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BUSINESS

CITY BEAT

Lawyers and property figures come together under Ian Wright
Page 68

ASX200 ▲1.4 $334.30 | DOLLAR ▼US0.5¢ US90.78¢ | OIL ▼$US1.38 $US92.30 | GOLD ▼3.60 $US1237.80

Energy analysis points to 2019 gas shortages

MITCH GAYNOR

QUEENSLAND could suffer domestic gas shortages as early as 2019 in the absence of further development of gas fields, according to a report to be released today.

The Australian Energy Market Operator's 2013 *Gas Statement of Opportunities* found New South Wales, which has effectively banned coal seam gas exploration in the face of intense environmental activism, will fare worst, with peak time winter shortages from 2018.

The warning comes as Queensland's $60 billion coal seam gas to LNG plants near completion and users ramp up drilling activity to meet export demand.

Yesterday Origin announced it had struck a deal to supply gas to BG's Queensland Curtis Liquefied Natural Gas (QCLNG) project.

The sales agreement allows for Origin to supply QGC with up to 30 petajoules of gas to Wallumbilla in 2014 and 2015, at oil-linked pricing. However, it has the option to call back volumes of gas during periods of high east coast gas or electricity market demand.

IN DEMAND

- total annual gas demand **2182 petajoules** in 2033
- LNG exports from **zero to 1450PJ** from 2014
- domestic gas demand to increase from **620PJ to 750PJ** by 2033
- LNG export amount equates to **10 times** NSW's annual consumption

There has been speculation that Queensland's coal seams are not producing enough gas for Gladstone's LNG export plants, which is denied by the plants' proponents.

QGC yesterday said the deal provided certainty of short-term supply.

"The agreement provides short-term supply for QGC while we ramp up our production in the upstream," a spokesperson said.

Speaking to *The Courier-Mail* earlier this month, Santos GLNG vice-president Trevor Brown said supply was a real issue, but would be corrected through further exploration and development.

"There are some supply demand pressures that have been recognised for some time in the years to come," he said.

"But that's been understood for quite a while and those signals in any sort of market where there's a supply-demand imbalance will stimulate activity that will address it from the supply side.

"So it should encourage exploration and development of supplying gas into a market."

The report stated that the three major LNG export facilities will be exporting more than 1450 petajoules per year between 2014 and 2019, "posing significant challenges to producers to supply both domestic demand and LNG exports".

The issue is already affecting manufacturers, with some medium-sized users unable to secure contracts.

Cooper Basin-focused producer Senex Energy says coal seam gas production needs to increased fivefold to meet demand.

Senex chief executive Ian Davies said his company had estimated a 280 petajoule shortfall by 2017.

"By 2017 east coast demand for gas is expected to triple, outstripping supply by 280 petajoules per year – nearly 40 per cent," Mr Davies said. "The Cooper Basin is the natural choice for new gas supply."

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The report stated that the three major LNG export facilities will be exporting more than 1,450 petajoules per year between 2014 and 2019, "posing significant challenges to producers to supply both domestic demand and LNG exports".

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LNG PROJECTS UNDER PRESSURE

Export fears as gas wells fall short

ON THE CSG FRONTLINE

EXCLUSIVE

MATT CHAMBERS
ENERGY

DOUBTS about the ability of Queensland's coal seams to produce enough gas to feed Gladstone's LNG export plants are growing, with claims that many wells are not producing as expected and that more gas could be needed.

The concerns, which have been rejected by the three proponents spending $70 billion on projects to export gas through Gladstone's Curtis Island, have now been backed up by Houston-based drilling supplier Superior Energy Services.

SES, which has turnover of more than $US4bn ($4.2bn) and employs more than 14,000 people around the globe, says its foresees growth in its eastern Australian business because poor well performance means more drilling in Queensland and South Australia.

"When we are talking to the operators in Queensland, we hear from them that the coal-seam gas (wells) that currently have been drilled are actually not meeting the production expectations," SES head of Asia Pacific, Ruud Boendermaker, told investors in Houston last week.

"So what they have to do is to drill a lot more CSG wells in the next few years because of the commitments to the LNG trains that they are currently building in the north of Queensland."

Mr Boendermaker, a former Halliburton executive, said one of the main reasons for the poor well performance was that the coal was not as homogeneous as expected, and less permeable than expected.

SES has a Toowoomba office and is believed to contract to drillers rather than directly to the LNG proponents. It did not say which projects needed more wells, nor which areas of the state had problems.

Each of the three LNG projects on Curtis Island, led by Santos, BG Group and Origin Energy/ConocoPhillips, will need thousands of onshore CSG wells to feed them.

Above the ground, drilling has already been hampered by weather and community and environmental hurdles, but all the projects have stated they are on time and not experiencing any negative surprises.

If the wells do not produce as expected it will put further pressure on the east coast market, which is already expected to be short of gas and facing huge price rises as the LNG plants start.

A fourth LNG project, run by Shell and PetroChina's Arrow Energy joint venture, has been held back after more than $7bn of investment (including $5bn of acquisition costs), with owners saying costs must fall if it is to go ahead.

Origin, Santos and BG rejected Mr Boendermaker's claims.

The statements from SES, and the denials from the projects, come amid growing industry speculation that some wells are not performing as hoped.

A former executive on one of the projects told *The Australian* that the "sweet spots" were not as large as had been hoped.

Another industry source said one of the projects had returned a series of dry wells after moving off a sweet spot.

Analysts say Santos or Origin have released nothing to indicate wells have not performed as expected. But they also say the statements do not reveal much about the quality of the coal seams.

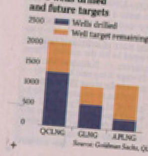
Another problem is that the best ground is being drilled first, meaning there is no way of knowing if the results will be replicated.

A Santos spokesman said the drilling program for the Santos Gladstone LNG project was on track and was delivering results consistent with expectations.

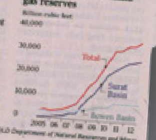
"We have a good understanding of the geology and there are no surprises," he said.

Origin, whose Australia Pacific LNG joint venture with Conoco is regarded as having the nation's best CSG ground, pointed to recent statements that its seams were showing high permeability, thickness and gas content. "The project has a sufficient resource base to meet its gas requirements to service both domestic contracts and international LNG offtake agreements," a spokeswoman said.

CSG wells drilled and future targets



Evolution of Queensland gas reserves



Source: Goldman Sachs, QLD Department of Natural Resources and Mines

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EAST COAST DEMAND TO SOAR

Oil giants hog gas for export project

EXCLUSIVE

MATT CHAMBERS
ENERGY

OIL giants Shell and PetroChina have refused to offer new domestic gas supply from their vast Queensland coal-seam gas reserves, warehousing all the gas for an LNG export project that is yet to be approved due to high Australian construction costs.

Amid concerns of a looming east coast gas shortage, it is understood the pair's Brisbane-based Arrow Energy joint venture has been approached by at least two domestic major east coast gas buyers but has been unwilling to take part in the tender process.

Instead, as it is allowed to do under state and federal government approvals, Arrow is warehousing the gas for a planned LNG export project, or collaboration with another plant at Gladstone in Queensland, at a later date when the economics are better.

This would better suit the scale PetroChina and Shell are chasing and justify the $8 billion spent to date acquiring and studying the ground.

The situation where uncommitted gas reserves are unavailable for domestic use is frustrating Australian industrial east coast gas buyers, who face price increases and potential shortages next year as three other Gladstone LNG export projects, costing a combined $70bn, start and rapidly triple Australia's east coast gas demand.

The Australian revealed in November that Arrow had been told by Shell and PetroChina that the LNG project could not compete with other global options and it needed to improve the project economics and look at potential collaboration.

It is understood that as well as high costs in Australia, Arrow's CSG wells, of which thousands would have to be drilled to supply an LNG plant, have not performed to expectations.

It is also understood Arrow is planning redundancies this year as it scales back, but speculation that half the company's 1000-plus employees could go is overstated.

Neither Shell nor Arrow — which already supplies some domestic gas under contracts signed before Shell and PetroChina bought the company — would comment on whether Arrow could supply more domestic gas or whether staff cuts were imminent.

According to an April 2013 release, Arrow has 9500 petajoules of proved and probable reserves, which is enough gas to supply the entire east coast market for 13 years, or a single LNG production train for about 20 years.

Manufacturing Australia executive director Ben Eade said it was frustrating that Arrow was sitting on reserves that could be developed and were not committed to export markets, but would not even consider supplying the domestic market.

"Despite having among the world's largest gas resources, we don't have them available for industry and we are being asked to pay the world's highest prices," Mr Eade said.

"We have a looming transition period (where gas supply will lag LNG plant demand in the early years) that could be devastating for Australian manufacturers."

Continued on Page 17

LNG PROJECTS UNDER PRESSURE

Export fears as gas wells fall short

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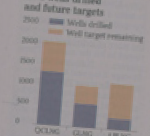

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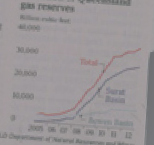
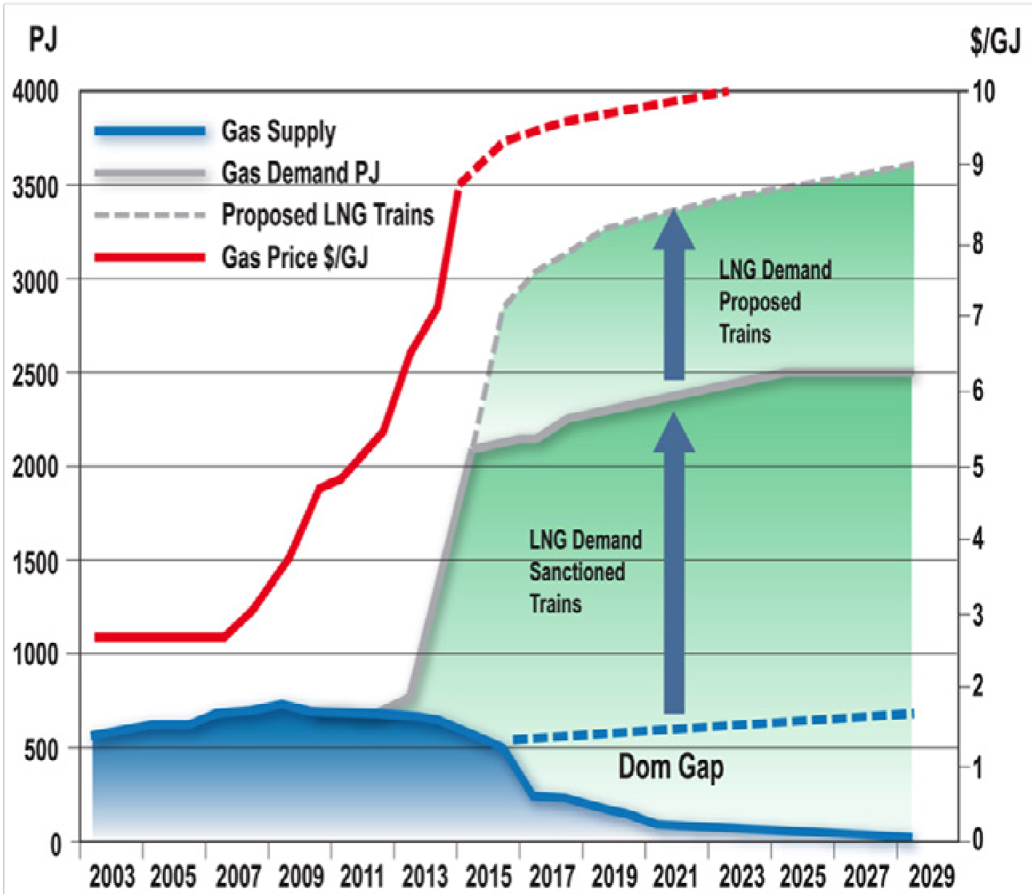


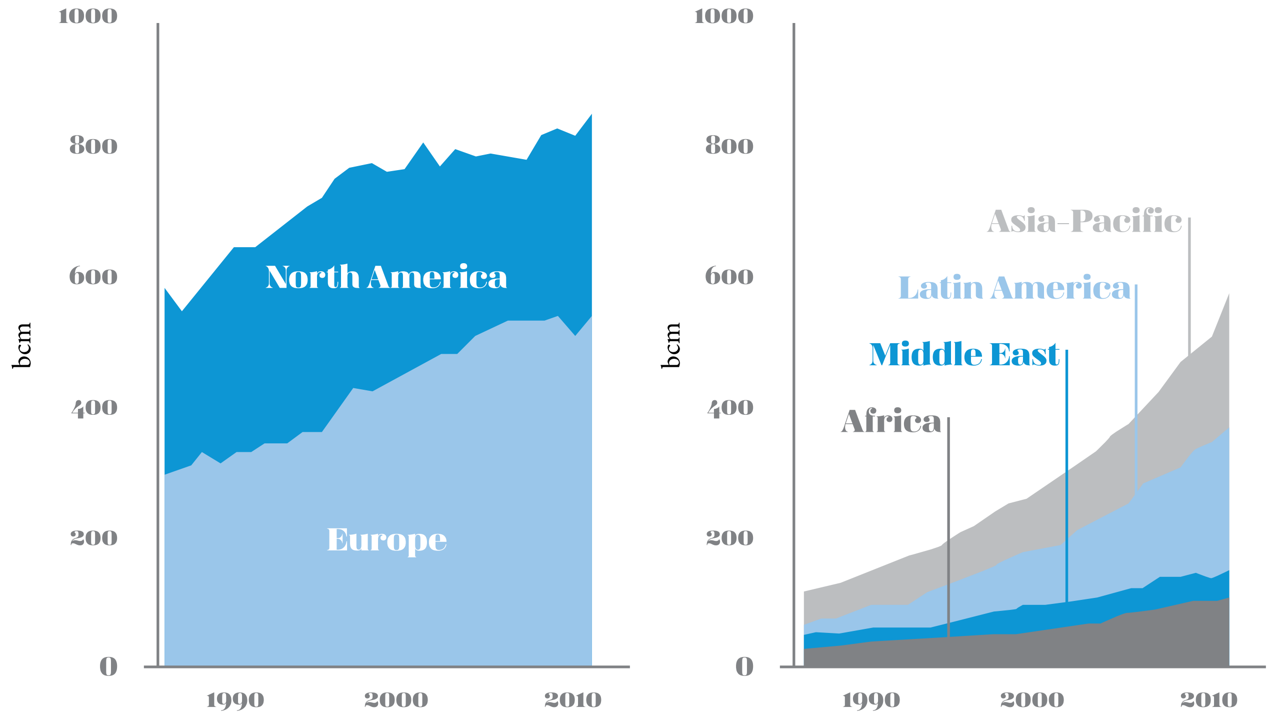
Source: Goldman Sachs, QLD Department of Natural Resources and Mines

EAST COAST GAS SHORTAGE



EAST COAST GAS SHORTAGE

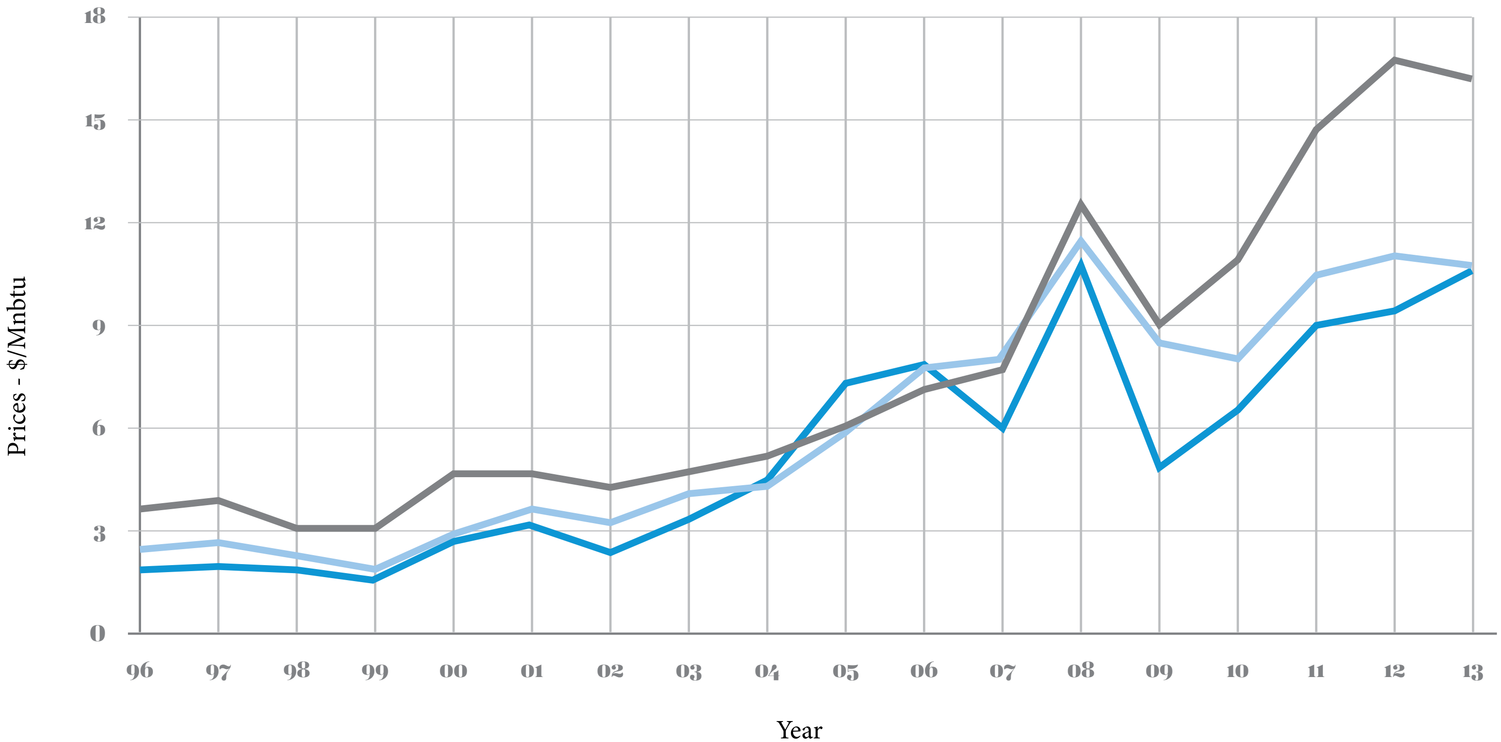
GLOBAL NATURAL GAS CONSUMPTION



Source: BP (2011)

GLOBAL GAS PRICES INCREASING

GROWING DEMAND IMPACTS PRICES

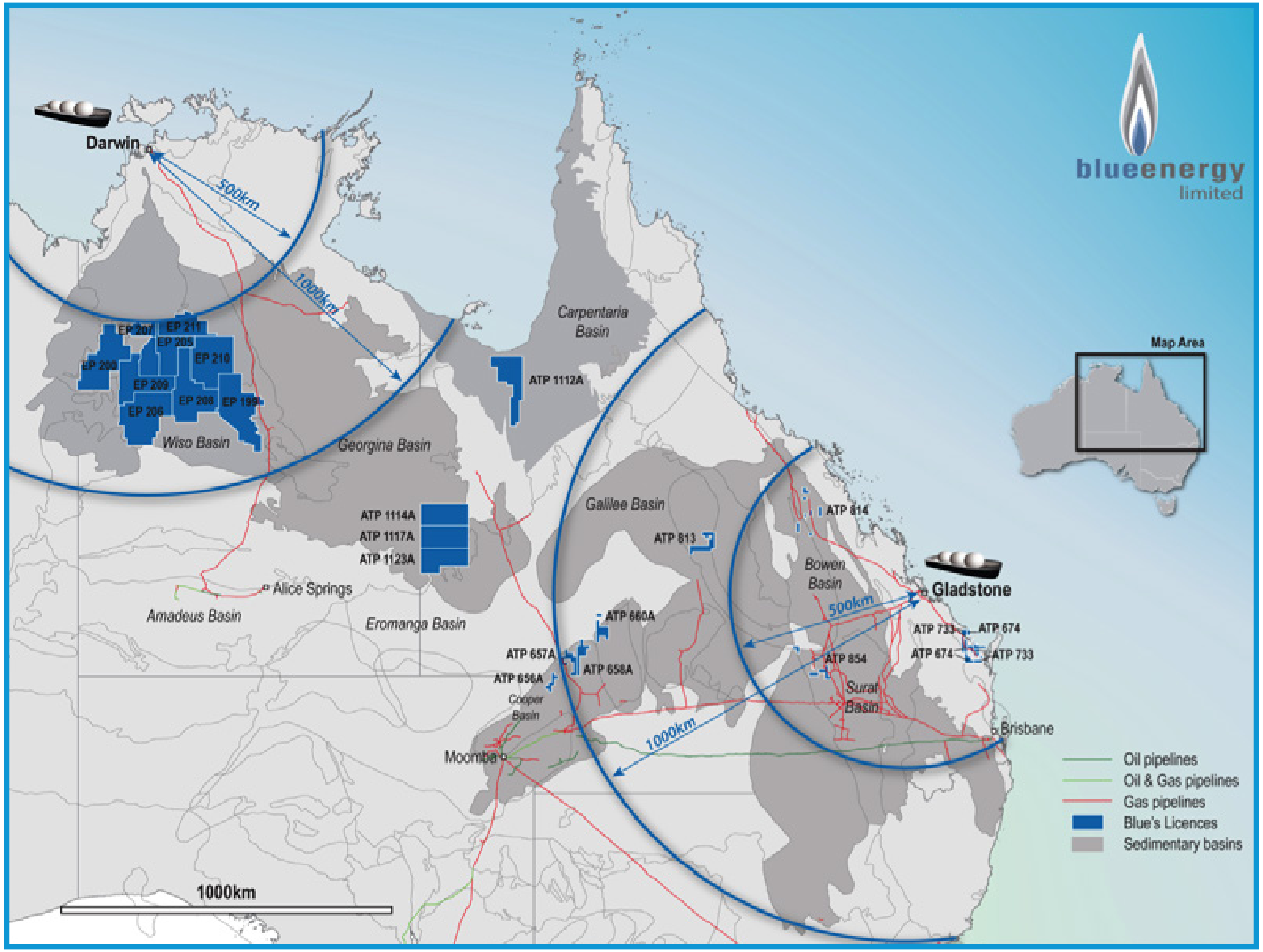


Source: BP (2013)

Japan LNG cif
Average German Import Price cif
UK NBP

POSITIONED FOR DOMESTIC & EXPORT LNG GROWTH

QUALITY BASIN POSITIONS



BOWEN BASIN

PetroChina

BG GROUP

Blue Reserves

2P	55 PJ
3P	200 PJ

Contingent Resource

3C	2804 PJ

SURAT BASIN

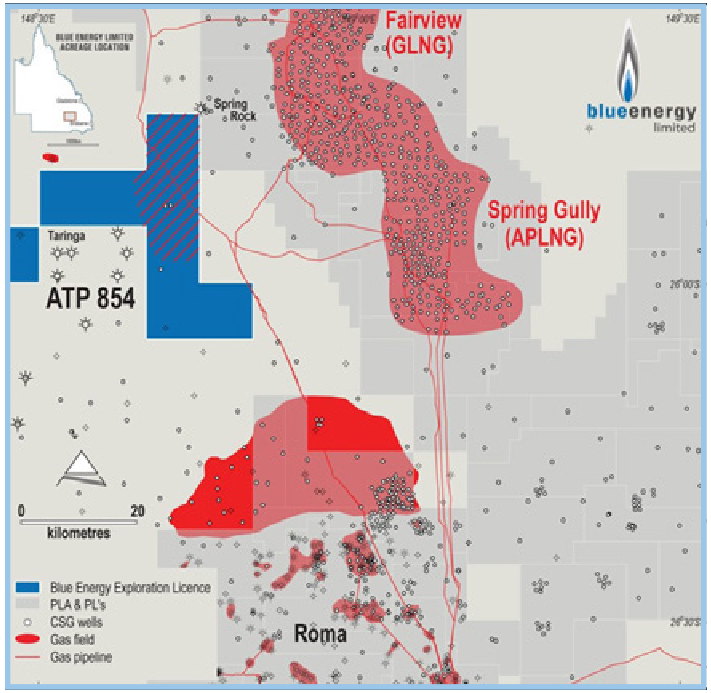
Blue Gas Resources (100PJ) adjacent to LNG infrastructure

Santos GLNG Project

AUSTRALIA PACIFIC LNG

Santos

origin



PetroChina

BG GROUP

IDENTIFY → AQUIRE → EXPLORE → DISCOVER → APPRAISE → DEVELOP

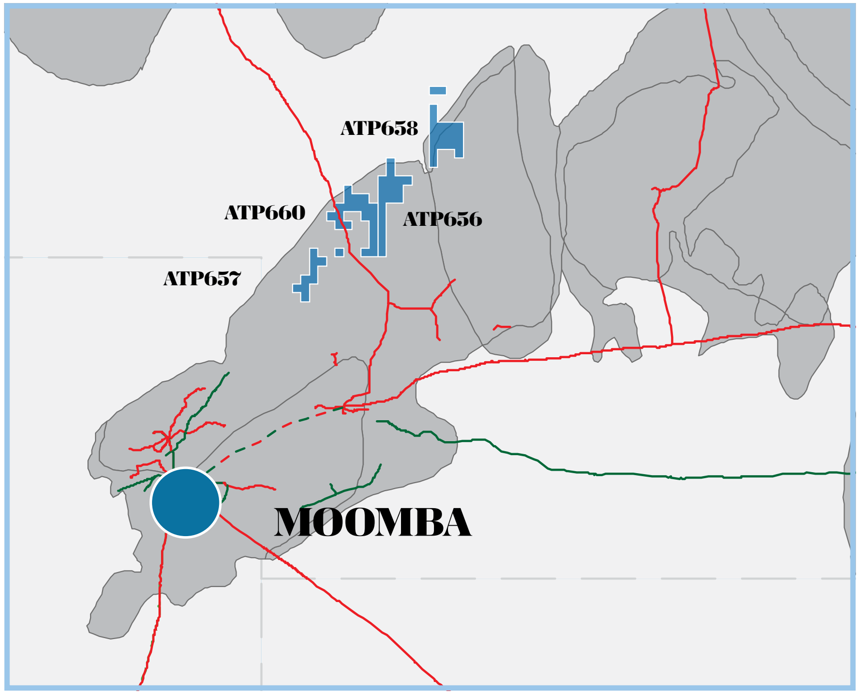
COOPER BASIN

Established Gas & Liquids producing basin.

Chevron

Santos

BG GROUP



Drillsearch

Senex
Senex Energy Limited

BEACH ENERGY

EMERGING OIL PROVINCES

FRONTIER BASINS

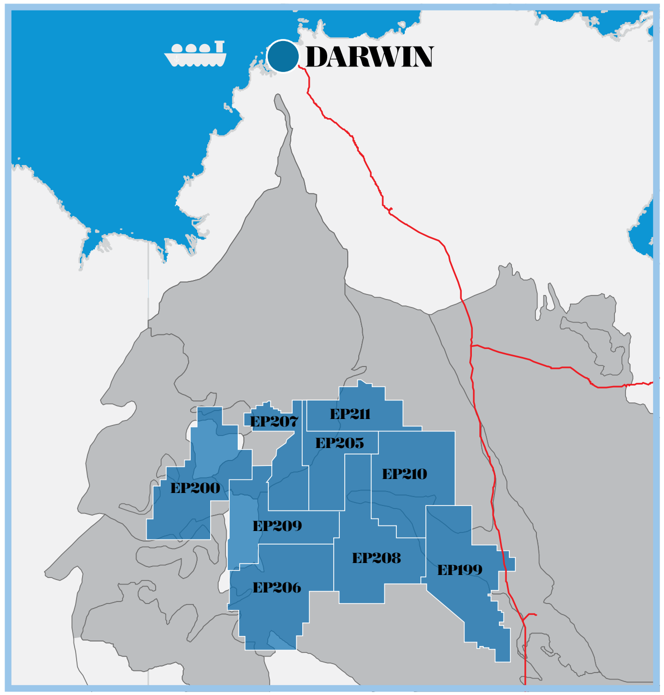
WISO BASIN

Dominant basin position in breaking plays.

ConocoPhillips

INPEX

BEACH ENERGY



origin

sasol reaching new frontiers

Santos

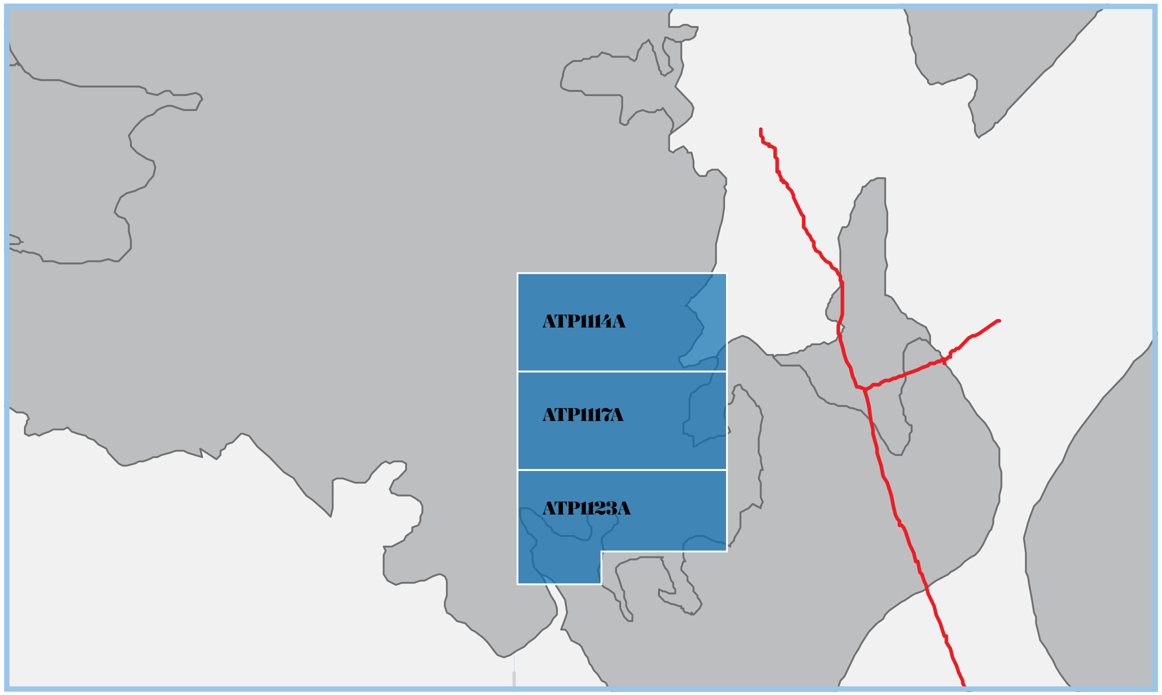
IDENTIFY → AQUIRE → EXPLORE → DISCOVER → APPRAISE → DEVELOP

SOUTH GEORGINA BASIN

International shale players active.

TOTAL

Statoil



central

Santos

IDENTIFY → AQUIRE → EXPLORE → DISCOVER → APPRAISE → DEVELOP

QUALITY BASIN POSITIONS

QUALITY BASIN POSITIONS

EMERGING BASIN PROVINCES

FRONTIER BASINS

WHY BLUE?

QUALITY BASIN POSITIONS

EMERGING BASIN PROVINCES

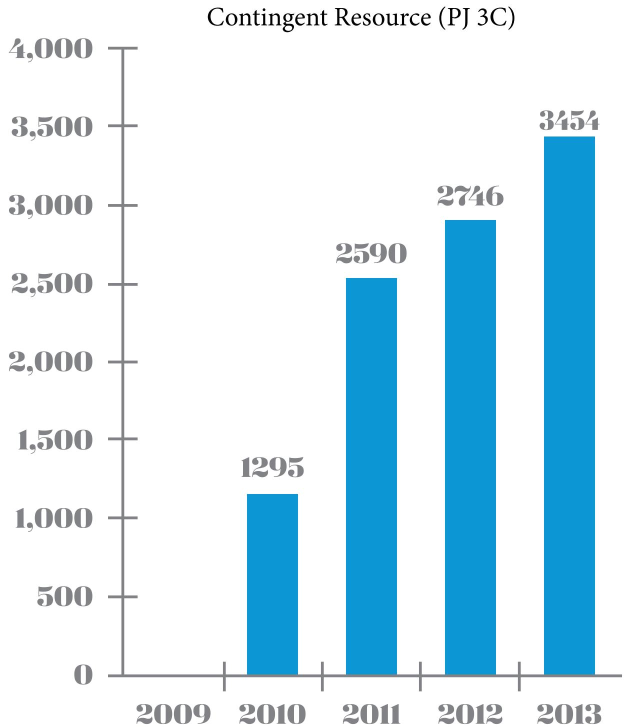
FRONTIER BASINS

POSITIONED FOR

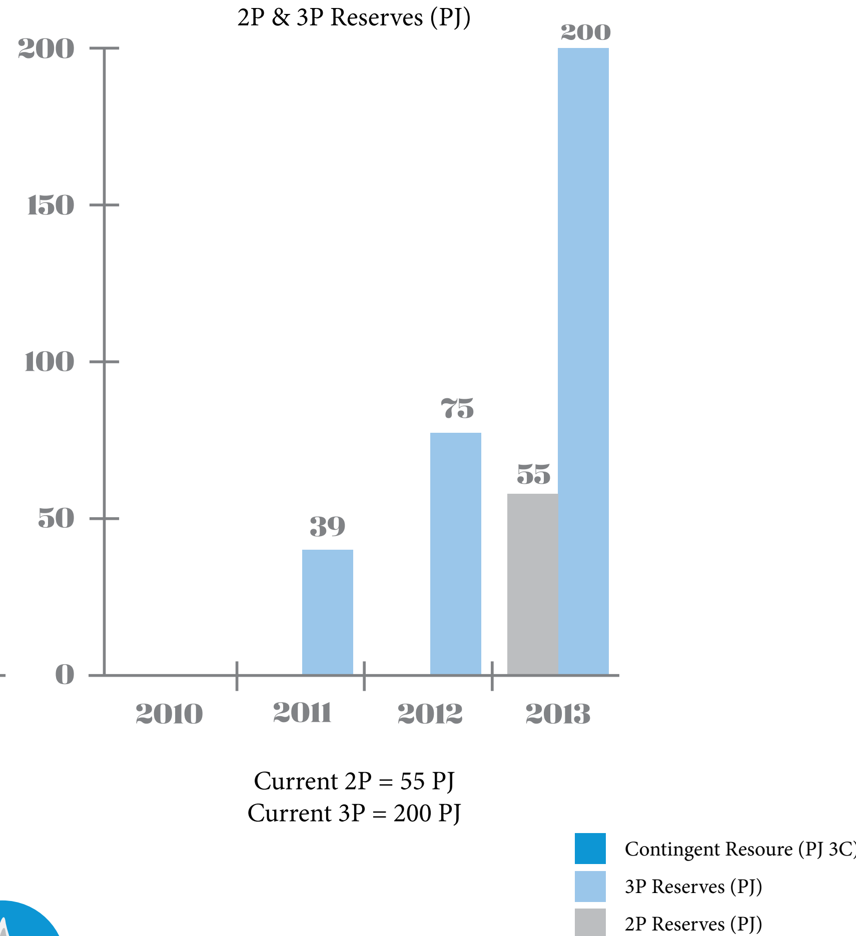
DOMESTIC & EXPORT LNG GROWTH

WHY BLUE?

Well Positioned & Growing



Current 3C = 3454 PJ



Current 2P = 55 PJ
Current 3P = 200 PJ

LEGALS

DISCLAIMER

This presentation may contain forward looking statements that are subject to risk factors associated with the gas and energy industry. It is believed that the expectations reflected in the statements contained within 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 and currency fluctuations, geotechnical factors, drilling and production results, development progress, operating results, reserve estimates, legislative, fiscal and regulatory developments, economic and financial markets conditions in various countries, approvals and cost estimates.

COMPETENT PERSON STATEMENT

The estimates of Reserves and Contingent Resources have been provided by Mr John Hattner of Netherland, Sewell and Associates Inc. Mr Hattner is a full time employee of NSAI, has over 30 years of industry experience and 20 years' experience in reserve estimation, is a licensed geologist, and has consented to the use of the information presented herein. The estimates in the report by Mr Hattner have been prepared in accordance with the definitions and guidelines set forth in the 2007 Petroleum and Resource Management System (PRMS) approved by the Society of Petroleum Engineers (SPE), utilising a deterministic methodology.

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