?

I'm happy to come out here whenever required – to a monthly meeting if necessary.

We've been talking with landowners further south impacted by Santos. They have lots of issues around things like gate closures.

If it's not being done properly there how can we make sure that it does happen properly here in Arcadia?

There is a formal complaints process within Santos that will be followed up. I strongly recommend you make a complaint by letter or phone and it will get addressed.

Comment: AgForce is getting funding for a legal aid person to help it deal with mining companies etc.

Comment: from Cr Ross Rolf as he was leaving – I'd like to invite Dennis or his representative to a meeting of the Central Highlands Regional Council, perhaps in October/November.

I'll be happy to do that.

I've heard there will be about 190 wells.

That is correct. Santos is looking at drilling under the parks horizontally.

Comment: Malcolm read out a letter from David Hinchcliffe, the Santos Procurement Officer

Can you please address the water issue? I understand that the water that comes up is a byproduct of the oil and gas but are we allowed to use that water on our property?

Pages 14 and 15 of the document in front of you shows the process. We bring the water up first, and the gas afterwards. Supply of water to third parties can be a difficult process, but we can certainly do it. There may also be some regulatory obligations on behalf of the person receiving the water as well as Santos.

Are the bore water aquifers affected?

Not likely, but we are doing detailed modelling to see if there is an impact.

Will the water have any impact on bores?

Probably not on shallow ones.

Would it be possible to give the treated water to existing landowners?

The first preference is beneficial use of the water (as you have suggested). If water is found, then cattle can be watered with it. However, there are lots of regulatory hurdles; EPA has just introduced a 'beneficial use application'.

The alternative is an evaporation pond. Ironically, it's a lot easier to build a pond (and let the water evaporate) than allow it to be used productively. For the latter, both Santos and the individual landowner will have to meet specific regulatory requirements. It is currently taking Santos twelve months for its Fairview application to go through, and that's the first one.

There is no miraculous way of managing the water. Some areas have a lot of opportunities for beneficial use, others much less so.

Can an application be made before water is found?

No

I understand that you take salt out of the water but how is it removed?

There is an evaporation pond where the salt builds up over 25 years. Another method is to have a desalination plant.

What's the size of an evaporation pond?

They are usually 2 ha, and are lined.

The water is called 'regulated waste' and that is a part of the problem in providing it to landowners. Under the Petroleum Act it can be used for watering stock but that is all.

Do we have to pay for a beneficial use application...or for the water?

No, in relation to the application, and Santos certainly wouldn't charge for the water.

If a well is drilled and there is no gas but lots of water, can we take that over as a water well?

I'll need to take that question away. I know that Santos wouldn't be able to. One of the problems is that standards for gas and water wells are different which could make the conversion to a water well difficult or impossible.

Comment: if the oil and gas company, and the landowner, both want something to happen then it will.

Unfortunately my experience is that everything is becoming more difficult.

The biggest problem is actually managing the water. 140 wells here could produce ten million litres of water a day.

Comment: AgForce could probably help to get some of these laws changed.

Santos has embarked on a lobbying program in relation to this matter. It was part of a working group with the Dept of Infrastructure and Planning but that door now appears closed.

You have answered the water quality issue in that the water has to be cleaned to the nominated standard. However, some properties have become accredited as organic producers

None of the Santos work should have any impact on this. There are organic properties around Moomba and this has not been an issue for them.

If you walk away from well sites will there be any traces of contamination left?

No, drilling mud that we use is water-based and we typically bury it on site. Another component of the mud is Barite, which is not a contaminant.

Our cattle have been quality accredited (Cattlecare). To be able to certify to the quality in a stat dec we have to know what comes onto the property and how it is disposed off.

I don't think this will be an issue for you but you should definitely raise it as part of the EIS.

I'm also concerned about the likelihood of people coming onto the property without giving adequate notice. And fencing that is supposed to happen but doesn't (as occurred further south)?

There are Santos protocols for this and this information can be made available to individual landowners.

Comment: I'm not happy that we have been asked to sign waivers as it means we give up our rights.

Assuming the drill holes go down, will they have to go in under the western side of the national park?

We will have to horizontal drill below the national park as we are not allowed to enter the park.

I understand they want to put six core wells down in 2008 but I do not know where as the information keeps changing.

How will the gas get from one well to another?

There'll be a lot of small pipelines (under the ground).

I understand the site of the compressor stations is currently unknown. The pipelines will be buried...at what depth?

The government requires that they be 750cm under the ground. Santos will install the pipeline to a depth of 1200cm in agricultural areas.

A teacher and student from the school arrived at this time to thank Santos for the presents Jon Warby had given to the school. The children were delighted.

Malcolm referred to the email earlier forwarded to JTA where a question had been raised about noise. He had heard the noise emanating from a Fairview compressor station and was not impressed.

Santos will be modelling this to establish what the impact is on people.

Comment: reference was made to the 'screaming' sound that is emitted as the well is being drilled...that plus the lights ensured that guests at the homestead were unable to sleep for a couple of nights.

It only lasts for a couple of days but I agree that it's not good.

If that happens, then it's unacceptable.

I agree.

Comment: any uninvited noise is an affront.

I'll take that away and see if there is any possible mitigation.

Comment: we can cope if it's for a couple of days, but not if it's long term.

In my view most of these things can be engineered out but noise is difficult. Noise monitoring is being done to establish a baseline. To give some examples 25 decibels is the sound of a mosquito buzzing, 35 decibels is the normal background noise in the country, 40 is the sound emitted by a refrigerator, 60 decibels is a noisy conversation, 70 decibels is the traffic noise when standing on a busy street in Brisbane, and at 90 decibels for thirty minutes there will be a permanent loss of hearing.

Comment: Santos also needs to remember that the noise can echo off the mountains at night time. We all have concerns at the impact on our cattle.

Is it possible to have dams instead of turkey nests as they are less intrusive? (there were opposing views from the participants on this).

Tanks would likely require multiple truck loads to bring them on to the lease and to fill them repeatedly. A turkey nest can hold a lot of water and would not require as many trucks entering the property.

Are they all lined?

Most of them are, otherwise you'll start to lose water.

What's happening in terms of the Indigenous communities?

There does need to be cultural heritage clearance and local Indigenous people are usually utilised for that unless a field has already been ploughed or disturbed in some other way.

Can Indigenous access be refused?

I'll have to come back to you with an answer on that but I can say that if there needs to be Indigenous access then it will be supervised by Santos.

Santos communications have been inadequate to date. Can you tell me if Santos has systems in place to control parthenium weed?

Yes, Santos has very good systems in place. If an outbreak does occur then Santos will fix it. Additionally, the pipeline will be monitored regularly afterwards to ensure there are no problems. We do this all through the development phase, not just during exploration.

Can landowners ask to see the washdown certification or statutory declaration?

Yes.

The biggest risk to all of us is fire. There hasn't been one for 40 years but every year for about a week we pray it doesn't happen. Santos presence will increase the risk tenfold. Does Santos have fire trucks?

I understand there is one in Injune but Santos always puts bushfire management practices in place.

How many individual truck trips are required to get a well up and operating from inception?

I will have to check that out for you (the actual time involved from appraisal to production could be four to five years).

Tom and Jon both have wells on their properties and they were asked to provide their views on what this meant for them.

Jon said he was happy with the process and the outcome but said that the pipeline process was disruptive for twelve months. However, he had gained a 4,000 foot deep water well from the petroleum company.

Tom advised there had been a lot of traffic on the property which had resulted in too much dust once they went off road (Jon has now put some water trucks in there). He had been happy with the co-operation given by the Santos contractors in terms of some electrical problems he had experienced. However, four water wells have dried up since Santos went in there and although he can't prove that the drilling caused it the coincidence does seem strange.

He also now has 30 or 40 vehicles past his property each day and many of those are trucks...but he has become used to it now.

Tom has never lost any cattle to another paddock as Santos always put grids in. And apparently Santos will shortly put down some bitumen right outside his property.

He is concerned at potential access by Indigenous people

Why do Indigenous people get more attention than Europeans?

Work is also done on European cultural heritage issues.

In terms of the EIS and the fact that the Draft Terms of Reference made such limited reference to the pastoral industry how can graziers make sure that their issues (e.g. dust, traffic, flaming, lights, noise etc) are covered by the EIS?

Animal health is very difficult to assess. Our experience in other areas is that cattle tend to get used to the gas activities. Canada has done some animal health studies but it is difficult to know how to go about examining the impacts on cattle as the studies take a long time. It's a hard one but perhaps it is something that AgForce can assist Santos with.

Just because it's difficult, does that mean you don't do it?

No

I'm getting older. It will be four or five years before there are producing wells but in the meantime it's unlikely that I can sell my property.

I'll take that away. The scope of the Devine study needs to cover all these issues. At the moment it doesn't cover the early stages!!

Santos will be making a lot of revenue out of Injune. What's going to be done by Santos to benefit the community?

We're looking at the potential social and economic impacts. Santos has a sustainability process that looks at the wellbeing of a community. Santos has retained the Hornery Institute (a non-profit organisation) to look at the wellbeing of a community and how it can be enhanced.

We're going to be in this area for thirty years so we certainly want to do more than just chuck money at social problems.

What will happen to the information from this session. I noticed Jan has taken more than 30 pages of notes.

JTA will collate all the questions and answers and a copy will be forwarded to everyone here. And in addition JTA will send a cheque to the school P & C as the penalty for all the acronyms that were mentioned!!

I'd also like to invite you all to think about visiting the Scotia field to see one that is already in development. All of you could come, or perhaps you might like to nominate some representatives. If you advise me when you want to do it, I can organise it for you. It would be a useful exercise for all of you.

The meeting (including the questions put to the Santos representatives after the formal part) finished at 3.30pm.

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A summary follows of questions and answers from the afternoon (12.30-3.15pm) and evening (6.00pm to 9.00pm) public forums. The open discussions followed presentations from Dennis Reid, GLNG Team leader Environment, Health and Safety, Santos Ltd. Responses are from Dennis Reid, GLNG Team leader, Environment, Health and Safety, and Leisa Elder, Government Relations Adviser, Santos.

DAYTIME FORUM

Can you comment on the explosion at the WA facility in Western Australia where Santos has an interest? You have said that the risk of an explosion and fire is remote.

The risk of fire and explosion is remote for LNG plant operations and LNG shipping. Those are the facts. The fire on Varanus Island off North Western Australia was at a natural gas plant with a high pressure export pipeline; we don't have a high pressure export pipeline; that is the major difference. The causes of that fire are still being examined but I am sure that additional safeguards will follow when the investigations are completed. I also want to point out that the fire was contained to the facilities site.

How is the liquefied gas pumped to the LNG ship? Is it under pressure?

The liquid is pumped to the ship using a conventional pump. There is also a booster pump at the ship to maintain consistency of flow. It is not under pressure. The pumps and pipes are designed for cold temperatures.

How long do the ships take to load and then leave the port?

Based on comparable examples, the LNG ship would be loaded in 14 hours, meaning the entry and exit would usually be completed within 24 hours.

Given the extensive amount of dredging required, why doesn't Santos go to Port Alma?

Santos considered Port Alma. The amount of dredging was considerably higher than at Gladstone. Also, when investigated almost 2 years ago, there was no information available re the future development of that port by X Strata.

Santos examined a number of potential sites along the Queensland coast to meet its needs. Curtis Island was identified as being most suitable, especially as it had available land and deep water protected from the weather.

But given that X-Strata ships require a draft of 13.5 metres and Santos LNG ships only need 12m, and X-Strata has no problem using Port Alma, why doesn't Santos change its mind?

To prepare a project of this size and complexity requires years of planning and considerable investment. Santos is at least two years into its planning. Given the investment of time and resources in this location, we are committed. Besides, we had no knowledge of what was to unfold at Port Alma. .

There are risks of fire; what are the local fire fighting capacities?

At the plant there will be 'first response' fire fighting capabilities, meaning that at the plant there will be fire detection, fire alarm, fire fighting equipment and trained people throughout the plant to deal with a fire were it to occur. The plant will be designed in

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such a way that any fire is contained on-site. However, it is normal to provide several layers of protection and response in case of failure, so Santos is examining the adequacy of local fire fighting capability. This also includes the fire fighting capability of the port's tugs. We expect that specific LNG training will be required, and discussions will be held with the Department of Emergency Services in that regard.

Will Santos pay for the training?

Yes.

Will water craft be able to get through the narrows?

The bridge will either have be elevated or opening to allow traffic through. Design aspects are still being considered. Santos recently held a meeting here in Gladstone with people from marine and fishing backgrounds to discuss the design needs for this bridge.

If there is a 200m exclusion zone, won't it mean that it doesn't matter whether there is an opening or not, boats will still be blocked?

No there will be enough width across our shipping channel to allow unrestricted access to the narrows.

Will locals be given preference in the building of the plant and its operation?

It is Santos policy to hire locally and to support the local community and that will be the approach for this project. Some of our recent work in drilling for gas has directly involved the use of local contractors. We will ensure that local companies are advised of opportunities. One scenario is that for some positions there may not be enough time to train LNG operators before start-up in 2014. We have discussed with the local TAFE opportunities to develop training modules. This might lead to students having placements with our partner Petronas to gain first hand experience in LNG operations abroad so that there are trained people ready for Gladstone operations in 2014. This is an example of our thinking and commitment to tapping into local interest, and developing it further where necessary.

So many projects of this nature have fly-in-fly-out workforces. This contributes nothing to the local economies.

We agree that a project should provide local benefits and in this regard Santos does want to stimulate and contribute to the local economy; however, we are cognisant of the potential social impacts that are associated with a large workforce. This is at the heart of one of the environmental impact statement (EIS) studies. We are looking at the potential benefits and some of the drawbacks. We are working with government to also understand impacts on Gladstone. We have approached the Department of Communities to obtain their support with the social impact studies that we are doing.

We want any funds that arise from the profits that this plant generates to go to the community, not to the government. There is little local benefit otherwise.

Part of the EIS process is to look at all the social impacts and opportunities. This part of the EIS is called a social impact assessment. Santos wants to be a true part of the Gladstone community and will look to contribute to community wellbeing. This contribution can take many forms and may not necessarily be a lump of money. We expect to be in the community for 25 years and beyond. The plant would provide some

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employment of course, but we will also be looking for good community causes that we can support.

Does the level of protection that you have described mean there are safety risks to Gladstone?

I have said this is a hazardous industry, but that the hazards are well known. We have layers of protection and response to identified hazards. This is normal risk mitigation methodology. Further, the plant will be designed so that all hazards will be contained on-site, presenting low risk to the community.

Is there an equivalent federal agency such as CASA (that ensures safety in the airline industry) operating to ensure safety in the gas industry?

No, there is not a regulatory body such as CASA.

Then how is safety assured?

Safety is assured through standards regulated by government and also through adherence to industry standards. Santos would adhere to the two strictest industry standards: the American and British standards. There is an Australian standard, but it is more designed for small LNG storage facilities and is not as detailed as these international standards.

I am concerned that your bridge might allocate space for marine activity, but this would then be cut by the coal rail bridge crossing also proposed for Curtis Island. This could be alleviated by have a rotating section to accommodate all uses.

An important aspect of the development area is that there will be 'common user infrastructure'; i.e. the roads and bridge that might service the island will be used by companies other than Santos. Information gathered from the EIS will be sent to the bridge working group established by the Queensland Government. This group is made up of government representatives, Santos and other companies with a potential interest in the bridge, including BG. Decisions about the bridge will be made by the state government. Santos understands that some companies have proposed rail access in the past; we have no hard information on this. Rail to Laird point has been ruled in and out a few times from our understanding. At this stage, Santos only knows about the proposal for a common road bridge.

Do you know that around the area you are proposing to dredge there have been recent sightings of dugongs and whales?

We have been investigating the marine environment thoroughly and the results of this will be included in the EIS. We want to minimise impacts. The reporting is not complete at this stage, but we are getting a very good picture about what is down there.

We understand that there could be five LNG plants. With all of the jetties, all of the LNG ships with their combined exclusion zones, you and other companies will effectively be shutting down the harbour.

Firstly, it will depend on whether all the LNG plants get up. We understand that the full potential is for two on the mainland and two on Curtis Island. If they are all developed this could mean up to 300 ship movements per year. The exclusion zones during loading will be approximately 200m. There will be clearance, even with other ships loading or in the harbour. There will be adequate width; but it is not likely that there will be multiple

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LNG ships in the harbour at the one time. However, your broader point is important. Santos recognises that shipping congestion in the Gladstone Harbour is a concern. This will be considered within the EIS and the Port Authority will provide advice on this. There is a broader marine transport strategy being developed. This plant will not shut down the harbour.

Who will have access to the bridge?

At this stage, government has indicated that public access will not be permitted as the bridge will only service industry. It is clear from the public consultation to date that community opinion is divided on this.

Public access might be allowed in exceptional situations. The suggestion has been made for emergencies such as cyclones South End residents might get access via the bridge as well as allowing people who have moored in Graham's Creek to get back. These are sensible suggestions that we have passed on to the bridge working group.

How much concrete is used for your foundations and tanks?

A lot although I can't be specific at this time. The plant is still under design.

How will the plant be assembled and built, since it is on an island?

We will build a construction jetty to receive the necessary materials and equipment. Also, in some situations sections can be pre-assembled outside of Australia, barged in and transferred into position. This has happened at other plants around the world. There is currently a dual-design competition between the two LNG plant companies, Foster-Wheeler and Bechtel.

What will happen after 25 years?

We have projected the life of the plant out to a maximum of 25 years for economic reasons, but the operation will likely go for longer. It is also dependent on the volume of gas that we find. If there is no further use for the plant, we would decommission it and clean the site.

During the extraction of the gas, isn't there going to be masses of CO₂ released?

We do have some CO₂ emissions from the gas field during exploration, but during operation there is very little.

Will there be any smell from the LNG plant?

There should be no odour. There are no compounds such as sulphur in the gas that would be released. Some CO₂ and nitrogen dioxide (NO₂) is released, but it has no odour. There are no hazardous air pollutants emitted.

What will be the amount of noise at the plant?

The noisiest piece of equipment will be about 105 decibels. At the perimeter we will need to get the noise down to 50-60 decibels. We can engineer out a lot of the noise. We are doing background noise monitoring to assess current noise levels. If the noise has to be lower, there are still a number of things we can do.

Yes, we have had noise monitoring on our property (on Tide Island).

Yes, that has been part of our baseline noise monitoring studies.

Where will the dredge spoil be located?

At this stage, the preference is for on-land disposal. This will probably be on Curtis Island to both build up and flatten out land for future industrial development.

Isn't that different to what you told us at an earlier meeting? You said it would be on the mainland, at Fisherman's Island.

That is true. At that time that was the best advice I had. This is a project under development and things are changing. The purpose of us keeping in touch with the community through meetings such as this is to keep you advised on developments.

What is the quality of the soil that might be dredged?

That has been tested. It looks quite good. Some pesticide 'spikes' have been found. These have been a bit of a surprise considering their depth. They are down some way, underneath a number of layers. This has since been retested and the results were deemed to be false. But overall the spoil looks like it can be used without a problem.

Will the plant interfere with possible air traffic around Kangaroo Island if a new airport is built there?

Impact on current and potential air traffic is being examined. The height of the flare stack and the thermal rise effect from the flare may interfere with air traffic.

I think that the port is telling you where to locate your plant. Aren't you complying with its wishes? It wants access to Curtis Island, and your development will allow this.

The location of the Santos plant has been our decision. We are making commercial decisions, not decisions to fit in with other entities.

On one of your documents provided today there is an artist's impression of the Santos plant. This is fine, but what we want is a detailed mock-up of the master plan for the island. That way we will know what we are really dealing with.

I can understand this. We would like this too. Santos is engaging with the community a great deal and is receiving requests and issues for matters outside of our responsibility. The state government would be responsible for this, but we don't know whether they are doing a master plan yet.

Is the BG proposal to the north or south of your site?

North.

Are you using your gas only?

Yes.

I still think there is too much difference between what you are saying, the port's plan and the state government's plans. I feel for Santos, as I think that the port and the government are not being clear or straightforward with their intentions.

Thank you. There are many influences on the development area and harbour at the moment. I wish it was more straightforward too.

Why don't you pipe the gas from the Roma end through to Brisbane?

This was considered. The Brisbane port was considered for LNG purposes. The problem was getting a pipe through Brisbane. The existing easements are very congested.

If it goes to plan, when will plant construction commence?

Our schedule is that after approvals, conditions and final design, construction will commence in 2010 and be completed in 2014.

The forum closed at 2.20pm but Santos representatives remained to answer questions until after 3pm.

EVENING SESSION

What is the power ratio forward and aft on the LNG ships?

You've got me. I don't know this level of detail on the LNG ships. We will try to find out for you.

I have come here as an opponent to your industry, and nothing you have said has changed my mind. My first question is, do Santos employees make mistakes?

Yes.

Then I assume that their mistakes could lead to an event that seriously threatens our community. Are you aware that within the Connell-Wagner report there is a warning that with the number of ship movements in the harbour an accident is likely to happen?

I don't know the report to which you are referring. Santos is seeking to identify all risks and provide mitigation. We take safety very seriously. We are simulating ship movements under a number of scenarios. We will develop a model and then test it at the maritime centre in Tasmania. When we are sure we have it right this will be a part of our mitigation strategy.

Then why are you persisting with this development, when this work is incomplete and all the risks have not been quantified.

We can do this work and other parts of the work at the same time, rather than sequentially.

Is the exclusion zone around your loading facility one of convenience and not relative to the risks?

No it is directly related to the risk assessment. It is based on a number of scenarios and threats. It is calculated with consideration of the maximum distance of either vapour dispersal (200m) or heat radiation (85m).

How are people going to navigate the narrows, if all the LNG ships are in, and therefore blocking access, especially given there would be loading jetties on the mainland and Curtis Island?

The width of the passage is much greater than the safety zone sections. Santos would need about 200m. Another operator would need a similar exclusion area off the mainland. But this would still allow hundreds of metres of water for boats. Even if LNG loading is happening on more than one vessel at the time, with safety zones in place, through-movement would not be blocked. Even if all five proposals get up – and there may only be as many as four – there would be a maximum of 300 LNG ship movements per year. This is less than one per day. The scenario of all facilities having ships in the harbour at any given point is very unlikely

Your industry is going to put a halt to the movement of coal; is that not unreasonable?

There will not be a halt on coal or other industry as you suggest. We are working with the port on a marine traffic strategy to allow the management of increased future marine traffic. A model will be developed with experts.

Port Alma is a far more logical location. Why just accept the government's position that Curtis Island is the best spot?

Santos has not been pushed onto Curtis Island. When we wanted to build an LNG plant we looked widely. We looked up and down the coast, and seriously considered Port Alma. Many other sites were explored and considered. When Santos investigated Port Alma, the knowledge of this port's future development was not known. When we looked at this about eighteen months to two years ago we knew that very significant dredging would be required at Port Alma. In conjunction with the GPC, and only the GPC, we confirmed Curtis Island as our preferred location. The state government was not involved in this decision. After we had completed our assessment and went to the government with our preferred site, the government then conducted its survey of locations for LNG plants. We were quite worried with the fact that if they came up with another location we would have to move sites. The government came up with the same reasoning and outcomes as Santos within its LNG precinct study. Yet we had nothing to do with the government study. The exercises have been separate, and our decision has been independent. Also, the decision to base ourselves in Gladstone was due to the broader local industry infrastructure that could support us, and that we too could support. We tried to get access to mainland property in the state development area. The existing mining leases prohibited us from putting the gas pipeline through to an LNG plant.

You say that the safety zone will be consistent with the risks; but don't standards go up and down. Isn't it possible that the exclusion zone will increase over time?

The authority in Queensland is the Department of Emergency Services. It will set the standard. Yes, standards change over time. They have over time in the United States for example. Significant zones were instated as emergency measures after September 11, and have been reduced somewhat since. This is a good example of how the size of a safety zone has decreased. The safety zone at our facility is expected to be 200 metres. I can't say whether this will increase or decrease over time. But this is the best

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assessment based on knowledge of the potential consequences. This is a standard risk management model that you would be familiar with. If you are interested, I ask that you refer to the Sandia report that is available on the internet. It examines a range of significant scenarios involving the penetration of an LNG ship during accidental and deliberate events. These situations have never occurred but the scenarios and modelling identified that any fire or other consequence is contained very close to the vessel. I do want to point out that the Sandia report does not account for the likelihood of an incident happening. The report also says that the likelihood of an incident happening is low and that existing safety controls are adequate.

Perhaps the implication behind your question is that exclusion zones will increase to the point that the harbour is unnavigable for other craft, but I just can't see this being the case, especially given the width of navigable channel we are talking about.

Will the harbourmaster have a say?

Yes, definitely.

Isn't there a larger exclusion zone in Darwin than you are suggesting for Gladstone, even though they are essentially the same type of LNG operation?

There is a larger zone in Darwin. This is because they can and they choose to. They have much more water around them. But under their risk assessment they could have a similar safety zone.

A long list of pipeline failure events in the United States was cited.

Also there was a fire on Varanus Island, Western Australia this year. Recently there has been a discharge from a Santos oil pipe in Brisbane. I am sure that concerned residents were told that there would never be any problems at these locations.

I understand your position. I don't know the details of these events. In the case of Varanus Island this was a high pressure gas pipeline, and so is different from what we have been discussing. Santos has a very strong series of policies about protecting the environment and people. We have very good maintenance standards. A basic precaution is that we place the pipe underground and place it away from residents and towns.

I am more worried about the condition of the pipeline in 20 years time. I am worried about my grandchildren and their children. Why did these other pipelines fail?

I don't know the reasons behind the cases you have cited. But it is likely to be from corrosion. My guess is that the corrosion was not identified. Some gas has sulphur and this is corrosive. The facts are that there are thousands of different pipes around our cities. Some do fail. Ours is a dry gas. Most moisture is extracted in the field. With dry gas we do not expect there to be significant corrosion. Even so, we check. We check and clean the pipe twice a year.

But if the gas is dry and does not have sulphur why do you need to clean it?

It is part of a good inspection and maintenance program for our assets. Often the worst thing we find is a worker's glove.

What is the difference between a safety zone and an exclusion zone?

A safety zone is where unauthorised people are not allowed. An exclusion zone is where no one is allowed and is typically enforced.

How is it notified and enforced?

A notice to mariners about new operational requirements will be issued. There will also be a standby tug near the ship loading with a loud hailer to advise of safety zone requirements.

Where is the LNG plant located in Darwin?

It is about five kms in a direct line to the Darwin CBD. At the closest point I believe the LNG ships pass about four hundred metres from the central business district in Darwin.

How do they feel about the plant being so close?

The local council is seeking approval for a second, much larger plant to be located in or near Darwin, so you can be the judge. It has had the plant in operation for about two-three years and everyone is familiar with it. At the start there were community concerns such as we hear today. Now the council and other parties are trying to attract more gas business.

What are the safety arrangements to prevent rupture from people digging?

As per normal arrangements, there would be signage and our pipes would be on the 'dial before you dig' program.

You say that the exclusion zones are designed to remove possible ignition sources. But wouldn't a tug be a possible ignition source?

Yes it is possible. But it is unlikely based on history. Standby tugs are typically outside of the safety zone.

Does Santos have government permission to expand its operation on Curtis Island if it wishes?

We are negotiating for options on adjacent land within the Gladstone State Development Area (GSDA) to enlarge our current site. This is not finalised. Any other land Santos might acquire would only be within the GSDA.

I understand that there is significant concern about the water that is extracted with the gas.

During normal gas extraction, water is released from the coal seam beds. This varies in amount and quality. Some fields have very little water; some have more. Some sites have no water; some can pump for six months. Santos is very focused on beneficial re-use of the water. The main variables that impact on the potential re-use of the water are the amount of fluoride and salt. Our testing has revealed that the salt concentration ranges from 300 parts per million (PPM) to 6,000 PPM. To give you an understanding of what that means: normal stream water is usually 400 PPM, a saltwater swimming pool is 6,000 PPM and the ocean is 40,000. One current use is the watering of cattle and also the irrigation of timber crops. So, the quality of water is good enough for these purposes.

What will you do with the water? What are the options that Santos will use?

There can be desalination in the field and transport to normal water supplies; the water can be pumped back into the ground; it can be used for dust suppression; it can be placed into an evaporation pond; it can be used for irrigation and for watering cattle. We will use a combination of these techniques depending on local water characteristics, topography and water needs.

Is your activity in relation to water re-use monitored?

Yes, the Environmental Protection Agency controls actions associated with water re-use. Due to its saline characteristics, under current legislation it is actually a classified waste. This means that we can't simply give the water away or use it in any fashion that we would like or that landowners would like. We of course monitor the quality of water that is released in order to assess its suitability for the applications I have described.

What about the amount of water?

Our studies give us confidence that we can handle all the water and use some of it beneficially.

Do you know all of the animal life that lives and breeds in and around your site?

We are preparing studies on the marine life. Our people have dived and taken photographs and video of the marine life. We have a good picture of what is down there. Our report is not complete yet. We have also looked for the bird-life among the land habitat. We know about the yellow chat on the northern part of the island but the habitat in which it lives is not present on or near our site.

You purchased land on Curtis Island some time ago. You must have known that the government was going to declare this an LNG precinct.

No we didn't. If there was available land on the mainland it is probable that Santos would be there. We couldn't get around the major limiting factor that this was a mining lease. We have been doing studies for years. It just happens that government, looking separately and independently at the issue, reached the same judgement. But this does not mean that there was any collaboration.

If the government refuses your application, will the land be sold to the port?

I assume that the port would be offered first right of refusal.

It is my understanding with the amount of dredging required it is nonsensical for Santos not to site its operation at Port Alma where dredging is already going to take place.

Santos has been working on this for two and a half years and we are committed to Curtis Island

But what you have spent is just pennies considering the size of your project.

There is also our project schedule. The time we have invested and other consequences of not capitalising our resources mean that we are committed to this site.

In reference to earlier discussion I would like to state - based on my years of experience - that over 90% of pipeline breaches are due to third party operators,

such as excavators, not the pipeline operators. Also, the pipelines that you were referring to earlier were almost 40 years old. You can't compare the pipelines from 40 years ago with those today. Also, I have been installing cathodic protection on pipelines for many years and I can tell you that the amount of protection on pipelines today is far greater than 40 years ago.

Thank you for this information.

Did you know that under international law your liability is limited to the value of the cargo?

I am not familiar with that item of international law.

How then do you intend to compensate the city of Gladstone for impacts and losses arising from scenarios such as a massive explosion?

I don't know; I don't have a response to this. I don't have an understanding of insurance law.

Is Santos prepared to fund the construction and operation of the bridge if there were no other companies involved?

Yes we are. It is still in our budget. The funding arrangements are still under consideration by government.

But how can you say this, when there is still no clear decision about whether it will be a rail bridge; and if it is, then it doesn't matter whether you would like a hump in it or not, it just won't be. You must be as confused as we are.

We would prefer that things were clearer. We have asked the government to be definite about future industry and its needs. We are progressing our project based on available information.

But Santos is dancing to the port's tune, so if it wants a rail bridge I am sure that you will support it.

Santos is a member of the bridge working group. The bridge working group does not support a rail connection to the island.

Many members of the community are concerned that such a high risk industry will be located in our community but with little direct return to it. Is Santos prepared to directly contribute to the community, especially to our infrastructure? I suggest a direct contribution to the council for example. To us it seems that the benefits go directly to state consolidated revenue.

Santos wants to be a part of the community and to contribute positively to the community. Santos is looking for ways to enhance community well-being. We have contacted the Department of Communities to seek its assistance in finding the best ways we can mitigate our social impact. We have engaged the Hornery Institute to help us define "community wellbeing" so that we can enhance the wellbeing of Gladstone. This may not necessarily take the form of a lump payment, but may include support services for instance. Also Santos is looking to support local businesses and the economy. There will be social pressures, especially if our project goes ahead, and others do as well. The combined workforce pressures will be considerable. But we are looking for solutions. However, I disagree that this is a high risk industry. As stated, this is a hazardous

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industry, but the hazards are well understood. We know how to mitigate against these risks. There are currently other hazardous industries shipping more hazardous products into the port than LNG. Santos will have to pay royalties to the state as per other energy projects. This is not something we can choose not to do.

But will you deal with the community?

We will seek ideas from the community.

Does the gas have a smell like propane?

No. In the case of propane, a strongly smelling additive is included in the gas. They do this so that you can detect it. With our facility there are a number of ways of detecting a potential methane leak, such as temperature and loss of pressure that are much better than the human nose

Scouts use the west of Curtis Island including Graham's Creek for canoeing. Will they be able to access the area if you have jetties?

We would prefer that they not go near the jetties. However, our facility will be five kms south of Graham's Creek, so canoeists will be able to access the creek. Thank you for pointing out this use to us. I don't think we knew of it until now.

With the increase in workers and the increased risk of accidents and the consequences of these accidents, I am worried that our infrastructure such as hospitals will be overwhelmed. Recently, my daughter broke a toe and had to go to Rockhampton hospital. That was just for a toe. Imagine if there was a major event.

Yes, I understand that our development and others like it will bring more people and place strain on key infrastructure. As stated, we are studying what the impact will be and what we need to do to mitigate these impacts. This is a serious matter for us. Is Gladstone ready for an influx of several thousand workers from our development and others? No it is not.

A number of us are concerned that a bridge to Curtis Island will not benefit the locals. We feel strongly about this.

This is the call of the state government. If it were Santos' decision, I think it would be a very difficult decision given the community division we have picked up, and issues for and against. It is not an easy decision. However, the state has decided that it will only be for industry.

What have you heard about the level of support?

Our consultation indicates a 50-50 split for and against.

You have said that there might be a double channel in the future to service the harbour. I see that the opportunity for collisions will increase, and will be inevitable. It will be a case of if, not when. And the idea that there might be some engineered double channel, brings up in my mind more opportunity for error and collision.

Santos understands the concern about port capacity and traffic. As I have said we are modelling all scenarios and developing mitigation strategies with all available expertise.

Three or four of the most senior engineers and experts here in Gladstone support Port Alma over Curtis Island; and when you add up the cost of dredging here, the two channels constructed here, the obvious potential for collision and the proximity of the Gladstone and South End settlements, your proposal does not stack up. When a tug pierced the hull of a ship here we had an enormous oil spill, that took an age to clean up, and the port still does not have an oil boom. We do not have the capability to cope with the risks you will be introducing. Why didn't you consult with the community about your proposal?

This is what meetings like this are about, explaining the project to the community and receiving feedback and ideas. The EIS is about looking at all of the issues thoroughly and seeking feedback as we build our management and mitigation strategies. As I have said, this is a hazardous industry, but one where the risks are well known. If you are interested, I ask that you refer to the Sandia report that is available on the internet. It examines a range of significant scenarios involving the penetration of an LNG ship during accidental and deliberate events. These scenarios have never happened, but the scenarios and modelling identified that any fire or consequence is contained very close to the vessel. On the matter of not consulting before our announcement we have commercial interests and strategies that we will keep confidential as would any company.

Reference for Sandia report: <http://www.ferc.gov/industries/lng/safety/reports/sandia-rep.asp>

What about the pipeline on your bridge and associated risks. What would happen if a hand grenade was lobbed onto a pipeline filled with gas?

The pipeline will not be on the bridge. Even if a hand grenade was dropped from the bridge, the pipeline will be coated in cement and weighed down on the sea floor. We may also trench the pipeline in at about 2 m below the sea floor. The other scenario is that we drill under the sea floor, which would mean it is even deeper yet. Under either option I don't see that a hand grenade would have any impact. I suggest that we look at the context of industry in Gladstone. There has been a gas pipeline into Gladstone for many years. There are a number of industries already in Gladstone that represent a higher risk than LNG ever would.

If there is trenching of the pipeline and construction of the jetties, won't this have an impact on dugongs?

Noise, vibration and any other impacts are being investigated. There are no seagrass beds in the areas of proposed development, so it is unlikely that there will be an impact.

Will Santos have its own LNG vessels?

No. Petronas, our partner in this venture has the world's largest LNG fleet. We may use its vessels. The waiting list for ship building is too long for us to have our own vessels built.

How will the skippers be prepared?

They will all be experienced LNG skippers. They will receive induction and information about the harbour. They will receive instructions from the harbourmaster. Also, the skippers do not actually bring the ships into the port. This is the responsibility of Maritime Safety Queensland.

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Before and after the forums, considerable interest was shown in pre-registration for business. The process was explained as follows:

Santos is working with the Queensland Government on the economic and social impacts of this project on local communities to establish a local procurement policy which is informed by the State Government's State Procurement Policy 2008.

As such Santos is working at seeking goods and services locally. If local capacity is not enough Santos would consider:

- where possible, work with local providers to build their capability
- seek goods and services in other Queensland areas
- use existing national suppliers if other options are not suitable.

As part of this policy in 2008 Santos plans to establish a program to assist pre-qualified contractors in local areas, ahead of early construction targets.

Santos has a team which manages procurement and logistics. If you are interested in being a supplier to the GLNG project, please register with www.supplybase.com.au which is also accessible from the procurement section of the GLNG website www.glng.com.au.

The evening forum closed at 8.10pm; Santos representatives remained to answer additional questions until 8.30pm.

Meeting Notes

Location: Gallipoli room, Anzac Memorial Club, 94 Callide Street, Biloela

Date & Time: Friday 12 September @ 6.00-8.00pm

Number of attendees: 10

Presentation from Mr Steve Schoemaker, Santos – presentation tabled.

GLNG/JTA representatives: David Wood (Santos); Greg Bourke (JTA); John Melit (JTA)

Meeting opened at 6.15pm

Questions, answers, discussion and comments during and following the presentation

Comment

I would like to make the comment that I received very little notice about this meeting.

Noted, we will endeavour to provide as much notice as possible about future events.

How will Santos ensure no additional weeds are spread?

Santos has very stringent weed mitigation policies. A specific weed management plan will be developed for pipeline works.

Comment

I have worked on similar easements proposed by Santos. I can assure you that the approvals are strict. Contractors can only operate within defined areas. We always wash down. We are not allowed to wander all over someone's property, and we don't. It is all done to a very high standard these days.

What is the depth of the pipe?

The pipe will usually be 750mm as is required by legislation. However, the pipe can be laid deeper depending on individual circumstances. We will do a thorough site and risk assessment, especially to consider topography and local land use. Also, we would usually go deeper under roads and creeks – usually about 1200mm.

What size is the pipe?

It will be about 34 inches, the range is likely to be between 28-36 inches, but this is still to be confirmed.

How thick will it be?

The pipe will be 15-25mm thick. Also, for those that are statistically minded, a total of 230,000 tonnes of steel pipe will make up the pipeline.

Comment

When you talk of Fairview, you might confuse people closer to Calliope. There is a major cattle farm called Fairview up that way. You might need to state the difference.

What about the water quality? Isn't it salty?

It varies from property to property. Some water is quite pure, and in other areas, yes, it is quite saline. In some areas we have been able to use water as a resource to water cattle and for irrigation. However, in other areas it is saline. The use of water is our biggest issue; and our objective is to use the water beneficially.

Will you use evaporation ponds?

This is the option of last resort. As you can imagine, farmers and councils are desperate for the water. However, under current legislation, it is declared as a prescribed waste and we cannot simply hand the water over. There are a range of options. We are trialling a technique to desalinate saline water on-site, and then inject the brine back into the ground below the aquifer, and then release the water into the local stream.

How much water are you talking about?

Over our holdings, the amount at full gas production will be about 13 Olympic size swimming pools per day. On a cumulative basis, it is hard to handle this amount.

I have seen and heard a lot about water, and I can say that companies are taking it seriously. There is talk of desalination of the water to send to Origin's proposed gas plant – if that gets going; or piping the water to Toowoomba.

Yes, Santos too has had approaches from councils and companies for the use of the water.

Was that Santos walking the pipeline route up the Calliope end?

It could be, but we don't enter land without permission. There are a lot of companies with infrastructure interests around there.

Session ends.

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Presentation from Mr Dennis Reid, Santos – presentation tabled.

GLNG/JTA representatives: Dennis Reid (Santos); Trevor Edwards (Santos); Dean Salter (Santos); John Melit (JTA); Greg Bourke (JTA).

Attendees: 8

Meeting commenced at 1.20pm

Questions, answers, discussion and comments during and following the presentation

A large hole has been dug on my land, and gas is coming out of it. Will this stop?

How deep is the hole?

600 metres

Yes, it will stop. It will depend on the thickness of the coal, the number of fractures, and other factors.

How long does a gas well last?

Again it depends on local factors. We have wells at Fairview that are still going strong after 15 years. Also, the life of the well depends on the rate of gas release. At Fairview for instance we have turned down the release of the gas as there isn't a market for all of it. This will increase the life of the well.

Is the gas in liquid form in the pipeline?

No it will be gas. It is liquefied at the gas liquefaction plant at Curtis Island near Gladstone.

Is it like gas bottles?

No, the gas in those bottles is propane. The propane is chilled to minus 40 degrees and placed under about 100 pounds per square inch pressure. Our LNG is not placed under pressure. It is stored at normal atmospheric pressure.

Is the gas used at the plant for its own energy requirements?

Yes it is. The plant will be self-sufficient in everything beside communications. Even on the LNG ships, any methane vapour within the storage tanks is used for powering the vessel. Also, very little water is used in the liquefaction process.

When will the pipeline come through here?

Around 2011, following government approvals. The pipe will take about 18 months to construct.

How many workers will there be? I wouldn't want a lot of workers in a small community such as ours.

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I understand. There would be about 300 workers. But they would be hopping along the pipeline corridor as it is constructed, and would not be in one community for very long.

How many years before the well site is remediated?

This happens immediately after the site is no longer needed.

That's what I thought, but the well on my property has not been remediated.

Your well is probably an appraisal well. This means that it might be used at a later time. I will find out for you.

Will property water bores be impacted?

That depends on the depth of the bores. What depth is yours?

100metres.

No, our drilling and gas extraction would not impact your water. Our gas wells are far deeper. When it comes time to do more field development in this area, we would model the groundwater environment to fully understand the picture re local groundwater.

Will there be workers located here?

That depends on the need and what is acceptable to the community. We will consult about where any workers will be located. Santos will ensure that this decision is appropriate to the capacity of the towns along the pipeline route.

Does Santos contribute to the community? For instance, we have no medical facilities here in Rolleston.

That depends on the likely impact of our activities. We do contribute to communities where we are resident. But in the case of the pipeline we will only be here temporarily. I don't see that we will be making the contribution you suggest in this case. In the case of Gladstone where we expect to have about 3,000 workers there will be significant impact and we will have to respond. I see that we will need to supplement existing community infrastructure.

What about a first aid station?

We will have first aid facilities here temporarily. We would not exclude locals from those facilities.

So you only intend to look after your own staff?

In the case of the pipeline, yes. But when it comes time to develop the local gas resources, there will be a much larger presence and activity. At this point we will be resident in the community, and as we do in other places, we would be an active contributor to community causes.

How will the accommodation of the workers be organised along the pipeline route?

This is how we envisage it. We would have a base camp of between 200-250 people, and then a fly-in camp of 50 workers at the site. They would be 50 kilometres apart and

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continue to leap-frog one another. Then as the pipeline is constructed the camps would be shifted along the route. The 400 plus kilometres of pipeline will take 18 months, so there will be several moves.

That is still a large number of people around a small community. This will make the roads busy.

I emphasise that this will be temporary. Some residents do not want to host worker camps or accommodate workers in town and at their motels. However, local businesses usually want the business. There will have to be a balance.

How is the pipeline constructed?

We dig, lay the pipe, weld the sections, and cover.

When do you need to access the property?

We only seek to access property a couple of days beforehand. Also, if you have grazing activity or other activity we do not deny access or the ability to cross the land. We leave a few sections open to allow cross-country access, and then when a section is done we open this, and then connect the joints. We will always negotiate with you, and plan according to your needs. Also in the case of roads and creeks where it is inappropriate to have open trenches, we most often bore under and push the pipe through.

Yes, that's what happened last time with the earlier pipeline.

What about use of the water?

The ability to use the water depends on the salt content.

If you treat the water what is the concentrate that can't be used?

If we treat the water, about 70% is converted to clean water, about 30% is brine. In some cases we are injecting this brine back into the ground at very deep levels, and below coal formations.

If you are reinjecting this material, this means that it can't just go anywhere.

That's right. There have to be particular conditions where it is acceptable. It has to be below the coal formation, usually 1500m below the surface.

What volumes of water are you handling?

Some areas are producing a lot of water, in some areas, less. In reference to the presentation graph demonstrating water vs gas extraction: As you can see here when the water declines, the amount of gas increases. So initially water production is at a maximum. The use of the water depends on the quality and volume we are handling. Around the Roma area there is a lot of water. We have two hectare evaporation ponds for instance. But elsewhere we treat the water and then discharge it to a stream. There is always water. At our Scotia reserves there is not much water. At peak water production, we expect about 50 megalitres per day will be generated.

Some of the water in our area is saltier than the sea. It is a concern that this water will be brought to the surface.

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The mines also bring a lot of salty water to the surface.

Our testing has revealed that the salt concentration ranges from 300 parts per million (PPM) to 6,000 PPM. To give you an understanding of what that means: my saltwater swimming pool is 6,000 PPM and the ocean is 40,000 PPM. One current use is the watering of cattle and also the irrigation of timber crops.

We are trialling the irrigation of a Luceana plantation, so the quality of water is good enough for these purposes. One of the least known facets of the water quality is the level of fluoride. There are different standards internationally about the level of fluoride in water that can be safely given to cattle.

Is the water being used before you extract it?

No, the water that is extracted is usually 1,000m down, and is deeper than the water wells on properties.

So you won't follow the existing pipeline?

For the most part we will. Some areas that we need to go through or near are covered by mining leases. We are negotiating with these interests, and also working out the odds of whether these sites will be mined in the foreseeable future.

Will you site the pipeline in areas where there is least impact for us?

Yes, we will site the pipeline where there is least impact for individual property owners and the community. And generally, this is along the existing pipeline route.

During construction, there will be considerable use of our roads. Will Santos contribute to the maintenance and repair of the roads?

In other areas we partner with the councils. I would expect that we would contract council directly for the repair of roads we have impacted.

That is good to hear, but often the problem is about understanding who exactly increased the wear on the roads. Was it this company or that? We need to have some agreement and understanding up-front.

I agree.

During the construction of the rail line, the council, constructors and QR agreed to establish a maintenance fund of \$850,000. This worked very well. We had \$75,000 left over. This kept a council crew on the roads full time. At the start, we inspected the roads, and the maintenance was managed to bring the roads back to the same standard, usually as soon as there was damage or wear and tear. Instant repair was not always possible, but that was the target. I thought that this worked well. It was a good fit. But I see that there will be increasing impact during the gas production phase, which will be a longer-term issue.

We won't know what our presence and activity will be during production until we further explore and plan. On the suggestion that we follow your arrangement with the rail construction, I can only say that Santos operates openly and fairly in all areas where we work, and this would be the case here. We would not want to reduce the quality of your roads, and would contribute to the maintenance.

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We would want a win-win. We all have to live together.

Yes, I agree.

During the development phase, don't you cart out the brine that you separate from the water? There would be a lot of weight in these vehicles. I need to emphasise that road maintenance is difficult around here. Gravel supplies are rare. Also, how big is the pipe?

It is big; about 34 inches in diameter. The pipe is too big for local manufacturers to make, so it will need to come from outside Australia.

Where will it come in from?

It will probably come into port at Gladstone, and then transported to site. Due to the size and weight only a few pipes will be able to be transported at a time.

So this will mean that there are a high number of truck trips.

Do you have a good idea of the amount of gas you have?

We have a good idea around Injune and Roma. We develop our understanding through modelling and drilling. In the Arcadia area we have less of an idea at this time, but we are finding out.

Can a competitor be beside you and suck your gas out?

Not generally with coal seam gas. In other gas fields such as in the Middle East there are a number of countries all trying to suck out the gas as fast as possible from the same gas field.

Will other companies be able to use your pipeline?

No, there are no plans for this. This will be a private pipeline, designed for our particular gas.

But aren't there three or more plants intended for the Gladstone area? Does that mean we might have more pipelines?

This is possible, but there is nothing known at this stage.

Would you consider sharing your pipeline?

Possibly, if the gas was the same composition as ours.

When a well is prepared, is the topsoil removed and then replaced later?

Yes.

Who will maintain the pipeline?

A local contractor. The contractor would make contact with you to explain any activities and find a suitable time to access the corridor if crossing over your property. This would be done properly.

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How deep will the pipe be?

The pipe will be about 0.8 metres down.

So we couldn't plough over it?

If there was ploughing in the area, we would lay the pipe at 1.3 to 1.4m down.

During the construction of the last pipeline they went down about 15 feet through gullies.

Yes, we would go deeper in gullies and streams.

Do you use local contractors?

We use locals almost exclusively if we can. In the case of the Fairview gas field, there are not enough local workers, so we operate on a fly-in-fly-out basis. Around Roma we have a local, resident workforce.

Can I request that before you construct your pipeline and develop your gas that you seek the upgrade of the Dawson Highway? There is a section about 20 kilometres west of Moura that is very dangerous. It is too narrow to be bringing your pipe through there.

We will raise this with Main Roads.

The royalties raised out here should be used out here.

I am sure that the government wants you guys out here making money; but they need to support this with the provision of reasonable infrastructure such as roads.

I should mention that we are doing thorough traffic studies as part of the Environmental Impact Statement.

You will understand that there is a lot of new activity out here. All these projects are building up pressure on our communities and infrastructure. This is leading to infrastructure failure. There are significant impacts; not necessarily due to one project or another, but bit by bit.

Yes, I fully support your statement. I understand that the state government is looking very closely at these issues. We know that in the Bowen and Surat basins there are approximately 26 major new projects being considered or proposed. The government is examining all of the related issues, but I think perhaps they have not publicised this very well.

Meeting closed at 2.55pm.

The group recommended that future meetings be held early in the morning or late afternoon.



ROMA WATER WORKSHOP MEETING 2 SUMMARY

Location: Bungil Creek Motel Conference Room (5-7 Bowen St, Roma)

Date & Time: Tuesday 16 September 2008; 10:00am – 12:30pm

Attendees: Mayor Rob Loughnan (Roma Council); Cr Jason Bartels (Roma Council); Cr Scott Wason (Roma Council); Dave Pemberton (Roma Council); David Angel (Roma Council); Andrew Byrnes (Roma Council); Liz Todd (QMDC); David Dorrough (Commerce Roma); Jill Sabine (Electorate Officer, Office of the Hon Bruce Scott MP); Pastor Peter Hall (Uniting Church); Dennis Reid (Santos); Bill Lazarus (Santos); Paul Wilkinson (URS); John Phalen (JTA).

Apologies: Marie Thorne (AgForce); Veronica Slizankiewicz (DPI); Jim Herbert (DME); Leon Price (local landowner); Plaxy Barrat (EPA).

Meeting opened at 10:15am

Introduction and objectives

John Phalen of JTA welcomed attendees and introduced the Santos and URS staff. A 'round the table' introduction then followed.

John gave an overview of the format and structure of the workshop which included a combination of information provision by Paul Wilkinson (a technical assessment of the feasibility of the ideas produced in the first workshop) together with some small and large group discussions.

Dennis Reid from Santos then gave an overview of the purpose of the workshop which was to come away with a consensus on what ideas Santos could work up in more detail as part of its water strategy for the Gladstone Liquefied Natural Gas (GLNG) project.

Presentation and agenda tabled

Session 1

The first session of the morning consisted of a first pass review of the ideas generated in the first workshop on 2 September. This was an open group discussion on each idea with a view to either including it for further consideration, or taking it off the list.

Paul Wilkinson gave a technical assessment of the pros and cons of each idea which informed the group's discussion.

This session concluded with a consensus on the ideas to be taken further into the next session. The ideas removed from the list included:



IDEA REMOVED	RATIONALE
Develop a world class themed golf course	There would not be a market or the interest for this in Roma to make it viable or economically sustainable.
Develop new sporting precinct (including new council managed water park with water slides and swimming pools)	While this idea had many merits from a community perspective, it did not rank as important as other ideas.
Create multiple water storages and grow algae for bio-fuel	Minimal water use and open pond systems are inherently high risk
Pipe to local power stations	There were no power stations close enough that would make the cost of pumping the water viable.
Recycling plants	There would not be sufficient water demand to justify this option.
Fish farming/breeding for consumption and sport fishing	There was considerable debate about this idea. Sustainable fish farming is a viable industry. There were issues relating to the water conditions that would be needed to maintain the fish stocks. It was decided that there were other more pressing issues to focus on.
Hydroponic vegetable crops	Another great idea from a sustainability perspective (particularly in respect of the non use of chemicals). Like the fish farms, it was decided that there were other more pressing issues to focus on.
Local bottled water	There would not be a market or the interest for this in Roma to make it viable or economically sustainable.
Distillery (Roma Bitter)	A distillery uses very little water and therefore such a business venture would not be started just because a lot of water became available.
Inland aquarium	There would not be a market or the interest for this in Roma to make it viable or economically sustainable.
Small scale hydropower schemes	Not specifically related to water management but should still be assessed in the sustainability component of the project

This session produced a lot of good discussion. It is worth noting that certain golfing and beverage enthusiasts were disappointed with the loss of the world class golfing precinct and the brewery – never mind...



Session 2

For the second session, attendees were broken up into smaller groups and asked to critically assess the remaining options to develop a ranking of importance (1-10 with 1 being the most important).

One hour was allocated to this session which was talked enthusiastically by participants.

Session 3

At the end of the small group session, all participants reconvened and the nominated spokesperson of each group presented their priority ranking of the ideas to the broader group.

The facilitator documented the rankings in a spreadsheet. This matrix was used to inform the final priority order.

There was excellent participation in the discussion by all attendees. Liz Todd from the QMDC made a number of important points about the need to educate the community and business in the responsible use of water, and that environmental sustainability should be a key consideration of the ideas.

David Angel of the Roma Council provided his knowledge and experience of water issues both from a community and economic perspective. Pastor Peter Hall and David Dorrough of Commerce Roma provided excellent local knowledge on what previous ideas and initiatives have and haven't worked. It is also important to note that Mayor Rob Loughnan gave up his valuable time to attend and contribute to all sessions.

The final results of this exercise are documented below.



ROMA WATER WORKSHOP OPPORTUNITIES LISTING

Rank	Opportunity	Rationale
1	Roma Town supply	<p>It was discussed that this opportunity would facilitate the integration of a range of other opportunities including:</p> <ul style="list-style-type: none"> • Provide potable water to Roma (and other local communities) by constructing a water treatment facility (scalable Reverse Osmosis plant) above the 3 existing storage tanks (each 2ML/d capacity) and use existing pipes/pumps to provide water to Roma Town. • Store treated water in large Lake Neverfill (which can be used for recreation) and release to the Bungil Creek during summer months. • Provide to feedlots: Provide treated water to existing feedlots located downstream of water infrastructure. • Provide water to truck wash downs located downstream of water infrastructure. • Provide water for other Council Uses.
2	<p>Local agricultural opportunities:</p> <ul style="list-style-type: none"> • Fruit & vegetable crops • Lucerne crops • Leucaena crops • Agro forestry • Other 	Contribute to local food source and economic well being of the community by providing access to quality local produce.
3	Irrigation of local Golf courses	Reduce need to use bore water, allowing some recharge of groundwater resources.
4	Green spaces – improve community gardens and sporting precincts. Improve riparian corridors.	Enhance the environment and contribute to the local community (enhancing use of open space and recreational use). Promote water efficient techniques.



5	Inject water back into local aquifers	Recharge potable aquifers. Storage of water (as opposed to immediate use) can account for the significant variability in water demand throughout the year (i.e. 2ML/d in Summer, 14ML/d in Winter).
6	Business opportunities: <ul style="list-style-type: none">• Fertiliser plant• Sale of water to other jurisdictions• New winery• Salt production	Stimulate/add value to the local economy.
7	Progressive reinjection back into the coal seams	Re-pressurise depleted coal seam aquifer, removing any potential risks to adjoining systems. Negates all possible adverse impacts associated with the above ground treatment and use of associated water.



Conclusion

Dennis Reid concluded the final session by thanking everyone for their attendance and commitment to the workshop. Dennis reiterated that it was extremely important for Santos to listen to the views of the local community and work in partnership for beneficial water solutions.

Dennis summarised what he believed to be the three major opportunities which were:

1. Roma town supply and Lake Neverfill
2. Irrigation of existing crops
3. Establishment of new Agroforestry projects

A feasibility study is now being undertaken on these opportunities.

The participants who generated the top two ideas each received a bottle of wine as acknowledgment.

Santos will commission further investigation into these ideas and provide attendees with updates as this work progresses.

Meeting closed 12:30

Santos Gladstone Liquefied Natural Gas (GLNG) Project Wallumbilla Community Information Session

17 September 2008

Meeting Notes

Location: Wallumbilla Memorial Hall

Date & Time: Wednesday 17 September - 10:00am

Number of attendees: 15

GLNG/JTA representatives: David Lobb (Santos); Jamie Miller (Santos); Dennis Reid (Santos); Emma Hicks (Santos); John Phalen (JTA); John Melit (JTA)

Meeting opened 10:15am

John Melit of JTA welcomed attendees and introduced the Santos and JTA staff. John drew the group's attention to the hand-out material and briefly summarised the contents as well as highlighting the GLNG website and freecall 1800 details.

Dennis Reid was introduced to the group as the presenter. Dennis welcomed attendees and gave a brief description of his heritage and experience with Liquefied Natural Gas (LNG) projects.

Dennis made a commitment to attendees that every time he used an acronym, \$5 would be donated to a charity of their choice (to be specified by the group).

Dennis offered a flexible approach to the session and various attendees then commenced asking questions.

Do you remove all the water, not just some?

We need to remove all of the water.

What are you going to do with the water?

Dennis advised that Santos is yet to decide what it will do with water from the coal seam realised during gas extraction. Water is a considerable by product of the gas extraction process, and Santos' intention is to use the water beneficially although its use is controlled by the state government. The quality of water is variable across our fields, but in general the water quality is quite good. Water from gas wells around Injune is being set up to irrigate Leucaena and Chinchilla white gums. This project is being undertaken in conjunction with the Environmental Protection Authority (EPA) and the University of Queensland.

Santos does not know yet what the volume and quality of the water will be from gas wells around Wallumbilla. The water from appraisal wells may not be indicative of all the water released.

Will you need to treat the water?

We are currently working with a cross-section of the local community in Roma to determine how best to use the water that will be produced. Water quality varies depending on the location of the well. The further west we go the more salty the water becomes. As we go north, some of the water is good enough to drink. We certainly will not just dump the water

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into a local creek. Everything we do with it must meet stringent Environmental Protection Authority guidelines and where appropriate – yes we will treat the water.

At present the water realised from Santos gas wells contains various amounts of salt as well as fluoride and trace elements of boron. The water contains no heavy metals.

What do you do with the brine and where is this currently being done?

If we desalinate the water, about 70% is converted to clean water. This can be beneficially re-used. About 30% is brine. In some cases we are injecting this brine back into the ground at very deep levels, and below coal formations. It is at a depth that cannot interfere with groundwater. Brine from treated coal seam water is currently reinjected in locations around Injune and Santos is looking for target zones around Wallumbilla to use for reinjection of brine. Santos is looking into using reverse osmosis for treating salty water for use.

How long before the water that is being pumped starts to clean up? The well on my property which is currently being pumped is very murky and grey and quite a lot of water has been pumped already and it still hasn't cleared up.

Every well is different. Early on there are dissolved solids mixed in with the water. As the water volume reduces and the solids are gradually released the water clears up. It depends on the rock type that the water passes through. Some water is just as you say, and this can continue for some weeks. Some is quite clear immediately.

Is the water recognised as a contaminated site by the EPA, particularly if the water has bad things in it. Water with high fluoride content is bad for cattle watering.

The well area would never be listed as a contaminated site. The allowable amount of fluoride for stock water is 2 milligrams per litre. Some water released from gas wells contains fluoride at 4 milligrams per litre. These standards vary throughout the world, so there is mixed scientific opinion. Some coal seam water does not have fluoride this high.

How far can you pump the water?

Pumping water is extremely expensive and therefore water is generally not pumped long distances. The cost of water is so low, it is not economically viable for Santos to invest in pumping it long distances. We would need to use it locally.

Well, if you can't pump the water very far, what are you going to do with it?

Dennis discussed the recent water workshop held in Roma and said he would be happy to hold a similar workshop for the community of Wallumbilla to discuss what opportunities exist for beneficial water use in the Wallumbilla area.

Dennis referred the group to the water slides in the presentation (no.20 & 21)

Will the evaporation ponds be lined?

Yes they will.

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How will you stop wallabies from ripping up the lining?

All evaporation ponds will be fenced unless the water is suitable for stock.

How many wells do you plan on drilling?

Dennis described the five well configuration and said it is usually the centre well that produces the gas. When a cluster of appraisal wells is drilled, normally all but one is decommissioned; otherwise the wells run dry too quickly.

Appraisal wells are often drilled in a five point pattern as shown below.

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      X
    X  X  X
      X
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Santos will need to report back on whether it is normally the middle well which remains in production. Some concern was shown by one attendee who has a cluster pattern of wells on her property and the middle well is the well closest to her house.

Are the outlying wells going to produce gas?

The outlying wells generally don't produce the gas – only the central well. In Fairview, optimal well spacing is 1km which can produce gas for up to 15 years.

You mentioned your project is 30 years, does this mean you will be drilling for the next 30 years?

Dennis talked about the coal seam gas 'gold-rush' and land grabs in Queensland and New South Wales. There will be a slow progression of drilling over the long term. As wells go offline, new wells will be drilled to maintain steady gas production.

Are you testing the water for irrigation?

Dennis discussed current successful Luceana and Chinchilla Whitegum crop irrigation at Fairview.

You mentioned gold rush before. Can you explain why landholders are not getting adequately compensated while everyone else makes a fortune?

Dennis advised that it is Santos' policy to fairly compensate land holders. He pointed out the other Santos staff in the room by name (Jamie and David). These are the guys you need to ring up and talk to if you have any complaints, and if you don't get any satisfaction with them, Santos has a formal complaints system, and I encourage you to use this process.

Santos acknowledges that some landholders do not believe they are being fairly compensated for gas exploration and production on their properties. Santos is currently reviewing its compensation agreements.

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Gas companies are not allowed to collude by settling on a common approach to compensating landholders.

We don't trust Santos and we are sick and tired of the lies. I've sent two letters about my property and I keep getting told that I am going to get a response but nothing happened for two months.

We'll take that away and get a response for you.

The landowner replied by stating that he had now received a response, but it took forever. He only got the letter the other day.

Not many of us knew that today was on. Just because you advertise in the Western Star doesn't mean we read the paper. Most of the time we are too busy. Why were the ads from the government so small and different between newspapers?

A discussion was then entered into about the EIS process which was the subject of the ads that were being referred to. Dennis could not comment as to why the ads were small and different.

Are you going to explain to us landholders what the findings of the studies are?

Dennis responded by advising that Santos would be back again in late October or early November to discuss some of the findings of the studies.

Our bores have been dropping. Will your drilling affect the town water supply?

Dennis went on to talk further about the EIS study process which is designed to highlight if impacts such as these are likely to occur as a result of the project.

How do you get the gas from the wells to the main Wallumbilla pipeline?

We use infill pipes to a major compression station.

What's the proposed pipeline that follows the Spring Valley line and then diverts to Scotia?

That is probably Origin's pipe not Santos. Dennis then went on to discuss the pipeline route part of the presentation.

Where would you put the second pipe? Is it covered under the same agreement with the landowners? The ones on my property just sit on the ground.

Dennis suggested the questioner contact the Santos Roma office as Santos should bury the lines if the landowner requests.

Santos is not a gas retailer. Santos gets the gas out of the ground and other companies distribute the gas to communities for sale. There is already more than enough gas to supply the existing Queensland market.

What if some of the smaller companies come onto our land? What are the laws relating to compensation specifically – amount of dollars and access to properties?

Dennis said there are no laws specifying the amount of compensation in dollars. Santos is bound by government legislation which requires a whole range of conditions to be met by Santos in regard to engaging with the landholders. He said JTA would send out the government fact sheets that detail these requirements to all attendees. Dennis advised that Santos picks up the cost of landowners' lawyers if they are engaged to review the agreements. Dennis recommended that lawyers be used as the agreements can be quite complicated.

What happens if Santos workers hit a beast when their transport vehicles come onto our property during construction or production?

Santos will have to compensate the landowner for any damage caused by it or its contractors.

Your wash-down processes need to be improved.

Dennis enquired as to whether the comment was specifically in relation to Santos' wash-downs?

I don't know if it's Santos or not but there is a lot of dirt and mud on the roads.

How big is the drilling site for a well? We were told it was going to be a certain size but it's much bigger in real life?

The normal size is 100m x 100m. There is a lot of room for improvement for land disturbance and this is currently being reviewed by Santos.

What about roads? The distance of some access roads are bigger than some well sites and landowners are not being compensated.

Santos will have to compensate the landowner for any damage caused by it or its contractors. This should include the use of land for access tracks.

How much room do you need to access a rehabilitated well?

It would be rare that Santos would need to visit a rehabilitated well. If the well has been fully rehabilitated, Santos would not visit the site until the petroleum tenure was being relinquished to the government. The visit would be only to assess the long term rehabilitation success and to photograph the site to show the level of rehabilitation.

If the well has been partially rehabilitated (meaning the lease site still contains the wellhead infrastructure and gas is still flowing into a pipeline), Santos would still access this site routinely to conduct maintenance and operational inspections. Partial rehabilitation works would require earthmoving equipment to be onsite for approximately seven days to re-contour the site to the previous condition. The site would then be inspected for a twelve month period to ensure the grass is being established. However, by this stage the total area of the well site has been reduced from 100x100m to 10x5m in total area.

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At this point Dennis went back to discussing the presentation.

I understand Santos has just bought a local property. There is a well going on my property and I only have 80 acres. Would Santos consider buying the property as my land won't be any good for subdivision once this well is dug.

Dennis responded by saying that it was not Santos policy (generally) to buy up properties.

Santos' offer of compensation is downright rude. It's no good.

I hear you loud and clear, and we are working on it.

***What happens to the water in the appraisal phase with water evaporation ponds?
How many acres would be required for a typical evaporation pond?***

Evaporation ponds for coal seam gas (CSG) field development are the first step in developing the CSG reserves. For CSG developments, when the gas is extracted from the coal seam, a by-product produced is the formation of water, otherwise known as 'associated water'.

The amount of associated water cannot be determined prior to the CSG development and the amount of water cannot be estimated until approximately one to three months after the wells have been drilled and tested. Due to this uncertainty, the size of the dams can vary greatly.

When the CSG industry was first initiated large evaporation ponds were installed by several companies. Santos sees this option as a short term one and is currently assessing many different ways to manage the water.

That's another thing. Santos has been branding evaporation ponds as dams. More lies. What's more, these ponds are not located in areas where natural water can run off and re-fill, so they are of no use to us anyway.

Dennis couldn't comment on this issue other than to request that issues like this be discussed with the local land contacts at Santos i.e. Jon Warby etc.

A number of attendees were not happy with this response.

What happens if one of these foreign owned companies takes over Santos? Will everything change? Will our current agreements still stand?

Dennis talked about the share cap being lifted off Santos which may expose Santos to foreign ownership and that he could not comment what would happen to the existing agreements if that happened.

Water quality is worrying all of us. Locals have been running on guesses. Are there any independent landholder support organisations.

Dennis recommended AgForce and advised that it also has good solicitors.

Meeting closed at 12:00pm

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Actions:

- As a result of 20 acronyms used during the delivery of the presentation, \$100 to be sent to the Wallumbilla Hospital Auxiliary c/- of D. Smith PO Box 5, Wallumbilla 4428
 - Actioned 9/10/08
- Follow up with Christina York re specific water issues.
 - Actioned 9/10/08
- JTA to provide attendees with the Department of Mines and Energy documents - *A guide for landowners and occupiers* and *Exploration laws explained* with the meeting notes.

Santos Gladstone Liquefied Natural Gas (GLNG) Project Roma Community Information Session

17 September 2008

Meeting Notes

Location: Roma Bungil Cultural Centre

Date & Time: 17 September, 5:30pm

Number of attendees: 9

GLNG/JTA representatives: Jamie Miller (Santos); Jon Warby (Santos); Emma Hicks (Santos); John Phalen (JTA); John Melit (JTA)

Meeting opened 5:45pm

John Melit of JTA welcomed attendees and introduced the Santos and JTA staff. John drew the group's attention to the hand-out material and briefly summarised the contents as well as highlighting the GLNG website and freecall 1800 details.

Emma Hicks was introduced to the group as the presenter. Emma welcomed attendees and gave a brief description of her role with GLNG. Emma made a commitment to attendees that every time she used an acronym, \$5 would be donated to a charity of their choice (to be specified by the group).

Emma offered a flexible approach to the session and various attendees then commenced asking questions.

Presentation tabled

What is the picture on the left? (referring to the first picture on page 3 of the presentation)

It's a compressor station.

Are you tapping into the Hutton and Gubberamunda?

There is a groundwater study underway in the Roma area now. We do not expect that there will be any impact on existing groundwater supply.

Emma provided information on the number and location of wells.

Do you mean there will be 2000 wells across all of the leases?

Yes, this is the projected total. But this will take many years to achieve. This depends on a range of issues, including the viability of extracting the gas.

Are you working the whole area?

We will be working field by field.

Emma explained the stages of a coal seam gas (CSG) project, and the status of existing and proposed fields.

How do you jump through the hoops to use the water for irrigation purposes?

Water is a considerable by-product of the gas extraction process, and Santos' intention is to use the water beneficially although its use is controlled by the state government. The quality of water is variable across our fields, but in general the water quality is quite good. For example, some water from gas wells around Injune is suitable for the irrigation of Leucaena and Chinchilla white gums. This project is being undertaken in conjunction with the Environmental Protection Authority (EPA) and the Department of Natural Resources and Water. Santos is still testing gas availability and water quality.

Are you going to have a treatment facility?

We are currently working with a cross-section of the local community in Roma (including the local council) to determine how best to use the water that will be produced. Water quality varies depending on the location of the well. Everything we do with it must meet stringent EPA guidelines and where appropriate we will treat the water as necessary.

At present the water from Santos gas wells contains various amounts of salt as well as fluoride and trace elements of boron. The water contains no heavy metals or hydrocarbons.

Is there a fee involved in bringing the water to the surface? Doesn't government own the water?

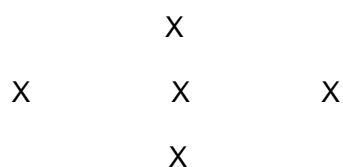
The water is referred to as produced formation water (or associated water) and is considered a by-product of coal seam gas developments, for which Santos pays royalties. The water is not owned by Santos and the management of the water once on the surface is heavily regulated by the government. This regulation provides strict guidelines as to how the water can be used, how it is to be stored and how storage facilities are to be built.

Where is the Precipice in relation to the injection wells? How deep are they?

This was an action to be followed up after the meeting.

How many appraisal wells do you put in per field?

Appraisal wells are often drilled in a five point pattern as shown below.



Appraisal wells are not worked out on field size. There is usually a five well configuration and it is usually the centre well that produces the gas. When a cluster of appraisal wells is drilled, normally all but one is decommissioned; otherwise the wells run dry too quickly.

How deep is the brine injection?

If we desalinate the water, about 70% is converted to clean water. This can be beneficially re-used. About 30% is brine. In some cases we are injecting this brine back into the ground

at very deep levels, and below coal formations. It is at a depth that cannot interfere with groundwater.

As far as I am aware, one town supply water bore supplies approximately one third of Roma's water. How can we protect the bores?

Emma discussed the EIS studies being undertaken and that Santos would be out in Roma in late October/early November to discuss these and other impacts.

Have most of the affected landowners been contacted already?

This is progressively being done where we wish to access land to investigate for gas. We have a team of land officers based in Roma, whose role it is to be in contact with landowners. The majority of landowners who may be affected by the pipeline to Gladstone have been contacted.

How much money has been set aside for landowner compensation?

There is no specific amount of money set aside for landowner compensation. It is Santos' policy to fairly compensate landowners. Each situation will be assessed individually. We also encourage the use of a solicitor to assist landholders before they sign the agreement. Santos will pay the cost of solicitors used to provide advice to landholders about the agreement.

Santos is currently reviewing its approach to landholder compensation. We have certainly heard your concerns through meetings such as these.

How many rigs would be operating?

Rigs would be progressively drilling over time – they won't all be drilling at the same time. I can't say exactly how many would be operating.

How noisy will the wells be?

The majority of noise produced is associated with the drilling, but there will be some ongoing noise associated with vehicles accessing the wells (approx 2 times/wk) during operation. We investigate for gas in stages. It is very uncommon to have more than one rig on a property at a time.

How much area are you taking up with roads?

Access tracks are made six metres wide although the roads constructed for drilling rigs are wider than that. We only make tracks across land when we absolutely have to. We prefer to use established tracks, and when we have to go off these tracks, we locate these tracks in consultation with the landowners. In terms of actual roads, we will use the established roads around the district for travel.

What's the requirement to service the wells? How often would you be coming back to the wells?

Production wells are serviced approximately twice a week.

Do you bury the pipes and the gathering lines? Why do you do it?

Pipes running from wells will be buried. This is to protect the pipes and to reduce impact on land use. There are some above-ground water pipes at Fairview.

Have there been any studies into the impact on livestock and the effect on their weight resulting from dust etc on the grass? (They won't eat dusted crops.)

See response in Action items at the end of these meeting notes.

How much emphasis is there on landowner consultation for the location of wells?

All that we do on your land we do in consultation with you. This includes the location of the wells. We would want to avoid important land use areas on your property (especially in close proximity to houses, etc). In terms of what we need to do to access the gas, we have to be quite precise where we locate our wells, but there is usually some room for movement. Usually the things that you want to avoid, such as close proximity to structures, buildings, tracks, dams, creeks, and stands of trees, are things that we want to avoid as well.

What distance is there to work with to move the pipes if a landowner isn't happy with the proposed location?

Santos can negotiate with landholders on where production wells are placed, perhaps within the range of 50 metres to 100 metres.

What rules are there for washdown signs?

Santos has a very stringent weed management procedure. We understand that we have to negate the potential for weed dispersal. We don't display signs usually, but vehicles accessing the field (including contractor vehicles) are required to comply with the procedure. For example, all vehicles require a washdown at an approved washdown facility before entering our Fairview field.

How many wells are serviced by one compressor station?

Santos is looking at options regarding the location of compressor stations but generally speaking there would be one compressor station for every 50 wells. *Discussed central vs field compression and number of wells at Fairview vs number of compressor stations there (as well as number of compressors per compressor station).*

There has been a lot of pressure on local accommodation resources. Rent has increased fourfold in the last three years. Roma is too expensive to live which is affecting our ability to attract and retain a workforce.

This statement was made in response to comments from Emma on the social impact and wellbeing studies conducted in the Roma area.

Santos is required to study the specific impacts of its development on a number of social factors including housing. We will have to make some response to identified problems. Elsewhere in the project where we will have large workforces, specifically the pipeline and LNG plant, we will probably need to use temporary camps. *Discussed pros and cons of*

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camps and town accommodation for CSG fields, as well as workforce numbers during construction (including drilling) vs operations. There was also discussion about the existing Santos workforce in Roma.

What's the output of gas at full production?

Initially the project will produce between 3-4 million tonnes LNG per annum at Gladstone. The full potential is 10 million tonnes per annum.

Is the gas compressed or is it just cooled?

At different stages of the project there is both compression and cooling. In the field pipelines we use compressors to push the gas to Gladstone. At the LNG plant we chill the gas to liquefy it (further detail was provided here; such information is available in Santos publications).

What's the life of the whole project?

Thirty years – the time frame was outlined (this is also available from Santos via email or the freecall number).

Does that mean the resources will be depleted in 30 years?

No. There are sufficient resources to extend gas projects beyond 30 years. It is normal within projects such as these to project out to a maximum of 25-30 years.

Meeting closed at 7:30pm

Actions:

- As a result of 20 acronyms used during the delivery of the presentation, \$100 to Maranoa Kindergarten 49 Bungil St, Roma QLD 4455 c/- Leigh Baldo (Director)
 - *Actioned 09/10/08*
- Follow up where the Precipice is in relation to the injection wells
 - *This action is being followed up.*
- Follow up and advise if there is a study into the effect of dust on cattle grazing
 - *There is no study looking directly into the effect of dust on cattle grazing, however there are not many activities that GLNG undertakes to cause this level of dust. If dust was to cover the grass, the works would have ceased before this time due to a health and safety reasons. If the dust is due to traffic driving past on dirt roads Santos would implement various dust suppression techniques to manage the dust.*

Santos Gladstone Liquefied Natural Gas (GLNG) Project
Injune Community Information Session
18 September 2008

Meeting Notes

Location: Injune Memorial Hall

Date & Time: 18 September, 2:00pm

Number of attendees: 5

GLNG/JTA representatives: David Wood (Santos); Trevor Edwards (Santos); Jamie Miller (Santos); Emma Hicks (Santos); John Phalen (JTA); John Melit (JTA)

Meeting opened 2:00pm

John Melit of JTA welcomed attendees and introduced the Santos and JTA staff. John drew the group's attention to the hand-out material and briefly summarised the contents as well as highlighting the GLNG website and freecall 1800 details.

Emma Hicks was introduced to the group as the presenter. Emma welcomed attendees and gave a brief description of her role with GLNG.

Emma made a commitment to attendees that every time she used an acronym, \$5 would be donated to a charity of their choice (to be specified by the group).

Emma offered a flexible approach to the session and various attendees then commenced asking questions.

Presentation tabled

There are not enough doctors in Injune. The camps aren't included in the population numbers which is putting stress on the health services for the local community. Queensland Health need a bit of a push from Santos to get a full time doctor out here.

This was flagged for further investigation.

How long does it take to construct the pipeline?

Between 18 to 24 months.

We would love some of your water. What is the water quality like?

Water is a considerable byproduct of the gas extraction process, and Santos' intention is to use the water beneficially. The use of the water is controlled by the government. The quality of water is variable across our fields, but in general the water quality is quite good.

We are currently working with a cross-section of the local community in Roma (including the local council) to determine how best to use the water that will be produced. Water quality varies depending on the location of the well. The further west we go the more salty the water becomes. As we go north, some of the water is good enough to drink. Everything we do with it must meet stringent Environmental Protection Authority guidelines and where appropriate we will treat the water.

At present some of the water realised from Santos' gas wells contains various amounts of salt as well as fluoride and trace elements of boron. The water contains no heavy metals.

So you have no leases along the pipeline route?

No

Last time you were here, I thought you were going to hold an information session on landholder compensation.

Santos is currently reviewing its approach to landholder compensation. The Queensland Government is also about to conduct a series of information and consultation sessions in the region. You are encouraged to take your issues up with the local Santos land agents.

Why do you negotiate individually? Landowners talk to landowners anyway.

Everyone's circumstances are different. Many of the issues are highly confidential and Santos has an obligation to respect the privacy and confidentiality of landholders. The methodology used by Santos is one designed to compensate landowners fairly.

What's fair to one person is not fair to another. How do you compensate someone who simply can't live with the infrastructure on their property regardless of compensation?

You are right. Landowners respond to the prospect of gas exploration and extraction in different ways. Compensation is on a case by case basis due to individual circumstances. We do explain, discuss and negotiate about the infrastructure.

How much council liaison has there been to discuss the intended path of the pipeline?

Santos has discussed the project in depth with the state government and councils throughout the project area. We have briefed council staff and councillors, and continue to offer briefings. We have had councillors and mayors along to meetings such as these. We have outlined the intended path of the pipeline to councils. The councils are concerned about accommodation, increased road use and potential damage, waste generation, water use and so on. We know and expect that the council will look over the Environmental Impact Statement (EIS) report and proposed mitigations.

Why can't we get gas here?

Santos is not a gas retailer in that sense. Santos gets the gas out of the ground, which is then on-sold to the domestic market. We are a wholesaler in the gas market. It would be up to those companies that we supply, as to whether they offer gas into a town. Overall, there is currently more than enough gas to service Queensland's needs.

Why don't you all share pipes? Why do you all have to build separate pipes?

The pipelines are owned by separate companies, some of which are solely in the business of installing, maintaining and operating pipelines. Not all companies that produce gas own the pipelines in which the gas is transported, these companies pay tariffs to have their gas transported to markets. Santos has a long history of installing, maintaining and operating

pipelines (many new lines have been installed in the Cooper Basin) and thus is best placed economically to manage a major transmission pipeline. Santos also plans to use existing (or close to) easements to minimise the disturbance to landholders.

Are there going to be wells here in Bymount?

Santos was unsure what, if any, production was planned for the Bymount area.

Are the washdown facilities at Injune sufficient? There can be up to a one and a half hour wait to use the washdown facilities at Injune. This discourages compliance.

David Wood responded by saying that the washdown availability around here is tight, but that Santos has a strict policy in regard to washdowns and takes it very seriously.

How do you washdown out in the valley when you have no water?

David Wood responded by saying Santos uses a high pressure blower.

What do you do if you do spread weeds?

If we cause weeds we fix it.

Comment

Well, it's not that easy to fix. Also, we might not want you to treat it with chemicals because we are growing organic crops.

Comment

Springwater is very concerned with noise.

Emma discussed the studies (including noise impacts) being conducted as part of the Environmental Impact Assessment.

Are you expecting there to be a flow-on effect for schools in terms of the number of school registrations with the transient workforce?

There would be little if any increase in the permanent Santos workforce living in Injune and accordingly there would be little extra increase in demand for services such as school placements.

How long will Trevor be here in the community?

Ongoing. Santos has an ongoing commitment to the community.

With regard to water, you could pump it into the Injune Dam. Suggest you speak to the Advance Injune Group.

Yes we have already been in touch with Advance Injune.

On what property are you growing the Chinchilla Whitegum and Luceana crops?

Santos' property.

Will you be using evaporation ponds?

This is the option of last resort. As you can imagine, farmers and councils are desperate for the water. However, under current legislation, it is declared as a prescribed waste and we cannot simply hand the water over. The amount of associated water cannot be determined prior to the coal seam gas (CSG) development, and the amount of water cannot be estimated until approximately one to three months after the wells have been drilled and tested. Due to this uncertainty, the size of the evaporation ponds can vary greatly.

When the CSG industry was first initiated, large evaporation ponds were installed by several companies. This is not Santos' preference and we are currently assessing many different options to manage the water.

A criticism was noted that the fly-in and fly-out workforce approach does not benefit the local economies of the community. The local service station closed down because of a marriage breakdown.

Santos usually only has fly-in-fly-out arrangements in remote locations when we can't locate our workers in a town. We are conscious of contributing to the local economy and we want to. We seek to procure what services we can locally.

Would Santos' training programs be linked to local schools?

The apprenticeship program is planned to commence in 2009. Initially the proposed target group will be school leavers on a full time basis. The program will start off quite small to ensure that it is successful. It is then planned to expand to meet a perceived increased demand in workforce numbers.

This increased demand could see an expansion into school based apprentices in the future as the project grows. Due to the nature of this type of apprenticeship the primary target groups would be the local schools. There is no definite time line or growth rate in place at this time but it is in the process of being developed.

Meeting closed at 3:30pm

Actions:

- As a result of 20 acronyms used during the delivery of the presentation, \$100 is to be sent to the Injune Hospital, Fifth Ave, Injune, QLD 4454– c/o Joy Denton
 - Actioned 09/10/08
- Investigate the issue of camp numbers not being included in statistics for the local doctor service
- Investigate possible drilling at Bymount
 - The nearest Petroleum Licence (PL) is approximately 7kms to the north of Bymount school. There is no information to date as to the expected drilling to take place in this area in the future.
- Distribute meeting notes to attendees

Santos Gladstone Liquefied Natural Gas (GLNG) Project Curtis Island Community Information Session

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Meeting Notes

Location: Capricorn Lodge, South End

Date & Time: Sat 20 Sept @ 11:00am – 2:30pm

Number of attendees: 50

GLNG/JTA representatives: Dennis Reid (Santos); John Phalen (JTA); Greg Bourke (JTA)

Meeting opened 11:00am

Greg Bourke of JTA welcomed attendees and introduced the Santos and JTA staff. Greg drew the group's attention to the hand-out material and briefly summarised the contents as well as highlighting the GLNG website and freecall 1800 details.

Dennis Reid was introduced to the group as the presenter. Dennis welcomed attendees and gave a brief description of his role, heritage and experience.

Dennis offered a flexible approach to the session and various attendees then commenced asking questions.

Presentation tabled

Is there really any point to Santos running the Environmental Impact Statement (EIS) process and your consultation with the community? Is there even the slightest chance of us being able to influence this project?

Yes there is. We are holding these meetings to listen and learn. Let me give you a couple of examples. When we were here last we learnt the community was concerned about whether it would see the flare stack. So we engaged an expert photographer to take pictures plus a company to overlay a model of the plant on those pictures. We will be able to tell whether the stack will be visible from here. We will simulate what it will be like if there is a full flare. We will be able to see what the light levels are like at night. If it is unacceptable, we will look at having a ground based flare. Elsewhere in the GLNG project at Arcadia Valley, the community there do not want our pipeline in certain places, and we have agreed to this. These are examples of the community influencing the project.

But we can't influence your decision to the extent that you might change your mind?

Not likely.

So the plant is definitely a goer?

No, not yet. There are some key decision points in 2009. Next year we will know whether our plans are approved by government and what the government's environmental and development conditions are. By then we will have developed more detailed designs of the plant and pipeline, dredging requirements, etc. and therefore have more precise costs. There is work to do on marketing and selling the gas. There will be a final investment decision in late 2009. It is not certain, but we are gearing up. We are hiring one person a day on average.

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So it is not absolutely going ahead?

No, it is not absolutely going ahead.

I am not knocking you or Santos exactly, but we have been told a lot of bullshit in the past about the state development area and the port (examples about handling facilities, shale oil mining and other cases stated). We have lost trust.

I am hearing you loud and clear. I will tell you all I know that pertains to Santos. You can kick me if I tell you things that are incorrect in my area of responsibility.

If it does not go ahead, will you sell the land?

Probably we would sell; the Port Authority has right of first refusal on our land.

In terms of Santos' funding of the plant, will it involve government funding?

No.

Could Santos' investment be influenced by the current 'credit crunch' whereby it is more difficult and expensive to raise capital?

Yes, it would certainly make it more difficult. This situation could have a big impact.

If Santos' plant goes ahead, will other companies have use of your infrastructure?

To operate on Curtis Island, we need to dredge, establish roads and wharves and the like. In particular, Santos is seeking to have a bridge and adjoining road built. Some of this is called 'common user infrastructure'. Some of this could benefit other companies, and shared costs will have to be worked out.

Your development is really providing the way for other industry to move onto the island.

The broader picture is that the state government has extended the State Development Area. The reality is that the state is planning for more development, not Santos. But to the state's credit it has tried to create certainty by declaring the great majority of this area a nature reserve of some kind. This will separate industry from South End.

We are concerned that the area will not be limited (to the ridge line indicated by Dennis on the map). Can you guarantee that industry will be limited?

I am sorry, I can't. You will have to ask the state government.

Will the bridge have other users?

That depends on what is finally developed on Curtis Island. There are a number of proposals involving other plants: BG, Origin, and Conoco-Phillips for example. It will depend on what industry goes ahead.

Why Gladstone? Why Curtis Island?

We looked from Brisbane to Townsville for suitable locations. Six other sites were explored and considered. Curtis Island was identified as being most suitable, especially

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as it has deep water protected from the weather. LNG ships are light and somewhat susceptible to high winds. Also, there are good services and infrastructure in the city that can support our project. We believe it is the right choice. And this is evidenced by the decision of other companies to locate here. The government undertook an independent study and came to the same conclusion. We tried Brisbane because the port is very good there; however we can't get a gas pipeline through Brisbane because of all of the development and the existing easements are very congested.

There is enough land on the mainland for your plant.

There is a lot of land, but it is not practical or accessible. There are oil shale leases over the land. We have been refused authority to bring our pipeline across this land.

But oil shale leases have been rescinded in other areas. The government should get rid of them here as well. That would solve the problem. But even so, is it too late for Santos to change its mind?

For us it is too late to change, and the suitable land has been allocated to other plants.

If they can fit why not you?

We will have a much bigger plant and need more land. The mining leases wipe out a big chunk of land. The proposed extension of the area will also cover seagrasses. On environmental grounds alone, this is not acceptable to Santos.

How big is your property? Are you going to extend your area?

Our land is 80 hectares. It is possible that we could extend to 180 hectares. We can't use all of our existing land due to the hills.

Will you sell off your plant once it is built?

No, I can't see that we will sell off our plant.

Your land sits quite low. Have you taken into account rising water levels?

Yes we have. We have looked at tidal and storm surge records over the past 100 years, and have taken account of probable rising sea levels from global warming. This total height is about 4.8m. We will locate our plant 7m above the maximum surge height. This effect will be fully factored in.

If there are other plants, will they have to do EIS studies if you have done them already? Will the studies take into account the probability of total explosion impacts from say, three LNG plants?

Firstly, all of our risks will be managed on our property, within our fence-line. There is no prospect of impacts on adjoining properties. The other proposals, given they would be of similar magnitude to ours, would have to do EIS studies as well, and account for the very latest conditions. The state government makes these calls.

But other plants have an exclusion area of 5km minimum.

No they don't. This is not the case for any LNG plant, worldwide. We will need a 200m exclusion area during loading of the ship. Some plants have no safety zones. Plants in the United States have larger zones, but this is mainly for security.

Are there steam boilers at the LNG plant?

No, it would not be like some older LNG plants, such as Skikda, in Algeria.

If there is Santos as well as five to six other gas plants, how will safe passage of the LNG ships be guaranteed?

Our LNG ships will increase traffic. Probable ship movements are being modelled and will be further developed next week at the Australian Maritime College in Tasmania. The contingent will include people from the port, Maritime Safety Queensland (MSQ), BG and Santos. We will model ship movements in and out of the harbour under a range of scenarios including power and steering failure. We will model scenarios based on three different ships, including the Moss-type LNG ships which are typically harder to manoeuvre. We will model on worst case scenarios. We will assess a range of hazards, and design mitigations. I would add that since 1959 there has not been an incident where an LNG ship lost any cargo. It has by far one of the safest shipping records of any shipping type, worldwide.

Why are you going to the Australian Maritime College?

The college has the port dimensions built into its simulator. There will be LNG captains there who will assist with the simulator settings to ensure that it feels like an LNG ship.

The outcomes of this modelling won't be in the report will it? There will be two to-three lines stating that the additional shipping will not pose any problems etc.

All the identified risks and responses go into the EIS report.

Can we see the raw data?

I don't think that will be useful. It will be very raw, in the form of dots and dashes, and lines. It wouldn't be intelligible. We will advise you of the outcomes.

But it will be your engineers, your specialists making these assessments.

The MSQ pilots will be doing the driving during the simulation. Government officials will be present.

The Port Authority is probably going to establish two channels so your model will not be based on future scenarios. Therefore the data will be flawed.

I cannot be sure of the Port Authority's precise plans or when they will be implemented. I have heard one scenario that a second channel might be established within the next 50 years. We will model on what is known now and in the immediate future. Without precise plans, we can't model anything beside the current port conditions.

Has a full dredging plan been done?

I have been told that it has.

Have you seen it?

No.

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Are you satisfied with that? That is, you have only verbal assurances?

It is not up to me. I deal with the information I am given or can access. We are a commercial company, and government entities can't or don't always tell us everything. In terms of whether this is satisfactory, I can't answer that. I would leave that to the judgment of people higher up in Santos. The other matter is that when the concept and scope are defined the detailed planning commences. There are also environmental and legal aspects that take a long time to complete.

There is also talk of moving the coal loading facility.

I don't know. I can't comment on that.

Maybe your work is premature if you don't know all of the Port's plans.

I don't know all that is planned, nor do I know all that will come to pass. But it is true to say that the picture is getting bigger. A lot of things are being suggested and the picture is changing. We are seeking to keep up-to-date with all of the developments. But really you are making comment upon and asking for information beyond my jurisdiction.

If there are other plants and industry - will you update your shipping model?

Yes, in collaboration with all parties, we would update our procedures. The port is updating its shipping capacity model. We will change any of our practices in light of new activity and new risks.

You guys are the ground-breakers. When you establish, the others will walk in behind you. I am concerned that the whole area will get opened up. This is the biggest issue for us. We want you all to keep to your side.

It is in Santos and your interests that industry is limited to the western side of the island. We want that. The state has identified a limited industrial zone. The rest would be reserve. I am telling you as much as I know.

You have said that explosions couldn't happen but what about Varanus Island in Western Australia?

The fire came about in the high pressure pipeline. We don't store or transmit LNG under pressure.

It is a big issue for us that companies like yours are designed to make money. You will build the plant and seek return on your investment. We know that to improve profit margins, maintenance is squeezed. Will there be maintenance standards published in the EIS?

This is a big issue. We will have detailed plant design next year. No, the maintenance program will not be in the EIS, as the plant will not be fully designed. We have to know what we are maintaining. We will be able to be more specific and public about our maintenance standards closer to the commissioning and running of the plant. The plant and our entire infrastructure will be very professionally managed.

If the gas is under pressure there is potential for ignition?

The LNG is not placed under pressure. It is kept at atmospheric pressure.

How is the gas chilled?

We use refrigerants like propane and butane.

These gases are used under pressure – so there is pressurised gas at the plant. This stuff would be highly explosive if vented.

No, if vented, it would not explode; at worst it would burn. Also, we have significant separation distances between different sections of plant, and multiple levels of protection.

What classification would the plant be?

It would be Classification One or hazardous. On this facility there would be no ignition sources. For example, there would be no mobile phones. The plant would be run very strictly.

Is the CO₂ in the coal seam taken out?

Yes, it is released to the atmosphere. However, it is in low volumes. There is also CO₂ released from combustion of the gas that we use on site for our energy needs.

I have read that this plant will increase CO₂ emissions in Queensland by a whopping 3%. Will the EPA ask that this is negated?

Yes, we may have to offset this, but the best way Santos can support offsets is through emissions trading.

Later in the project you said that you might be dealing with gas with mercury levels?

Yes that it possible. The mercury would be removed from the gas in activated carbon beds. These beds are changed about every three years. If deemed hazardous, the carbon would then be taken to a hazardous waste facility. We don't expect much mercury. It would not stay on the island.

Does the gas have a smell like propane?

No. In the case of propane, a strongly smelling additive is included in the gas. There are a number of ways of detecting a potential methane leak at a plant, such as temperature changes, loss of pressure or gas detection devices. In the case of propane it is by the human nose. We have more sophisticated equipment. The additive is needed in domestic situations as you don't have this equipment, and the nose is the best way to detect gas.

Why do you need a flare?

We always have a little flame on the stack, but the flare is used if we need to shut down the plant and burn the gas. It is a safety measure and emergency device really. There are many levels of safety and redundancy throughout the plant. If we can't manage the gas on-site, as a last resort we would send the gas to flare.

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What volumes of gas, and would it explode?

The actual volumes would depend on the duration. It would not explode, only burn. The flare is used in most emergencies. In terms of plant safety, the greatest threat is external. I'd say that a bushfire would pose the greatest safety threat to workers. And we will plan for such scenarios.

Will your LNG ships and the safety zones 'take out' the channel?

No; there will be enough width across the narrows or harbour for boat movement. We expect to need a 200m safety zone during loading of an LNG ship. But this section is at least 600m in width, leaving a further 400m for navigation.

How long do the ships take to load and then leave the port?

Based on comparable examples, the LNG ship would be loaded in 14 hours, meaning the entry and exit would usually be completed within 24 hours.

Long list of pipeline failure events in the United States cited.

Have you learnt from these failures?

I don't know the details of all of these events. Santos has very strong policies about protecting the environment and people. In the case of serious events, information is normally shared across the industry to ensure individual companies know about it. A basic precaution is that we place the pipe underground and place it away from residents and towns. The pipe will be made from high quality, durable steel. We also know what is in our pipes. For example, some gas has sulphur and water. This is a very corrosive combination. But we don't have these in our gas. We will maintain the pipe to very high standards. As part of the maintenance program we will scrape the inside of the pipe, both removing any corrosive compounds and detecting any corrosion problems.

Are you going to branch some of the gas off into Gladstone so that it can be used locally? There is gas in Gladstone, but it is already all used by industry.

We are asked this sort of question a lot. Santos is not a gas retailer in that sense. Companies like Origin and AGL for example sell gas to consumers. We are a wholesaler in the gas market. It would be up to those companies that we supply as to whether they offer gas into a town.

Dennis then volunteered information about the bridge.

Planning still continues. The bridge will either have an elevated or opening section to allow traffic through. This is still being designed and considered. We have held a meeting here in Gladstone with people with marine and fishing backgrounds to work on the design needs for this bridge. At this stage, government has indicated that public access will not be permitted as the bridge will only service industry. Public access might be allowed in exceptional situations. We received the suggestion that for emergencies such as cyclones, South End residents might get access via the bridge and also to allow people that have moored in Graham's Creek to get back. These are sensible suggestions that we have passed on, and have been picked up by the bridge working group. Please bear in mind that as the bridge would be built to service the State Development Area, the government is driving this process.

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What about the construction workforce? Would they be on or off the island?

We need to house quite a large workforce. We need to take decisive measures as the local accommodation situation could not cope with an influx of workers. We have the following options: (i) establish a full camp somewhere and then ferry the workers in and out on a daily basis; (ii) establish half the workers in camps and half in local housing or (iii) a mixture of camps on and off the island. We understand that we need to take the pressure and burden off Gladstone. There is not sufficient capacity or social infrastructure. The consideration has also to be the contribution to the local economy; most communities want to see some benefit from local development. So, it has to be a balance.

So the workers might be physically on the island?

Yes they might, and we are looking into it. But they would be limited to the site. They would not be able to come across to South End.

The progress association is preparing a letter with a list of possible projects that Santos could contribute to. What sort of contribution will be provided for South End residents?

I am happy that the community is looking into this. We have hired an expert company to define and prescribe 'wellbeing' as we are interested in enhancing community wellbeing. When this work is completed, we will have a better idea of the type of projects we will be more inclined to support. The plant would provide some employment of course, but we will be looking for good causes that we can support. For example, we know that there is no youth counselling service in Gladstone. This is the type of program we would be interested in supporting as a demonstration of what we mean by community wellbeing. In time and when you are ready, we can discuss your ideas.

Meeting ended 1.10 pm

Santos: Land valuation impacts - coal seam gas development

Explorers Inn, Roma, 8 October

Meeting opened at 4.20pm

Peter Sippe, Santos – explained the purpose of the meeting was to:

- Define the issues associated with coal seam gas (CSG) development and its impacts on land valuation
- explain the method and steps by which Santos would attempt to identify land valuation impacts
- introduce the specialists Santos has engaged to lead this work – URS and Devine Agribusiness
- gather input from landowners towards the land valuation study.

Panel

- Lili Pechey – Economist, URS
- Lucas van Raalte, Economist, URS
- Graham Kenny, Director, Devine Agribusiness
- Peter Tannock, Senior Consultant, Devine Agribusiness

Note: This session was not recorded; the minutes are based on a written record and will include some paraphrasing.

Introduction from Panel

URS is seeking to access all relevant information that precisely identifies the impact of CSG operations on normal land activities and consequences on land values. The intended outcome will be a model to analyse impacts on land value for properties affected by CSG activity.

The panel identified that this type of work has not been done before, and that accordingly there is no precedent. URS is looking at all relevant examples where there has been gas infrastructure and water containment features that reduces the productive use of the land. This will be used to develop a model as a foundation for negotiation about land valuation impacts. There is some information available from USA CSG development, but the land use type is very different – mainly rural residential/ small acre lots. Also, there are different arrangements in the US re royalty payments to landowners which in turn has an impact on land value. This is admitted to be of limited application.

URS is looking at all elements that are influences on land value. The attributes include, for example: area; soil type; vegetation; rainfall/ access to water etc. These provide determination of carrying capacity, potential profitability and land value. A big challenge is how to deal with extraneous issues such as the impact on commodity prices, interest rate rises, general economic conditions, legislation etc., and how this impacts on productive capacity.

Devine Agribusiness is assisting URS by identifying relevant land sales of properties with CSG or conventional gas infrastructure, or potentially impacted by the close locality of CSG operations. Sales data will be sought from 1998 onwards.

General meeting discussion

Statements, questions and answers

Questions and statements in bold – panel responses following

Why are you looking at sales data as far back as 1998? Land values were a great deal lower then.

This is to ensure there is enough data for the model. This is intended to show how the presence of gas infrastructure may have had an impact on land values. We have to go back some way to provide the foundation for the model. We will use as recent a data as possible. The actual prices are not as important as the relativities between gas-impacted and non-gas-impacted land sales. When the model is designed, current figures would be used for specific applications.

I don't know how you are going to do this work to satisfy the problem. There are no relevant sales for you to base your work on. Some land is up for sale, but no-one wants to buy. Those on the land know that the gas industry is depreciating our land.

We understand this work will be very difficult, and we expect too that relevant sales data might be scant. But we have to look, and have to be allowed time to go through the exercise. We need some sensible basis to judge how to fairly respond to the issue of land valuation impacts. We note too that some recent sales history involves land sales to gas companies. These are not sales in the general market, so we can't use these. The detailed work will be in understanding those factors, such as infrastructure and land disturbance which have an impact on land valuation. We want a model and process that gives all parties confidence, is based on the evidence, and is not speculative.

Thank you to Santos for working on this issue. I know that gas activity impacts on land value and the attractiveness of my land to potential buyers. This is not in question. I suggest that an annual fee is paid to provide a level of income to cancel out encumbrances. I see this as fair. There would be other companies and industries to study as well. I have heard of figures for phone towers (\$5,000 p.a.) and wind turbines (\$10,000 p.a.). You need to look at all relevant industry and their impacts.

Yes, we agree there are other industries that place infrastructure on land which are relevant to analyse. This might provide a guide. We will look at this. It will depend on whether their information is public, and able to be made available to us. However the actual mechanism for addressing land valuation impacts is the second phase. First of all we must identify the precise impact.

What about Western Australia? There is a lot of gas development there.

Yes we will look at Australian jurisdictions, especially within the context of the legislation.

Example read out of a Devine compensation exercise in response to CSG activity. The individual described these amounts as paltry; and that if this was the mindset of the companies this would very unsatisfactory.

What you have read out regarding the activity, surface area disturbance, traffic, dust and so on, is our attempt to provide a transparent report of how figures might be arrived at. But this is for time-limited CSG exploration, and a way of calculating immediate compensation, not land valuation impacts if the activity was more long-term. If there is more activity, and it can be demonstrated that a greater loss has been suffered, the offer can be negotiated and improved upon.

At this time the legislation states that we need to consider and provide compensation, but the legislation doesn't explain how this might be arrived at. The major instrument we have is the land court, but Santos would prefer to not use this, and instead get ahead of the issue.

I would like to check a very important principle. Does the panel agree that there is depreciation on property that has CSG activity?

We would expect so, but the purpose of the study is to see if this is so.

My assessment is that if I sold I would only get 60% of its previous value because of CSG activity. But I don't think I can absolutely prove it. But those of us that buy and sell land know these things. I don't think you will have the evidence. It will be crystal ball gazing.

As said, we are seeking to uncover as much data and evidence as possible to form the basis of a model. Yes, we will have to be able to forecast. This is not easy. Santos would prefer to not use the land court to set case law precedent. We will look at all sales and then isolate what might be relevant sales. We need to take out factors such as buildings, dams and other improvements in order to really arrive at base land value. We are interested to survey and interview buyers, and find out the attributes that are of interest to the buyer. All of this sounds straightforward, but it isn't.

I see there are four issues associated with CSG activity:

- reduced development potential
- reduced ability to have diversified activity on the land
- the level of gas development reduces use of the land
- the level of intended activity is unknown

I think that many of us here want to know Santos' 2-5-10 year plans for CSG in our area. The uncertainty makes our lives and our operations very difficult. In terms of your activity in the real estate market, some land is known as "gas blocks" – no-one will touch them.

It greatly limits our ability to further develop and invest. Also, it limits the development and improvement potential within the market and this in turn, impacts on land value. Prospective buyers have different ideas and see potential in land when they are interested in a purchase. But if there are CSG operations the opportunities on the land are diminished.

Yes, I see your point. We want to see whether we can make a response to these matters. Santos is still in an exploratory phase to assess the gas reserves.

Can you say what the intensity of well development might be? Is there a standard?

At this stage it is on a block by block basis. It depends on the amount of gas, location, and gas flow.

We think there should be study of the impact of the gas industry on stock behaviour. There are no studies about increased dust, light, traffic etc. on stock behaviour. This would be relevant to land values, as this would impact upon productive capacity.

In terms of your studies, will you be able to put a price on lifestyle? Will you be able to cost the change from trees to lights around properties?

Santos recognises that there is an impact. Lifestyle is a subjective and individual thing. In this discussion about land values, some will value aspects of their lifestyle different to others. It is a difficult concept to quantify.

Let's face it – we all have a strong gut feeling about this. If you had two blocks, one with gas infrastructure and one without; a buyer will go for the block without interruptions every time. I would go elsewhere too. Unless there was some decent income associated with the activity, we would be at a disadvantage. Get inside the mind of the buyer.

There is a difference between CSG activity from the exploration and development phases. If there is production, eventually there is a small area where the well is located and any of the lines are buried and not noticeable. There would be different well intensity across our fields. We are assessing the degree to which this is an asset or liability.

There has been exploration on my property. If I am facing a situation where these go to production, I don't know whether the compensation package is fair. I have nothing to go by. I will probably lose out.

We will fund your reasonable legal costs to get independent legal advice on the agreement. We will explain to you all that it is involved during well production if we would like to go ahead. Again, the legislation doesn't help you or Santos understand precisely what is necessary, but we want to do this together.

Aren't we standing on the world's 3rd largest reserves of CSG? Santos must have some understanding of what it intends to develop and where.

We don't yet have the full picture. What we develop and to what intensity will depend on factors such as the location of the gas and the gas market. The amount of gas we will need depends on the destination and market for the gas. Santos currently has a proposal to collect gas here and elsewhere in Central Queensland, pipe it to Gladstone and liquefy the gas for export from Curtis Island. If this project goes ahead there will be strong demand to feed this project.

Our land is often our superannuation, and contributes to our families, and their welfare. We should not be losing out for your commercial gain. We should suffer no loss. We are not gold-diggers. We only want a neutral outcome. This is fair. If we can demonstrate an income from the activity, this can in turn pay for car registration, insurance, rates etc. We will all be able to get along. That should be the aim.

We want to get along too. We don't want to use the courts. Other companies are not going to these measures to understand impacts and discuss compensation. I understand what you are saying.

In my case, we used to be at the end of the road. With well exploration and development there are now a lot more people accessing my land. I feel I have lost control over my land, security and privacy. I never know who is doing what on my land.

These again are matters of lifestyle - matters that mean a great deal to you. These are factors that are difficult to represent in a model. But we will consider increases in traffic and noise. The model will necessarily be broad and suitable to a range of property types. When the model is applied, we expect that there will be individual circumstances we need to negotiate about. The model should be the foundation for us to commence negotiation.

When will there be something to show for this work?

We expect the findings will be available at the end of the year.

At this stage do you have an idea of whether you are considering a lump sum, or annual contribution, or some other way?

We have nothing firm. What has been said today about an annual “income” that offsets the precise level of disruption and disturbance to be associated with the overall earning value of the land has merit. So maybe the fee would move in keeping with the amount of activity. These are only opinions at this point. But that is the second phase. We will need to need to identify land valuation impacts first.

Does this mean there will be opportunity for revision along the way?

Yes this will happen, to make sure that it is working. For instance - hypothetically - if we would like to negotiate about a compressor station on your land, this would mark a significant change, and we would negotiate on this.

Someone mentioned earlier that the land valuation might be linked somehow to CPI. It would be more accurate to peg it to known capital gains rather than CPI alone. Also, block size is important. A standard compensation approach will not work on small blocks, where there is proportionally greater impact.

These points are sensible. We will not adopt a blanket approach. All land holdings are different. When we have a framework in place we would apply this to specific conditions.

The market is a big factor. A couple of years ago it was a seller’s market. Now it is a buyer’s market. This has nothing to do with the quality of the property. When gas is factored in, I don’t know how you are really going to understand how you are contributing to the drop in value, and by how much.

That’s an important point. It is one of those external factors, but highly influential factors that impact on sale price. It will have to be understood.

You need to use Department of Natural Resources & Water data as they establish land value.

Meeting closed at 5.45pm

Contacts

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URS use above contacts

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Santos: Land valuation impacts - coal seam gas development
Arcadia Valley, 9 October

Meeting opened at 10.30

Chair – Malcolm Groat

Co-chair – Matthew Peart

Minutes – Greg Bourke, JTA

Peter Sippe, Santos – explained the purpose of the meeting was to:

- Define the issues associated with coal seam gas (CSG) development and its impacts on land valuation
- explain the method and steps by which Santos would attempt to identify land valuation impacts
- introduce the specialists Santos has engaged to lead this work – URS and Devine Agribusiness
- gather input from landowners towards the land valuation study.

Panel

- Lili Pechey – Economist, URS
- Lucas van Raalte, Economist, URS
- Graham Kenny, Director, Devine Agribusiness
- Peter Tannock, Senior Consultant, Devine Agribusiness
- Peter Sippe, Santos

Note: This session was not recorded; the meeting notes are based on a written record and will include some paraphrasing.

Introduction from Panel

URS is seeking to access all relevant information that precisely identifies the impact of CSG operations on normal land activities and consequences on land values. The intended outcome will be a model to analyse impacts on land value for properties affected by CSG activity. Essentially this study will seek to answer the questions as to whether there is an impact, how this is known, and if so by how much. The model will need to have broad application, be defensible, and valid for all of Santos' gas fields.

The panel identified that this type of work has not been done before, and accordingly there is no precedent. URS is looking at all relevant examples where there has been gas infrastructure and water containment features that reduces the productive use of the land. This will be used to develop a model as a foundation for negotiation about land valuation impacts.

URS is looking at all elements that are positive and negative influences on land value. The attributes include, for example: area; soil type; vegetation; rainfall/ access to water; proximity to services etc. These provide determination of carrying capacity, potential profitability and land value. A big challenge is how to deal with extraneous issues such as the impact on commodity prices, interest rate rises, general economic conditions, legislation etc.; and how this impacts on productive capacity. We will be looking at the limitations that other industries place upon usual land use.

Santos would prefer to not use the Land Court to set case law precedent. We will look at all sales and then isolate what might be relevant sales. We need to take out factors such as buildings, dams and other improvements in order to really arrive at base land value. We are interested to survey and interview buyers, and find out the attributes that are of interest to the

buyer. We are interested to find out what blocks they might have avoided and why. All of this sounds straightforward, but it isn't.

Devine Agribusiness is assisting URS by identifying all relevant land sales of properties with CSG or conventional gas infrastructure, or potentially impacted by the close locality of CSG operations. Some of the sales have been to gas companies. We also usually exclude family sales. These are not sales in the general market, so we can't use these. Initially we will look at the sales database across a large area of rural Queensland; then we overlay gas tenements and then those with gas wells, and then again, land that has been sold. We will concentrate on sales from 2004 onwards. We will then seek to interview the buyer if possible. We would like to know what was on their minds when they purchased, and potential concerns and how these were factored. We want to know the land attributes and how these were balanced against shortcomings such as gas related activity.

General meeting discussion

Questions and statements in bold – panel responses following

Statements, questions and answers

Collectively as a community we understand that there is demand for energy resources and projects such as these are in the national interest. However landowners are affected by this activity. Landowners should not subsidise such projects that are highly profitable and in the national interest. Santos is having a negative impact on asset values and it is only fair that we are compensated. We are not wrong to ask for this. It should not be up to us to fight for this. We are not standing in your way. We just want compensation to even up to where we were before Santos came to the valley.

Santos has no argument with what you have said. That is why we are here today. The legislation says that we need to have regard for these issues, but does not give any guidance as to how this is to be done. This is now our objective. We want to set up a mechanism whereby we do this right. But we have to precisely know what the activity is doing to land values.

In recent weeks other Santos representatives have been here and said that they didn't know that the gas industry was impacting on land values. Yet we have been saying this for a long time. When we are fed crap like that, you can understand why there is mistrust.

We are giving up our time today; and this is costing our business. We should not have to fight for this recognition, and fight for compensation.

We are here today to introduce you to the people that are doing the study for Santos, and for you to feed into this study. The difficulty is isolating the gas industry from the many other impacts and dynamics around the price of land. There isn't a magic bullet; no-one has done it before, so we have hard work in front of us.

How much is this costing Santos? We don't need a bunch of studies. It is common sense.

I don't know the exact amount; as I am not handling the contract. But I would expect it is \$10,000's.

Give us \$10,000's and we will tell you that there are impacts!

Do you use Department of Natural Resources & Water data?

Yes this is our starting point.

How relevant is the work that has been undertaken in the United States?

There is some information available from USA CSG development, but the land use type is very different – mainly rural residential/ small acre lots. Also, there are different arrangements in the US re royalty payments to landowners which in turn has an impact on land value. This is likely to be of limited application.

If I know that my land was worth a certain amount before gas came along, and I now know I can only get a lesser amount, will Santos pay the difference? Do you acknowledge that there is a drop?

We expect that there will be some impact, and we are trying to find out by how much. We are trying to get in front of this issue, rather than being in a position where we are trying to settle this through the Land Court. We are looking through about 1500 sales in recent years, and trying to identify those properties that had gas infrastructure at the point of sale, and then comparing these with other similar properties without gas infrastructure that sold around the same time. This is difficult information to get. There is an argument that you only know the true value of the land at the point of sale, and that if you are not selling, giving you a big lump sum is not a justifiable response.

There is a fellow towards Injune that is 88 and has lived there all of his life. He used to only have one car a week drive past his place. Now he has 40-50 cars. That is a big impact on lifestyle. How can you put a price on that? And this is not over soon; this development might go for decades.

One gauge as to whether a compensation package is satisfactory to us, is whether we accept or reject it. When valuers look at property they do not factor in lifestyle. Yet we pay for lifestyle. The sales information you are seeking won't be there. Rumours about the extent of gas development will also scare off buyers. There might only be an occasional sale for you to examine. And then I wonder, if they knew the possible extent of development whether they would have bought the land at all. In terms of land valuation I am concerned that there is no regard for the individual value we place on lifestyle. This is not yet a mature enough industry for you to do the analysis you wish. I have prepared a folio of property buyers to gauge their opinions. I can tell you at least 20% have said outright that they wouldn't touch the property if there was the threat of gas development. We have lived with the petroleum industry, but this is a different matter altogether. The CSG industry is far more disruptive.

I have been told that within the Environmental Impact Statement (EIS) that the impact on cattle will not be included. Every other creature around the Santos project is, but not cattle. It seems to me that there are impacts on cattle from vehicles and dust. I have made comment on the terms of reference and they are still deficient.

I want to state that not enough notice or effort has been made to contact us about Santos' community consultation meetings. Don't think that just placing a small advertisement in the newspaper is suitable. We don't get the Tuesday paper until Friday.

All of the Santos GLNG newsletters identify the various facts and issues about the land. But Santos doesn't own the land. We do. There is no mention of people in the newsletters. There is no mention that people live on the land that you are seeking to develop. People do not seem to be valued. All of the photographs infer that there are no people involved. Many of us have a very long association with land, and this is not appreciated. Many of us women have been on this land from the time it was entirely scrub. You will avoid national parks, forests and so on, but when it comes to people you will not attempt to avoid us; there is very little consideration.

What are your timelines?

We will have the initial study completed by the end of the year. When we have received this advice, we will look at how to apply it. We are aiming to have a full response to the issue of land valuation by the end of 2009.

What is your 'Plan B' in case there are no outcomes from this study? Land is already impacted.

As you have heard we intend to talk with you later in the year. Let's see where we get to. Yes there are alternatives. Santos would prefer to not use the Land Court to set a standard. We want to work with you in setting a way forward.

So we will be in a situation whereby we have to agree to gas development without knowing the extent of our compensation. That is not fair or equitable. If it is in the legislation, why doesn't Santos just get on with it?

It is in the legislation, but there is no guidance as to how this is to be done. We asked the government to set some guidelines around this, but they didn't. I guess at the time it looked too hard. And that's why we are in this position. That is why we have specialists here to give us advice. This is a new field of work. The reality is that there is no direct precedent and scant case law.

It is an alternative to not proceed with the project until the full compensation arrangements are worked out?

I don't think that this is going to happen.

I am concerned that we will be pressed into signing an agreement, when the level of development is still uncertain. You are asking for us to give a bit, you have to give a bit.

Without this study we have the option of guessing. These guesses might be in your favour; they may be in ours. We want to be as certain as possible, through this quantified study. The option exists to seek an opinion in the Land Court through an action, but we want to get ahead of this and do this cooperatively.

I don't like the way this issue is balanced against us. As we see it, people are making a lot of money out of this. The government makes money. Companies such as yours make money. The people that work for you make money. The only ones that are not doing well out of this are the people that own the land.

The only power we have is to not sign the agreement, in order to control access to our land. You are asking for us to give up our bit of power. How are we expected to accept that?

To be clear, the Act allows us to access property within our tenements. If we need to access land and there is refusal, we can lodge an action with the court and enter the property. When we have action under way, we can begin our investigations. This is the legislation. However, this is not the basis upon which we want to work. We always seek to explore for gas with your satisfaction and cooperation.

On my property I have six wells. I don't know whether they are going to become development wells. I don't know whether I am signing away too much if I agree to terms at this time.

How many wells do you need on a property before it becomes a gas field?

We don't know at this stage.

We want an open relationship with Santos. This is in everyone's interest. We do not want conflict and to be in court. But you have to accept that your impact is substantial and must be addressed. Santos must factor the disruption to our business and reduction in the quality of our lifestyles.

We want a good relationship with you as well. You will be aware that we are doing far more than other companies in terms of our negotiation and efforts to solve problems together.

I am concerned that we have to battle to get recognition that there is an impact at all. Almost everyone wants to deny this. Remember that we have not invited you here. You have come here without our invitation. This is an imposition, and we must be respected.

If I have a property worth \$15m and due to your activity, it is only able to fetch \$8m, will Santos pay the difference? I bet they won't! Even though they are earning millions.

As we have said we are looking to set up a decision making framework that is fair for everyone concerned.

I don't know how you are going to do this work to satisfy the problem. There are no relevant sales for you to base your work on. It will be like hen's teeth. Some land is up for sale, but no-one wants to buy. Those on the land know that the gas industry is depreciating our land.

We understand this work will be very difficult, but our attitude is that just because it is difficult, doesn't mean that we shouldn't bother. We expect too that relevant sales data will be like hen's teeth. But we have to look, and have to be allowed time to go through the exercise. We need some sensible basis to judge how to fairly respond to the issue of land valuation impacts. The detailed work will be in understanding those factors, such as infrastructure and land disturbance which have an impact on land valuation. We want a model and process that gives all parties confidence, is based on the evidence, and is not speculative.

If there are no figures, does that mean you will say that there is no problem?

That is not our position.

I would like to address an assumption stated at the beginning of this meeting, wherein it was stated that family sales would be excluded. I have been through an extended negotiation with family that has lasted over two years. I can say that the land was not given away! Don't discount all family sales. There were very serious negotiations!

I accept what you are saying. What we are concentrating on whether land was sold at market value, and that the sale was "at arm's length". Under the circumstances that you describe the sale could be considered to be valid and suitable.

My position is that an agreement should be offered that Santos itself would accept if it were in the position of having an asset devalued.

Has Devine done work in Brigalow country with improved pasture?

We would do the necessary background work if we were doing a valuation.

We know that gas activity impacts on land value and the attractiveness of my land to potential buyers. I suggest that an annual fee is paid to provide a level of income to cancel out the interference. This would be a measure to keep up the potential sale value. This should be the

first principle. My other proposal is that the percentage of land disturbed is calculated and the compensation is based on the value before gas development; and further that this is indexed annually against CPI.

The actual mechanism for addressing land valuation impacts is the second phase of this exercise. First of all we must identify the precise impact. We are looking for those hen's teeth mentioned earlier, and base the exercise on all available evidence. When we have this, we will see where this leads us.

I don't think you will have the evidence. You will get to the end of the year having scratched around and you won't have the answer.

All we want is an equitable response. All we want is a response that evens up our position before Santos came here. Our properties are significant assets. Someone mentioned \$50,000 earlier. That is not even close. Perhaps times it by ten and it is getting closer.

I have heard that the wells will be of an intensity of a well every 850m. Will this be the case?

We don't know at this time.

It is a big concern that there is known land diminution that is uncalculated, and yet the gas development is going ahead. Will Santos consider an annual payment or a gap payment when sold?

There are a number of options, as have been discussed today. There is a case that true land value is only established by the market when the property is sold. You could take the position that there is no requirement to pay lump sums when the land is not for sale, or intended to be sold.

So if we don't sell, we just have to put up with it? Also, this position does not recognise impacts on lifestyle. I agree that an annual offset is a good option.

Do you own Santos shares?

Yes.

Are you worried that they have gone from \$20 to \$15?

No. I don't worry until I would like to sell. I take a long view of the share market.

So you wouldn't worry if your land depreciated by 25%?

I see where you are heading! It would depend on whether I wanted to sell and how long I want to hold the property.

In terms of the notion of an annual offset and other ideas, I should explain that the level of development is variable. We start with seismic surveys to see whether there is the likelihood of good gas. Then we move into field development. There can be intensive work for 4-5 years, and then the activity and access requirement drops off. There is a profile of disturbance. It comes and then goes. If there is production, eventually there is a small area where the well is located and any of the lines are buried and not noticeable. There would be different well intensity across our fields.

Can you say yet what is going to happen in Arcadia Valley?

We are still doing the testing. We don't know yet. Santos is still in an exploratory phase to assess the gas reserves. At this stage it is on a block by block basis. It depends on the amount of gas, location, and gas flow. If there is a lot of CO2 in the gas then it is not economic to use.

So you are you still trying to decide whether to go ahead?

Yes. There is coal and therefore coal seam gas in Arcadia Valley, and the wells that we have drilled shows that the gas has different rates of flow. I understand your frustration, but we are simply not in a position yet where we can declare what we would like to do. What we develop and to what intensity will depend on factors such as the location of the gas and the gas market. The amount of gas we will need depends on the destination and market for the gas. Santos currently has a proposal to collect gas here and elsewhere in Central Queensland, pipe it to Gladstone, and liquefy the gas for export from Curtis Island. If this project goes ahead there will be strong demand to feed this project. At the end of 2009 there will be a milestone called the 'final investment decision' once all of the economics are done. Santos will be able to state at this time the status of development here.

In this exercise, I would like Santos to understand the following: the value of our land sets the equity level we have. If we have debt then we have greater exposure when our land value is diminished. In this environment when banks are concerned about debt, what might happen if that debt is called in by the banks? Also, if our debt to equity ratio is altered due to gas development, this influences our ability to borrow for further improvements. These are profound things.

Do you think the banks could provide us some useful advice if they are assessing land valuation in relation to gas development?

They might. But they have thought this too hard in the past. They are catching up, and are now recognising this as an issue.

I have asked one bank, but they didn't want to entertain this as an issue as they didn't want to offend one of their big gas customers!

Arcadia Valley has highly desirable land. At this time however the land is not saleable. Buyers would be too wary of the unknowns. It might be okay if there were two or three wells in one corner. But what if there is a grid of wells 850m apart and Santos is on the land five days a week? When you add in the intensive development for the two years leading up to this, you have a very different situation. I wouldn't be able to work the land as I currently can. This reduces my ability to make business decisions. We are tied up until we know. There are ideas and new systems that I would like to consider, but Santos has taken away my options. But you don't know my business well enough – so you can't factor in aspects that are important to me.

Is Santos interested in purchasing property?

We have in the past, and might again in the future. But a purchase here and there won't solve the land valuation issue we are working on.

The folio you referred to earlier – is that available for review?

I would like to share it to assist your study on one hand. But on the other hand, I don't know whether we are going to end up in court, and this may be used against me. I would like to have trust, but we must develop trust. I don't think I can give you individual information, but I am happy to talk with you in general terms about my information.

There will absolutely need to be some form of payment. You say that the Petroleum Act requires compensation. So just get on with it.

The Act is the legal framework, but there is no government guidance about responses to diminution of land values from that. There is no template for land valuation impacts. We will identify the factors that reduce land value and see which of those we are responsible for and for how long, and to what degree. Then we can discuss particulars such as payments.

Don't forget we have an emotional attachment to the land. You can't just be matter of fact about what you choose to recognise as devaluing land, you are also devaluing our lifestyles.

Also, I wonder whether the activity settles down over time like you suggest. I have heard that as the gas starts to run down that the grid pattern tightens up.

If I agree to the compensation for my land; if I sell it, does it go with the land?

If there is an ongoing amount to offset the activity it stays with the land.

Where are you checking for land sales?

We will look across a large area to gather relevant data. We are going to look over 10 shires – some of these are the old council names – Banana, Bauhinia, Bendemere, Bungil, Booringa, Murilla, Chinchilla, Taroom, Tara, and Waroo shires.

Will you be comparing like with like?

Yes, we are going to compare similar properties with and without gas infrastructure.

Have you identified anything yet?

No, we are just commencing the survey.

It was good to have Greg Harris here before to tell us the status of the drilling. It would be good to have him back here.

What is the status of the EIS? Is there opportunity to be further involved?

The EIS is managed by a different area of Santos, but I understand that some of the EIS findings will be available later in the year. You can review this work and comment on it.

What percentage of Bow Energy does Santos own?

Until this was mentioned to me, I would have thought that Santos had no interest. Someone said that a website states that Santos has an interest. This is news to me.

Following the meeting this issue was raised with the Company Secretary in Adelaide who confirmed that Bow Energy is not a subsidiary of Santos Ltd and there is no corporate connection. Bow Energy does have offices in the same building (Santos House) as Santos and is also a joint venture party in the Cooper – Eromanga Basin permit in western Queensland.

Is it possible if you investigate for gas and decide not to go ahead, that you relinquish any further right to explore for gas and not on-sell this right to another company?

I understand where you are coming from; as I know you are looking for certainty, however if we relinquish it, the right goes back to the government. Then the government will seek expressions of interest.

What are ATPs and PLs; and what is the difference?

ATP – Authority to Prospect: this means that we can explore, but not produce.

PL – Petroleum Lease: this means we have approval to produce.

There can be three leases over property – mineral, coal and petroleum.

Santos has to work on gas development after we have won the tender from government. We have to demonstrate annual activity to show we are moving towards gas production. We pay an annual rental fee from the government for the lease and royalties if we produce gas.

If you move from an ATP to a PL will you then sell it on?

I don't know of any plans to do this. It is true that gas interests are sold within gas companies. We acquired Tipperary Gas for example.

If I have a property worth \$10M, and your activity depreciates my land by 20-40% could there be an annual payment to top up the worth of my land and business? This would reflect the type of impact, for the life of the impact. So, the payment might fluctuate.

We have not got to the stage of determining payment mechanisms. It could be tied to level of activity and any impact on the productive capacity of the land at that time. But this sounds more like compensation rather than addressing land value. If we went this way it might prevent loss of value at the time of the impact.

The wells eventually deplete, but I understand that there is uncertainty in the early stages about the level of development.

If there is a lack of sales data, we need to know and agree with the assumptions you make in relation to your model.

We are attempting to understand the 'drivers' that determine land valuation, and isolate those that are impacted by development and its impacts.

When you talk of drivers that influence value, one of the key drivers is demand. I wouldn't buy land where Santos is. We have so much uncertainty. I wouldn't write a cheque. It is not a case of "if" there is an impact. You know it. You can feel it.

If you are talking with people that might buy land to find out what they are looking for and wary about, you will have to be careful. Buyers need to know the level of interference. You have to have first hand experience to really know what it is like. All the experience you need is in this room.

If Santos purchases a property, will you guarantee grazing rights on the land?

That would be on a case by case basis; but we would usually try.

Given the world economic situation, will the project still go ahead?

This current situation certainly presents some threat. I assume though that world energy demand will be strong. Usually gas contracts are long-term. Santos is still gathering all of the information in order to make an informed decision. The 'final investment decision' will be at the end of 2009.

Do you have contracts yet for this gas?

Not for the gas that we would liquefy at Gladstone.

You are going to pincushion our land – I would like to know the net profit of a tanker of LNG.

I don't know. I don't work in the commercial area of gas sales. I don't have such figures.

Santos states that the project is valued at \$7.7B. We have been told by Santos that your profit ratio on this capital is 12%. That is \$924m; Santos expects to make almost a billion dollars of profit. I am going to have this figure by my phone and quote it when you ring to discuss access and compensation.

Can I clarify the arrangements for gas development and compensation?

When we are seeking to explore for gas, we will sign an agreement with you for compensation for the disruption. We will not be making a decision about whether to develop any wells for production before the end of 2009. If we go ahead, after the 'final investment decision' we hope then to be in a position to propose measures to do with any land valuation impacts.

This is different to the way I heard you explain it earlier. Are you saying that Santos will not be developing any wells before we have solved the issue of compensation for reduction in land value?

Yes this is the intention.

You are also saying that if we object and you place an action with the Land Court, that you can proceed?

Yes, the legislation gives us this right.

Thankyou for coming to see us and for the information provided. We would like to be kept informed. We would like to continue to work with you.

When we have the report from URS and Devine we will be back out to see you.

Meeting closed at 2.05 pm

Contacts

Santos GLNG EIS –
1800 761 113 and info@glng.com.au

URS – use above contacts

Devine
Graham Kenny ph 07 3010 9353 and graham@devineagribusiness.com.au and
Peter Tannock 07 4128 6777 and peter@devineagribusiness.com.au



WALLUMBILLA WATER WORKSHOP MEETING SUMMARY

Project: Santos Gladstone Liquefied Natural Gas (GLNG)

Location: Wallumbilla CWA Hall, 10 College St

Date & Time: Saturday 18 October, 9:30am-11:30am

Meeting opened at 9:40am

Introduction and objectives

John Phalen of JTA welcomed attendees and introduced the Santos staff (Emma Hicks, Environmental Engineer – GLNG and Jon Warby Senior Landholder Adviser).

John drew the group's attention to the information kit which contained a copy of the presentation delivered on the day and a registration form. The point was made that the details provided by attendees on the registration forms was the best way for Santos to keep in touch.

John then outlined the format and structure for the workshop which included an overview by Emma of water issues associated with coal seam gas extraction, followed by a 'blue sky' no restraints idea generation session. In this session, participants would be asked to consider what beneficial uses the water could be put to in the local Wallumbilla community (or beyond). Attendees were asked to think in terms of social, agricultural, business, short-term, long-term, individual and any other relevant context.

Presentation tabled

Session 1

The first session of the morning consisted of a presentation by Emma on the water issues associated with the process of extracting gas from the coal seams.

The key points of note included:

- Wells must be pumped to remove water, which then reduces the pressure to allow gas production.
- Water production peaks in the first few years and then decreases over time as the gas production increases – profile shown.
- Santos does not know exactly how much water will be generated. Some wells produce next to no water, others produce a lot.
- Water quality also varies between wells.
- The use of water is heavily regulated by the state government.
- Santos has commissioned studies as part of the Environmental Impact Statement (EIS) into the affect on local bores and aquifers.



- Santos may be required to treat the water for its intended uses

This session produced a range of questions and issues from attendees including:

- Irrigation options and trials so far
- The likelihood that the state government would allow local farmers to use the water due to its high regulation
- The importance of reducing the draw down on bores
- The importance of not affecting the town water supply bores
- Why the studies are only being conducted now and Santos is already pumping water
- Concerns that some of the salty water might mix with the good water
- Concerns about the water table dropping each year
- Enquiries as to where Wallumbilla & neighboring residents get their water from
- The standing level of water in the bores
- Government's policy on putting water into gullies and creeks
- How the creeks are being studied as part of the EIS process
- How Santos is currently treating & managing the water
- The effect of treated water on equipment and machinery (oxidization/rust etc) – with respect to irrigation

These issues and questions will provide important feedback to the GLNG project team as beneficial water uses are considered further.

Session 2

In this session, John facilitated a process of idea generation. Attendees were asked to consider what opportunities additional water could have for the community of Wallumbilla. While it was difficult to think of ideas without the obvious constraints of water quantity, quality, location and availability, attendees engaged in excellent discussion on the possible opportunities. Attendees were positive.

The following ideas generated from this session included:



WALLUMBILLA WATER WORKSHOP OPPORTUNITIES LISTING

IDEA	RATIONALE	PRIORITY
<p>Mass produce Leucaena crops</p> <ul style="list-style-type: none"> Use treated water to intensively grow Leucaena crops. 	<p>Background info from Roma workshop: Leucaena is a fast growing nitrogen fixing tree (FGNFT) with many uses, originated in Central America and grows in many places in the tropics. Because it fixes unusable nitrogen from the air and makes it useful to itself, other plants and animals, it is extremely valuable to the environment. With its many varieties, Leucaena can produce nutritive forage (especially good for dairy and beef cattle and goats)</p> <p>It has multiple uses and is suitable for firewood, timber, charcoal, fence posts and rich organic fertilizer. It diverse uses in the tropics include use in tropical reforestation, revegetation of eroded hillsides and slopes, windbreaks, shade and nurse trees for tropical crops, and as an ornamental. It most useful future use will likely be usage in carbon sequestration against global warming. Leucaena grows in both the tall tree type and small bushy weedy type.</p> <p>Consumes approx 1.2ML/d/100ha - therefore 2000ha of crops will consume up to 24ML/d. The use will be variable depending on harvesting cycles.</p>	<p>There was good support for this option provided it is viable.</p>
<p>Construct an aquatic centre and water park</p>	<p>Provide recreational use of beneficial water for all ages.</p>	<p>Considered low priority based on the small population numbers and the ongoing costs of running and administering</p>
<p>Construct a large water storage facility coupled with a treatment plant to supply water for town supply (Wallumbilla, Yuleba) and enhanced green space (BBQ and picnic areas) to allow recharge of aquifers while</p>	<p>Supply the local community with good quality water. This would allow recharge of the aquifer currently being accessed for town supply. It was noted that the Wallumbilla water bores have historically free-flowed, but not longer do.</p> <p>A dam could also be used for recreational activities such as fishing,</p>	<p>There was strong support amongst the group for this option. Supply of local town supply was the most strongly supported option presented.</p>



CSG water is available	<p>canoeing, water skiing etc – Biloela caravan park pond was mentioned – pond has huge tourist drawcard – fishing, water sports, etc</p> <p>It was mentioned that before the current Wallumbilla bore was installed, the town relied solely on surface water supply. There is an application pending for a second bore.</p> <p>It was estimated that the town bore supplies ~5,000 gallons/hr and runs up to 20h/day during summer.</p>	The tourist attraction was also strongly supported.
Put it back into the local streams e.g. Wallumbilla Creek, Yuleba Creek	<p>Store treated water in large holding dams (with total capacity of 1GL) and release to local streams during normal flow periods.</p> <p>5ML/d (assuming 1GL dam which stores water for 7 months of the year and releases for 5 months).</p> <p>NB: Wallumbilla creeks flows to the Murray</p> <p>It was mentioned that the Wallumbilla reek used to flow year-round (was relied upon for town supply)</p>	There was strong support for replenishing the local streams.
Recharging the aquifers currently supplying end users (above the Gubberamunda)	Treat and inject associated water into potable aquifers.	There was good support for this opportunity.
Piping water from Roma	With Wallumbilla being a smaller community it might be worth pumping the water from a larger holding facility in Roma.	It was thought that this idea was possible, but the cost involved in piping the water may be too much.
Top up 3 large existing local dams (Wallumbilla, Yuleba & Dulacca)	Local dams are dry and provide an opportunity to store water. Note that the Wallumbilla dam is next to the showgrounds so may be able to be used to irrigate the showgrounds and supply local water. (It was noted that Dulacca would not be an option as it is outside the shire).	There was good support for this opportunity. Wallumbilla dam inspection conducted following the workshop.
Yuleba Resources – washing of the sand (South of Yuleba)	A local industry using a significant volume of bore water	Agreed this would be a beneficial use



Fertiliser plant – Qld Fertiliser	A proposed local industry which would use a lot of water	Good support for this option if it reduced the price of fertilizer, increased the viability of the plant and reduced dependence on town supply bores
Provide water to local feedlots	100L/head/day (for dust suppression and consumption) on a 10,000 head feedlot = 1ML/day. Reduce need to use bore water, allowing some recharge of groundwater resources.	It was thought that local feedlots did not use much water. Proposed feedlots currently awaiting EPA approval. Yarrawonga application is for 5,000 – 10,000 head feedlot.
Provide water for local crops	Grapes, fruits and vegetables. In particular, watermelons and rockmelons were recommended due to relatively small costs to set up > would not involved high infrastructure investment which would be lost when water supply ends. Contribute quality fresh produce to the local community and surrounds	This idea had strong support, and it was thought that some crops would have little set-up costs so would be viable even if water supply only lasted 5-10 years, so farmers may be willing to take the investment risk.
Cropping on land in the higher country	As above but in the higher country	This would be appreciated by those in more remote locations
Fish farming opportunities	Contribute to local economy and recreational amenity.	
Supply to Advance Injune recreational facility	Recreational purposes	
Increase size of existing lagoon in paddock next to LPG facility	Recreational purposes	Contact Laurance Maunder



Conclusion & next steps

John thanked attendees for giving up their time on the weekend to be a part of the discussion and advised that a copy of the notes would be provided to all those who had registered.

Santos will commission further investigation into the ideas generated and provide attendees with updates as this work progresses.

Meeting closed 11:45am

GLNG consultation - Community Information Session – Biloela

Meeting Notes

Location: Biloela Civic Centre

Date & Time: Wednesday 12 November – 5:30pm

Number of attendees: 25 (excluding Santos/JTA staff)

GLNG/JTA representatives: David Wood (GLNG); Dean Salter (GLNG); John Phalen (JTA)

Meeting opened at 5:40pm

John Phalen of JTA welcomed attendees and introduced the GLNG staff to the audience. John drew the group's attention to the hand-out material and briefly summarised the contents as well as highlighting the GLNG website and freecall 1800 details.

David Wood was introduced to the group who then gave an overview of the project (focussing on the pipeline aspect).

Questions and answers were raised during the project overview. The issues and responses are summarised below. Paraphrasing has been used.

What is the pipe made out of?

The pipe will be constructed out of steel

How big is it?

The pipe will be about 34 inches in diameter

How deep do you bury it?

The pipe will usually be 750mm as is needed by legislation. However, the pipe can be laid deeper depending on individual circumstances. We will do a thorough site and risk assessment, especially to consider topography and local land use. Also, we would usually go deeper under roads other creeks – usually about 1200mm.

How long is the pipe?

The current length of the pipe from the Surat basin to Curtis Island is approximately 435km.

How long will each piece of the pipe be for transportation on trucks?

We expect the pipe sections to average around 30m in length, however there could be larger sections.

Who is building it?

At this stage the contractor has not been appointed.

If you think you might need two pipelines, why don't you lay them at the same time?

It is all relative to the liquefaction facilities at the other end (Curtis Island). They can only contain so much gas and it is yet unknown as to how quickly the gas reserves will be proven. It could be several years before additional liquefaction facilities are needed on Curtis Island which may necessitate an additional pipeline.

Does that mean if other companies want to extract gas then they too will need to lay a separate pipeline?

Yes

Why don't you all use the same pipe?

The composition of the gas determines the type of construction materials used for the pipe. It is possible that other companies could use the pipe, but this is a privately owned asset and there are no plans to make this available to competitors at this stage.

So I could expect even more pipes on my property?

I'm sorry but I can't speculate on when and what other companies may do in the future. I do understand your concern however.

It is a bit of a concern with the growing market in gas – we could end up with lots of pipes on our property and we might not be able to do anything about it!

Why do they ship the gas overseas? Why can't they use it to power equipment here? I'd like to use it to power my tractor!

Liquid Petroleum Gas (LPG) is often confused with LNG and vice versa. LPG is composed primarily of propane (upwards to 95%) and smaller quantities of butane, and is what you see used in cars (mainly cabs). LPG is maintained as a liquid by means of elevated pressure. It is not possible to liquefy natural gas solely by pressurisation.

LNG is a very clean energy source and is used for power generation. The existing LNG market in Queensland is already being met. The international market provides significant opportunities for LNG sales and that is why most of the gas is going off-shore.

When you construct the pipeline, I assume you avoid the cultivation periods to reduce the impact on landholders?

Yes absolutely – we work very closely with affected landholders to discuss such matters.

A discussion on irrigation followed – Leucaena and Chinchilla Whitegums. David spoke about the need to look at ways of getting associated water to the construction zones.

Did you know Leucaena is classified as a weed?

Yes we do, but we also know that it provides a good nutritious food source for cattle. It also has excellent environmental properties in terms of its ability to retain carbon.

You spoke before about easements for your pipe and not being able to grow trees....are you aware that that stuff (Leucaena) regrows even if you poison it? So your pipe may not be that safe cause the stuff will grow back.

We will look into that – thanks.

What happens to the timber you fell for clearing? Do you mulch the logs or leave them on the ground? Who owns the woodchip?

There are rules and regulations that dictate what can be done with felled timber on public land. It is a different matter if the timber is on private property.

What's your timeframe for final agreement on the pipeline route?

We are aiming for end of December this year.

What's the useful life of the pipe?

Up to and potentially beyond 50 years.

Will motel accommodation be used to house the workers?

There will be a range of accommodation options investigated. The most common form of temporary workforce accommodation is the use of fly camps. In this setting, two camps are formed (1 large camp and one smaller camp) along the pipeline construction zone. As the smaller camp of workers complete their section, they 'leapfrog' the larger camp – which then becomes the main camp as the larger camp concludes their work and the process begins again.

Meeting Closed: 7:30pm

John spoke of the Hornery Institute's Wellbeing Study and alerted attendees to the survey in the information pack.

John and David thanked attendees for their feedback and participation in the session.

Matters subsequently followed up:

Re: potential damage to the pipe from Leucaena

It has been advised that the construction materials to be used for the pipe will not allow penetration by Leucaena root systems.

Santos Gladstone Liquefied Natural Gas (GLNG) Project Moura Community Information Session

Thursday, 13 November 2008

Meeting Notes

Location: Kianga Hall, McArthur Street

Date & Time: 13 November – 10.00am

Number of attendees: 22

GLNG/JTA representatives: John Phalen (JTA); Dennis Reid (Santos)

Presentation tabled

Can this project fall over?

There are a lot of things that have to fall into place before we get the go ahead. Early next year we will be submitting our EIS (Environmental Impact Statement) report to the Queensland Government. Our report will have to address a range of issues that were identified in the terms of reference. We may have to do some further work depending on what they come back to us with. We will also have a clearer picture of the pipeline route. So in answer to your question, it's not certain, but we are full steam ahead.

What sort of timeframe would you have for your final decision?

There will be a final investment decision in late 2009 or early 2010. We have to make sure that the market conditions are right and that we can secure our funding from the lenders.

Where is your market for the final product?

Our product will be opened up to the Asian markets.

Why is it condensed down to a liquid?

We chill the gas at a temperature of -161 degrees Celsius which reduces the gas's volume by 600 times. This allows us to transport much larger volumes on the ships. The liquid is heated up and converted back into gas at its destination.

How long will your gas reserves last?

About 25 years (maybe longer). Some wells have been running for 13 years and are still increasing in production.

How far apart do you generally drill the wells?

The wells are placed roughly 1km apart.

Will you be sharing your pipeline with other companies?

This pipeline will only be transmitting our gas. The composition of the gas determines the type of construction materials used for the pipe. It is possible that other companies could use the pipe, but this is a privately owned asset and there are no plans to make this available to competitors at this stage.

How many wells to operate for the first stage?

To supply the first 3 million tons we are anticipating about 2000 wells.
By 2014 we expect there would be in the order of 600 wells supplying the facility.

What volume of water do you have to remove?

At peak production, the volume could be equated to about 13 Olympic sized swimming pools per day. So I guess you can see from that we are talking about a lot of water. That's why we have been talking with the local communities in the field to get their ideas on what we could do with it.

What quality is the water?

In some parts such as Fairview, the water is good enough to drink. In other parts, the water is way too salty and not good for anything. Our testing has revealed that the salt concentration ranges from 300 parts per million (PPM) to 6,000 PPM. To give you an understanding of what that means; my saltwater swimming pool is 6,000 PPM and the ocean is 40,000 PPM. One current use is the watering of cattle and also the irrigation of timber crops. We are trialling the irrigation of a Leucaena plantation. So, the quality of water is good enough for these purposes.

Is there any connection between the aquifers – any potential drawdowns.

Our EIS studies are investigating all potential impacts associated with the drilling process. We are starting to get some of these reports in now, but the information will be publicly available in about March next year. Our gas wells are far deeper than the aquifers.

How do you move the gas along the pipeline?

The gas is moved through the pipeline under pressure. As the gas flows through the pipeline, it loses pressure due to friction against the inside of the pipe. To keep the gas moving at the desired rate, the pressure must be increased. This is accomplished with compressor stations located along the pipeline.

How long are the sections of the pipe?

About 30 – 70m (long enough to fit a truck)

That's a lot of trucks for that length of pipe (425km) (comment)

How long before you finalise the local route of the pipe?

Land valuers have been deployed along the pipeline route to value affected properties. Much of this work will be completed by Christmas, with additional work to be completed early in the New Year. This is all contingent upon our go/no go decision by year end 2009 or early 2010. We still have to secure funding for our infrastructure, obtain the necessary regulatory approvals, and secure contracts with buyers of our product.

Santos Gladstone Liquefied Natural Gas (GLNG) Project Moura Community Information Session

Thursday, 13 November 2008

How wide is the easement?

The standard width is 30 metres.

Why can't we use the gas to run our tractors? (this comment received a lot of support throughout the room)

Liquid Petroleum Gas (LPG) is often confused with LNG and vice versa. LPG is composed primarily of propane (upwards to 95%) and smaller quantities of butane, and is what you see used in cars (mainly cabs). LPG is maintained as a liquid by means of elevated pressure. It is not possible to liquefy natural gas solely by pressurisation.

LNG is a very clean energy source and is used for power generation. The existing LNG market in Queensland is already being met. The international market provides significant opportunities for LNG sales and that is why most of the gas is going off-shore.

America is running their tractors on natural gas (comment)

Who knows what the future might hold but LNG is mostly used for power generation. 95% of all power generators in Queensland run on coal.

Is there potential for a lot more pipes to come though our properties if you don't share?

There is quite a bit of interest in the coal seam gas industry and the reserves that are available in the Surat Basin. I cannot speculate on when and where other competitors might decide to lay their pipes. I understand and appreciate your concern however.

How long before another company takes over Santos?

There is always a possibility of this happening but I could not comment on whether this is going to happen.

If British Gas have a go at Origin why wouldn't they have a go at Santos?

I'm sorry, I can't answer that.

Meeting Closed: 12:30pm

John spoke of the Hornery Institute's Wellbeing study and alerted attendees to the survey in the information pack.

John and Dennis thanked attendees for their feedback and participation in the session.

Santos Gladstone Liquefied Natural Gas (GLNG) Project Rolleston Community Information Session

Thursday, 13 November 2008

Meeting Notes

Location: Rolleston Shire Hall, Warrijo Street

Date & Time: 13 November – 5.30pm

Number of attendees: 5

GLNG/JTA representatives: Dennis Reid (GLNG); Trevor Edwards (Santos); John Phalen (JTA);

Meeting opened at 5:40pm

John Phalen of JTA welcomed attendees and introduced Dennis Reid from GLNG. John drew the group's attention to the hand-out material and briefly summarised the contents as well as highlighting the GLNG website and freecall 1800 details.

Dennis Reid provided an overview of the GLNG project and its components. Questions and answers were raised during the project overview. The issues and responses are summarised below.

Do you envisage any compressor stations in the Arcadia Valley area? Some residents are concerned about the noise.

We are undertaking detailed noise monitoring as part of the EIS process. Tests are carried out on noise levels and monitoring systems set up. There are noise limits which have to be complied with. The findings of the noise study will be made available publicly early in the New Year. The results of these studies are starting to come in from URS (the environmental impact consultants) now.

So do you use telemetry monitoring systems?

Yes we will have fibre optic communication devices that feed into a monitoring station.

What is the water quality like, is it salty?

The water quality varies across the field. In some areas it is about as salty as your average salt water swimming pool. In contrast, some of the water being produced at Fairview is of drinking quality.

We have been out talking to the local communities about what to do with this water. At Fairview we are currently trialling the irrigation of Leucaena and Chinchilla Whitegums.

If we treat the water, about 70% is converted to clean water and about 30% is brine.

Could the water feed cattle?

Yes in some areas like Fairview.

What about the brine in Arcadia?

We haven't dug our wells out there yet.

Santos Gladstone Liquefied Natural Gas (GLNG) Project Rolleston Community Information Session

Thursday, 13 November 2008

What do you do with the salt generally?

Following evaporation of the water, the salt remains at the bottom of a lined pond – and we bury it. We can also excavate it and take it to landfill.

Will you have camps along the pipeline route?

There will be a range of accommodation options investigated. The most common form of temporary workforce accommodation is the use of 'fly' camps. In this setting, two camps are formed (1 large camp and one smaller camp) at intervals along the pipeline construction zone. As the smaller camp of workers completes their section, they 'leapfrog' the larger camp – which then becomes the main camp as the larger camp concludes their work. Then the process begins again.

Where would the camp for the plant be?

There are three options being investigated:

- A camp on the mainland (Gladstone)
- An integrated camp with the plant
- A camp on Curtis Island

How many workers do you envisage for the on-going operation of the plant?

Operation phase would be about 80 at this stage.

Blackwater railway had no mobile coverage. Will you be a bit more sensitive about your mobile phone coverage? There was no mobile phone coverage where the camps were which caused workers to have to drive 30 to 40km into town to make a call.

That's a really good point. We haven't had that comment before.

If you are working for Santos, you are not allowed out in the field without a phone that has 3G coverage.

Yes but you will find around here that you don't get reception even on 3G!

This would be a good opportunity to do something for our community – if you could influence Telstra to improve the local communications network in order to provide adequate safety for your workers.

Thanks for that comment.

Any local economic impacts for Rolleston?

I see there would be opportunities and knock-on effects as a result of constructing the pipe, and then afterwards as we monitor our operations. It is unlikely we would house a 300 person worker camp here. Santos people will be coming through and using the local hotels, buying food, fuel and supplies like we have today. Your hotel down the road there seems to be pretty booked up.

Santos Gladstone Liquefied Natural Gas (GLNG) Project Rolleston Community Information Session

Thursday, 13 November 2008

Does Santos promote the use of local business?

Santos will work with local businesses wherever possible. We are currently working with the Queensland Government to establish local procurement policies that will assist local businesses to grow capability.

If Curtis Island is a no go what happens to your project?

Our final investment decision is yearend 2009 or early 2010. We still have to obtain the necessary government approvals which we will seek in early to mid 2009. So long as the numbers stack up and we get the relevant approvals, it is full steam ahead.

Meeting closed 7:00pm

Dennis and John thanked attendees for their participation in the session.

Date:	Tuesday 18 November 2008, 10.00am-12.30 pm
Venue:	Wallumbilla CWA Hall, Wallumbilla
Project representatives:	Emma Hicks, Santos Graeme Bartrim, Santos Sam Klaas, Santos Jamie Miller, Santos David Lobb, Santos John Phalen, JTA Australia Clare Beer, JTA Australia
Attendees:	23 community members
Presentation 1:	Graeme Bartrim presented on the amendment to the PL5 Environmental Authority which was advertised in the paper
Presentation 2:	Emma Hicks provided a general project overview and updated the attendees on the major issues raised in their area at previous meetings. These issues included air quality, flora and fauna, land use, pipeline, social assessment, waste management, water, wellbeing and land values.

Note: This session was not recorded; the meeting notes are based on a written record and will include some paraphrasing.

Presentation 1. (PL5)

Questions and answers

Comment

A comment was made that the map displaying the Petroleum Lease area didn't mean much to the attendees because there was no identifying infrastructure. (This was noted and advised that another map with an overlay would be mailed to people who made specific requests.)

Q. Do you have much success dealing with the Environmental Protection Agency (EPA)?

A. The EPA is dealing with a number of companies with ambitious plans. They are concerned with precedents and getting things right.

Q. The water that will be stored on the PL5 is that water from all your activities or just activity on the PL5?

A. It is simply the PL5 from the appraisals only. Santos will build dams which are aligned. There will be seepage control and the dams will be built within EPA's requirements.

Q. These dams you are talking about, will they be outlawed in three years time?

A. Large evaporation ponds are a thing of the past, now EPA is encouraging injection e.g. into depleted reservoirs and beneficial use.

Q. That must be at a huge cost to companies?

A. Yes, but Santos doesn't have evaporation dams at the moment.

Q. It must be difficult to conform to new legislation if the EPA keeps changing its mind?

A. We manage to ensure we comply, but it takes time.

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Q. I agree with this policy. A lot of evaporation ponds were dumped on us and we didn't want them because they have no advantage to us do they?

A. We do appreciate this and the Government is listening to the landowners.

Q. If we wasted water like Santos did, we would be locked up.

A. With the different legislation hopefully we won't be doing that.

Q. There is a lot of concern about bores dropping one foot per annum over the next 30 years. Can this obstacle be overcome?

A. I think at a site specific level it can be. The replenishing idea is at a conceptual level.

Q. Wouldn't you have to drill a hole at a deeper level to reinject?

A. Yes.

Q. We are talking about replenishing aquifers not injecting saline water into the existing bores. Further west the country would be desolate without bores. This is a major concern?

A. Replenishment of aquifers is one of the suggestions raised at the water forums.

Q. I thought the new legislation made gas companies clean up the waste water?

A. Yes, there are two main options, either beneficial use or injection in the new policy.

Q. Aren't you putting dams down?

A. The difference with the PL5 is that pilot wells are for appraisal to understand whether the wells are productive or not. It is at an investigation stage and the ponds are quite small.

Q. You mentioned that a 150 megalitre dam is comparatively small, well they are not!

A. Some are 100 ha and we are looking at aggregation and some dams can be 200mgl.

Q. A 200 mega litre dam, that's 20 acres, that's not small!

A. In the past there has been variation in standards of petroleum ponds but we are looking at better construction methods.

Q. You mentioned pilot holes being explored, will these eventually change into production holes?

A. There are three stages of field development:

1. exploration holes or core holes where a core of earth is extracted and analysed
2. pilot wells, also called appraisal wells
3. production wells

Core holes are not used but if productive the pilot wells can be used as production wells.

Emma went on to explain the five spot exploration pattern which is dewatered from the central hole. Water needs to be extracted to enable the gas to flow.

Q. So if gas is produced from the pilot holes you take it away?

Wallumbilla – Community Information Session

A. No, we usually flare it.

Q. If you decide to infill, what happens to that water?

A. If we go to next phase (development) then we put in a gas line which will go to the compressor station and also water pipelines are constructed. RO treatment for beneficial use is most likely.

Q. The water network would be separate?

A. Yes, the gas and water pipelines would run beside each other, preferably in the same trench but separate pipes.

Q. In the plots of five, is there some storage for water there.

A. Absolutely.

Q. Is there compensation for water storage?

A. This is a negotiation between the company and the landowner.

Q. Does the landowner have a say where the reservoirs are placed? I would like to see them placed in a useful area where water can flow into them, not at the top of a hill.

A. Yes the landholder most definitely has a say.

Comment

This hasn't always been the case and this has left a bad taste in the country. A guy I know had a dam next door which wasn't lined and it took him two years to have something done about it. It's a fact of life that this goes on and it isn't Santos but it has left a bad taste.

Q. Have these companies been getting fined by the EPA?

A. There have been legislation/conditioning changes because it has been very loose in the past and is now being tightened up.

Q. The dams could be an asset to the property. They could be opened up. It could be 30 years time but it could be 3 years time if the pilots are fizzers?

A. Yes, we can see your point, it could be a long period of time. There could be beneficial uses and we will still need to store the water initially. There are site specific issues which will need to be addressed.

Q. Are these sites going to be classed as contaminated?

A. If the dams are lined everything will be contained. There potentially could be a salt layer at the bottom of the dam but this is an issue the EPA says we must manage. Perhaps the salt will be taken away. Contaminated land issues must be resolved.

Q. With regard to the PL5, why was this area identified? Was it gas or soil?

A. Core holes had been drilled there and have been quite promising so now Santos wants to go to the next stage.

Q. But you have drilled holes on the PL5 already?

A. Yes but we can't flow them which is the next stage.

Q. So you are looking at building dams on the PL5?

A. Yes, we are looking at the engineering aspects.

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Q. What distance is acceptable to run between the drill holes and these ponds?

A. It depends on hydraulics and additional costs involved. We try to capture the water near to the wells.

Sam Klass then discussed the reverse osmosis (RO) process and the series of approvals to go through and the need to clean the water.

Q. There is still going to be a certain amount of water left over following the cleaning process?

A. Yes 75% will be clean and 25% brine which Santos will need to manage. This is our biggest challenge.

Q. Has the Authority to Prospect 336 (ATP) been changed from an ATP to a PL5?

A. We are at the early stages of planning.

Q. What do you define as Wallumbilla town area as you say you are not drilling there? It hasn't been defined by Council.

A. We will take that on notice and get back to you.

Comment

That is what we meant about the physical boundary on your map meaning nothing.

Q. It nearly has to be a formality that you will proceed, the government can't hold back progress. Isn't it virtually a process that will just happen?

A. Santos has already been granted a Petroleum Lease but does recognise that people have rights. There is an approval process that we have to go through and the EPA is looking at how it is conditioned.

Q. It is still going to happen?

A. Probably, but there are usually conditions that accompany the approval to ensure a high standard of environmental management. A small percentage of projects get knocked on the head but it is in the minority.

Q. What rights do the aboriginal population have?

A. Native title laws and cultural heritage laws do apply and we must comply with these regulations. We can't destroy indigenous artefacts etc. Cultural heritage doesn't only apply to indigenous culture but also non indigenous and historic buildings are recognised as well.

Q. What will be left in 30 years, will the land be reusable?

A. At relinquishment the land must meet contaminated land legislation. The landowner has to be happy with the way the land is left. There must be monitoring and checking of dams must occur. Associated pipelines will be left in situ. All surface equipment would be removed like well heads and separators for water.

Q. When Santos says at completion of rehabilitation is that when machinery has levelled the ground or is it after revegetation?

A. There are two stages here:

1. At the well site Santos will rehabilitate the land so that the landowner can use as much land as possible.
2. Relinquishment

- Q. So sign off is at rehabilitation, not putting the land back and revegetating? The land will probably take 12 months to get back to its original state – is that sign off?**
- A. We will talk to the landowners about the type of grass they wish to be planted etc. The landowner signs off only when satisfied with the level of rehabilitation.
- Q. I had a core hole that wasn't fenced. I will be surprised if the buffel grass grows like the surrounding grass. Before it is established the cattle get straight into it.**
- A. I see sign off as being when the land owner is happy with the rehabilitation work.
- Q. Laying pipes on top of the ground in any situation terrifies me especially in terms of health and safety with issues like bush fires and being hit by a trail bike etc.**
- A. We never have gas lines on top of the ground.
- Q. I wouldn't want polythene pipes on the top of the ground either.**
- A. We would only lay them on top of the ground in consultation with the land owner.

Presentation 2 – GLNG Project Update

- Q. Are you following existing pipeline routes? Who owns the Gladstone to Biloela pipeline?**
- A. We are following existing pipeline route as much as we can to minimise impact. Alinta owns the existing pipeline.
- Q. Will you build in their easement?**
- A. No, we will run parallel to it except where it is not feasible due to engineering or environmental constraints i.e. to avoid water courses and other areas of environmental sensitivity. The existing line doesn't have enough capacity for us to use.
- Q. How do you get gas from here (Wallumbilla) to Fairview?**
- A. Santos put in a pipeline in 2006.
- Q. Do you have trouble with the state government going through the forestry country?**
- A. We need to be conscious of and work within the requirements of our key stakeholders.
- Q. The pipeline is not an issue to me but it's the compressor and well heads and the issues like noise, traffic etc**
- A. Yes, these issues will be addressed in the environmental impact assessment. (Explanation of process provided).
- Q. What is the advantage of having the liquefied natural gas (LNG) plant so far from the field?**
- A. Cryogenic pipelines are very expensive. Once the gas has been liquefied at the LNG facility, it is transported to the LNG ships via a cryogenic pipeline. To

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minimise the cost, the LNG facility is located as close as possible to where the ships can be loaded.

Q. Is the gas very volatile when you reduce it?

A. No, it is just a liquid and won't burn in liquid form. (Explained process of producing LNG from the gas)

Q. It would make sense to use the gas in Australia and not export overseas.

A. We will still be providing gas to the Australian market but not LNG. Santos is not a retailer of gas; rather it provides the gas to other domestic distributors. There is a lot of gas in the fields and enough for both the Australian and overseas market.

Air Quality – The only issue Santos can foresee in the CSG fields is dust generation from drilling and other construction activities, and from traffic to and from the wells. Some wells will be attended twice a week whilst in operation. Water may be used for dust suppression. The site for wells hasn't been chosen yet so they will be located away from the houses.

Flora and Fauna – 150 plant surveys have been carried out in the CSG fields and along the pipeline. No significant flora species have been identified. The only animal species identified was the squatter pigeon.

Q. At the compressor station, will the noise cause a change to cattle grazing habits?

A. Santos is still investigating the noise generation from wells and compressor stations. Wells won't be like the compressor stations and Santos is conscious of noise reduction and using noise suppressors.

Pipeline – Little impact after construction

Social assessment – looked at matters like health and education in particular communities and mitigation measures and the opportunities to enhance communities. Preliminary findings show an impact from construction workforce for infrastructure. These workers will be housed in temporary workforce accommodation so as to reduce social impact.

Traffic increase discussed

Of major concern is stress on landholders associated with uncertainty of when, if and where wells will be located. Santos won't know this until they are out of the pilot stage.

Q. You are not talking about our local roads when you mentioned a little bit of dust, we couldn't see the road for dust when travelling to the bore holes. North of Wallumbilla there are huge potholes in the road that weren't there before.

A. We are currently carrying out a traffic study which will look at each phase of development, the construction phase and operational phase. We will be looking at proposed traffic routes, ability of existing road structure etc. Santos is also working with Council. We are currently using water suppression as well as grading roads. Where necessary, Santos will upgrade the roads as they have in Fairview.

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- Q. What about other companies using the roads as well as Santos. There are two to three other companies creating an impact as well.**
- A. Yes we are now looking at the cumulative impact on infrastructure. This has been introduced as a new aspect to these studies.
- Q. Do you anticipate this area being like Fairview in terms of infrastructure?**
- A. There is the potential that it could be as dense, i.e. one well every 1 or 2 sq km. We also inherited a lot of infrastructure at Fairview which is very ad hoc. That is not what we are proposing for this area. The number of wells could be the same but the layout would not and we are starting at the appraisal stage.
- Q. There are fewer landowners in Fairview and here it could affect hundreds of land owners. Santos owns most of Fairview?**
- A. Yes we realise that. Landowners will be consulted with the placement of wells and associated infrastructure to minimise the impacts.
- Q. With regard to the compensation matter, I was talking to my accountant and it could be made much more attractive to the landowner. At the moment payments are made for:**
- loss of production
 - depreciation of value
 - annual payment of bores
- It would be more tax effective if the compensation was added together because loss of value is not tax deductible.**
- A. This will be noted.
- Q. Question raised about where drilling occurs?**
- A. It is hard to predict where wells would be and where the drilling might occur. (5 spot pattern explained).
- Comment: It appears drilling is occurring around the boundary of leases.***
- Q. Coal seams are deeper further to the north?**
- A. We drill where it is easier to extract the gas.
- Q. How deep do you drill to get the water?**
- A. It depends on the depth of the coal, generally 600m-1000m. (Relationship between water and gas explained).
- Q. Some bores go down 1500 feet. It is a huge worry that it may affect the bores. How can you be so sure?**
- A. Registered bores have been identified. The study into this hasn't been completed yet but we will be discussing this with you early in the new year.
- Q. With the discussion on drilling, what chemicals are used for gas extraction in the drilling phase? In the Cooper basin, eight chemicals are used and if these get into the beef chain we would be shut down.**
- A. Predominantly potassium chloride is used. We will take this question on notice and get back to you.
- Q. I heard a landowner had cattle dying but didn't get a vet's report and was only paid compensation for the dead cattle.**
- A. We are working with Aus Meat Australia to look at chemicals etc. This is part of an ongoing discussion. There is a shift from persistent chemicals to those

that get broken down.

- Q. I have heard that some landowners are concerned about the National Vendors Debt which we must sign when we sell stock. Will the liability be transferred to Santos if we found that our cattle had ingested something that occurred from Santos' work?**
- A.** If Santos was liable we would be investigated and an independent party would have to make that assessment.
- Q. I want to follow up the chemical issue. I am concerned about drilling through all the streams of water and the drilling mud that occurs. I heard that one of the drillers had lost barrels of mud, where can it go and if it seeps into the aquifers what would happen?**
- A.** We will take this question on notice and get back to you.

Comment: maybe you should monitor bore water for six months later and check the quality of the water.

- Q. You should categorise who you are interviewing because there are a lot of fly ins who don't have the same outlook as the permanent community.**
- A.** The Hornery Institute have carried out a very thorough survey and collected a mountain of data. We are confident that their study will be comprehensive.
- Q. So it is the Roma region. How many here have been interviewed?**
- A.** There was a show of hands and it was noted that several people in the room had been interviewed by the Hornery. Council has also been involved in the process as well as kindergartens, hospitals etc.
- Q. In Rolleston someone told me that they were delighted with Xstrata. They had transformed their sporting ground and helped with the purchase of a local bus.**

Comment: Wallumbilla has also benefited from Santos in terms of roads etc. They have had the gravel scheme, Mt Hope Road and paid for upgrades there.

Jamie Miller then spoke about his role in terms of potential growth in the area. Currently setting up an apprenticeship program. Also looking at sponsorship program and consolidating the program rather than sponsoring on an ad hoc basis. An information centre (shop front) will be set up in Roma where the community can raise their concerns and issues.

Land Value – undertaking impact study on property prices therefore Santos can determine a fair and reasonable compensation package. URS and Devine Agribusiness are working together to get the sales data. Workshops have also been held in Wallumbilla and Roma. Looking at land types, soil types, rainfall etc.

- Q. How can Santos do a land value study on coal seam gas (CSG) when it is such a recent industry?**
- A.** CSG is relatively new in Australia, but gas production has been around a long time with similar issues. Santos is also looking at overseas studies in USA and Canada where CSG has been produced for a longer period of time.

- Q. We have had no infrastructure built yet to determine the impact?**
A. Yes we are looking at the area north where CSG is being developed.
- Q. Depreciation of capital value in the States is different isn't it because they receive royalties don't they?**
A. If that is the case, it will be confirmed in the study.
- Q. Depreciation isn't just about infrastructure. A lot of the properties here are small (about 40 acre) blocks and neighbouring properties may have infrastructure on them and it will affect the value of our land.**
A. It is a very difficult study to do but we are trying to investigate all these issues and will take on board your comments. We understand compensation is a big issue.
- Q. Those who signed up very early on and accepted a minimum amount of compensation, will they be eligible to the new compensation established?**
A. We will check that out for you.
- Q. I am still waiting for a valuation from Devine from 12 months ago and don't know what it will look like. I have chased Devine and Santos and have had no response and am still waiting.**
A. Local land agents to follow-up.
- Q. Devine say they have done an independent study of our property but how can they do that when they haven't contacted the landowner?**
A. Local land agents to follow-up.
- Q. Government should be involved in the compensation issue so that all the companies pay the same compensation. Government should help liaise with the different companies so that neighbours receive the same amounts.**
A. We are trying hard to get something consistent that is acceptable to all parties.

Session ended 12.45 pm

Results from follow-up of issues:

1. The main chemicals used in drilling mud are:
 - Bentonite, generally impure clay consisting mostly of montmorillonite.
 - Natural polymer
 - Potassium chloride

In highly permeable formations with large pores, whole mud may invade the formation, depending on mud solids size. This can be addressed by using bridging agents (i.e. calcium carbonate, ground cellulose) to block large openings, then mud solids can form a seal.

Santos will investigate making the Materials Safety Data Sheet (MSDS) available on the GLNG website.

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2. The drilling mud is used to provide a thin protective coating on the wall of the hole called 'wallcake' The weight of the column of mud forms hydrostatic pressure, preventing any fluids from rising. The mud also keeps the drill bit clean, and removes the cuttings from the well.
3. The issue of the Devine land valuation has been followed up with the relevant landholder.
4. A response addressing the definition of the Wallumbilla town area was provided to the relevant landholder.
5. The new compensation amounts will be retrospectively applied to agreements established on or after 30 June 2008.

Date: Tuesday 18 November 2008, 5.30-8.00 pm

Venue: Roma, Ernest Brock Function Room

Project representatives: Emma Hicks, Santos
Sam Klaas, Santos
Jamie Miller, Santos
David Lobb, Santos
John Phalen, JTA Australia
Clare Beer, JTA Australia

Attendees: 13 community members

Presentation: Emma Hicks provided a general project overview and updated the attendees on the major issues raised in their area at previous meetings. These issues included; air quality, flora and fauna, land use, pipeline, social assessment, waste management, water, well being and land values.

Note: This session was not recorded; the meeting notes are based on a written record and will include some paraphrasing.

Questions and answers

Q. How are you getting on with water management and what are you going to do with the water?

A. We have been talking with a cross section of the local community to understand how this water could be best used. A number of good ideas have been generated which we are currently investigating. It has been suggested that topping up 'lake neverfill' could provide community benefits.

Q. Can you pump the water back?

A. No, not into the same seams but we can inject the water into deeper seams.

Emma discussed the need to depressurise the coal seams in order to produce the gas.

Q. Is that working well?

A. Fairview 77 is. Santos is pumping water into already saline water. A reverse osmosis (RO) plant has been commissioned at Fairview. It is proposed that the brine that is left (approx 25%) can be injected, and the treated water be reused for irrigation. At this stage we don't know the flow rate or quality of future water production. The main quality issue is salt content and the water quality varies from well to well. We are looking at reusing the treated water in for example, stockyards and irrigation schemes.

Q. You have no way of identifying supply?

A. At Fairview it is currently 5 megalitres per day.

Emma went on to describe the relationship of water production to gas flow over time.

Q. No one really knows the quantity?

A. We do know once the wells are developed.

Q. Does the seam refill?

A. No, not in our experience.

Q. Once the gas is extracted is the well finished?

A. Yes.

Emma then noted that approximately 2,000 wells would be drilled over the next 20 years to ensure viability of the LNG facility. She also explained the three production phases:-

- 1. Core wells are drilled – a core is extracted and taken away for analysis to measure porosity of the coal seam and whether there is gas evident. These wells do not get developed.*
- 2. Appraisal stage – pilot wells are drilled usually in a five spot pattern approx 1 km apart and another set of wells could be drilled approx 10-30km from this set. Water is drained from the five wells to enable gas production from the centre well for testing.*
- 3. Stage 3 is the development stage where infill drilling commences. Pilot wells can also be used as production wells.*

Q. Is it likely that if the flow of gas isn't enough these wells could be capped and then reused at a later stage?

A. Yes it is possible, technology and/or the economics could change and this could happen.

Q. Where are you looking to put the core wells, is it on the entire yellow region on the map? (indicating the petroleum leases on the map)

A. Yes

Q. When constructing the bores presumably the gas comes out of a single aquifer, are the other aquifers cemented out in that seam?

A. Yes, other aquifers are blocked off.

Emma then explained the process for the environmental impact statement (EIS) and scheduling involved.

Q. The EIS is about the impact of the project itself but the project will go ahead irrespective?

A. No, the EIS and subsequent approvals are required before the project can commence. There are three stages to the EIS:

1. A baseline study is carried out (approx 25 separate studies) to measure current conditions
2. Project description
3. Impact assessment

Mitigation measures are then proposed to minimise impacts on the environment, community etc. Measures are also looked at to enhance community. The EIS then goes out for public review which is then followed by a statutory approvals process.

Q. The pilot holes are therefore proving to Santos that the project is viable?

A. Yes

Q. Therefore, if you affect the baseline too much, the project may not go

A. **ahead?**
Yes

Q. The commercial decision by Santos then has yet to be made?

A. Yes, there are the costs involved that need to be considered and proving up reserves as well.

Emma then described some of the issues raised at previous community information sessions.

Air Quality – The only issue Santos can foresee is dust generation from drilling and from traffic to and from the wells. Some wells will be attended twice a week. It is proposed that water will be used for dust suppression. The site for wells hasn't been chosen yet but they will be located away from houses.

Flora and Fauna – 150 plant surveys have been carried out and no significant flora species have been identified in the Roma area. The only animal species identified was the squatter pigeon.

Land use – minimal impact on grazing land. Once well is drilled the impact on grazing land can be reduced during operational stage. There is also an opportunity to improve infrastructure on farms, access roads, cattle grids etc. through the project.

Q. How much flexibility is there in spacing the well sites?

A. There is quite a bit of flexibility. The geologists propose a location for a well. This is then adjusted due to proximity to houses, vegetation etc.

Pipeline – Little impact after construction

Q. How deep is the pipe laid?

A. Between 0.8-1.2 metres depending on land use, deeper under roads and cultivated land however not so deep under cattle grazing.

Q. Is the measurement from the top of the pipe?

A. Yes

Social assessment – looked at matters like health and education in particular communities and mitigation measures and the opportunities to enhance communities. Preliminary findings show an impact from construction workforce for infrastructure. These workers will be housed in temporary workforce accommodation to reduce social impact.

Q. Will workers be fly in, fly out?

A. Generally yes for drilling and construction in the CSG fields, and for the pipeline. The rosters are yet to be determined.

Jamie Miller provided information on social initiatives being worked by Santos such as skilling up the local workforce, apprenticeship initiatives such as electricians. Expecting to target local people and have approx 20 apprentices by 2010. An initiative to support the community.

Emma then discussed increased traffic. Volume of traffic expected to increase with material supply and personnel. Looking at proposed routes, efficiency of

routes and ability of existing infrastructure to cope. Investment in road infrastructure such as sealing roads such as Injune-Taroom. Using models to predict additional traffic impact and determine required mitigation measures.

Of major concern is stress associated with uncertainty on land owners and not knowing when, if and where wells will be located. Emma described the nature of the CSG field exploration, appraisal, development and operation.

Waste generation. Currently identifying waste streams and putting in place waste management plans. Recycling important.

Q. You must go through quite a lot of basins before you reach the coal level, perhaps five or six. Do you seal them off?

A. Yes

Q. How far down is the coal?

A. Approximately 600 -1,000 metres.

Q. When you drill down are the other layers cemented out so that they can't be entered?

A. Yes

Wellbeing study – Santos is carrying out an independent wellbeing study which is not a requirement of the EIS. This is being carried out in Injune, Roma and Wallumbilla. Santos is keen to enhance the communities in which they work.

Q. From Santos point of view the wellbeing project will flow on and Santos will move away. What will happen beyond Santos' involvement?

A. Santos is looking at projects that are sustainable within the community. The project life is approximately 20 years but Santos is looking beyond that.

Land value impact study being carried out to ascertain fair and reasonable compensation.

Q. Have you a feel for exploration works in this area?

A. It will be dependent on study results but approx 600-800 wells drilled across the area between now and 2014. Approximately 2000 wells will be drilled by 2034. Santos will be proving up its resources in that time across an area of approximately 22,000 km².

Q. Will there be more short term?

A. There will be a number of rigs working continuously. In the short term there will be drilling around Fairview (Injune), Wallumbilla and Roma.

Q. Can other companies sell into the pipeline?

A. No.

Emma went on to discuss the gas composition requirements of the LNG facility and the design capacity of the pipeline.

Q. Once in the development phase, how do you plan well site locations? With geological structures that impact locations it must also impact on

- Santos' people with the shifts of location?**
- A. Yes. The locations will be determined following core tests and appraisal well performance. There is more certainty at the development phase but at exploration and appraisal phase; locations will often be altered.
- Q. Because you are in the pilot phase there will be chopping and changing for 2-3 years?**
- A. Yes, and beyond as the exploration and appraisal moves into different acreage.
- Q. What is the difference between the level of EIS studies on this project and standard petroleum leases?**
- A. The studies which were conducted pre EIS looked at a site by site basis. The EIS covers more aspects over a broader area.
- Q. If the export market for LNG doesn't prove as good as expected then the LNG would be for domestic supply?**
- A. There is not enough domestic demand for the volumes of gas we would be producing. Pipelines would be used for transport to domestic supply (no need to convert to LNG)
- Q. When you extract the gas from the coal seam what is the impact on the geology underneath? Is there the potential to slump?**
- A. That is being looked at in the EIS. It is unlikely but we will know more soon. The gas is trapped within the coal itself, so that when the gas is extracted the coal is still insitu. The studies are still looking at whether there is a potential for land slump.
- Q. You can't get 100% of the gas from the coal but how much do you think will be left?**
- A. Fairview has been producing gas since 1996 and the wells are still flowing. The volume of gas remaining will be influenced by a range of factors such as technology, project economics etc.
- Q. There is so much CSG activity happening in the region, has Santos thought of the impact of other companies.**
- A. Yes, we are also carrying out cumulative impact studies as part of the EIS.

Session ended 7.00 pm

Date:	Wednesday 19 November 2008, 11.30am – 2.00 pm
Venue:	Injune Memorial Hall, Hutton Street, Injune
Project representatives:	Emma Hicks, Santos Peter Sippe, Santos John Warby, Santos Trevor Edwards, Santos Jamie Miller, Santos David Wood, Santos John Phalen, JTA Australia Clare Beer, JTA Australia
Attendees:	15 community members
Presentation:	Emma Hicks provided a general project overview and updated the attendees on the major issues raised in their area at previous meetings. These issues included; air quality, flora and fauna, land use, pipeline, social assessment, waste management, water, well being and land values.

Note: This session was not recorded; the meeting notes are based on a written record and will include some paraphrasing.

This session was facilitated by John Phalen of JTA Australia who announced at the commencement that Santos would endeavour not to use acronyms during the presentation. For each acronym used an amount of \$5 would be donated to a charity of choice by the attendees. At the end of the meeting Santos donated \$140 to the Injune Kindergarten.

At the commencement of the session, one attendee wanted it noted that Santos should pay respect to, and acknowledge, the landowners in attendance, as is done for Aboriginal and Torres Strait Islander peoples. The view was offered that landowners did not ask or invite Santos onto their properties, and out of courtesy this should be recognised.

Questions and answers raised

Q. Do you know the width of the pipeline easement?

A. Approximately 30 metres.

Q. Are there three pipes or two?

A. Just one at this stage which will run parallel to the existing pipeline easement as much as possible. A second pipeline may be installed at a later date.

Q. Will that be in other country?

A. In the same easement if possible.

Q. Hasn't 40% of Santos been sold to an Asian company?

A. Petronas is a 40% partner in the Gladstone Liquefied Natural Gas project.

Emma gave a brief project description and the size of the potential development area of 20,000 km² and the potential to establish 2,000+ wells over the 20 year period.

Q. You mention “we” have over 20,000 km² of land but Santos does not own the land?

A. Yes, that's right, the majority of the land is not owned by Santos. We have petroleum tenures over that area.

Q. Is full compensation in place with the Government concerning damage and upheaval caused to landowners?

A. This is not a Government issue but between the landowners and Santos.

Q. Is this done prior to construction or as you go?

A. Santos talks to landowners about activity planned on their land.

(Discussion on the field development area followed)

Emma noted that Santos does not know exactly where the wells will be placed.

The three stages of exploration were discussed:

- 1) exploration holes - (also called core holes) where a core is extracted and analysed*
- 2) pilot wells - (also called appraisal wells), which are constructed in a five spot pattern. The wells are then dewatered to allow gas to flow from the central well. This is done to see how much gas is in place and how easily it can be extracted.*
- 3) development stage - the density could be one well every one or two square kilometres. Core holes are not used as production wells, but if productive the pilot wells can be used as production wells.*

Q. When you mentioned 2,000 wells, are they working wells?

A. Yes

Q. Is that in addition to what already exists?

A. Yes

Comment

That paper you have drawn with the dots represents our property which is frightening to us. The only thing we get is compensation and we must ensure we get the value. Gas companies are there to help themselves. We advise landowners to get legal advice.

A. Yes we agree you should seek legal advice. Please talk to the land agents to find out how Santos may assist with covering legal expenses to help you interpret the land agreements with Santos. We are also looking into ways that we can provide landholders with access to the water that is produced from the wells.

Q. At a cost?

A. Cost will come into it, but we are talking to the local communities about how this water could be of benefit to them. We want to explore all options and then undertake a cost analysis.

Q. If there is sufficient amount for irrigation, landowners are still not allowed to use it for irrigation, is that the case?

A. The EPA is encouraging beneficial use of the water. Santos is investigating the possibility of irrigation by landowners.

Q. Some landowners have been in that process for three years and still don't have permission?

A. *The comment was noted*

Q. Is this irrigation for trees or crops?

A. We are setting up a scheme for both Leucaena, which is a fodder crop, and a eucalypt plantation such as the Chinchilla White Gum.

Q. You are putting untreated water on trees, who will monitor the salt build up?

A. Santos has a reverse osmosis (RO) plant at Fairview. The quality and quantity of the water varies across the fields. There will be some salt content and trace elements but in certain areas the water is very good quality.

A monitoring program will be implemented by Santos and there will most likely be regulatory reporting requirements.

Q. What if there is arsenic in the water?

A. We have been carrying out water quality monitoring every six months for the operation of the Fairview Field and have seen no evidence of this.

Q. Does it interfere with bore water?

A. We are currently undertaking several water studies including surface and ground water (both shallow and deep). Modelling is being carried out to see if it is likely that coal seam gas exploration will interfere with bore water.

Q. What if it does interfere with bore water, will Santos do anything?

A. Under law Santos would be obliged to address the situation.

Q. Who was monitoring the irrigation water?

A. Santos is required to develop a Resource Utilisation Plan (RUP) for the EPA which the EPA must review and authorise. This will include an outline of Santos' monitoring requirements.

Q. Once you start developing is that the end of the monitoring?

A. No. Monitoring is an ongoing process.

Q. Are there still opportunities to comment on the EIS?

A. Yes there are. Out of the initial meetings, certain comments have altered our studies. Subsequent meetings such as these have provided a rich source of information which has been fed back to the EIS study teams.

Q. Can you change the EIS once it is released?

A. The public will be able to review the EIS and submit any comments to the Queensland Government. We will come back to Injune to discuss the findings when the EIS is publically released by the Queensland Government.

Q. We can't comment on the Terms of Reference?

A. No, these have been finalised. You will have plenty of time to review the final EIS when it is publically released and make a submission to the government if you feel strongly about a particular aspect or issue.

Q. With regard to the pipeline route, did Santos look at the agricultural

- potential that is being disrupted and the cost involved.**
- A. That would have been considered as part of the social constraints.
- Q. From our viewpoint it seems that it is easier to go through freehold land. You can't go through state forests or heritage land. The government wants the royalties but won't allow the pipeline to go through their own land.**
- A. To determine the pipeline route, Santos looks at all the options holistically and can't just avoid government land. Freehold land is not seen as an easy option.

Pipeline route selection process explained

The route mainly follows the existing pipeline and has not been finalised yet. The same constraints apply in the field. There is some flexibility but we need to consider environmental, engineering, social and cultural issues both indigenous and non-indigenous (such as old stockyards).

- Q. Have you tried the straight line option which would be cheaper?**
- A. Yes, we looked at several options, including a more direct route. This was not feasible due to the constraints previously discussed.
- Q. How does following another pipeline help you?**
- A. It reduces the impact on the community and the environment.
- Q. Can I make a suggestion that you provide a map showing the pipeline route as an overlay over existing freehold land to show where the landowners and state forestry lands lie. This will help prove the point that government land has not been avoided.**
- A. Yes, we will take that back and see if we can produce a map.
- Q. Will the study findings be included in your report to Government?**
- A. Yes and they will also be publically available.

(A discussion on air quality followed) – Emma commented that the main foreseen issue is dust generated during construction.

- Q. Can you monitor an existing well that has been drilled for air quality?**
- A. Absolutely.
- Q. Will your study findings indicate how close you are going to a house?**
- A. Mitigation measures in the report will include recommendations of minimum distances from houses (to minimise noise, dust and other impacts).

(A discussion on gas emissions followed) – At the pilot stage we burn the gas or flare it on site as it is not yet connected to a gathering network. This results in less greenhouse emissions than would be released from venting by converting to CO₂.

- Q. So you convert methane to CO₂?**
- A. Yes, burning methane produces CO₂ and water as steam. CO₂ has a lower global warming potential than methane. So burning the gas and releasing CO₂ is more environmentally friendly.

- Q. We can't cut down trees but you can put CO₂ into the atmosphere. Do you see my point? It is ironic that we can't clear properties but the Government allows gas companies to pollute the air???**
- A. I hear what you are saying. We must first determine how much greenhouse gas will be produced by the project and look at ways to reduce it. This is one of our reasons for planting Chinchilla White Gums.
- Q. Is agriculture being sacrificed for the right of the gas company?**
- A. Santos must estimate their production of greenhouse gasses and show how it intends to minimise these gases. There will be mitigation measures put in place.
- Q. Is that new gas line following the existing gas line?**
- A. Yes in the majority of places.
- Q. What proximity will the pipeline be to a town?**
- A. 17 km from Biloela, 9-10 km from Moura and approx 30 km from Injune.
- Q. If Santos is putting down a new well, do they do a plant and animal study of that particular site?**
- A. The studies are carried out on a risk basis, e.g. they wouldn't do a study on cleared land.
- Emma then explained the EIS study methodology and site specific studies.*
- Q. How far is a bore allowed from a house?**
- A. Under the old petroleum act there was a specified distance but now it is negotiated between parties.
- Q. So now it is an argument between Santos and the landowner?**
- A. It is a negotiation on a site by site basis. Visual impact is considered as well as other factors.
- Q. What about noise levels?**
- A. As part of the EIS, monitoring of noise is being conducted and mitigation measures being recommended. There are noise limits which have to be complied with – these are set by the EPA.
- Q. We had a well 350 metres from our house which operated 24 hours a day and we couldn't sleep, it was a disgrace. It is OK to say that this is what you do but who monitors it? Things like this aren't always followed through.**
- A. The EIS is a much more detailed study than has been performed in the past. An Environmental Management Plan will be established and submitted to the EPA for review and approval, and conditions are then issued by the EPA.
- Q. What about an existing well, the studies are too late, you can't turn back time?**
- A. No.
- Q. Why wasn't the study carried out prior to these being established because the issues must have been foreseen?**
- A. The GLNG project has been noted as a major project and the EIS is now a compulsory study. Site-specific impact assessments have been conducted in

the past, but not to the level of detail within the EIS.

Q. Promises are made about wash downs, dust etc. and if nothing is done we can't do a thing about it?

A. I note your comments. Pre project we are running on the regulations at that time, the EIS only applies to the project going forward.

Q. So when it will affect more people you then have to do the EIS?

Santos has to comply with all of the regulations and conditions set out by the relevant authorities, regardless of whether it is for an activity covered in the EIS or not. If you believe there are breaches of these conditions, there are several avenues to lodge a grievance or complaint.

Q. Does this EIS cover all the gas wells too?

A. Yes the EIS covers all components i.e. LNG facility, pipeline and field.

Q. Is it an independent company that will be undertaking the studies?

A. Yes, Santos does not have the expertise to carry out the studies and have hired consultants.

Q. Paid by Santos?

A. Yes

Q. You can hire who you like and they are paid by Santos – how can you call that independent?

A. These firms operate within professional codes of ethics; we expect to get the facts, that's what we pay them for.

Q. Are the contractors easy to get in contact with if the landowner thinks there is a problem?

A. The first point of call is the local Santos representative and you would all have details of your local rep. If not, Trevor will be here after the meeting to talk with you further.

Q. Does the Government pay anyone to monitor Santos' actions?

A. We submit a monitoring report as part of the environmental management plan.

Q. Can the landowner put a request into the EIS that they would like the government to monitor the project?

A. Once the EIS has been reviewed by the Queensland Government, it will be released to the public for comment. You will have the opportunity to submit any further issues directly to the government. There is usually a 6 week period for this to take place.

Q. Who is responsible for letting us know who will be entering our property?

A. Santos staff will contact the landowner in regard to Santos' current or proposed operations. I can't speak for other companies and how they operate.

Q. There have been things done in the past which are wrong which will be better now but you need to implement it and show people that it will be done?

A. Yes, Santos wants to turn this around and build better relationships with landholders.

(A discussion in land diminution followed) To address the concern about loss of land value, Santos has engaged URS and Devine Agribusiness to study land value impacts.

Q. At the meeting in Arcadia they said it was difficult to get land values?

A. It is not necessarily difficult to get values over time provided there have been sales, but it is difficult to analyse factors that might have an impact on land prices.

(A discussion on land use followed) There is minimal impact expected to grazing land. Once a well has been drilled the impact during the operation stage can be reduced and grazing can extend virtually to the well head.

Q. Santos has dozed our buffel grass which can take 5 years to regenerate which is a loss of production.

A. Yes, there will be discussions with landowners regarding reseeding. You should really follow up any issues like this with your local land agent. They can work with you to address these concerns. Loss of production can be compensated for.

Q. Can you provide the names of all the landowners along the pipeline so that they can get together as a group and discuss issues?

A. Different landowners have different issues and we have a legal obligation to respect the privacy of the people we deal with.

(A discussion on social impacts followed) Emma notes that stress from the fear of the unknown has been reported as a key social impact from discussions so far.

Q. People aren't mentioned in the draft Terms of Reference?

A. I can assure you that the assessment of impacts on the local communities is a mandatory component of the terms of reference. This has been reflected in our consultation activities to-date and our social impact studies

Can we record that we have a very high stress levels and my husband has been hospitalised as a result.

A. Yes, we will note that. The Santos land agents are there to help so please share your concerns. They want to work with you.

(A discussion on traffic issues followed) Emma explained the potential traffic impacts and discussed how workers were likely to be accommodated during construction.

Q. Can I have clarity about what you mean by housing on-site?

A. On-site housing is where Santos builds what is known as Temporary Accommodation Facilities or TAFs to house the construction workers. These workers operate on a roster system and generally fly in and fly out. This is a common approach to construction practices within the industry so as to limit the impact on local communities.

Q. So extra traffic on the road will impact on the land?

A. We are not sure of the impact at present but there is a study being carried out to establish volume of traffic, proposed traffic routes, road improvements etc.

Q. If you have local guys living in camps, there will be no need for them and their families to live in the town, that is going to have an impact on local businesses is it not?

A. In our social impact assessment, we will be analysing the potential affects of the workforce.

Q. Will Santos bring any workers out from Indonesia, e.g. like sawmill people?

A. We are looking at employing local workers wherever possible.

Jamie Miller went on to discuss Santos' proposed apprenticeship program.

Q. Will they be living on camps? Can't Council and Santos work together to allow expansion of the town which is currently restricted to help support the town? We need to keep workers in town.

A. The construction workforce will live in on-site accommodation. The accommodation strategy for operations workforce is yet to be determined, but local employment is preferred where possible. We do look at the flow on affects from the workforce.

Q. That is a good advertisement for Santos but what about goods such as fuel? If you have camps you don't need to come to Injune for supplies?

A. I might have to correct you there. Santos' money is currently being spent in Injune on fuel and other supplies. This practice is expected to continue throughout the project as staff utilise local accommodation and hospitality.

Emma went on to discuss Santos' wellbeing study through the Hornery Institute.

Q. If you are going to start apprenticeships is there an incentive for kids to stay and live in town?

A. We can't dictate where they will live once they have completed their apprenticeship.

Q. Is there incentive for them to stay in the town. Can't you pay them extra money to stay in the community?

A. All these things you have mentioned can be considered and something that we can explore.

Q. If the pipeline goes ahead, what is the timeframe?

A. The final investment decision will be made at the end of next year or early 2010. We will need to have approvals in place and have proven that enough gas will be available. Construction would begin in 2011 and by 2014 gas will need to be at the LNG export facility in Gladstone.

Q. Will there be any other major camps?

A. There will be temporary accommodation facilities associated with the pipeline construction (which will move as the construction progresses) as well as the drilling program. Permanent accommodation facilities will be supporting the operational workforce in the CSG Fields.

Q. Aren't you talking 3,000 people?

A. For the construction of the whole project, approx 200 for the pipeline. The

figure of 3000 that you have quoted is more like the total workforce numbers for construction of the infrastructure from Roma to Gladstone.

Q. Will the overflow contractors come back to town?

A. We haven't decided on camp locations yet but a number of people will be staying and coming into towns and there will be a flow on affect.

Q. Can landowners gain access to monitoring information like air, noise and dust?

A. Yes it will be in the EIS.

Q. What about noise monitoring on individual properties?

A. Yes, please talk to your local land agents if you have concerns about noise.

Q. Should there be a monitor at the proposed well site both before and after?

A. We carry out a background noise study as part of the baseline study. Monitoring is not carried out at every well.

Q. So it is just an average?

A. EPA sets conditions and there are limits above the background noise.

Q. How would we know what was happening at our individual well?

A. If there is an issue, monitoring can be performed at individual wells.

Q. Does the government subsidise all this technology.

A. No. It is all funded by Santos.

Session ended 2.15 pm

Actions for Consultation Manager

1. Send cheque for \$140 to Injune Kindergarten, 53 Ronald St
Injune, QLD 4454, (07) 4626 1202
2. Investigate if a map can be produced showing the pipeline route as an overlay on existing freehold and state owned land.

A map has been produced addressing issue 2. This map has been submitted as part of the EIS study to the Queensland Government for review. At this stage, the map is unable to be released. It will be made available during the public consultation process.

Meeting record

Santos Gladstone Liquefied Natural Gas (GLNG) – community meeting

Gladstone; 21 November (Leo Zussino Building, CQU)

Following is the record of questions and answers from the afternoon (1200-) and evening (1730-) community information sessions.

Questions were asked during and following a presentation from Dennis Reid, Santos. Questions and answers from both sessions are included.

Responses are from Dennis Reid, Santos, and where indicated, by Lorna McGinnis and David Wood, also of Santos.

1200 session

Session opened by Jan Taylor, JTA Australia (community consultants) at 12.05. Jan introduced Dennis Reid, EHS Team Leader – Gladstone LNG.

What standard will the pipe be built to?

The pipeline is built to a “no rupture” standard, meaning that great effort is taken to protect the integrity of the asset. Features include extra wall thickness and deep burial of the pipe. The pipe will be built to a standard that it could withstand a strike from a backhoe.

How much drilling is going on?

Santos has eight drill rigs working continually across our CSG (Coal Seam Gas) fields.

Does the pipeline need much maintenance?

Santos will check and maintain the pipeline. One of the benefits is that the pipe will be dry, and with minimal moisture, acid compounds cannot form. This dramatically reduces the likelihood of corrosion.

How is the extracted water going to be managed?

The extracted water varies in amount and quality. Santos is very focused on beneficial re-use of the water. We have run beneficial use workshops and conducted surveys at Roma, Wallumbilla and Arcadia Valley. The water quality is variable, and its location of course dictates how it can be re-used. The main variables that impact on the potential re-use of the water is the amount of fluoride and salt. Our testing has revealed that the salt concentration ranges from 300 parts per million (PPM) to 6,000 PPM. To give you an understanding of what that means: normal stream-water is usually 700 PPM, a saltwater swimming pool is 6,000 PPM and the ocean is 40,000 PPM. One current use is the watering of cattle and also the irrigation of a plantation of Chinchilla White Gums. We are also irrigating new crops of Leucaena, which we will provide to cattle stations as feed. This will fatten the cattle and add value to their stock, as Leucaena can significantly increase the weight of cattle. Santos is investigating options to supply water to supplement the town water supplies and water reserves in the Roma region. These are ideas that the community has come up with, and we will continue to consult locally to allocate the water to purposes that the community supports. But we have explained that this is short-term supply, and is not a sustainable source. Eventually the water will reduce and stop.

Do you have to treat the water?

Yes, we propose to use small reverse osmosis desalination plants in the field.

Will the three stages be built at once?

The LNG plant will be built in phases (called LNG “trains”) one at a time. The plant has the capacity to expand as we have full gas development, and also depending on our gas supply markets and contracts. Santos will build a larger than necessary pipeline (36 inches in diameter), as pre-investment for the capacity we will need when the second “train” is developed. This will be within the 30m corridor, so there will not be any necessity to increase the size of the easements.

Is Santos entitled to develop the lot?

We have a large number of leases and are investigating the extent of the gas reserves within the leases. We tender for these leases from the state government, and we can seek approval to develop all of the gas we wish.

If you are de-watering and de-gasing the coal seams, does that mean that you are interfering with and limiting coal development?

No. there is abundant shallow coal in Queensland. The coal we are accessing is between 800-1200 m, and is not viable or of interest to coal mining companies. The de-watering and de-gassing must be performed prior to coal extraction.

If you get up to 2000 wells, there will be significant water release; won't you need a lot of associated infrastructure?

Yes, we will need a series of pipe networks, pumps, and treatment plants, and the like. It will depend on the way the water is used.

Will this infrastructure move with the well locations?

Yes, we will not leave infrastructure that is no longer needed. Underground pipelines will remain in-situ. When a well is dry or the gas has been expended we will reclaim the infrastructure. Also, some measures are only short-term. Santos has some wells that are dry after two weeks.

How do you remediate the site?

We remove our infrastructure, fill the well with concrete, cover the area and replant vegetation.

How will the LNG plant be powered?

Santos intends to draw off gas from its source for on-site gas-powered generation, and will not normally take electricity from the grid. The compressors at the plant will also be gas fired.

Will the heat be felt in the harbour?

No, the plant will be cooled. We are going to have air cooling. It would be more efficient to have the plant water cooled, but for environmental reasons we are going to air cool the equipment.

What are the different gases that will be emitted?

Our LNG plant is very clean, and there are no “nasties” in our emissions. Our selection to use our gas to generate electricity – rather than to use coal-based power from the electricity grid – will reduce our plant emissions by 40%. The CO₂ emissions will only increase total Queensland emissions by 0.2%, and Australian emissions by 0.03%.

Isn't Santos expecting that its LNG ships are given priority to enter the port?

Like you, I see that there are a large number of ships outside Gladstone waiting to enter the port. The order of ship access will be up to the Queensland Port Authority. What Santos will seek to establish is a firm schedule of access. From three days out, the LNG ship's captain can predict the arrival time within two hours. If we have a slot, we would like to work to that. If it has to be altered, we could speed up or slow down. Every company wants timely entry. Santos will be looking for a reliable schedule, not overall priority. The LNG ships would be in and out within 24 hours, with 14 hours loading. The port capacity model that the authority is developing models five LNG plants. For our part, we would have a LNG ship every seven-eight days in the first phase, and this would increase to a LNG ship every two-three days.

Is there any impact on migratory wildlife?

We have examined this, and under the terms of reference we have to assess this to the satisfaction of the Commonwealth Government as they have pertinent legislation. We have looked at vulnerable and significant species, and have studied about 16-17 different bird species in terms of the possible impact of additional noise and light. Our findings will be in the ecology section of the EIS. In summary, we are confident there will be negligible impact.

Have you assessed your impacts on the mangroves and salt flats?

Yes, we have done this as well.

How do you intend to accommodate the workers during construction?

We have a few options as to where to accommodate workers. We understand it is inappropriate to place all of our workers within existing housing in Gladstone. We could have a workers' village in or close to one of the towns, but this is usually unpopular with residents. So, Santos' current position is to house the workers on the Santos property on Curtis Island. We have to set a balance. It is not suitable to rely on the existing housing market, but we want to make sure there are economic benefits for Gladstone. Our preference is to have the workers on a ten and four day rotation. We think that during the four days, the workers will be inclined to stay and spend locally, as it is too short a break to go far-a-field. Also, it is our assessment that most of the workers will generally come from around this region.

How will the workers be managed on the island?

When working on the Santos site, the workers will not be able to access South End. They will be within a fenced perimeter, and they will not have private vehicles. It is Santos' current position that the workers will travel by ferry during construction, and normally by bus during plant operations.

The clearance margin that you have suggested (20.5 m) is a good height and will satisfy the boating community. The tallest masts around here will be able to get under.

Thanks, I am pleased. We have undertaken a rigorous study and held a session with stakeholders. Our consultants did an excellent job of surveying all available information including ship logs. We provided our findings to the state government as they are responsible for decisions about the bridge.

Will the project go ahead, and is its future subject to the global credit crisis?

Raising capital and the future markets for energy are aspects of Santos' 'final investment decision'. However natural gas is a growth market, and the future of energy supply. Nothing is guaranteed, but Santos is confident that the project will be viable. Santos still needs to be advised of government's approval and development conditions (due in 2009) as these have to be costed. In assessing initial viability a couple of years ago, the model was based on a price for LNG that is actually lower than it is today. Our commercial model is conservative and grounded; and Santos is committed to the project - but there is still some way to go.

When will the future of the project be known?

The status of the project will be known in early 2010.

Will it be guaranteed at that point?

No. It will depend on factors such as energy demand as this will usually set the price for LNG. Some aspects may be in our favour due to the downturn. Initially we have factored a certain price for steel. Because of the downturn, the price of steel will be lower than we expected, and the major factories will have the capacity to do the work.

In the construction phase, will there be a large number of wide loads (road traffic)?

There will be some wide loads, although we will receive materials and pre-constructed sections by ship as well as road. I would expect more long loads than wide loads. We will work with Department of Main Roads and the Queensland Police Service on routes and timing. We will develop a traffic management plan with these and other agencies to get a good outcome.

Who is responsible for the construction of the bridge?

The state government will manage this. Santos has been responsible for the initial design concept. But as the bridge is going to be used by other companies and the state is going to regulate conditions of use, the state will be responsible for the bridge from this point onwards. (Reference to the earlier question -) I wouldn't expect wide or long loads on the bridge, and it will depend on the regulators and the eventual capacity of the bridge. As said, I expect we will use the harbour and our jetty to move large equipment and bulky materials onto our site.

What are the main risk issues as perceived by the community?

We have held five general information sessions in Gladstone this year, including some sessions dedicated to LNG safety. We have held a large number of smaller briefings and presentations to special interest groups. Accordingly, we have gathered a lot of information from the community across the year, and this has been helpful for us to understand how this project is perceived. The top issues for the community are:

- LNG safety and security
- social impacts
- development of the island – opposition to the extension of the Gladstone State Development Area.

Why are you exporting the LNG and not using the gas for Australian industry instead of coal?

The short answer is that coal is too abundant and there are very few disincentives for the extraction and use of coal.

However, Santos is the largest domestic gas supplier in Australia, and provides nearly 25% of the Australian gas market. There is enough gas supplied into the Australian market already, so Santos is looking for overseas markets. Also, the supply of gas is limited by the amount of infrastructure within Australian towns and cities. Queensland actually has the cheapest gas in Australia, but the overall market is held back by the lack of gas infrastructure.

Where is the gas expected to go?

It is most likely to be sold within Asia. Japan and Korea are among the countries most likely to buy our LNG; however I am not involved in the commercial side of the gas business.

How high is the flare from the stack?

The flare stack is about 80 m and under the worst case scenario whereby we have to depressurise the plant and flare the gas, the flare will be a further 60-80 m high. This might happen once or twice a year.

What comes out of the flare? Is it dangerous?

The natural gas is virtually pure methane, and it burns at about 99.8% efficiency. This means that the only gas coming from the flare will be CO₂, and it will be smokeless. The process involves the use of oxygen and steam to add to the efficiency of the flare. There are no toxins released.

Is the flare constant?

No, there will always be a pilot light on the stack, which will be wafting away. The pilot is there for safety purposes, and therefore it is constantly on, but this is very small.

Where are the LNG ships registered? If they are overseas I have concerns, as ship safety is only good as the level of maintenance.

LNG ships have a very good safety record, in fact, the best record of any ship type in the world. The LNG ships are all modern, and have the highest standards of design and safety equipment, with multiple levels of back-up in case there is equipment failure. The ships have double hulls, and there is between 3-5 m between the product and the water.

Do you have a presence in Gladstone?

Yes, we have an office at Goondoon St, Gladstone, which is open Monday-Friday. We will also have an officer, Lorna McGinnis, coming to Gladstone from Brisbane to work on local procurement. *Lorna McGinnis, Santos:* There will be an emphasis on local procurement of services and supplies. We will be registering local companies and explaining the services we are seeking. As the business builds, we will also need staff, and in the future we will be recruiting.

Who will build the LNG plant?

We initially started with six companies that could do this work. In fact we had to encourage a number of international companies, as Santos is not well known abroad. We are now down to two companies, who are in a dual-design competition. Bechtel and Foster-Wheeler are now competing to build the Santos LNG plant. Come December, we will be down to one company to take us the rest of the way.

Will all of the companies have their own pipelines and easements?

Yes, each company will have their own pipeline and pipeline corridors. Santos will have its own. It is possible some companies may share infrastructure. Santos tried to get access to the existing Queensland Gas Pipeline easement, but there was not enough room to lay our pipeline.

I am concerned that all of the pipelines and access tracks required by gas companies will increase traffic, disturb farm operations, increase erosion, and spread weeds. Gas companies are beginning to have the run of the land, and there seems to be inadequate consideration of farmers.

During the EIS studies we have heard this comment quite a lot. *David Wood, Santos:* We have made considerable effort to be as least disruptive as possible. For example, in the selection of the pipeline route we are seeking to reduce the number of landowners and land holdings that we will impact on. Initially we had 160-180 landowners over 435 kms of pipeline, but we have selected a route that will mean this is closer to 120, and perhaps as low as 100. We have done this to reduce the impact. We do not have multiple access points, and try to use a common gate. We are concerned not to instate new tracks if these are not absolutely necessary. If it reduces the need for access tracks, we will remove sections of fence to undertake maintenance on our equipment and then restore the fence. Across the pipeline route we are told about the problems with Parthenium weed. We are concerned not to disburse weeds, and in many cases we ask the landowners to show us around in their vehicles. We have weed management plans and use wash down facilities for instance. We are very conscious of this.

I have seen the gas plants at the Burrup Peninsula, in Western Australia. Will your LNG facilities look like that?

No, that is a massive industrial complex; the Santos plant will not look like this.

What will the visual impact be then?

We have modelled the visual perspectives, and these will be included in the EIS report. A professional photographer has taken images from South End, Gladstone, Tide Island and Mt Larcom, and imposed images of the plant, with reference to relevant topographic conditions. The photographs are of excellent quality and realistic, even to the point where the reflection of the flare is projected on the water over the harbour. We are confident that there will be little visual impact from the city of Gladstone and at South End of Curtis Island due to the location of the plant.

Will there be concrete manufacturing on site?

This will be the choice of the constructor, but it is likely. A great deal of concrete will be needed, especially in the construction of the LNG tanks.

Santos will have its own wharves; does that mean that all gas companies will have their own wharves along Curtis Island?

We don't have complete information on all of the companies. All plants will need their own wharves; Santos will need its own. I can't see, in the case of the LNG plants, that there will be common wharves.

Will there be exclusion zones around the wharves?

There will be safety zones based on a safety and risk assessment. This is also the case for coal ships. The safety zones during loading will be approximately 200 m. It is based on a number of scenarios and threats. It is calculated with consideration of the maximum distance of either vapour dispersal (200 m) or thermal (85 m) situations. The biggest risk, although it is a slight one, is if the loading arms come away from the LNG ship and a spill results. Even if this were to happen, there would be a shut down within a maximum of 15 seconds. Yet we have modelled a scenario for up to a minute. The total effect of a spill over a minute would still only require a safety zone of 200 m. I need to emphasise however that this will be flame and spark free area. The entire plant will be designed to manage all of the safety risks on site, and there should not be any impacts off site. We don't see that our presence will impede any marine traffic.

What support will the docked LNG ship need?

We may need the assistance of a tug. The LNG ships are light, and are susceptible to wind. Sometimes we might need a tug to secure the ship against the jetty in very windy situations.

You have spoken of the bridge mast clearance; what keel clearance will there be at the bridge?

The keel depth will be 15 m. at low tide, which should not be a limitation.

Yes, I agree. There may be some situations where a barge with a crane on board may be cutting it fine; but this only happens once in a blue moon.

- Meeting closed at 13.50 -

1730 session

Greg Bourke, JTA Australia opened the session at 1740. Greg introduced Dennis Reid, EHS Team Leader – Gladstone LNG, Santos.

Dennis provided an update on the project and explained that the Environmental Impact Statement (EIS) results will be made public in March 2009. Dennis answered the following questions:

What percentage of the water is saline?

Santos treats the water with small desalination plants. From this, 75% will be potable, and 25% will be saline. Santos is very focused on beneficial re-use of the water. We have run beneficial use workshops and surveys in Roma, Wallumbilla and Arcadia Valley. The community has come up with ideas, and we will continue to consult locally to allocate water to purposes the community supports. The water quality is variable, and the location of the wells of course dictates how it can be re-used. Santos is proposing to supply water to supplement the town water supplies and water reserves. But we have explained that this is short-term supply, and is not a sustainable source. Eventually the water will reduce and stop. The water is currently used on cattle and also the irrigation of a plantation of Chinchilla White Gums. This can provide timber to the Injune timber industry. This also adds diversity to the local economy. We are also irrigating new stands of Leucaena, which will be provided to cattle stations as feed. This will fatten the cattle and add value to their stock as Leucaena can significantly increase the weight of cattle.

Are the trees you mention salt tolerant?

Yes they are, and we have partnered with the University of Queensland to select the most ideal species.

I understand the deeper you go to seek your gas, the more saline the water; and the quality of the water can vary remarkably from location to location.

Yes, this is generally the case. In some cases we have to use desalination plants; in other places you could drink the water directly from the well. Our testing has revealed that the salt concentration ranges from 300 parts per million (PPM) to 6,000 PPM. To give you an understanding of what that means: normal stream-water is usually 700 PPM, a saltwater swimming pool is 6,000 PPM and the ocean is 40,000 PPM. The average is 3,000 PPM.

What percentage is brackish?

I don't know the precise breakdown of the average water quality over the gas fields. I can say that very little of the water is at the maximum of 6,000 PPM.

Are you planning to treat all of your water?

That will depend on the quality of the end use. If potable water is needed and the water needs treatment; we will treat the water.

What about the soil? Aren't you also putting large quantities of sodium, calcium and magnesium in the soil through your water?

That depends on the water characteristics. If we have to amend the soil due to our water we will. We are working with specialists from the University of Queensland on our irrigation and planting program. This is innovative work, and we are trialling and testing as we go. We have held water forums in local communities, and they are very keen to access our water. We are working closely with the community, and consider that we have forged positive partnerships.

What do you do with the brine that remains after you have treated the water?

When necessary, the brine is injected below the coal seam.

What does the government expect of gas companies?

The EPA has taken a big interest in water management. The Government wants gas companies to do more than manage the water in evaporation ponds. The government's preference is for beneficial re-use such as we are doing to support local water supplies and rural business.

If you use evaporation ponds, how are they remediated?

We would usually place a cap over the salt and then place soil over the area.

Is it a problem that there are also mining leases over your gas leases?

On some land there can also be mining leases and other petroleum leases over the land. It can become complicated and there can be competing issues. But the companies are sorting out their respective activities better these days.

Where is Santos from?

Santos is an anagram for 'South Australia Northern Territory Oil Search'. The company is Australian.

What sort of pressure is the gas under within the pipeline?

It is usually 15 MPa (megapascals). This would be equivalent to the combined pressure of ten bicycle tubes (or 150 atmospheres).

When you get to stage two and three, how many booster pumps will you need in the field?

We are still in concept phase, and will not know this detail until all of the engineering has been done.

What is the pipeline made of, and what is its life expectancy?

The pipeline will be made from steel and has a projected operational life of between 40-45 years.

What is the life of the project?

We plan out to 20 years; however there is no plant throughout the world that has not operated longer than this, or is not scheduled to be shorter than 20 years. We intend to be in your community for a long time.

Will the size and life of your plant depend on the amount of gas you can extract and sell?

Yes.

A seventh gas plant is rumoured.

I can't comment on rumour. Every time I come here the number seems to go up. We know of some plans and proposals, but are concentrating on our proposal.

What happens to the space in the ground when you have removed the gas and water? Can the land subside?

Nothing happens anywhere near the surface. It is not like some mining activities where large cavities can be left behind. The structure of the rock will remain intact.

Bowen is the closest port for your gas. Why didn't you go there or Brisbane?

We looked at a number of locations and selected Curtis Island over six other options. Bowen and surrounds was not suitable. In the case of Brisbane there is no available space to locate a gas pipeline; as there is too much development. The suggestion of Brisbane was strongly considered. The Brisbane port would have been very good for LNG purposes. The problem was getting a pipe through Brisbane. The existing easements are very congested. Elsewhere there are too many roads and houses.

What about the pipeline that originates in Russia and takes gas into Europe? There is high density population in Europe.

I don't know the alignment of this pipeline, but yes I know of it. I assume they avoid metropolitan areas, and cross through fields and less habitated areas.

Are you intending to bypass Gladstone then and cross the harbour?

That's correct; we will avoid populated areas.

How many landowners will be impacted by your pipeline?

This is not finalised. We are trying to minimise the impact. It might be in the range of 110-140 properties, and may be as low as 100. This will depend on the final route, which is still being worked out.

Are you going to interfere with stock routes?

David Wood, Santos: We have looked closely at all land activity and business cycles. It is possible that we may be in the field during droving, but this will only be very occasional. Our activity will not stop droving. We will always consult with cattle companies to ensure we are not interfering with their business.

If there are only three new pipelines, as I expect, how far apart will they be?

The separation distance will be based on risk assessment. Pipeline pressure, pipe thickness, and depth of the pipeline will be relevant factors. I cannot judge specification requirements in a theoretical situation, but I hope what I have explained provides you with a good guide.

All of these pipelines could cover a large area.

I cannot comment on future pipelines. We are just working out the Santos pipeline.

Does each company have to have a separate pipeline?

Not absolutely; however it depends on the gas composition. There are different types of natural gas, and the LNG plants are designed and prepared to handle specific gas compositions. For example, our gas is almost entirely methane, and we don't want it mixed with other gas sources.

What is the difference between a safety zone and exclusion zone?

A safety zone is where unauthorised people are not allowed. An exclusion zone is where this zone is enforced. As a gas company we do not have ability to physically exclude people. We will rely on education, common sense and the support of authorities.

Is 200 m exclusion world's best practice? It is 1000 m in other places; isn't 200 m a compromise?

Separation distances are to benefit safety, and world's best practice to me, is that the separation distance is the size that it needs to be relative to the risks, and not artificially prescribed.

Well, I find it strange that it is 1000 m in some places, 500 m in some places, but here it is 200 m. Is that just to suit you? What are the governing factors, and why are the numbers so different?

The distances do vary. This is usually based on risk, but can be a prescribed distance based on government policy. In the United States it is significant based on their security assessments; in Qatar it is zero; in Egypt it is zero; in Darwin it is 500 m. We are often compared with Darwin; they have elected to have a 500 m safety zone because they could. However their risk assessment identified that they only needed a safety zone of 248 m. In the North West Shelf it is 800 m because it is LPG, and the assessed risks are greater. It really does depend on the circumstances.

Does Santos perform its own risk assessment or do your insurance companies do it?

We assess the risks and this is finalised by the state government. Then a safety zone is proposed. Insurance is a factor, but not this early in the process. This will come later.

Do insurance companies do their own assessment? Actually, are LNG plants able to be insured?

We will be insured, and we design the plant to minimise risks. We employ specialist risk assessors. Yes, the plant will be insured, and the insurance companies will make their own assessment. The safety zones during loading will be approximately 200 m, based on a number of scenarios and threats. It is calculated with consideration of the maximum distance of either vapour dispersal (200 m) or thermal (85 m) situations. The biggest risk, although it is a slight one, is if the loading arms come away from the LNG ship and a spill results. Even if this were to happen, there would be a shut down within seven seconds, or a maximum of 15 seconds, although 15 seconds is only remote. We have modelled a scenario for up to a minute. Even so, we would still only need a safety zone of 200 m if we had a spill over a minute. I really want to emphasise that there is science and consideration behind this figure of 200 m, rather than the assumption that it is a convenience for Santos. If we modelled more realistic scenarios, that is, closer to a maximum of a seven second spill, we would have a safety area less than 200 m.

What would happen in an unforeseen situation where you had a fire and a five – ten minute spill? We all know of situations in life where there was “no chance” of a described event happening.

Modern LNG plants are very sophisticated. For every situation, there are plans and intricate design. I have to stress there is back-up layered on back-up. There are multiple back-up systems. These are places where there are risks, but the risks are very well known and designed out. And this is the same on the LNG ships. On the ships there are double hulls, and again, a great deal of back-up equipment. LNG will only burn back to its source.

What happens if there is a LNG spill into water?

The LNG will float on the water and quickly evaporate.

Can LNG explode?

There are no sparks or flames close to loading, but in any case, LNG cannot explode.

How long do the LNG ships take to load and then leave the port?

Based on comparable examples, the LNG ship would be loaded in 14 hours, meaning the entry and exit would usually be completed within 24 hours. This is three times faster than loading a coal vessel.

Will the project go ahead, and is its future subject to the global credit crisis?

Raising capital and the future markets for energy are aspects of the ‘final investment decision’. However natural gas is a growth market, and the future of energy supply. Nothing is guaranteed, but Santos is confident that the project will be viable. Santos still needs to be advised of government’s approval and development conditions (due in 2009) as these have to be costed.

Is the flare only for use during emergency shut-down?

Yes that is correct.

Will we be able to see the pilot light on the stack?

Possibly, but it will be most visible at night.

Is the light from the plant expected to impact on bird life?

No, not normally. The flare would scare birds, but this is only in use for a short period, and is only used infrequently.

If the modules of the plant are going to be prepared offshore, where will this be done?

This will be up to the constructor. They will assess where this can be done; it is likely to be somewhere in Asia.

What are the findings of the Hornery Institute? I am worried they might be limited as many of us would have liked to been involved but didn't have the opportunity.

Santos engaged the Hornery Institute to assess community wellbeing. This was an initiative of Santos separate to the requirements of the EIS. Santos wants to provide contribution that genuinely contributes to wellbeing. We engaged this company as it is independent and we felt that the community would open-up and give very direct information. The EIS is a public record and that can put some people off. On the point of whether the consultation was adequate, I am happy for the consultants to return and undertake more interviews, and therefore include your comments in their assessment.

Will the Hornery Institute report be made public?

A summary will be provided in the EIS; however if you want the full document, this can be made available upon request. Further to my comments, I would add the following: some people have been surprised that we would go to this trouble. Generally, it is enough within a social impact assessment to identify jobs and economic benefit. But many of you would realise this is not all that can be considered within the concept of community wellbeing. Within Santos' charter it states that we will contribute to community wellbeing; so we have taken this very earnestly, and are really endeavouring to find out what this means. We have directly asked the community what this concept means to them.

I would like to take up a point with you that links the concepts of wellbeing with your intentions to build much of this plant in Asia. There is, as you know, a serious skills shortage in Australia. I strongly believe that there would be more wellbeing in this community and throughout Australia if there were better levels of education and better levels of skills. Through projects like these, there is opportunity for local kids to be trained, get skills and excel as people. The suggestion that this plant is built overseas, means that the opportunity will be lost.

I believe in these concepts as well. In terms of the LNG industry there are five similar plants in Australia and all but one have been built in Australia – so the industry has a good record. Santos will not construct the plant, and the constructor will make procurement choices, but it makes sense to use local services. On the matter of social wellbeing, we have asked what wellbeing is. Some of the responses to me are very interesting. The community is asking for a level of service in terms of housing, schools and medical facilities and so on, that they don't currently have, and have never had before. This is not for Santos alone to turn around. The local council has asked for our findings so that they can add this into their planning. Perhaps teenage pregnancy is an important issue for the community. There is the suggestion that another school is needed here in Gladstone. In the future, we want to be very practical and contribute to wellbeing on the basis of community need and priority. As I have said earlier, it is important not to place all of our workers within your community, as there is simply not the built or social infrastructure to cope with this.

Have you chosen to locate at Curtis Island because you will be in a different air shed?

No; that has no bearing on our decision. We are very conscious of air quality impacts. Within the EIS we have gone to great lengths to identify total emissions. This includes the minute level of leakage from our wells; the release gas from the well when we test; when we will need to depressurise the plant and flare the gas, the use of diesel in our drilling rigs, through to the energy we will need to decommission the plant. This is all being compiled and will be in the EIS report.

Will you be able to control your emissions?

Our gas is almost pure methane, and we will use this gas to power our plant, which will only release CO₂. We will also use low NO_x technology at the plant. We will be able to get NO_x down to 25 PPM.

What about noise from your plant?

We have been monitoring baseline noise. At Curtis Island we have readings that suggest that the community is very quiet. The very low level of noise has been a surprise, it is at a level akin to leaves rustling. A surprise has also been the level of noise at Tide Island. This was higher than expected, at about 35 decibels. This may be due to noise sources from birds or "tinnies". We are intending to have our plant operating beneath background noise so that we are not adding to the background noise level, because in this situation we could introduce background noise creep, whereby the area gradually gets noisier and noisier with more development.

So is it your intention to reduce that background hum?

Yes; a quiet operating level is in our preliminary design specifications.

Is it safe to bring LNG ships into the harbour without an additional channel?

We have undertaken an exercise with the Gladstone Port Authority, and Maritime Safety Queensland at the Maritime University in Tasmania, to look at all possible operating scenarios. We have done this to fully understand the risks and our safety responses. There are other projects, and a lot of speculation about the amount of eventual demand and traffic. The Gladstone Port Authority is aware of these. Santos recognises that shipping congestion in the Gladstone harbour is a concern. This will be considered within the EIS, and the Gladstone Port Authority will provide advice on this. There is a broader marine transport strategy being developed.

We are worried that each project is looking just at its section. We will know section by section the issues, but not the whole. We feel that nothing should happen until the marine traffic master plan is devised and we can be assured that all the development is sustainable. We think this is a big limitation within the EIS.

On the suggestion that our plant should not be approved, because of the impact of future industry, I cannot agree with this. We should not be held back because of things that might not happen, and perhaps may never happen. We agree that a strategy is needed to manage marine traffic demand, and we want to be a part of this planning.

Not many people have confidence in the port's ability to prepare or implement a master plan. So at this stage, you're saying that it is a first come, first service basis.

A master plan can be as great or as little as you want, or want to read into it. It is hard for Santos if you're saying that it is an all or nothing basis. It is going to be hard to get consensus on that.

I understand that if there is a second channel that it will be subject to high silting.

I don't really know about this and it is outside Santos' jurisdiction. I assume it will have to be assessed.

What dredging will you require?

The harbour master expects us to have a minimum of 2 m underkeel clearance, and for our swing basin we will dredge to this standard and this will also include the Clinton Bypass. The typical draught of an LNG ship is 12 m and we will prepare the sea bed to a depth of 14 m. The 12 m draught is whether the ship is empty or full.

Will this have a benefit for the coal ships?

Yes.

It will probably make their passage safer as well.

How do you intend to accommodate the workers during construction?

We have a few options as to where we will accommodate the workers. We understand it is inappropriate to place our workers within existing housing in Gladstone, so we have to increase specific housing availability. We could have a workers' village in or close to one of the towns, but this is usually unpopular. So, Santos' current position is to house the workers at the Santos property on Curtis Island. We have to set a balance. It is not suitable to rely on the existing housing market, but we want to make sure there are economic benefits for Gladstone. Our preference is to have the workers on a ten and four day rotation. We think that during the four days, the workers will be inclined to stay and spend locally, as it is too short a break to go far-a-field. This should benefit local hotels and restaurants for instance.

How will the workers be managed? Will they be able to access South End?

When working on the Santos site, the workers will not be able to access South End. They will be within a fenced perimeter, and they will not have vehicles.

But people cross the island now. I am worried about the road you have marked on your picture (reference to a slide on the presentation). Does it lead inland?

No, that is not a road across the island or to South End. That is the road from the bridge.

Won't your workers prefer to live in town?

Yes, I expect that they will. But we want to strike a balance between safety, social impact and contribution to the local economy.

You are going to have to pay a premium.

It will be the responsibility of the construction team to entice workers to this project.

This situation is not unusual when you think of mining.

But it is unusual to live locally and then be isolated on an island for ten days.

Couldn't you ferry the workers over every day? Sydney has a very busy harbour with ferries criss-crossing the harbour.

For us the issue is not transportation, for as you say, this is feasible. The issue is accommodating such a large workforce locally. We have to find a balance. There may be other gas companies as well, so it is not just our workforce that has to be considered. We do not want to burden the social infrastructure. We are looking for a win-win.

A number of the houses on Curtis Island are vacant, and there are issues about water usage on the island. There will be a big impact if there are workers over there using up our resources.

Will the workers expect to be able to go to the bar at South End?

It is Santos policy that the camp would be dry; however in discussions with constructors, they would prefer that it is a wet camp. It will be up to them.

When the plant is operating will the workers village be decommissioned?

Yes that is the plan. We expect that the permanent workforce will be housed in Gladstone.

What sort of earth works will be necessary to build the LNG plant?

We are surveying our property at the moment in order to better understand this. We are assessing the type of bedrock that is present, especially to see the conditions to support the LNG tanks. We will determine whether the rock is “rippable” or whether we will have to blast and excavate.

Where is the gas expected to go?

It is most likely to be sold within Asia, with Japan and Korea among the countries most likely to buy the LNG.

Won't carbon credits under the emissions trading scheme work in your favour?

Santos supports an open emissions trading scheme, but we aren't counting on any benefits yet.

Won't you benefit from carbon trading?

No, not the way it is going at the moment. It appears that the coal industry will have protection.

Why are you exporting the LNG and not using the gas in Australia?

The short answer is that coal is too abundant and there are very few disincentives to the coal industry. However, Santos is the largest domestic gas supplier in Australia, and provides nearly 25% of the Australian gas market. There is enough gas supplied into the Australian market already, so Santos is looking for overseas markets.

I am concerned that your bridge might allocate space for marine activity, but this would then be cut by the coal train crossing also proposed for Curtis Island.

Decisions about the bridge or bridges will be made by the state government. Santos understands that some companies have proposed rail access in the past; but we have no hard information on this. Rail to Laird point has been ruled in and out a few times from our understanding. At this stage, Santos only knows about the proposal for a common bridge. We are on the working group for the common bridge and there has been no discussion about a rail bridge. We are only working on one bridge. I have to say that this is very political. Yes there are a lot of scenarios being tossed about, and there is a great deal of speculation, but we are working on the only bridge that has been made public, the common user bridge.

We are getting told a lot of contradictory information.

We understand that the area we are working within will be a LNG precinct, and I am unaware of any coal infrastructure at this time.

Who will have access to the bridge?

At this stage, government has indicated that public access will not be permitted, as the bridge will only service industry. Through our consultation we have seen that opinion is divided on this. It seems to be about 50-50.

Will the creek be cut off?

No, the bridge will abut the island to the south of Graham's Creek.

How will the bridge operate?

There will probably be an electric gate that operates by swipe card.

- Meeting closed at 1945 -

Curtis Island – informal discussion

Capricorn Lodge, 0945-1215, Saturday 22 November 2008

Format: Drop-in and round table discussion and question and answer.

Meeting chaired by Greg Bourke (JTA Australia) on behalf of Santos.

Is the project destined to go ahead?

No, there is some way to go. There are some key decision points in 2009. Next year Santos will know whether its plans are approved by government, and Santos will learn of the government's environmental and development conditions. By then Santos will also have developed more detailed designs of the plant and pipeline, dredging requirements, etc. and therefore have more precise costs. Santos is working on the sale of its gas. There will be a final investment decision in late 2009 to early 2010.

What are the next steps with the project? / When will we finally know?

The Environmental Impact Statement report is nearing completion. It will be submitted to the state government in early 2009. The report will then be released to the public shortly thereafter. Following comment, the Coordinator-General will prepare a report to declare the government's position on the project.

We know that this is a different meeting because there were low numbers, but what will happen when we meet when the EIS is released?

Yes we will meet again. Today is a particular case due to the response of the community, but Santos thought it important that I come today to take down any issues and give a general update for those people that could make it. This consultation and communication program after the release of the EIS has not been fully planned yet. What we have discussed is a presentation of the summary of key issues and findings for Curtis Island, and then opportunities to sit with experts to ask questions and read through sections of the report. We would provide material here in the community for you to read, and explain how you make comment to government on the report. These are the sort of things we have done and agreed with you in the past over the course of this project. If you have particular requests and ideas please let us know.

Will the project go ahead, and is its future subject to the global credit crisis?

Raising capital and the future markets for energy are aspects of the 'final investment decision' expected in late 2009 to early 2010. However natural gas is a growth market, and the future of energy supply. Nothing is guaranteed, but Santos is confident that the project will be viable. Santos still needs to be advised of government's approval and development conditions (due in 2009) as these have to be costed.

How will the workers be managed? *We don't want them coming to South End in numbers.*

When working on the Santos site, the workers will not be able to access South End. It is Santos' current position that the workers will travel by ferry during construction.

How will the plant be powered?

Santos intends to draw off gas from its CSG source for on-site gas-powered generation, and not normally take electricity from the grid.

What is the footprint of the plant?

The total Santos land is 80ha. The plant will be built in three stages, and so the full footprint will not be complete for many years. I don't have information on the footprint, as the design is still being finalised.

Who is doing the design?

There are currently two companies: Bechtel and Foster-Wheeler. Santos expects to nominate its preferred designer later this year.

What will be the impact on South End?

This will be formally stated in the EIS report; however the best advice we have at this time is that you will not be able to hear or smell the plant. In the report the visual perspectives from the mainland and South End will be made available.

Will there be as many plants as suggested?

That cannot be predicted by Santos. The number suggested is probably the theoretical maximum. There could be more mergers among gas companies, such as we have seen. This may reduce the number of plants. This will be worked out by the industry, and a lot could happen in the future. Santos is proposing its own plant, and that is all that it can control.

Did Santos know of the port authorities' decision to provide suitable facilities at Port Alma?

Santos examined potential sites along the Queensland coast around two years ago. Six other sites were explored and considered. Curtis Island was identified as being most suitable, especially as it has deep water protected from the weather. Port Alma was considered. However it proved to not be viable.

Is there any update on the bridge? Will it still be closed to the public?

The state government has authority over the use of the bridge and its current thinking is that it will not be open to the public.

Aren't there problems managing the gas in your gas fields?

Not to my knowledge. The flow of gas can be regulated at the well. In some circumstances the amount and duration of the release of water from the well is unknown, and this has to be managed.

Does the gas have a smell like propane?

No. in the case of propane, a strongly smelling additive is included in the gas. There are a number of ways of detecting a potential methane leak, such as temperature and loss of pressure. In the case of propane it is by the human nose.

Actions agreed:

- 1st –time attendees to receive minutes from past meetings
- Distribute notes from this meeting to attendees, and to other registered Curtis Island people
- Registered Curtis Island consultation members to receive Dennis Reid's presentation from 21 November (held in Gladstone).

APPENDIX H Cont. – Questions and answers from community information sessions and other public forums

Following are presentations from these sessions:

- June community information sessions (Santos)
 - June community information sessions (URS Corporation)
 - September community information sessions (Santos)
 - November community information sessions (Santos).
-



Gladstone LNG



1.

LNG Basics

Just Natural Gas...cooled to -161°C to form a cryogenic liquid

- Mostly methane (CH_4); no water, CO_2 , sulphur, etc.
- Colourless, odourless
- liquefaction reduces the volume by about 600 times

It's Flammable (technically only it's vapours are)

- Only at 5 – 15% concentrations when mixed with air
- As a liquid, it cannot explode or burn
- Vapours are buoyant in air above -107°C and disperse rapidly
- Stored and transported at atmospheric pressure (1 atm)



2.

LNG Basics

It's environmentally friendly

- Non-polluting to water or ground (no residue)
- Non-toxic and non-persistent
- No benzenes, PCBs, aromatics, sulphurs, etc.

It's the cleanest burning carbon-based fuel

- Excellent diesel fuel / fuel oil replacement
- Actually cleaner than pipeline natural gas



3.

Safety of the LNG Industry...



- LNG cannot explode due to its physical characteristics
- As a vapour it cannot explode in open environment
- 40+ Years, 45,000 voyages; not a single injury to the public or a major loss of LNG
- 150 LNG ships currently transporting >110 million tonnes of LNG safely around the world (in 2000, one LNG ship entered Tokyo Bay every 20 hours)
- Highly robust containment systems and proven operational procedures to ensure safe containment of LNG both during shipping and at storage facilities
- No LNG tank built of suitable materials has ever failed catastrophically



4.

LNG Export Facilities...Safety

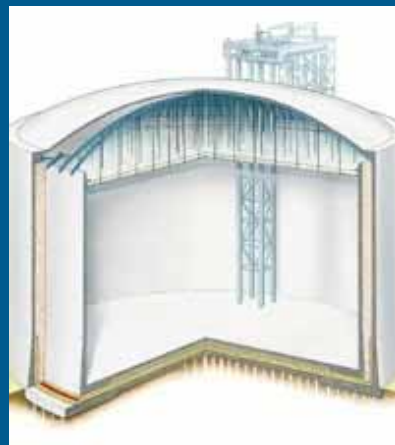
- Designed to stringent international standards (US NFPA 59A, BS EN1473)
- Designed so that real safety risks are limited to personnel & property inside plant
- Numerous safeguard systems: alarms, gas monitors, emergency shutdown systems, fire protection, personal protective equipment
- Best Management Practices: detailed operating and maintenance procedures, training, audits, inspections
- Processes vented to flare in the event of an emergency



5.

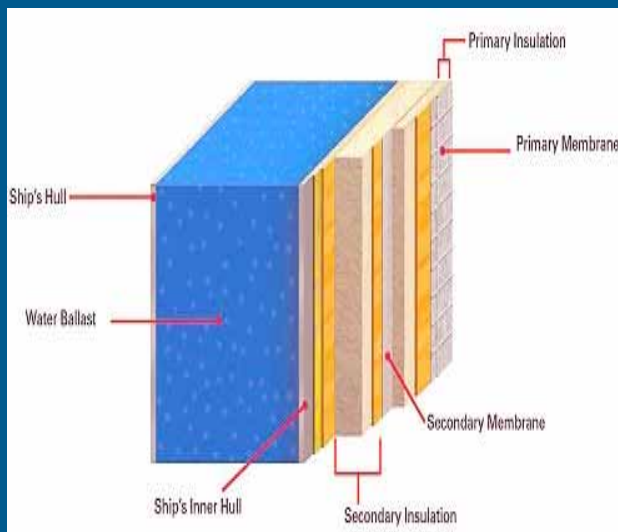
LNG Tanks...Safety

- Double-walled closed tanks
- Inner tank made with high metallurgical stands (nickel & aluminium steel)
- Outer tank made of carbon steel or pre-stressed concrete
- Annular space between the walls filled with insulation
- Vapours (boil-off-gas) collected and reused
- Tanks vented to flare in case of emergency



6.

Ship Containment



Barriers between external environment:

- Outer hull
- Inner hull
- Outer Membrane
- Insulation
- Inner Membrane

2 – 4 m between water and cargo



LNG Hazards

LNG hazards result from three of its properties: cryogenic temperatures, dispersion characteristics and flammability characteristics.

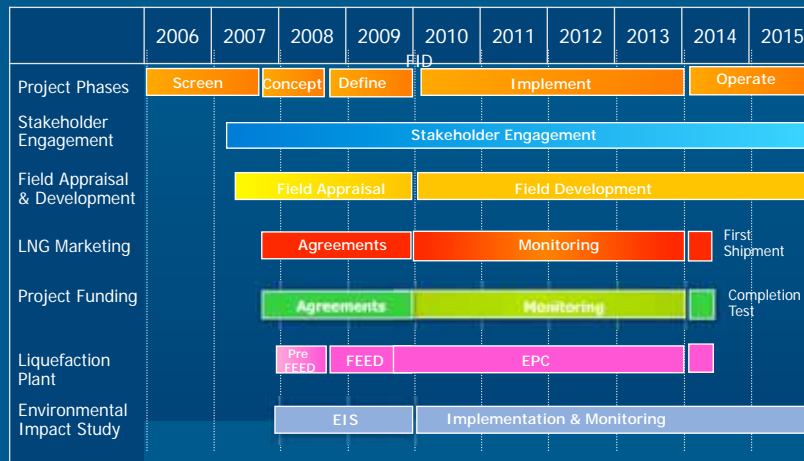
- Cryogenic liquid: LNG will immediately freeze the point of contact and can cause injury or damage
- Dispersion: a vapour cloud, formed by an LNG spill, could potentially drift and cause asphyxiation or a potential fire if ignited
- LNG vapour is flammable and an LNG fire can give off a tremendous amount of heat

Potential safety hazards of LNG are very well understood and measures to preclude them have been universally deployed



GLNG Development Schedule

Target FID by end 2009, and first LNG Cargoes in 2014



9

GLNG Development Overview

CSG Field Development

- Managed by Santos using experienced drilling and construction contractors

Gas Pipeline

- Parallels existing corridor

LNG Plant

- Designed and built by an experienced LNG plant contractor



10

CSG Field Development

Upstream CSG field development has started at Fairview...

Field development consists of:

- Drilling and completions
- Infield low pressure HDPE gas and produced water gathering pipelines
- Gas dehydration and compression
- Water treatment and disposal
- Infrastructure – roads, camps



11.

Gas Pipeline Route

The environmental impact of the pipeline will be minimised...



...by locating it adjacent to an existing pipeline



12.



LNG Plant



13.

Port of Gladstone (showing Curtis Island)



14.

Hamilton Point West (80Ha)

- Secured 80 hectares, with additional adjacent 100Ha being sought
- A total footprint of about 90 Ha is envisioned for full site development
- Visually sheltered by Hamilton Pt. to South and Ridge to East

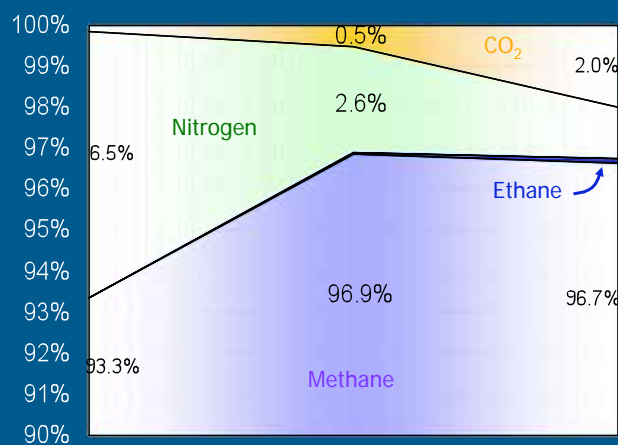


15.



CSG Composition

Indicative Feedstock Composition



Possible Early Composition

Expected Average Composition

Possible Late Composition

Gladstone Infrastructure

Gladstone Infrastructure

Curtis Island is relatively undeveloped ...

- Needs new infrastructure;
 - Roads
 - Bridge
 - Dredging
 - Power
 - Potable water
 - Telecoms
 - Feed gas pipeline

....and not physically connected to the mainland

Environmental Approvals



21.

Environmental Approvals

Approvals are required from Queensland and Commonwealth Governments...

The key approvals required for the Project are:

Queensland

- Environmental Impact Statement (EIS) – Dept. of Coordinator General
- Environmental Licence – Environmental Protection Agency
- Petroleum Facility Licence – Dept. of Mines & Energy
- Pipeline Licence - Dept. of Natural Resources & Water

Commonwealth

- Development Approval – Dept. of Environment, Water, Heritage and the Arts

...with one Environmental Assessment required for all approvals



22.

Environmental Impact Statement

Includes:

- Field development, pipeline construction & operation, plant and infrastructure
- Community input opportunities throughout the EIS

Community Feedback:

- mail
- Website: www.glng.com.au
- Freecall
- Santos office (Gladstone)



23.

Thank You



24.

SANTOS LNG PROJECT

Overview of EIS Studies

1.



AGENDA

- ☐ What is an EIS?
- ☐ The EIS Process
- ☐ Overview of studies being undertaken
- ☐ Stakeholder engagement process

2.



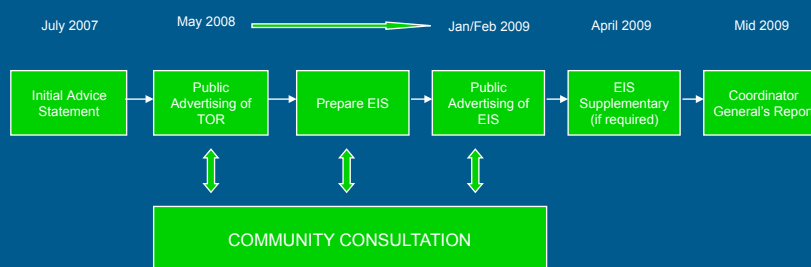
WHAT IS AN ENVIRONMENTAL IMPACT STATEMENT?

- ❑ **Baseline environmental studies** to describe the existing environmental values of the area (land, water, coast, air, noise, nature conservation, cultural heritage, social/community, economy, waste, health and safety, hazard and risk)
- ❑ **Project Description** (of all project components associated with design, construction, operation and decommissioning/rehabilitation stages)
- ❑ **Impact Assessment** (adverse/beneficial impacts, cumulative, potential for environmental harm?)
- ❑ **Mitigation Strategies** (design alternatives, construction techniques, operational procedures, engineering controls)



3.

THE EIS PROCESS (SCHEDULE)



4.

OVERVIEW OF GLNG EIS STUDIES

EIS Study Component	Project Component		
	CSG Field	Gas Pipeline	LNG Plant
Waste Management	•	•	•
Traffic and Transport	•	•	•
Land Use and Planning	•	•	•
Air Quality and Greenhouse	•	•	•
Noise and Vibration	•	•	•
Aquatic Ecology	•	•	•
Marine Ecology		•	•
Terrestrial Ecology (flora & fauna)	•	•	•
Marine Water Quality		•	•
Marine Dredging		•	•
Soils and Terrain	•	•	•

5.



OVERVIEW OF GLNG EIS STUDIES (cont'd)

EIS Study Component	Project Component		
	CSG Field	Gas Pipeline	LNG Plant
Surface Water	•	•	•
Groundwater (shallow)	•		•
Groundwater (deep)	•		
Associated Water Management	•		
Contaminated Land	•	•	•
Social and Community	•	•	•
Stakeholder Engagement	•	•	•
Cultural Heritage	•	•	•
Economics	•	•	•
Visual Impacts	•	•	•
Hazard and Risk	•	•	•



STAKEHOLDER ENGAGEMENT

- ❑ Specific requirement within the ToR
- ❑ Provides stakeholders with opportunity to:
 - obtain project information;
 - raise issues and express concerns; and
 - receive feedback on how issues will be addressed and mitigated if necessary.
- ❑ EIS needs to report on stakeholder engagement process by identifying:
 - stakeholders consulted;
 - issues raised; and
 - how they were addressed.



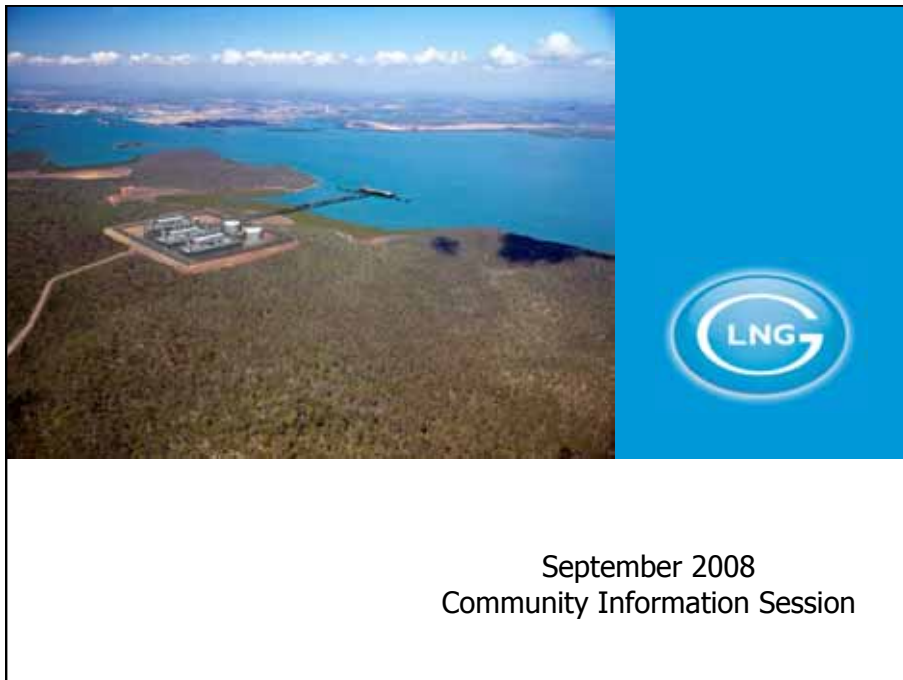
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STAKEHOLDER ENGAGEMENT (cont)

- ❑ Schedule
 - Phase 1 (June 08): Project introduction
 - Phase 2 (Sep 08): Presentation of preliminary impact assessment
 - Phase 3 (Jan-Feb 09): Public review of EIS
- ❑ Engagement Methods
 - Community information sessions
 - Briefings
 - Newsletters
 - Fact sheets
 - Website
 - Email
 - Free call number



8.



September 2008
Community Information Session

Meeting purpose

- Refresher on the project
- Progress to-date
- Update on EIS studies
- Opportunity for questions and answers



Project overview

1. Extract coal seam gas across Bowen and Surat basins
2. Transport gas 450 kilometres via pipeline to Gladstone and then Curtis Island
3. Liquefy gas at plant on Curtis Island (for shipment)



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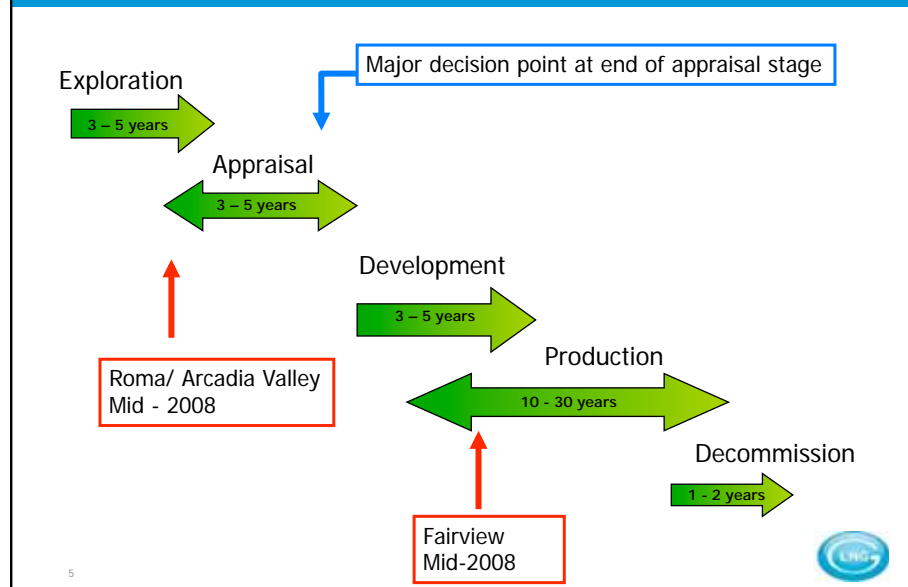
Project approval timelines:

- Proposal announced in 2007
- EIS conducted across full project area - 2008
- Public review of EIS in early 2009
- Government approvals sought in 2009
- Construction between 2010 - 2014

4



Stages of a coal seam gas project



Environmental Impact Statement (EIS)

- Purpose of the EIS:
 - Assess existing environment, social and economic values
 - Determine potential impacts on those values
 - Mitigate impacts
- Terms of reference:
 - <http://www.dip.qld.gov.au/projects/energy/gas/gladstone-liquefied-natural-gas.html>
- Independent scientific experts (URS Corp) have been engaged
- Community and government review EIS report



EIS study elements

EIS elements (of most relevance to your region) include:

- Infrastructure (inc. transport issues & workforce and accommodation)
- Air
- Flora (weeds)
- Noise and vibration
- Water resources
- Waste
- Social and economic



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Community consultation:

Significant Importance for Santos

Consultation and communication through:

- Regular information sessions
- Correspondence and e-mail updates
- Newsletters and website updates
- Display of EIS report, with public awareness raising of EIS review period
- Call us



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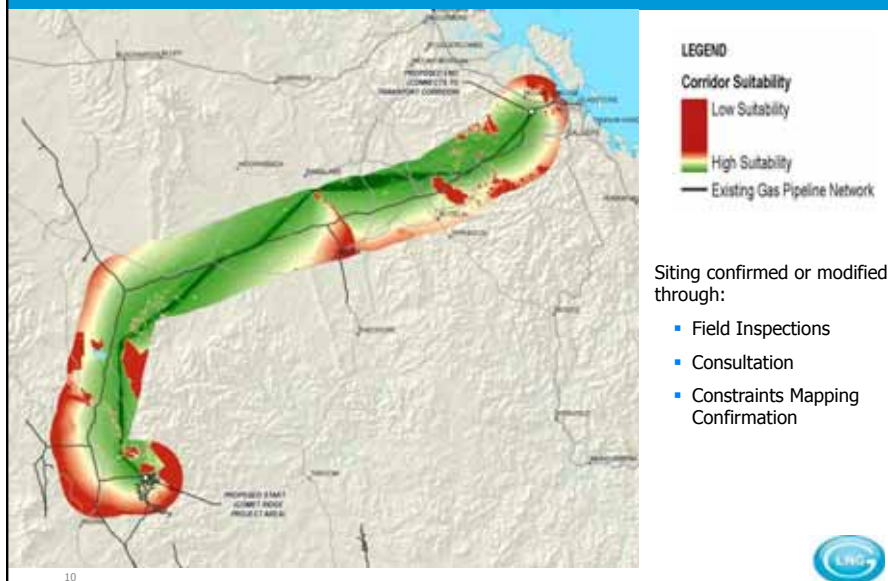
Local issues

- ❑ Pipeline Route
- ❑ Local use of gas
- ❑ Landowner compensation and reduction in land value
- ❑ Number & Location of gas wells
- ❑ Land degradation, increased weeds, land remediation
- ❑ Reduction in the amount of usable land for landowners
- ❑ Noise from infrastructure
- ❑ Water re-use
- ❑ Social infrastructure overload, e.g. accommodation
- ❑ Potential business opportunities for local communities

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Preliminary pipeline siting



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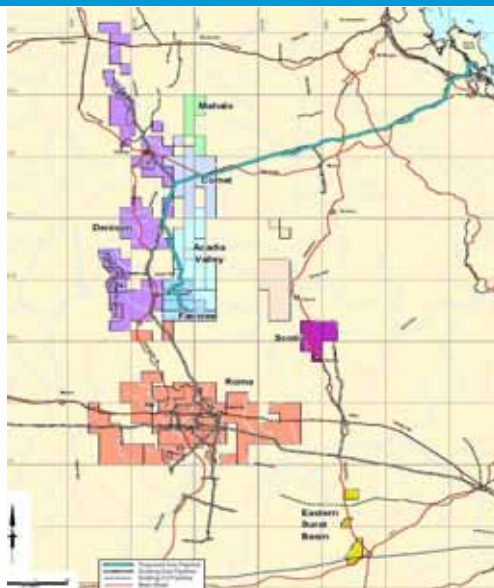
....Pipeline route

- Selected for minimal impact on people
- Avoids residential areas and towns
- Where practical, follows an existing corridor
- Directly impacted landowners contacted individually
- Landowners compensated for potential impacts



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...Pipeline route



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Local use of gas

- Santos is the largest onshore domestic supplier of natural gas in Australia (25% of the supply)
- GLNG will have a private pipeline with 100% of gas delivered to the liquefaction facility
- No gas is proposed to be diverted to local communities
- Forecasted supply of gas in Eastern Australia far greater than demand

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Landowner compensation

- Santos' aim is to fairly compensate landowners
- Santos is working with impacted landowners on a individual case-by-case basis



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Number & location of wells



Number of Wells:

- Unknown, but expect about 2000
- Based on reservoir characteristics
- Determined after appraisal works

Well disturbance area:

- Construction 0.4 – 1.1 Ha
- Operation 0.1 Ha

Location of Wells

Based on:

- Landowner consultation
- Geology / Exploration / Reservoir Characteristics
- Environmental Constraints
- Accessibility...



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Land degradation, weeds, land remediation

- Santos will establish very high standards around land access, use and reclamation
- Aim to have minimal disturbance and 'footprint'
- Santos implements stringent weed mitigation plans; inc. use of wash down facilities etc.



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Usable land



- Access tracks and well/ pipeline location negotiated with individual landowners
- Short-term impacts of pipeline construction, but no interference with long-term land-use

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Noise from infrastructure

- Most ongoing noise comes from compression stations – required to push gas through the pipeline
- Noise modelling is currently being conducted
- Compressor station locations will consider local factors – proximity to dwellings, topography, etc



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Social infrastructure

- Infrastructure impacts currently being studied within the social and economic section of the EIS
- 3,000 jobs will be created during construction – 500 in the gas field; 300 on the pipeline; remained at LNG facility
- Santos will propose an acceptable worker accommodation solution

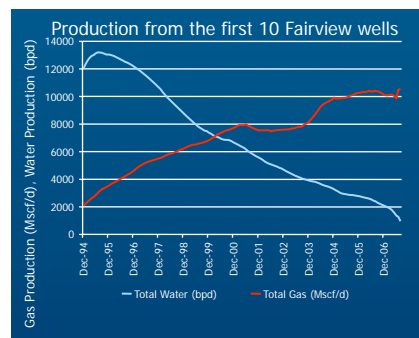
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CSG water management

For CSG, water production has to be dealt with...

- Wells must be de-pressured to allow gas to produce
- Water production is the primary mechanism for pressure reduction
- Water is removed from the coal seams by pumping
- Water varies in quality & volume



...at the beginning of field life

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...Water management – beneficial use



Hierarchy of Management:

- Beneficial use
- Irrigation
- Evaporation
- Injection
- Discharge to surface waters



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Potential business opportunities

- Maximise economic development & local investment
- Preference for local procurement
- Businesses encouraged to register interest through www.glng.com.au



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Contact us



Freecall 1800 761 113



Website: www.glng.com.au







Community Information Session

November 2008

1

Meeting purpose

- Introduction & project overview for new guests
- Update on studies
- Preview of initial findings
- Opportunity to raise new issues
- Opportunity for us to keep in touch with community issues
- Where to from here
- Timeline of release of the Environmental Impact Statement (EIS)



2

GLNG Snapshot

- World first large scale CSG to LNG project
- \$7.7 Billion investment
- 435kms of gas transmission pipeline
- 2000 development wells
- 5 Local Government areas
- 22,500km² project footprint
- 60,000 Stakeholders



3



CSG Field Development

Field development consists of:

- Drilling and completions
- Gas and produced water gathering pipelines
- Gas dehydration and compression
- Water treatment and use
- Infrastructure



4



Gas Pipeline

The environmental impact of the pipeline will be minimised where possible by locating it adjacent to an existing pipeline



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LNG Export Facility

- 10mtpa permitted capacity
- Greenfield site
- 4 year construction period
- 2000-2500 construction workforce
- 200 operational workforce at capacity
- 20+ year operational life
- Construction planned to start 2010
- First shipment of LNG 2014



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Community Consultation

- 300+ attendees at information sessions
- Group briefings with government, business, special interest groups
- Liaison with potentially impacted land owners
- Newsletters and email updates
- Advertising, direct mail, freecall number, email updates, website, publications
- Stakeholder comments, issues and enquiries recorded and followed-up



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Local Issues Updates

- Air Quality & Greenhouse Gas
- Flora and Fauna
- Land Use
- Social Assessment
- Traffic & Transport
- Waste
- Water resources



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Air Quality & Greenhouse Gas

Study process

- Proximity to houses
- Emissions from well construction, drilling and compressor stations
- Quantity of greenhouse gas emissions

Preliminary findings

- Dust during pipeline construction and earthworks
 - Dust will be well managed to ensure minimal impact

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Flora and Fauna

Study process

- Approx 150 flora (plant) surveys across the field & pipeline route
- Direct observation of fauna (animals)
- Analysis of habitat and studies of tracks

Preliminary findings

- Vulnerable fauna species have been identified and are under investigation
- No significant flora species identified in the field

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Land Use

Preliminary findings

CSG Fields

- Minimal impact on grazing lands
- Infrastructure may be improved (e.g. access roads, gates etc)

Pipeline

- Reduced use of agricultural land during construction – no impact during operation
- Impacts on close property owners during construction: increased (but well managed) noise, vibration, traffic, visual amenity – no issues expected during operation of pipeline

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Social Assessment

Study process

- Identify and prioritise social considerations
- Predict project impacts and benefits on the community
- Identify mitigation measures
- Identify opportunities to enhance the community
- Evaluate significance of adverse impacts

Preliminary findings

- Decision to house construction workforce in temporary workforce accommodation, plus the small size of the operations workforce, will significantly reduce community impacts
- May be cumulative impacts on supply of local accommodation and house prices/rents
- Traffic increase during construction is the primary social impact

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Traffic & Transport

Study process

- Assessment of traffic and transport impacts to address:
 - volume of traffic to be generated
 - proposed transport routes
 - ability of existing infrastructure to support increased demand

Preliminary findings

- Traffic impact assessment still in progress

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Waste

Study process

- Review of legislation
- Assessment of likely waste streams from all stages of the project
- Waste management plan for the project

Preliminary findings

- Waste disposal at approved waste recycling and disposal centres
- Recycling opportunities being explored

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Water – Beneficial Use

- Water workshops/Surveys – Roma, Wallumbilla to Arcadia
 - Beneficial uses of water
 - Reduce reliance on town water supply bores
 - Improve sustainability, agricultural and recreational opportunities

Preliminary findings

- Opportunities identified and progressing further
- Uncertainty surrounds production of associated water
- Varying quantity/quality of associated water limits reuse options
- Expensive to treat water and transporting it over long distances.
- Work is ongoing

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Water

Study process

- Groundwater, Surface Water, Associated Water
- Groundwater sampling and aquifer testing
- Hydrological assessment being undertaken at all major rivers and tributaries (including Calliope, Dawson and Brown Rivers)

Preliminary findings

- Groundwater modelling still in progress
- Surface water studies still in progress

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Additional Research - Social

- Wellbeing studies in Roma and Gladstone
 - Defining what we mean by wellbeing
 - What do people like about their community?
 - What are they concerned about?
 - What does the future hold?
 - How could GLNG make a positive difference?

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Additional Research – Land Values

- Land Value Impact Study will help determine the impact on property prices from the development of coal seam gas – to assist fair and reasonable compensation
- Has involved literature review, local property data collection, input from landowners and Roma and Arcadia Valley communities
- Now in early stages of developing a Land Value Model

Preliminary findings

- Studies still in progress

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Contact us

Freecall 1800 761 113
Website: www.glng.com

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