



*Employees, Jordan and Tom Mehrtens identifying appraisal drill rig sites, June 2015 at PEL 650, Leigh Creek Energy Project, South Australia.*

# Disclaimer

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This presentation has been completed by Leigh Creek Energy Limited. It may contain forward looking statements that are subject to risk factors associated with the energy industry. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of changes in underlying assumptions which could cause actual results or trends to differ, including but not limited to: price fluctuations, actual demand, currency fluctuations, drilling and production results, reserve estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory developments, economic and financial market conditions in various countries and regions, political risks, project delay or advancement, approvals and cost estimates amongst other items, and the cumulative impact of items.

This presentation may also contain non-IFRS measures that are unaudited but are derived from and reconciled to the audited accounts. All references to dollars, cents or \$ in this presentation are to Australian currency, unless otherwise stated.

The information in this report relating to exploration results is based on information compiled by Mr Troy Turner who is a member of the Australasian Institute of Mining and Metallurgy and is a full time employee of Xenith Consulting Pty Ltd. Mr Turner is a qualified geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking, to qualify as Competent Person as defined in the 2012 Edition of the “*Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*.” Mr Turner consents to the inclusion in the report of the matters based on the information, in the form and context in which it appears.

ASX release dated 27 April 2015 refers to the previously published ‘Australian Mineral Consultants Review Report Leigh Creek Energy Project’ by Competent Person Tim Jones on 27 April 2015 available under Leigh Creek Energy (LCK) announcements on the asx website [www.asx.com.au](http://www.asx.com.au) and at [www.lcke.com.au/News/Technical-Reports](http://www.lcke.com.au/News/Technical-Reports). The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous announcement. The form and context in which Tim Jones findings are presented have not been materially modified.

# Objective & Strategy

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## Objective

*“Create alpha (returns > index) through application of in-situ gasification (ISG) process on deep coal resources located in favourable locations (lowering risk).”*

## Strategy

*“Develop Leigh Creek Energy Project (**LCEP**) & subsequently establish a portfolio of ISG assets and royalties.”*

# Investment Thesis

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## Early stage fast advancing project.

Currently <\$100m market cap and outside ASX 300.

Aiming to generate “Alpha” when compared to weighted average of energy players.

LCK is presently small despite;

- Pending coal and gas resources independently verified = leverage.
- Supportive government.
- Estimated low production costs
- Gas demand and high gas price in Aust.
- Funding intended largely from gas monetisation – lowers need for equity and increase return to shareholders (IRR).



Desires  
low risk



***“Current market cap of \$46m equates to 46 PJ at \$1:00/GJ in ground.***

***“Independent expert has target minimum of close to 56 million m<sup>3</sup> (refer ASX release 27 April 2015)”***

***If this occurs potential valuation = 43x current price.***

# Current Capital Structure

Relisted 3 July 2015 after acquiring Leigh Creek Energy Project (LCEP).

## Capital Structure

|                    | Securities<br>#    | Mkt Cap<br>\$m | Notes                |
|--------------------|--------------------|----------------|----------------------|
| Ordinary<br>shares | 230,519,472        | 46.1           |                      |
| Options            | 2,000,000          |                |                      |
| <b>Total</b>       | <b>232,519,472</b> | <b>46.5</b>    | <b>Fully diluted</b> |



Daily price, volume for past 12 months. Source: ASX Ltd

Employee options scheme permits 10% outstanding on rolling 5 year basis.

- Operational team being gathered – there is intention to incentivise with options.

# Recent Progress

## Recent Milestones & Workflow

|   |                 |   |
|---|-----------------|---|
| Formal approval process with SA Govt.           | <b>Complete</b> | PEL 650 granted 18 Nov 2014.<br>Appraisal drilling approved 30 June 2015.   |
| Site access protocols & visits.                 | <b>Ongoing</b>  | HoA with Alinta Energy signed,<br>Safety and mine site co-operation,<br>Laydown area, power, site office established. |
| Independent geological & valuation reports.     | <b>Complete</b> | Docs included in LCK EGM 27 May 2015.   |
| Listing – Shell (back door).                    | <b>Complete</b> | LCK on 3 July 2015.   |
| Capital funding advisor signed                  | <b>Complete</b> | EAS Advisors Inc (New York) mandated  |
| East coast gas marketing.                       | <b>Ongoing</b>  | Market study undertaken, customer contact commenced, data room live.  |
| Build human capacity, including technical team. | <b>Underway</b> | Team increased from 3 to 21, with more to be added March quarter 2016.  |
| Infrastructure partners found                   | <b>Underway</b> | Discussions taking place.   |
| Sell Treasury shares.                           | <b>Underway</b> | 1/3rd sold at \$0:20/share Nov 2015   |



# Next Steps

## ■ Gas resources recoverable:

- ✓ Approval to drill
- ✓ Assess historic data.
- Establish JORC 2012 resources.
- Establish gas resources recoverable.

## ■ Establish technical team:

- ✓ Safety & Geology.
- ✓ Environmental
- ✓ ISG engineers

## ■ Gas marketing:

- ✓ Alert gas buyers.
- Monetise some gas in ground
- Contract book ramp up indications.

## ■ Design & Approvals:

- Stage 1, gas flaring.
- Stage 2, commercial
- Stage 3, fertiliser

## ■ Intended Funding:

- Sale of Treasury shares (15m – 1/3<sup>rd</sup> complete).
- Gas monetisation



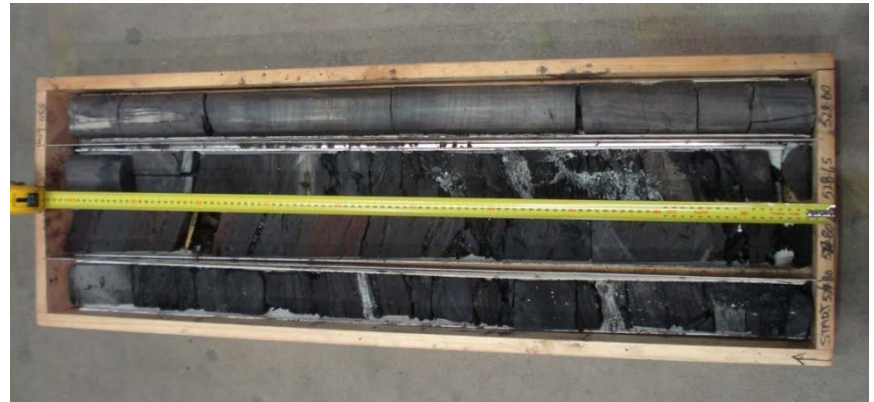
*\*Source: Google Earth. Internal estimates of all distances are approximations.*

# LCEP – Update

- Recent historic data find brings forward JORC coal and independent gas resources recoverable. Expected year end 2015.
- Brings forward gas monetisation which may deliver bulk of project equity needs – drives up IRR to investors.
- Roadshows to fund managers (Australia, North America) commence mid November.



LCEP Laydown area Jul 2015 (above), historic drilling (below).





# Modern Gas Resources Pending

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- Prior Independent coal target  
220-530mt = 56,000 – 135,000  
million m<sup>3</sup> gas in place (refer ASX  
release dated 27 April 2015). (This  
translates to approximately 2.0 –  
4.8 Tcf or 2,000 – 4,800 PJ).
- Recently obtained data likely  
permits JORC assessment and gas  
certified resources.
- Results expected by year end 2015.

*“Gas resources support  
gas sales contracts and  
gas in ground sales.”*

# LCEP Additional Opportunities

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## Value add:

### 1. Gas storage:

- Recent Iona (Vic) purchase 27 PJ storage for \$1.78 billion.

### 2. Fertiliser:

- Made from waste product hydrogen.
- 100% nitrogen based fertiliser & explosives imported into SA.

### 3. Gas fired peaking electricity:

- SA loses base load coal fired by April 2016.
  - Port Augusta stations closing
- More dependent on wind energy.
- When wind not despatching – dependent on Victorian Interconnect for electricity – on high power demand days.
- Blackouts in Adelaide recently

# Gas Is In Play

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- **ACCC inquiry**
- **Acquisitions**
  - Qld Investment Corp buys IONA 27 PJ gas storage (VIC) \$1.7bn (40x pre-tax earnings)
  - Santos proposed takeover / current rights issue
- **New pipelines**
  - North East Gas Interconnect (NEGI) – NT to Mount Isa
- **Mergers:**
  - Beach Energy with Drillsearch

# News Flow

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Operational & other milestones.

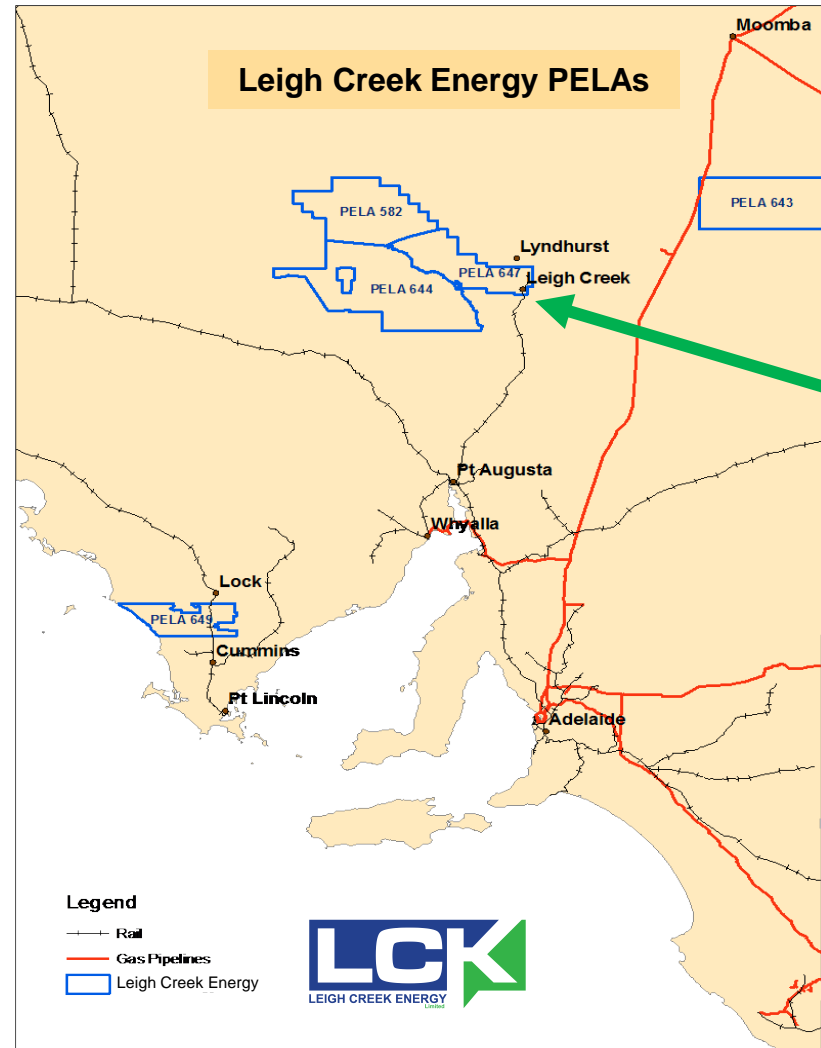
- Independent expert assessment of coal JORC & PRMS gas resources – expected year end 2015.
- Gas in ground monetisation (part) – aiming for March quarter 2016.
- Remaining gas in ground deserves value.
- Stage 1 gas flaring approval (intended Jun quarter 2016).
- Stage 1 gas flaring (intended Oct 2016).
- Pre-order long lead time plant.
- Stage 2 commercial gas approvals – aim June half 2017.

*Frequent gas shortage, gas industry corporate action and high priced gas contracts news anticipated.*



# Location of LCEP

**Central South Australia,  
550km N of Adelaide.**



PEL  
650

# LCEP – Supportive Environment

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- South Australian government
  - ✓ ISG legislation in place.
  - ✓ No issues re overlap of tenements at LCEP.
  - ✓ 1-stop-shop for fast track.
- Location benign
  - ✓ Existing mine site.
  - ✓ Salt water at depth.
  - ✓ Outside Great Artesian Basin.
  - ✓ Remote from major centres.

*South Australia highly rated by Fraser Institute Global Petroleum Survey 2014*  
*- #1 for “Geological Database” and top 10 for “Small Reserve Holder Comparisons”.*

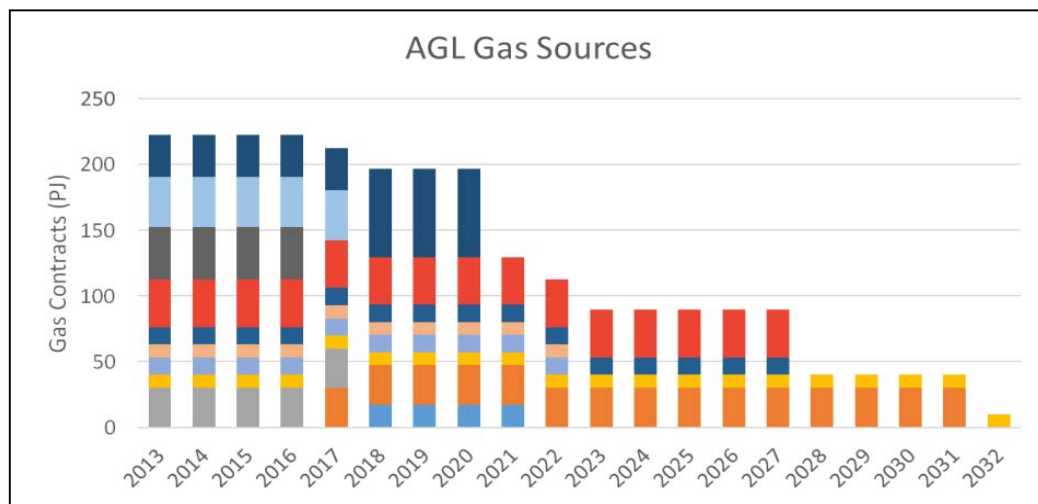
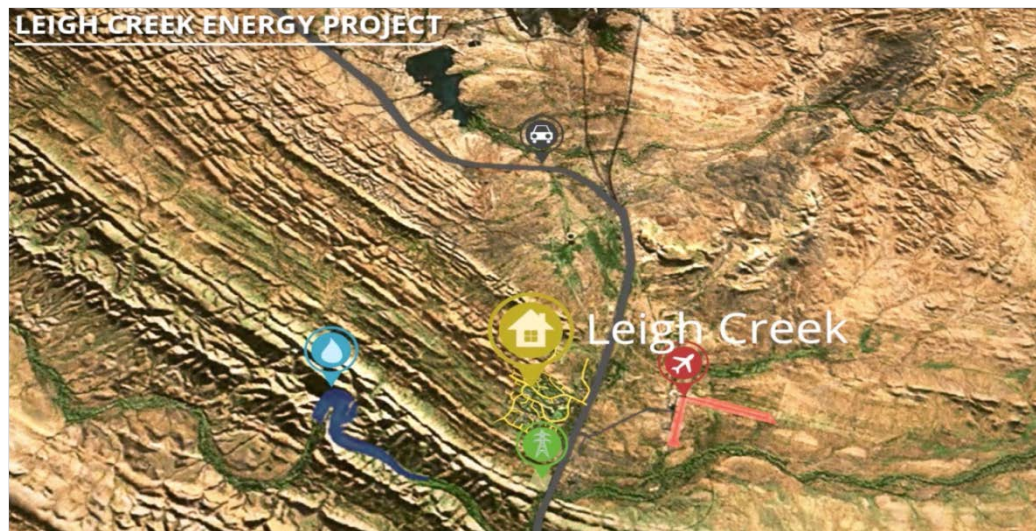
# Indigenous Engagement

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- Adnyamathanha Traditional Land Association (ATLA)
  - ✓ **Adnyamathanha are the people of the broader region.**
- Both parties seeking positive engagement
  - ✓ **Regular communications.**
  - ✓ **Maximising employment and business opportunities.**
  - ✓ **Mutual respect.**
  - ✓ **Shared benefits.**

# LCEP – Lower Project Cost & Risk

- **Infrastructure in place**
  - ❑ Major pipeline nearby
  - ❑ Sealed road
  - ❑ Airport
  - ❑ Power
  - ❑ Rail
- **Gas shortage, high gas price (and likely rising).**
- **Gas marketing underway.**
- **Estimated gas cost ~\$2:50/GJ (including DA)**



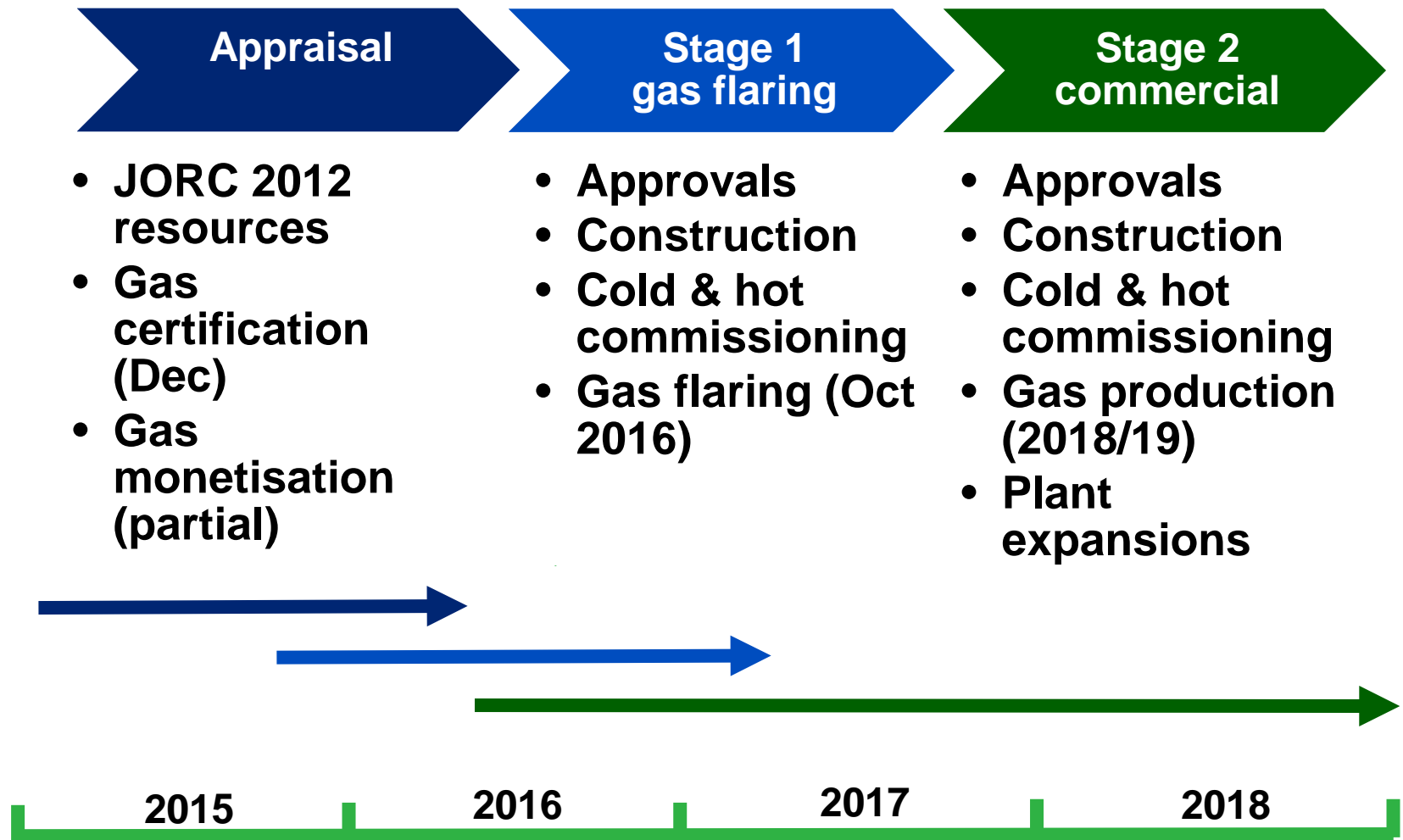


# LCEP – Low Costs & High IRR

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- ❑ **Capex optimisation underway**
  - ✓ **Supported by EAS Advisors Inc (New York).**
  
- ❑ **IRR high and may improve dramatically:**
  - ✓ **If (and as) gas monetisation offsets capex.**
  - ✓ **If other parties (Build Own Operate) pipeline and part of gas plant.**
  - ✓ **With gearing.**
  - ✓ **If LCK BOOT's assets – build and sell off when project commences.**

# LCEP Stages



# Leigh Creek Coal Field

Produced coal at up to 2.5mtpa for captive power stations 250km south at Port Augusta. Mine closed (Nov 2015) and Power Station to close (Mar 2016).

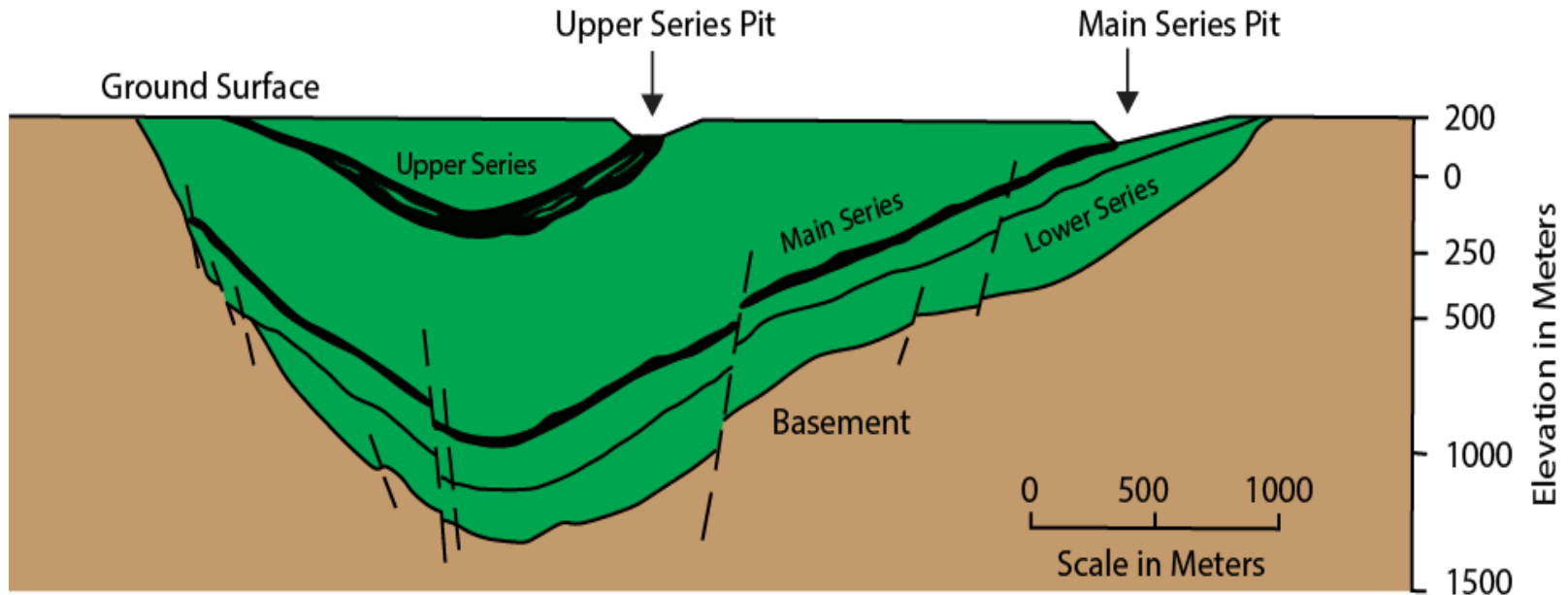
- PEL 650 operates within Petroleum Act.
- Likely to obtain useful existing infrastructure



\*Source: Google Maps

# Coal Seams

Area of coal covers approximately 5 x 3.5km in area with the Main Series coal seam being up to 18m in thickness in the open cut mine.



- Focus has been on Main seam and Lower Series seam.
- Recent data suggests deeper Upper Seam coal may be ISG suitable.
- No prior holes in deepest point of coal basin.



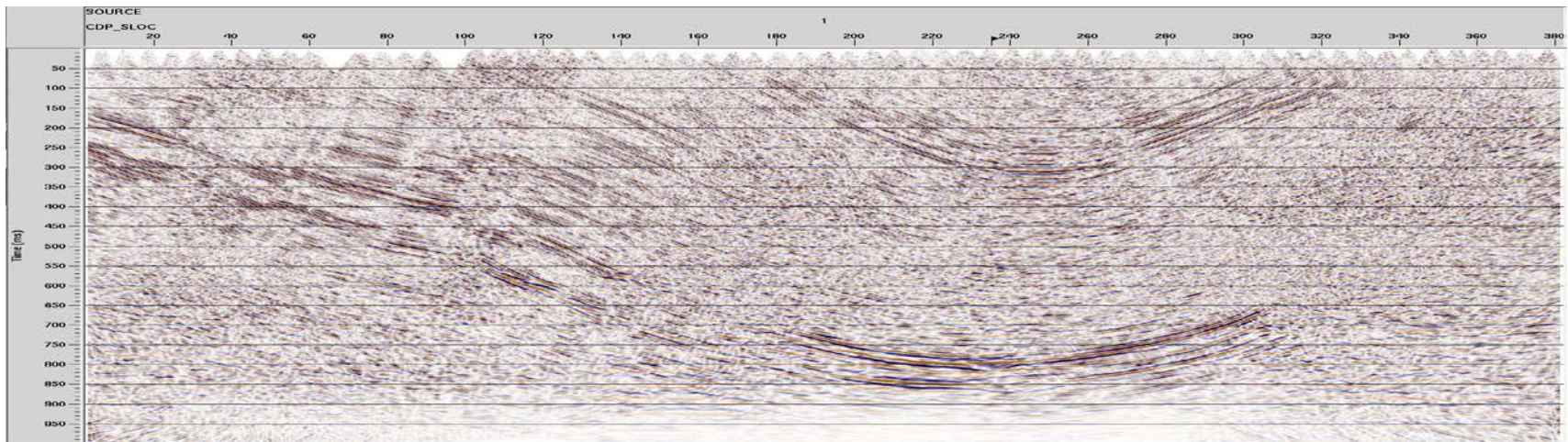
# Appraisal

## Historic:

- Independent expert report, 220-530mt coal exploration target equating to 56,000 – 135,000 million m<sup>3</sup> gas in place (refer ASX release dated 27 April 2015). (This translates to approximately 2.0 – 4.8 Tcf or 2,000 – 4,800 PJ).
- Prior seismic re-processed.

## Newly acquired data:

- Numerous coal samples (well stored), geophysics and coal testing results allow coal resource assessment and then gas resource assessment (due year end 2015).



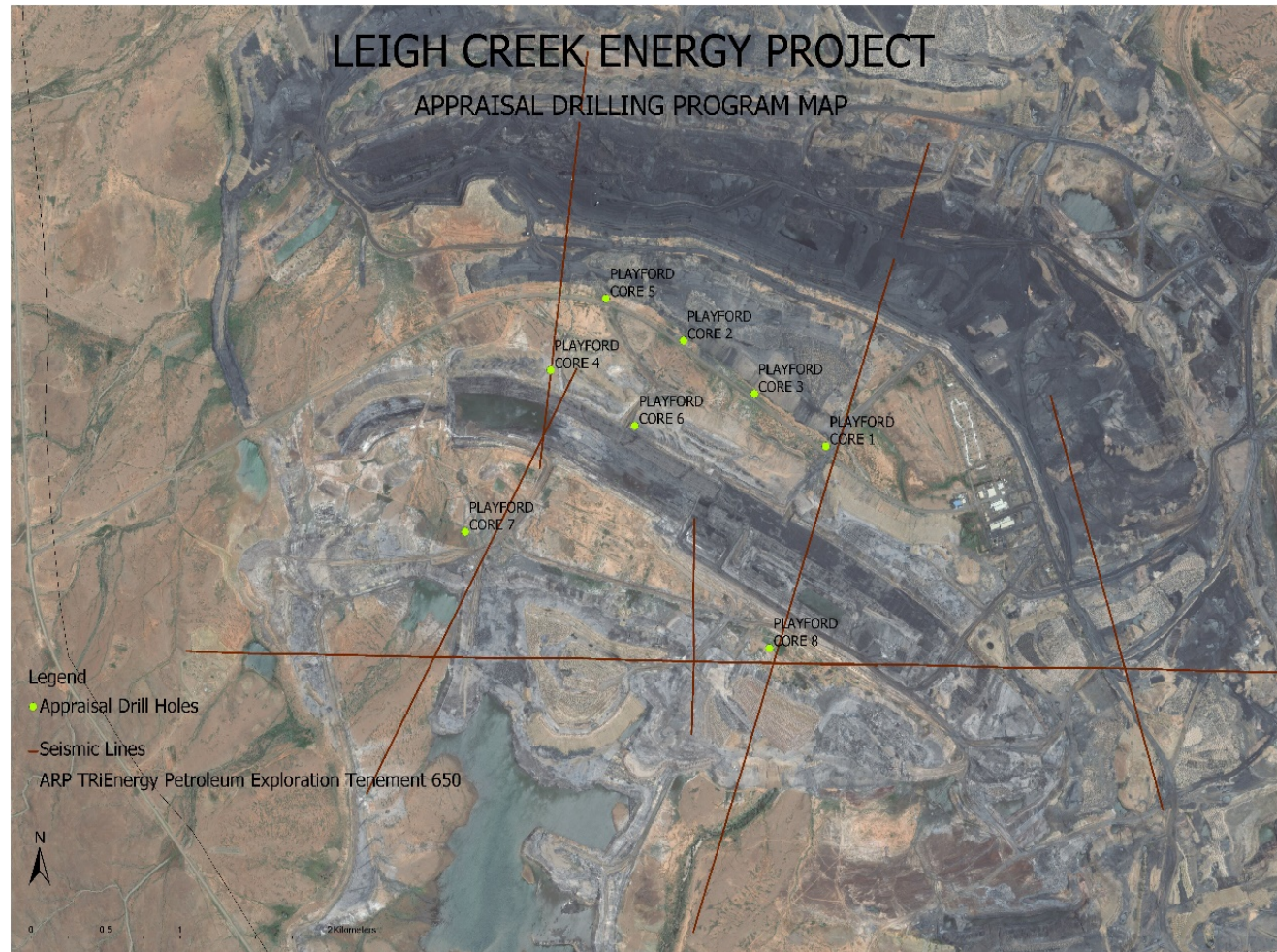
LCEP Reprocessed seismic line LC78B (1978)

# Appraisal Drilling

Old 2D seismic lines have been re-processed (red).

Prior Appraisal drill holes planned (yellow).

These no longer required for resource assessment given new data.





# Stage 1 - Gas Flaring

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## **Outcome:**

- Demonstrates government and community that ISG can be done:
  - ✓ Safely;
  - ✓ Minimal impact on environment.

## **Data obtained allows:**

- ✓ Government to approve Stage 2 Commercial Project;
- ✓ Fine tuning of plant design;
- ✓ Accurate gas production costs.

# Funding

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## Sources:

1. Sale of Treasury Shares (1/3<sup>rd</sup> complete)
2. Early gas monetisation of resources in ground (discussions underway)
3. Equity if needs not provided by gas monetisation
4. Project partner contributions
5. Infrastructure debt
6. Project finance debt

*“We have multiple funding options”.*

## Gas monetisation:

- Common energy project funding
- Eastern Australian gas shortages and high gas prices supportive



# Gas Marketing Underway

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- ✓ CA's signed (confidentiality agreements).
- ✓ Data room open.

Next steps intended:

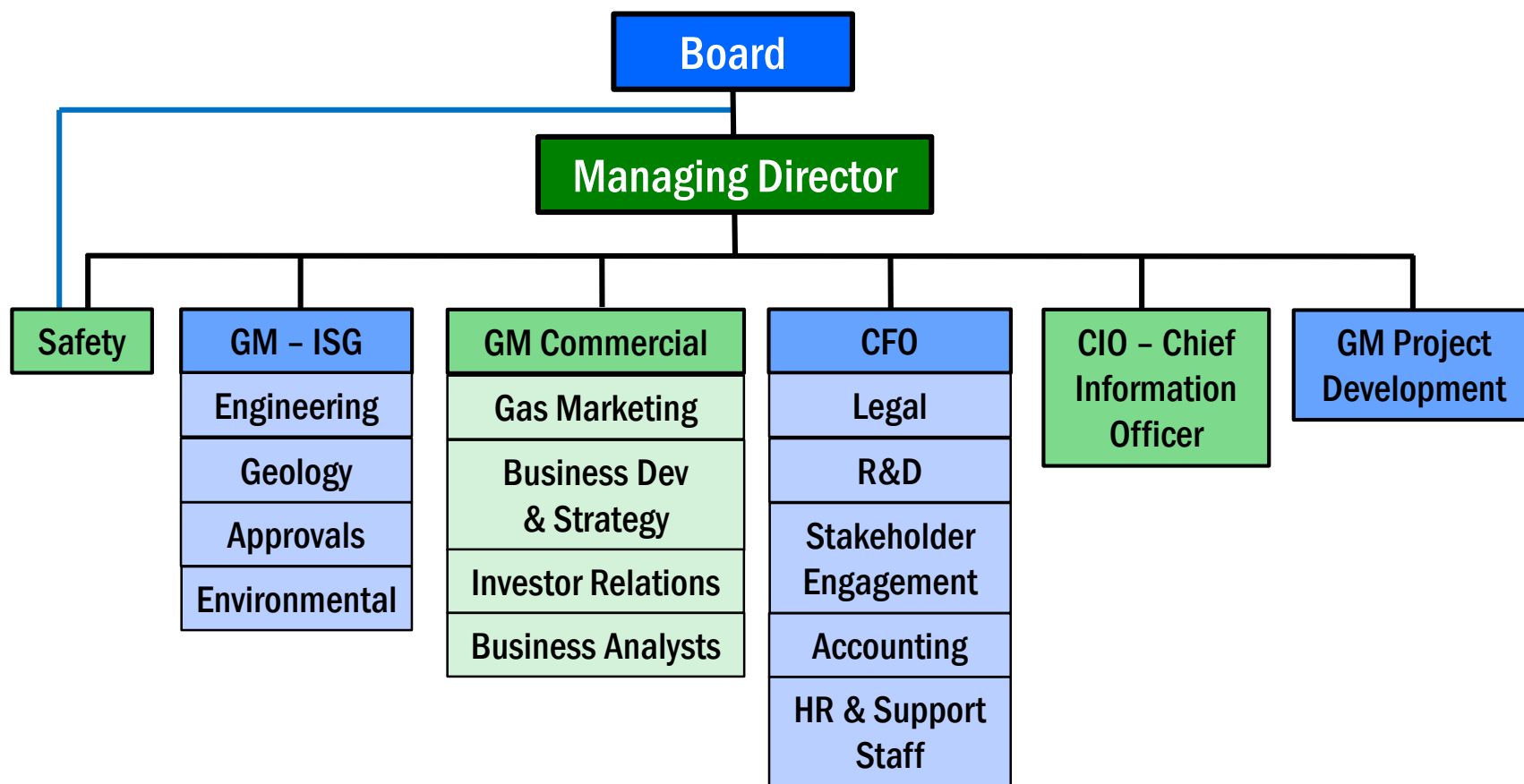
- Pending (expected year end 2015):
  - ✓ JORC 2012 resources,
  - ✓ Gas certification.
- Short listing following non-binding indicative offers.
- Site visits.
- Formal bids.

# Board of Directors & Management

|  |  |
|--|--|
| <b>Justyn Peters,</b><br>Executive Chairman  | Lawyer, former experienced Senior Manager with Linc Energy and Queensland Government and Federal agencies. Representative of ARP.                          |
| <b>David Shearwood,</b><br>Managing Director | Mining engineer, post graduate qualifications in finance & HR. 30 years experience in funds management and investment banking. Representative of ARP.      |
| <b>Greg English, NED</b>                     | Mining Engineer and lawyer, with experience at Leigh Creek and oil and gas contracts.  |
| NED  | Search underway  |
| NED  | Search underway  |
| <b>Justin Haines</b><br>GM Technical         | Mining engineer, Geologist, Project engineer. Formally head of technical with Carbon Energy Limited (CNX), who successfully demonstrated ISG in Australia. |
| <b>Phil Staveley</b><br>CFO                  | CPA. 15 years experience in CFO / CEO positions in Australia and Overseas. Formerly with Schlumberger, Normandy Mining and Centrex Metals.                 |

# Organisation Structure

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Team presently being built and organisational capability being enhanced.

# Investment Thesis

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## ■ Can sell gas in ground

- ✓ Historic CSG sales \$21bn in 2008 for near \$1:00/GJ
- ✓ Appendix 6

## ■ Independent gas resource assessment anticipated by year end 2015

- ✓ Assuming prior 56 MMm<sup>3</sup> converts to 2,000 PJ recoverable, then = \$0:023/GJ (current market cap)

## ■ Fast track to gas production

- ✓ Commercial gas production 2018/19 (assuming no major delays)

# Appendix 1 – Low Liquidity

LCK has a “tight” share register.

## LCK Share Register

| Shareholder                              | #                  | %             | Escrow | Details                 |
|--|--------------------|---------------|--------|-------------------------|
| Allied Resource Partners Pty Ltd (“ARP”) | 104,767,190        | 45.45         | Yes    | 2 years till 4 Jul 2017 |
| Other former ARP TriEnergy shareholders  | 33,544,493         | 14.55         | Yes    | 1 year till 4 Jul 2016  |
| CITIC                                    | 17,242,855         | 7.48          | No     |                         |
| Treasury shares (LCK in LCK)             | 15,000,000         | 6.50          | No     | Sell down Underway      |
| Other                                    | 59,964,934         | 26.02         | No     |                         |
| <b>Total</b>                             | <b>230,519,472</b> | <b>100.00</b> |        |                         |

# Appendix 2 – Corporate Targets

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Objective aim over 3-4 years as follows;

- ✓ Develop company **organisation structures, systems & processes**.
- ✓ **Safety** culture systems developed & maintained.
- 1. Complete **appraisal drilling** campaign.
- 2. Establish and maintain a “**social license**” to operate.
- 3. Complete **early gas sales** contracts (non binding).
- 4. Successfully **complete gas demonstration** (Stage 1) at LCEP.
- 5. Execute **commercial gas sales agreements**.
- 6. Develop **commercial gas operation** (Stage 2) at LCEP.
- 7. Develop **commercial fertiliser operation** (Stage 3) at LCEP.
- 8. Identify and acquire **further ISG related assets** (long term).



# Appendix 3 – Other Tenements

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Held within ARP TriEnergy Pty Ltd  
(100% owned).

## PELA's

- **582** – To NW of Leigh Creek – possible shale gas, possible oil prone in northern section.
- **643** – SE Cooper Basin, possible deep coal on NW flank of basin.
- **644** – West of Lake Torrens and over Olympic Dam.
- **647** – Extends NW of Leigh Creek.
- **649** – West coast of Eyre Peninsula, located over the Poldia Basin.

## ELA's

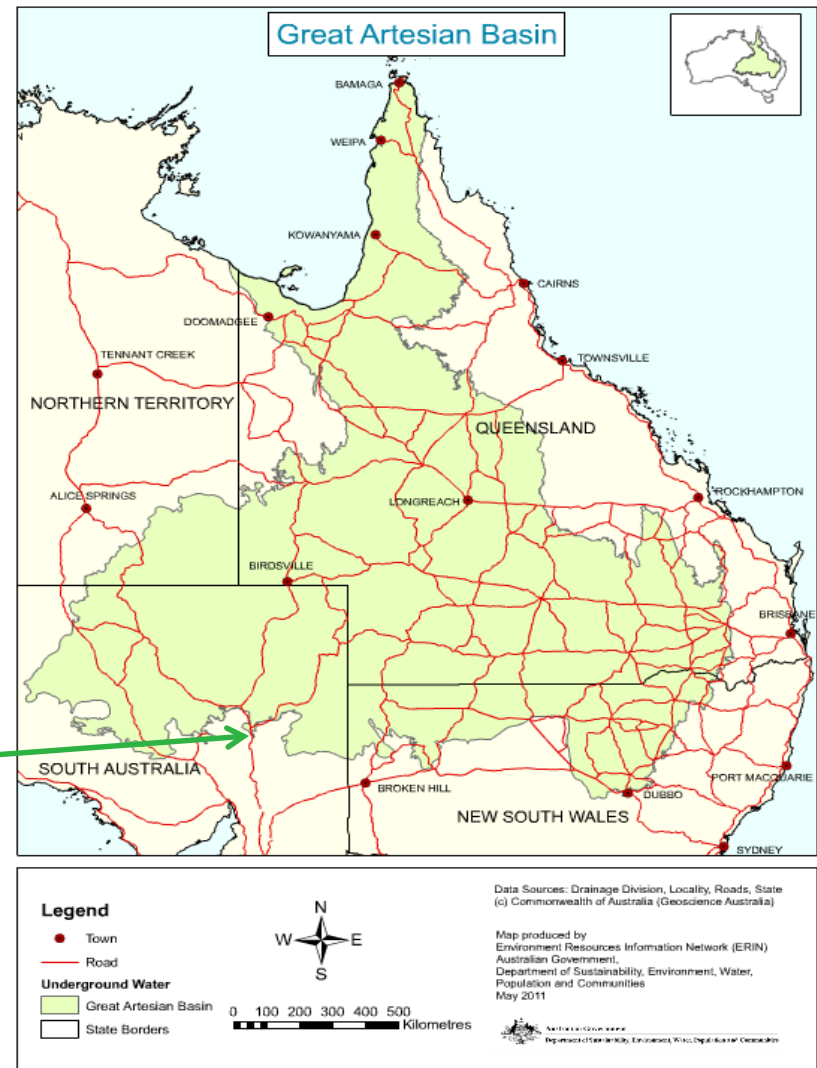
- Nth of Leigh Creek: **EL5596 & EL5597**

# Appendix 4 – LCEP outside GAB

Great Artesian Basin – sub-surface fresh water source that moves from the high-rainfall NE Queensland to the dry SE Central Australia (desert).

- Nationally significant on water & environmental grounds.
- Creates both State & Federal environmental legislative & regulatory interest.
- LCEP located outside the GAB (to the south).
- Sub-surface water at Leigh Creek coal mine is saline.

*\*Source: Australian Government  
– Environmental Resources Information Network (ERIN)*



# Appendix 5 – Supportive Government

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Strong support for ISG in SA

- Specifically contemplated & supported by Petroleum & Geothermal Energy Act.
- December 2012 Unconventional Gas Policy:

*“... issue can be mitigated through careful project design, site selection and monitoring.” “ISG has enormous potential for harnessing the energy of coal resources that would otherwise be too expensive or difficult to reach.”*

Department (DSD) policy & collaborative culture moves projects from exploration to production:

- Well organised administration,
- One-Stop-Shop service,
- Inter-departmental agreements with referral agreements, and
- **Designated response times.**

*PGE Act* allows incremental approvals & progress.

# Appendix 6 – Gas In Ground Sales

## Previous Gas in Ground Sales

| Buyer                           | Seller  | Date   | Interest % | Price A\$m | Reserve 3P PJ | Price Paid 3P A\$/GJ | Notes                                   |
|---------------------------------|---------|--------|------------|------------|---------------|----------------------|---|
| AGL                             | AJL/MPO | Dec-08 | 70/30      | 370        | 380           | 0.97                 | AJL = AJ Lucas<br>MPO = Molopo          |
| AGL                             | SGL     | Dec-08 | 100        | 171        | 54            | 3.17                 | SGL = Sydney Gas                        |
| AOE                             | PES     | Dec-08 | 100        | 673        | 1,241         | 0.54                 | AOE = Arrow Energy<br>PES = Pure Energy |
| Conoco Phillips                 | ORG     | Sep-08 | 50         | 6,000      | 5,069         | 1.18                 | ORG = Origin Energy                     |
| Petronas                        | STO     | May-08 | 40         | 2,114      | 1,600         | 1.32                 | STO = Santos                            |
| QGS                             | SHG     | Aug-08 | 100        | 811        | 1,097         | 0.74                 | QGS = Qld Gas<br>SHG = Sunshine Gas     |
| Shell                           | AOE     | Jun-08 | 30         | 644        | 938           | 0.69                 |   |
| Weighted Avg. Price Paid A\$/GJ |         |        |            |            |               | 1.04                 |   |

# Appendix 7 – Fiscal Inputs

Key fiscal inputs are as tabled.

## LCK Fiscal Inputs

| Inputs                         | Unit  | #    | Notes   |
|--------------------------------|-------|------|---|
| Corporate Tax Rate             | %     | 30   | Australian Federal Government   |
| State Royalty<br>– South Aust. | %     | 10   | Well head value less certain costs – likely to end up closer to 5%  |
| TriE Royalty (Founders)        | \$/GJ | 0:30 | Real \$ gas price 31 Dec 2014 basis or 3% whichever is greater, or \$0:15 real 31 Dec 2014 if gas price < \$6/GJ. |



# Appendix 8 – Prior LCEP ISG work

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## Study 1985 Golder Associates - Results favourable for ISG

- “..**confirmed the thickness and continuity of the Main Series coal** seam, ..., with good agreement achieved between seismic and drill hole data.”
- “...results suggest that both **groundwater inflow and groundwater drawdown will be acceptable.**”
- “..**roof rock was considered to be of sufficient strength to provide controlled caving** without suppressing” the ISG process.
- Major **faults can be avoided**. Minor faults “should therefore have little effect on the continuity of the gasification process.”
- “...**good correlation exists between the boreholes and seismic traverse.**”
- “...**substantial additional evidence of the suitability of the Main Series coal seam for gasification.**”
- “The obvious possibility involves **recovery from the Main and Lower Series over the full seam length.**”
- “Based on a very preliminary assessment of deep seismic survey data, **the Main Series seam down dip of the area proposed for gasification appears to maintain its thickness and continuity.**”

# Appendix 9 - Gas Shortage (Aust)

- Eastern Aust. gas demand trebles with 3 new LNG plants in Qld.
- New LNG plants secured most existing gas resource 80+% non-conventional.
- Current Aust. gas users are short gas, e.g. AGL.
- Gas production cost to rise from historical \$2-3/GJ to long term marginal cost of \$6-8/GJ.
- **Gas shortage remains even after LCEP is in full production.**
- At present there is no gas available to feed expansion of Qld LNG.

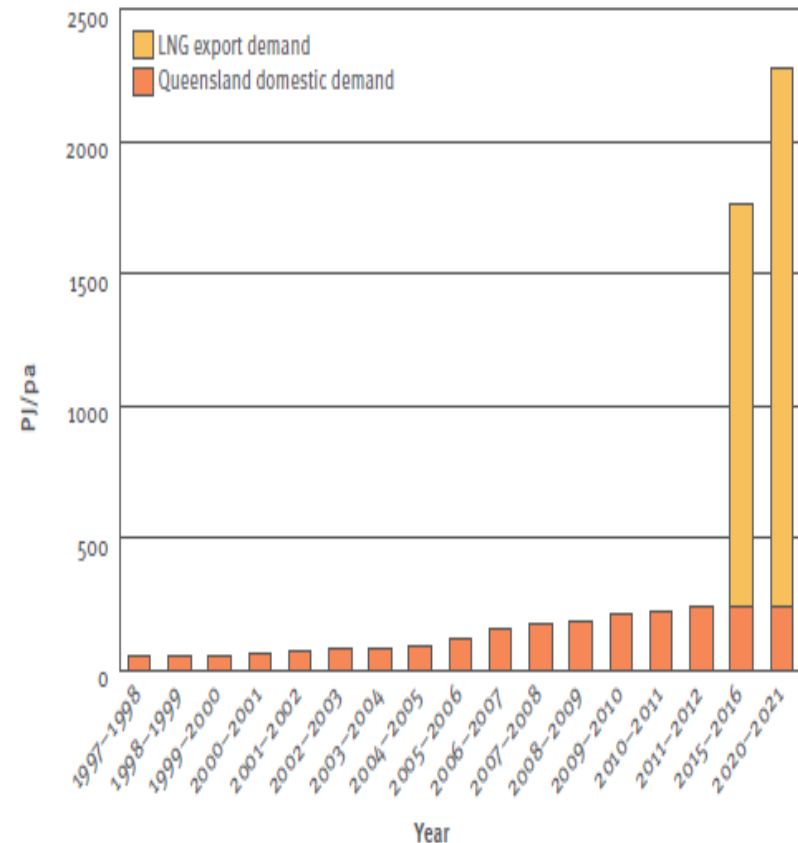
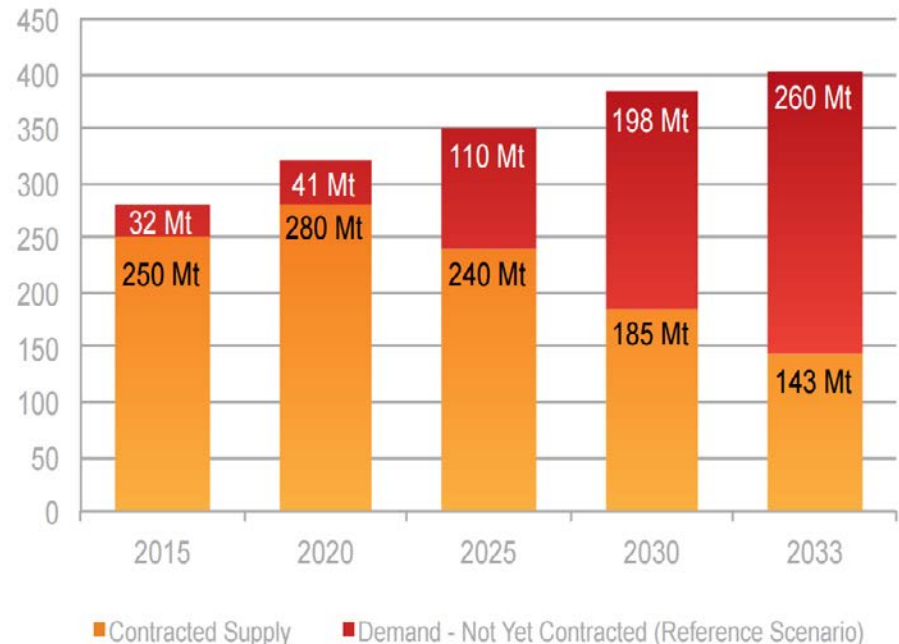


Figure 1 Queensland domestic gas demand and projected gas demand for LNG exports  
*Forecast Qld gas demand*

# Gas Shortage Globally (Long Term)

- Global LNG supply presently influenced by large # of new projects starting.
  - 7 in Australia!
- Spot LNG price falling and low.
- Over time gas demand keeps rising;
  - Population growth,
  - Rising GDP, and
  - Move to cleaner energy.
- New LNG plants required.
- LNG shortage estimated at 260mtpa by 2033.
- **Global Gas shortage looming long term.**

Global LNG Demand versus Contracted LNG Supply



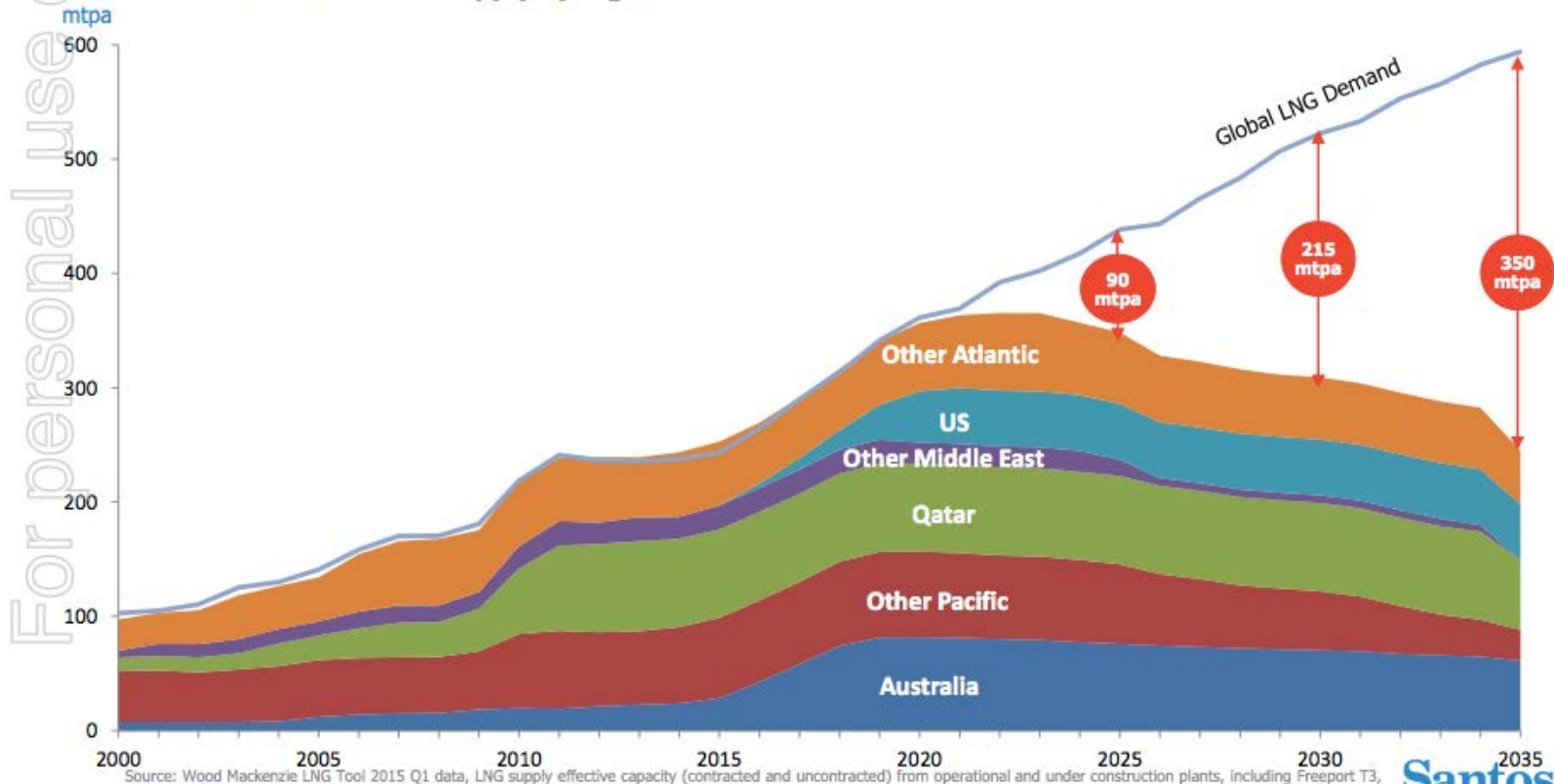
\*Source: Core Energy

# Global LNG Demand & Supply Outlook

## Global LNG demand and supply outlook

A gap between LNG supply and demand continues to widen into the next decade

### Global LNG demand vs. LNG supply by region



10 | MACQUARIE AUSTRALIA CONFERENCE - MAY 2015

Source: Santos; Macquarie Australia Conference, slide 10.

**Santos**  
We have the energy.

# Gas Price in Eastern Australia

- Recent wholesale gas sales prices estimated at \$7/GJ (pre-pipeline charge).
- Contracted gas supply developed ahead of LNG project start-up.
- As gas supply capability rises it causes short term over supply – “ramp up gas”.
- We use \$8/GJ for internal forecasts vs medium estimate of \$10/GJ.

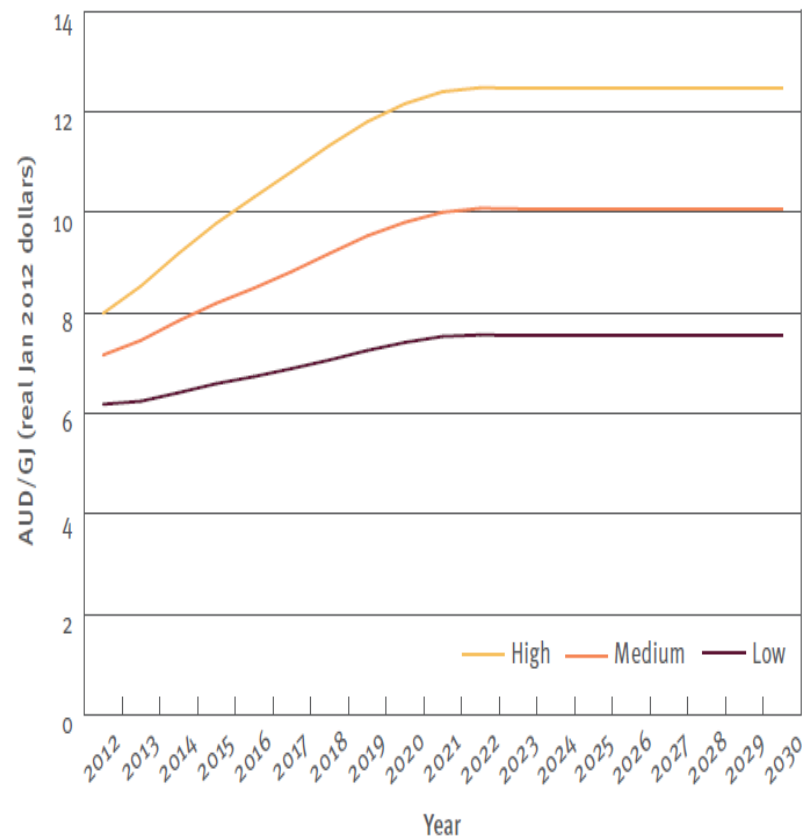
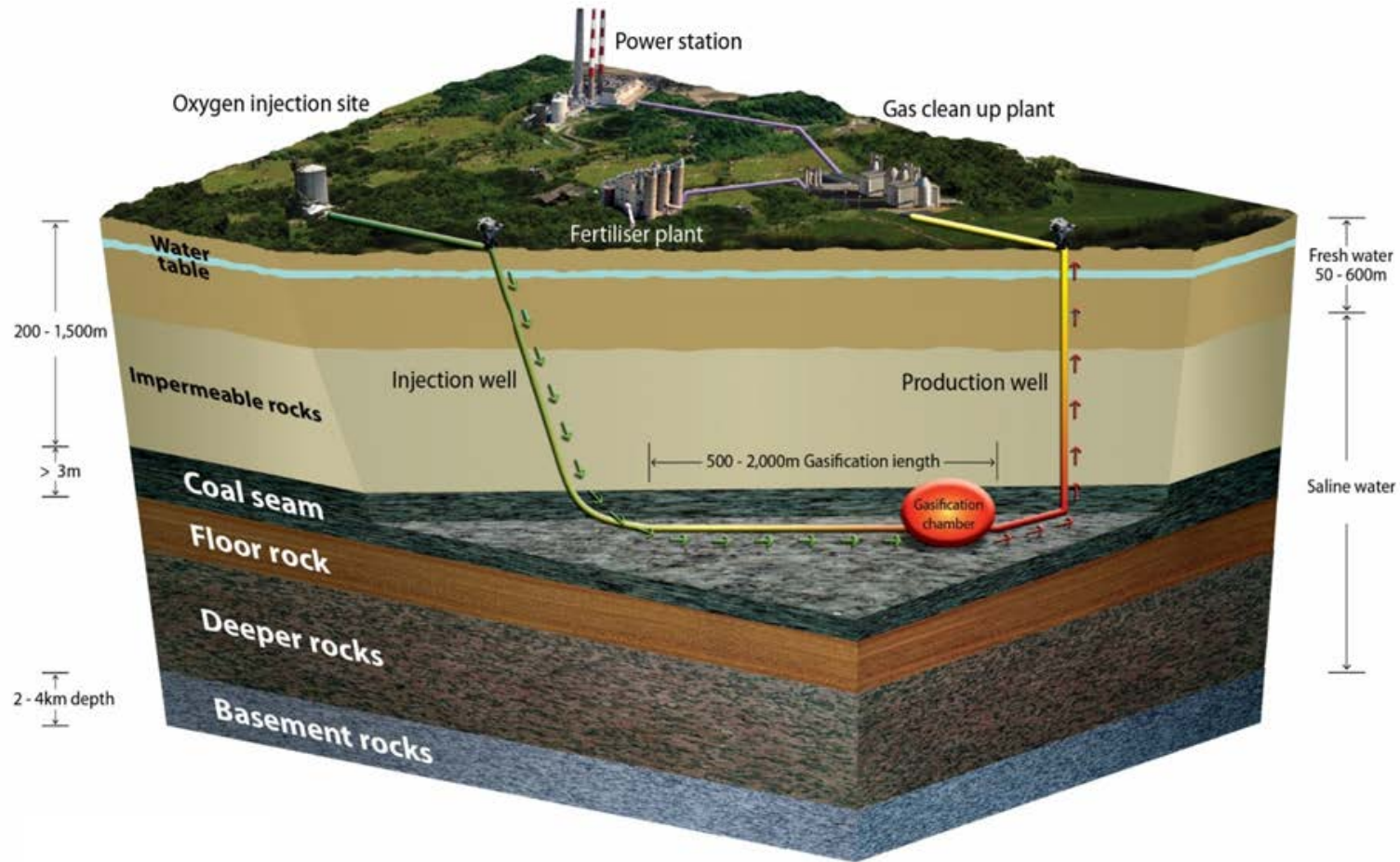


Figure 3 Range of Queensland long-term ex-field gas contract price outcomes (\$/GJ)



# Appendix 10 - ISG – InSitu Gasification



# ISG Panel

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A single ISG Panel consists of:

- A vertical production well (drill hole);
- A vertical then curved to horizontal injection well;
- Well heads on surface (injection and production) with valves.

Coal extracted is simplistically a rectangular prism (so #'s below overstate extraction) at depths of 200 – 1,000m.

Each panel will last 2-5 years depending on length and rate of extraction.

| Simplistic ISG Panel |            |                |                                  |                     |                     |                |              |
|----------------------|------------|----------------|----------------------------------|---------------------|---------------------|----------------|--------------|
| Length<br>m          | Width<br>m | Thickness<br>m | Volume<br>million m <sup>3</sup> | Specific<br>Gravity | Tonnes<br>Million t | Energy<br>GJ/t | Energy<br>PJ |
| 1,000                | 50         | 18             | 0.9                              | 1.4                 | 1.26                | 14             | 17.64        |
| 1,500                | 50         | 18             | 1.35                             | 1.4                 | 1.89                | 14             | 26.46        |
| 2,000                | 50         | 18             | 1.8                              | 1.4                 | 2.52                | 14             | 35.28        |

# ISG is Real

- Commercial Operation:
  - Angren, Uzbekistan – 60 years of operation.
  - Eskom, Majuba South Africa – co-firing power station with syngas.
- Australian experience:
  - LNC – demonstration facility, 11 years.
  - Carbon Energy – demonstration facility, 5 years.
- Swan Hills, Canada:
  - Demonstration facility.
  - Deep ISG in salt water, 1,200 meters.
  - Utilising standard oil-field equipment.



*Swan Hills ISG Project*

***Conclusions from the partially government funded Swan Hills ISG trials (Canada)***

***“There is no scale-up required to move into commercial project development”***

***“Planned future developments of ISG will involve simple replication”***

***“Ready for replication based deployment in commercial project developments”***