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**TO:** Company Announcements Office

ASX Limited

**FROM:** Company Secretary

**DATE:** 3 November 2011

**SUBJECT:** GLNG Investor Tour Presentation

Please find attached a presentation *GLNG Investor Tour*, being presented by Mark Macfarlane in Roma on Thursday 3 November 2011.

**David Lim** 

**Company Secretary** 



## **GLNG Investor Tour**

3-4 November 2011



## Disclaimer & Important Notice

This presentation contains forward looking statements that are subject to risk factors associated with the oil and gas industry. It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a range of variables which could cause actual results or trends to differ materially, including but not limited to: price fluctuations, actual demand, currency fluctuations, geotechnical factors, drilling and production results, gas commercialisation, development progress, operating results, engineering estimates, reserve estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory developments, economic and financial markets conditions in various countries, approvals and cost estimates.

All references to dollars, cents or \$ in this document are to Australian currency, unless otherwise stated.



### **Project Overview**

#### First LNG expected in 2015 on schedule

- Development of CSG resources in the Bowen and Surat Basins
- FID Jan 2011
- US\$16 billion project
- 5,000 jobs in construction and 1,000 jobs in production
- 420km pipeline and 7.8mtpa two train plant
- First cargo 2015
- Customers
  - PETRONAS, 3.5mtpa
  - Kogas, 3.5mtpa





## Strong Partnership / Contractors

Project partners have industry leading expertise providing end to end supply chain coverage...



Predominantly fixed price EPC contracting strategy with world-class contractors







... GLNG leveraging strength of partnerships



### Experienced Leadership Team





#### Experience:

25 years Oil & Gas experience. Held position of Vice President Eastern Australia for Santos

Director **Gas Supply** Mike Hughes



25+ years (including 20+ years oil & gas) extensive operational and finance management, business development, international management and strategic planning experience

GLNG **Program** Director Christian Placines

Project Director Plant & Port Jim Gardiner



**PETRONAS** 

secondee.

Previously

Managed

MLNG. 28

operations

experience

years





30+ years

**GM Business** Services Olivier Depraz

Total

& gas

secondee.

29 years oil

experience

of projects

with Total

**GM External Affairs** Victoria Somlyay

**GM Human** Resources Peter White

GM Marketing Kartina Amin (Acting)



35+ years oil and gas, 15 years LNG

Total secondee. 40 years project management project experience experience



GM



operations and project experience



15+ years political & senior corporate affairs over a range experience



15+ years HR experience, significant oil & gas experience, project experience within construction industry



**PETRONAS** secondee. 13 years in oil & gas industry with 8 years in LNG marketing & trading covering Atlantic & Asia Pacific regions



20 yrs legal experience in construction, infrastructure. resources and finance projects globally

**Gas Supply** 

**Execute** 

**Operate** 

**Support** 

... structured for delivery



# Project Progress

#### First LNG expected in 2015 on schedule

Component	Highlights
Upstream	<ul> <li>~520 landholder agreements in place</li> <li>All cultural heritage clearances obtained</li> <li>&gt;500 Fluor personnel working on project</li> <li>383 total wells drilled in the GLNG fields to date</li> <li>Industry leading position on water and brine management</li> <li>Two reverse osmosis (RO) plants, two associated water amendment facilities</li> <li>1,300 ha drip irrigated chinchilla white gum, 234 ha RO permeate irrigated forage, 102 ha pivot and drip irrigated forage at Mt Hope Station (landholder property, Roma)</li> </ul>
Pipeline	<ul> <li>All cultural heritage clearances obtained</li> <li>Production of line-pipe commenced, &gt;100km already manufactured</li> </ul>
Plant and Port	<ul> <li>Clearing of 144 hectare LNG plant site on Curtis Island complete, maintaining the mangroves, construction commenced</li> <li>Bulk earthworks &gt;25% complete</li> <li>Mainland logistics sites well advanced</li> </ul>



# Upstream



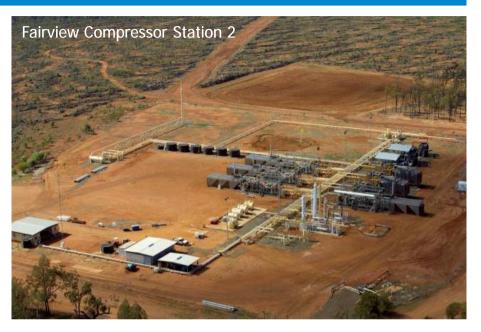






#### Santos CSG Involvement

- Santos recently celebrated
   50 years of gas production
   in the Roma area
- Santos commenced commercial production of CSG in Queensland in 1995
- CSG already accounts for ~90% of Queensland's gas production
- Santos leveraging strong community presence and good engagement with landholders

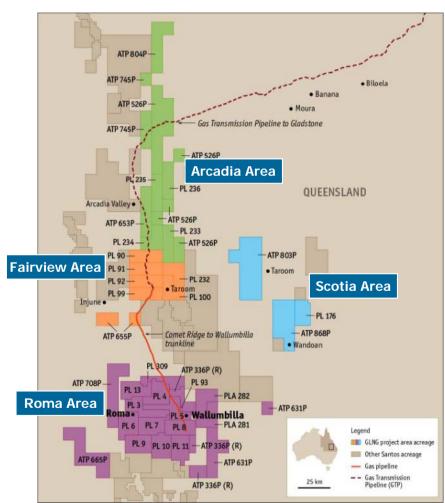






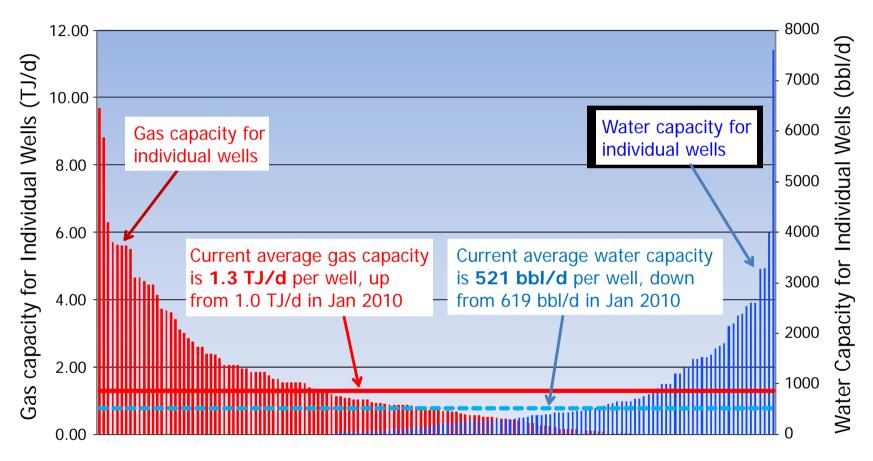
### **Upstream Overview**

- Fairview, Roma, Arcadia, Scotia
   GLNG project areas
- ~520 landowner agreements with 200 landowners in place
- 34,000 hectares of land owned
  - Used for key development activities and environmental offsets
- 383 wells drilled to date
- 207 wells commissioned with capacity ~240 TJ/d
  - Producing to domestic nomination
  - Injecting into storage
- Roma underground storage
  - Ramp gas management tool
  - Injection commenced and ramping-up





## Fairview Wells Capacity ~200 TJ/d



Fairview Wells-Well Stock 15 October 2011 (154 Wells)



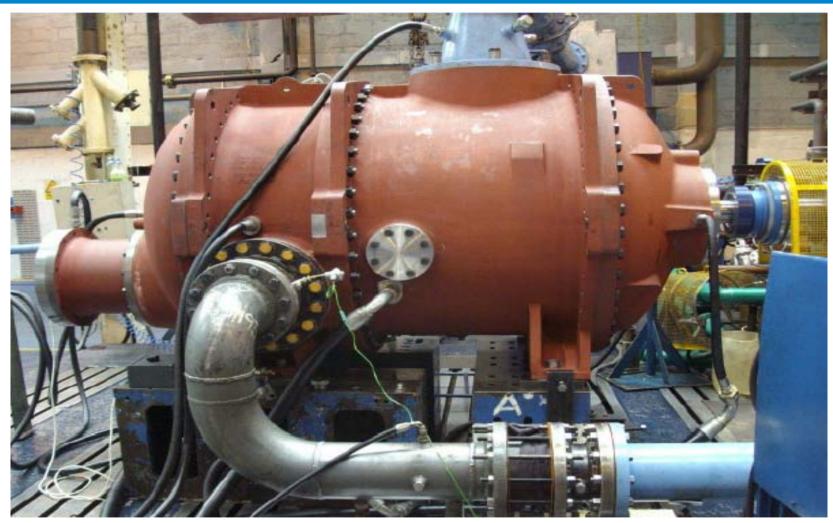
### **Upstream Status**

- We have the rigs we need
  - 6 drilling rigs and 6 completion rigs in operation
  - Wet weather in first quarter of 2011 impacted the drilling program
  - Expect to drill ~135 wells in 2011
     and ~170 wells in 2012
- Pad drilling
  - Updating rig fleet
  - Reduced footprint, lower total cost
  - Higher productivity
- Fluor to deliver field development
  - Mobilisation to field commenced
  - All long lead items ordered
- EIS approval for 2,650 wells
  - Sufficient for current field development plans



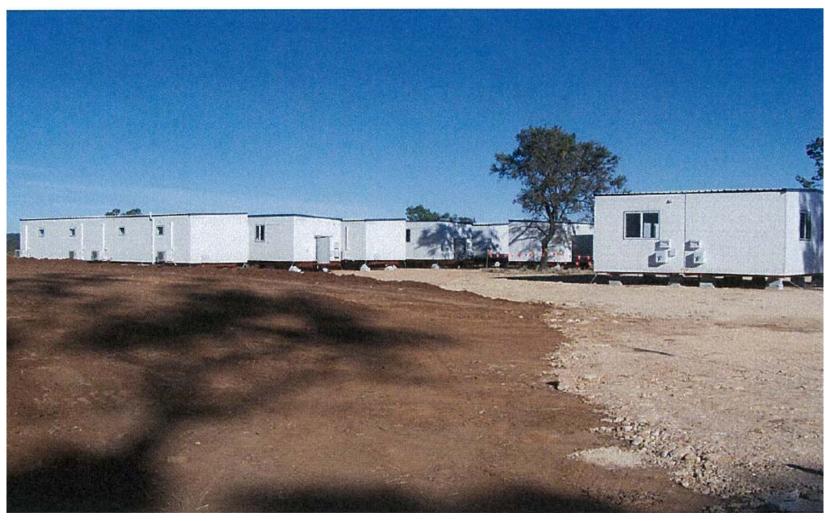


# Nodal Compressor Unit Being Tested





# **Temporary Camp Construction**



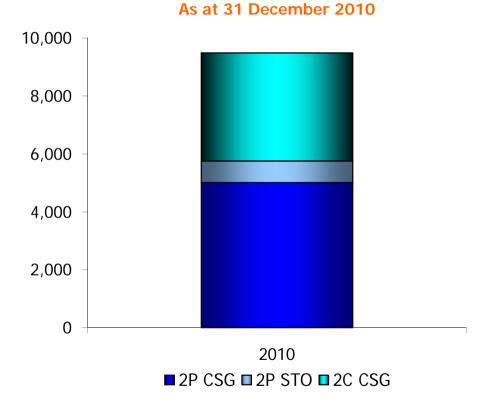


#### Reserves and Resources

#### GLNG has 9 tcf of dedicated reserves and resources

#### GLNG dedicated 2P+2C (PJ)<sup>2</sup>

- NSAI estimates GLNG ultimate 2P CSG reserves maturation of 9,848 PJ from existing acreage<sup>1</sup>
- In addition to CSG reserves, Santos to supply 750 PJ



NSAI: Netherland, Sewell & Associates, Inc. Based on their analysis, NSAI believe that continued development and appraisal drilling in the GLNG dedicated areas has a reasonable likelihood of extending the 2P reserves area into most of the regions now categorised as possible reserves or 2C contingent resources.



<sup>&</sup>lt;sup>1</sup> Excludes 750 PJ of Santos portfolio supply

 $<sup>^{2}</sup>$  1,000 PJ = 0.94 tcf

### Water Management

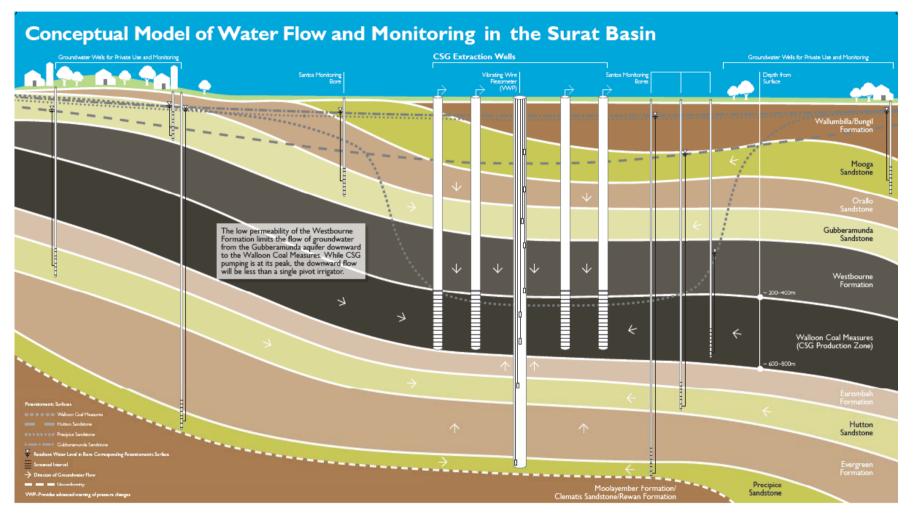
- Santos water infrastructure well advanced
  - 2 x Reverse Osmosis (RO) Plants Roma and Fairview
  - 2 x Associated Water Amendment
     Facilities (AWAF) Roma and Fairview
  - Regional bore inventory of around 400 bores
  - Ongoing monitoring of around 100 bores
- Plans going forward
  - 3 x RO Plants (Fairview, Roma and Arcadia Valley)
  - 2 x AWAF (Fairview)
  - 3 x Mobile RO Plants (Roma and Fairview)







## No Impact on Viability of GAB





### **Extensive Water Monitoring**

- Santos has an extensive groundwater management plan
- Supported by one of Australia's largest and best proactive groundwater monitoring programs
- Will be actively monitoring over 100 locations across our fields to confirm our modelling and early warning of any impacts
- Launched on-line water portal, which will make public and transparent results of monitoring







## CSG: Producing Usable Water

- Treated CSG water is an opportunity for landholders
- Landholders in Roma region recognising the value
- Pilot irrigation trial on Santos land in Fairview very successful – up to 25 times productivity
- Launched first irrigation project with private landholder at Mount Hope Station last month. Santos providing up to 700 ML of treated water, pivot irrigation system covering 72 hectares and 30 hectares of drip, and 130 hectares of forage crops. Further projects to be rolled out
- Planning Roma aquifer re-charge. Inject 10 ML of treated water per day.
   Boost Roma town water supply providing around 50 years of extra water supply

We have the energy.

## Hydraulic Fracturing

- Established oil and gas industry practice for more than 60 years
- Going forward will depend on the geology of the area
- Purpose, to open coal seams without natural fractures to allow extraction of more gas
  - Individual wells more productive, limiting drilling and surface footprint
- Process involves pumping a mixture of sand and water and a very small amount of chemicals (around 1%)
  - Chemicals are safe in the concentration used; found in household
- We are transparent about the chemicals we use
  - On website
  - Inform regulator and landholder
- Extensive regulations in place in Queensland
  - Water management and testing requirements



# Pipeline



#### Status

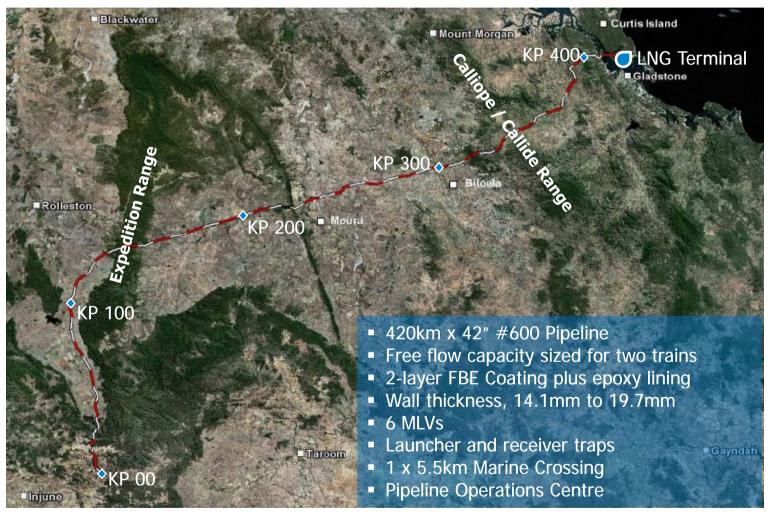
- Saipem
  - Office established in Brisbane
  - GLNG personnel embedded with Saipem in Farno
  - Expected to start laying pipeline 2012, on track
  - Two full 'pipe laying seasons' to complete
- Engineering and procurement more than 40% complete
- Line pipe production commenced
  - More than 100 km to date at approximately 150 joints (1.8km) per day
- Marine crossing line pipe complete and in storage in Batam
- Geotechnical survey has been completed along the main pipeline route







## Pipeline Route / Scope





## **LNG Plant and Port**



### Plant and Port Scope

- Located at Curtis Island,
   Gladstone
- Two 3.9 mtpa trains, two LNG storage tanks
- COP Optimised Cascade Process
- Lump sum contracting strategy with Bechtel
- Gladstone Ports
   Corporation carrying out dredging works



- All critical path permits for mainland and Curtis Island delivered
- Site position means GLNG less dependent on dredging than other LNG proponents



#### **Plant Status**

- Commenced construction on Curtis
   Island and the mainland facilities
- Earthworks >25% of required
   4 million m³ completed
- Completed first Factory Acceptance
   Test for refrigeration gas turbine
- New berths at Fishermans Landing, R G Tanna Raw Materials Facility and Curtis Island pioneer ramp operational
- All key equipment purchase orders for Train 1 and Train 2 issued
- Engineering and procurement >33% complete







#### **Port Status**

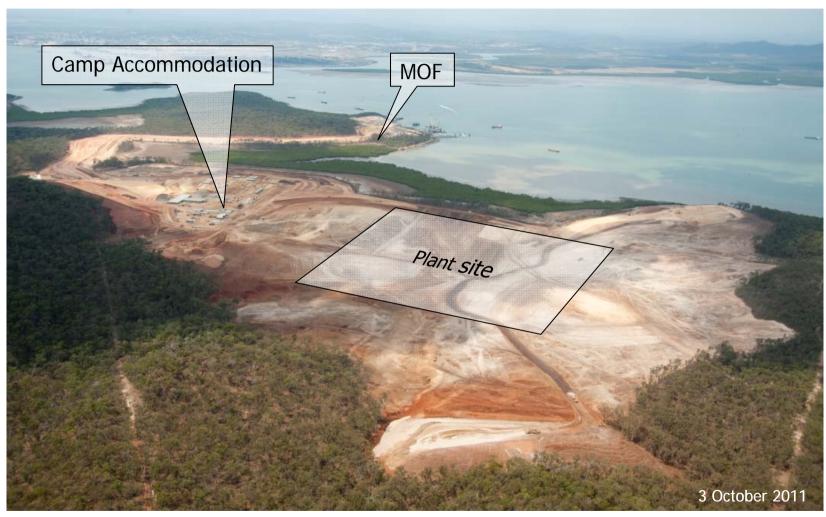
- Western basin main works dredging contract awarded to Van Oord / Dredging International joint venture (VODI)
- Dredging by Coastal Dredging & Construction at materials offloading facility >60% complete and on track
- Bund wall construction for the western basin complete
- Berth pocket dredging complete







## Curtis Island, Clearing Completed





## Plant Material Offloading Facility





# Port Central – Ferry Terminal and RoRo





## RG Tanna – LoLo and RoRo Facility





# Fisherman's Landing – Barge Landing





### **External Environment**



#### Overview

- Bipartisan support for CSG industry in Queensland. Recognised importance in underpinning future economic growth
- Strong positive track record in the Roma region
  - Over 50 years of gas production
  - Fifteen years of CSG
- Santos operates on grazing land, not cropping land
- Continued positive traction with Government with most major primary and secondary approvals completed
- Investment in water infrastructure over the past two years
  - Industry leading position on water and brine management



#### Boosting Local Economies, Communities

- Substantial economic benefits for Queensland regions
- Santos employs almost 200 people in Surat Basin. Will grow to a construction workforce of 1,000 people in the fields
- Provided opportunities for local businesses a long term industry revitalising the regions
- Santos has contributed to local social infrastructure (Roma)
  - a new airport terminal
  - industry medical helicopter
  - new allied health facility at the hospital
  - social and affordable housing
  - more than \$16 million in the Maranoa region plus more than \$11 million in Gladstone
- Project Road-use Management Plan being finalised including LNG industry cumulative impact study with Oueensland Government





### Our Actions Speak for Us

- ~520 land access agreements signed with ~200 landholders
- Standard rates of compensation reviewed regularly
- No Land Court action
- Strong community ties and respectful interaction with landholders
- We can co-exist with agriculture and boost the productivity of grazing operations through better utilisation of CSG water









- We can do this in a way that is safe and sustainable, and with no impact on the viability of the Great Artesian Basin
- We will deliver a once in a generation economic opportunity for Queensland's regions



#### Conclusion

#### Key messages

- First LNG expected in 2015 on schedule
- World class contractors executing with experienced owner's team
- Co-existence with agriculture and communities
- Transparent water management with beneficial use for regional communities





Santos

Questions

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