

Leigh Creek Energy Project

Right Time
Right Place
Right Market

MAY 2020

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Gas Resources Compliance Statement

The PRMS resources estimates stated herein are based on, and fairly represent, information and supporting documentation prepared by Timothy Hower of MHA Petroleum Consulting, Denver USA. Mr. Hower is a member of the Society of Petroleum Engineers and has consented to the use of the Resource estimates and supporting information contained herein in the form and context in which it appears. All estimates are based on the deterministic method for estimation of petroleum resources.

Mineral Resource Compliance Statement

Estimates of Mineral Resources reported in this announcement are based on the latest information and data available. The recently updated Geological Model and JORC Resource Estimation report, prepared by Warwick Smyth and Lynne Banwell of GeoConsult Pty Ltd during March 2019 was used in this latest PRMS estimation. A copy of the GeoConsult report on the updated Geological Model and JORC Resource Estimation is available to view at www.lcke.com.au.

LCK is not aware of any new information or data that materially affects this information and all the material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

Table of Contents

1. Overview

- i. Corporate
- ii. Team
- iii. Technology
- iv. Site

2. Project

- i. Pre-Commercial Demonstration
- ii. 2P Reserve
- iii. Pathway to commercial
- iv. Diversification of portfolio

3. Fertiliser

- i. Low cost of production
- ii. Market
- iii. Infrastructure

4. Hydrogen

5. Summary





Leigh Creek Energy Ltd

ASX: LCK

Investment Highlights

- 100% owner operator of Leigh Creek Energy Project (LCEP)
- 550km north of Adelaide, South Australia
- ISG (In-Situ Gasification) process
- Ideal site: geology, hydrogeology, arid environment
- Infrastructure
- Successful Demonstration project
- PRMS Reserve 2P 1,153PJ
- Commercial phase commenced
- Hydrogen optionality
- Diversified asset portfolio
- Undervalued small cap with significant growth potential

*LCEP is Australia's largest uncontracted
2P gas reserve serving the East Coast
market*



2P Reserve
(JORC + Production Test)
from 31% of LCK coal

Leigh Creek Energy (ASX: LCK)

Reserves (PJ)

2P	3P
1,153	1,608

Resources (PJ)

2C	3C
1,469	2,127

ISG PROCESS

Proven process.
Converts stranded
underground coal to
syngas, containing
hydrogen, methane,
carbon monoxide, other
gases and condensate

SYNGAS

Processed into hydrogen to
ammonia and/or urea

RESERVES

Larger 2P reserve than the
Otway, Bass, Gunnedah,
Clarence-Moreton, Sydney
and Galilee Basins
combined⁽¹⁾

INFRASTRUCTURE

Power, road, rail, airport,
suitable geology, and fair
and diligent regulatory
process

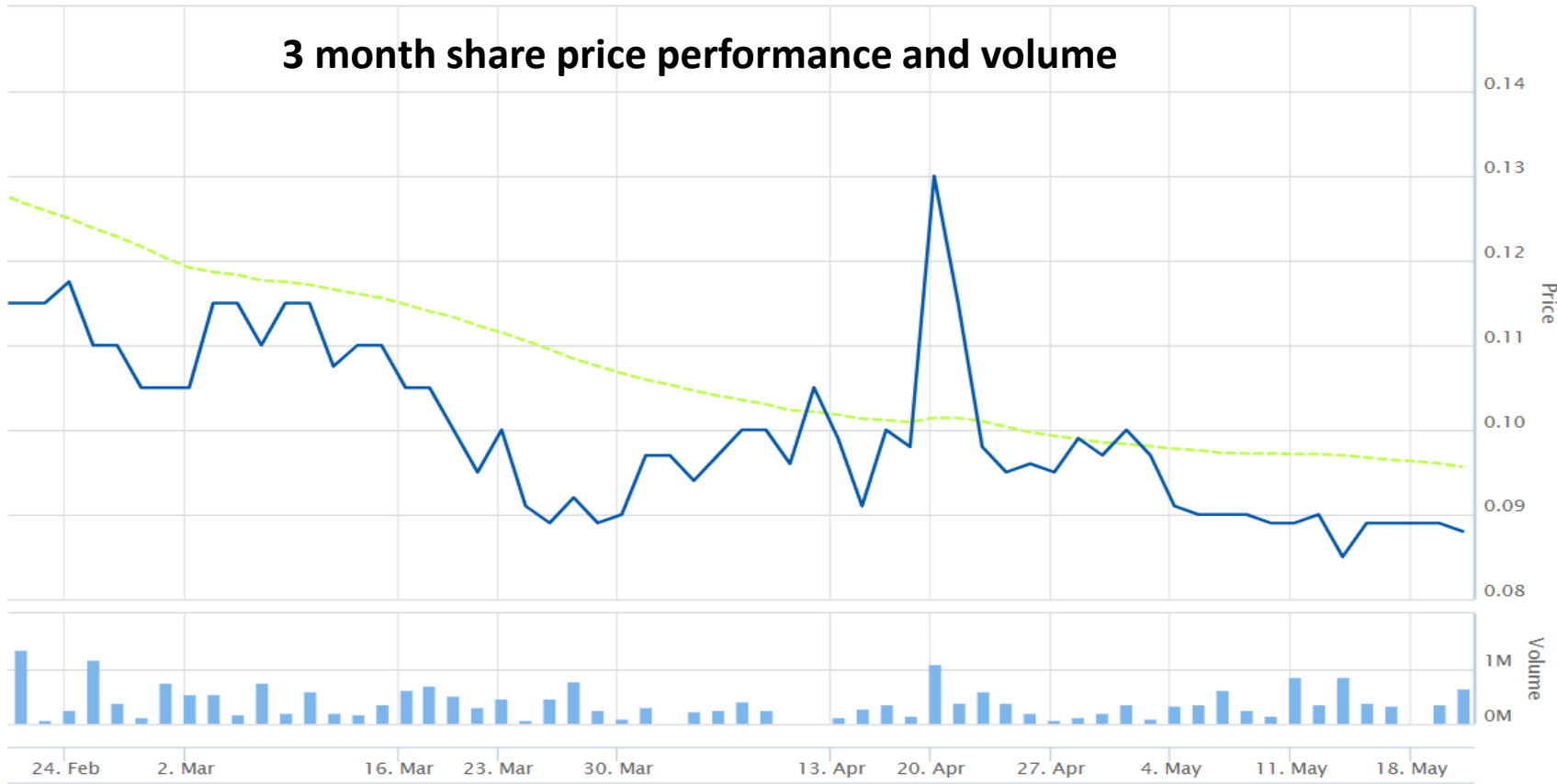
(1) Australian Competition & Consumer Commission
analysis of data obtained from gas producers

Corporate Snapshot

Capital Structure	
ASX Code	LCK
Share Price ¹	A\$0.088 per share
Shares Outstanding	580.3 million shares
Market Cap	A\$51.6 million
Cash ²	A\$3.8 million
Enterprise Value	A\$47.8 million

1. As at 18 May 2020
2. As at 31 March 2020

Top Shareholders ¹	# of Shares	% of Total
China New Energy Group	136.3m	23.5
Crown Ascent Development	29.5m	5.1
Bart Properties Pty Ltd	19.9m	3.4
Citicorp Nominees Pty Ltd	16.3m	3.2
Rubi Holdings	13.5m	2.3
Total shares on issue	580.3m	



Recent Milestones	
Binding Term Sheet for Joint Venture for ISG in China	20 April 2020
Environmental Approval for further drilling	3 April 2020
Farm-in for Cooper and Eromanga Basin tenements	12 February 2020
Concept study report confirms low cost, disruptive technology in fertiliser production	10 September 2019
1,153PJ 2P PRMS certification	27 March 2019



EXECUTIVE CHAIRMAN

Justyn Peters, LLB, LP, BA.

Qualified lawyer with over 30 years' experience, worked across many industries, with extensive experience in the ISG industry in executive management positions.



MANAGING DIRECTOR

Phil Staveley, CPA, BA (Acc) (Hons), Dipl Btr AICD

Qualified accountant with over 30 years' experience internationally and locally in the resources sector in executive management positions.



GENERAL MANAGER, PEOPLE & SUSTAINABILITY

Noreen Byrne, BSc Geol, Msc Mgt, Dip ESG

Over 20 years' experience across several industries including mining, defence, health, media and information technology.



CHIEF FINANCIAL OFFICER

Noel Witcher, CA, BCom, Grad Cert HRM

Over 15 years' experience in financial management across the resources sector, along with state and local government.



GENERAL MANAGER, OPERATIONS

Cristian Bolda, BScEng, PMI, MEIAust

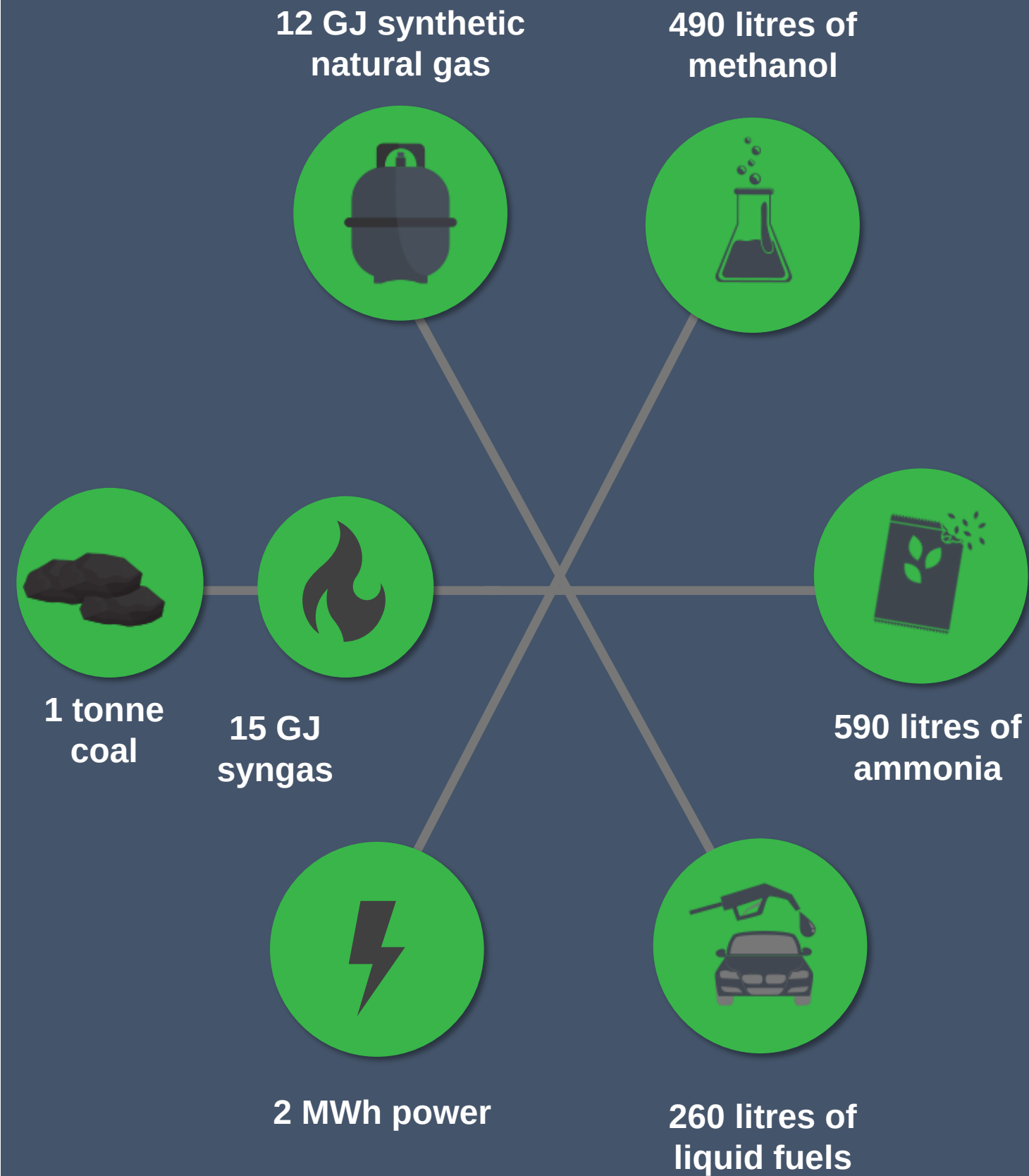
Over 20 years' experience with the resources, energy and power projects with Chevron, Origin, ConocoPhillips, Petrofac/ZADCO, OMV/Petrom, Rompetrol/KazMunayGas.



GENERAL MANAGER, COMMERCIAL

Richard Peasgood, MBA, MCIPS

Over 25 years' experience predominantly in the Oil & Gas sector in senior supply chain roles internationally and locally.

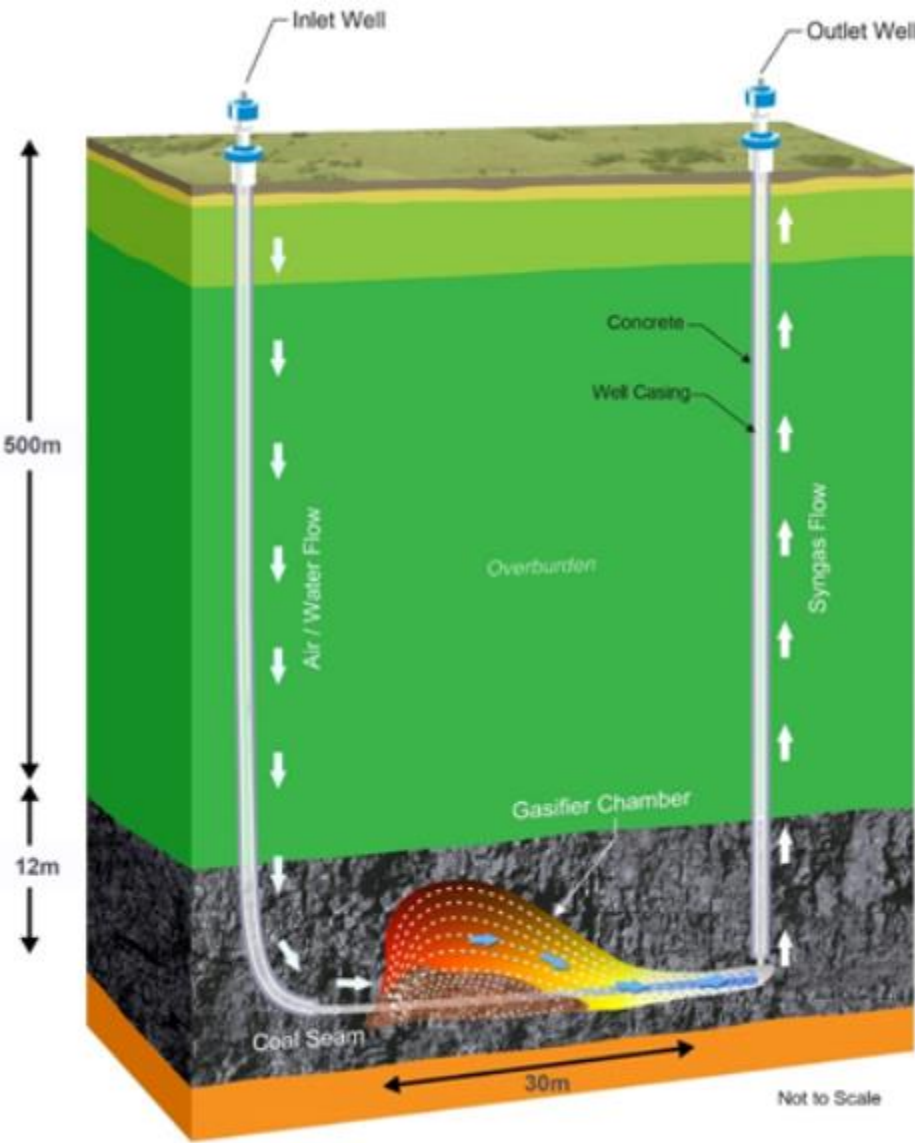


ISG TECHNOLOGY

- The LCEP utilises In-Situ Gasification (“ISG”) processes at the Leigh Creek Coalfield to develop the deep coal resources that are unable to be accessed through open-pit mining
- The ISG process converts solid-state underground coal to Syngas, which contains hydrogen (high concentrations), methane, and carbon monoxide
- Standard oilfield equipment is used

Syngas can be processed for conversion into:

- Pipeline quality gas
- Agricultural and petrochemical products
- Hydrogen



“Best site in the world ...”



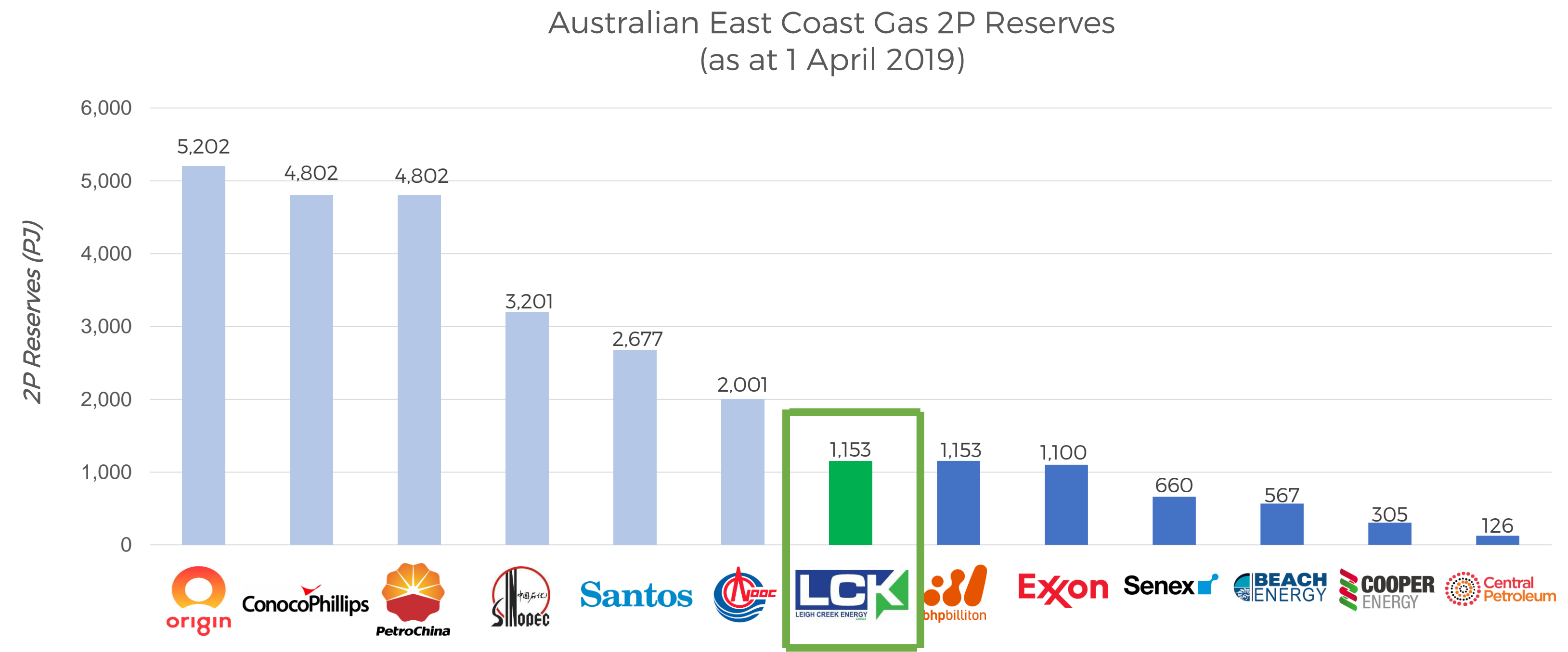
- Coal ideal for ISG - low risk of subsidence, fugitive surface gas and groundwater impact
- Remote and arid location
- Existing brownfield site
- Outside Great Artesian Basin (GAB)
- Infrastructure:
 - townships, power, communications
 - roads, rail, commercial airport
- Minimal and manageable land use conflict

PCD design objectives met

- ✓ Produce syngas comprising methane, hydrogen, carbon monoxide and other gases
- ✓ Produce syngas at over 1 million cubic feet per day
- ✓ Capture information required to upgrade the existing SPE-PRMS of 2,964 PJ 2C resource to 2P reserve
- ✓ Demonstrate that In-Situ Gasification (ISG) was operated safely and in an environmentally responsible manner
- ✓ Provide key data and information for the development of the commercial project



Australia's largest, uncontracted 2P gas reserve

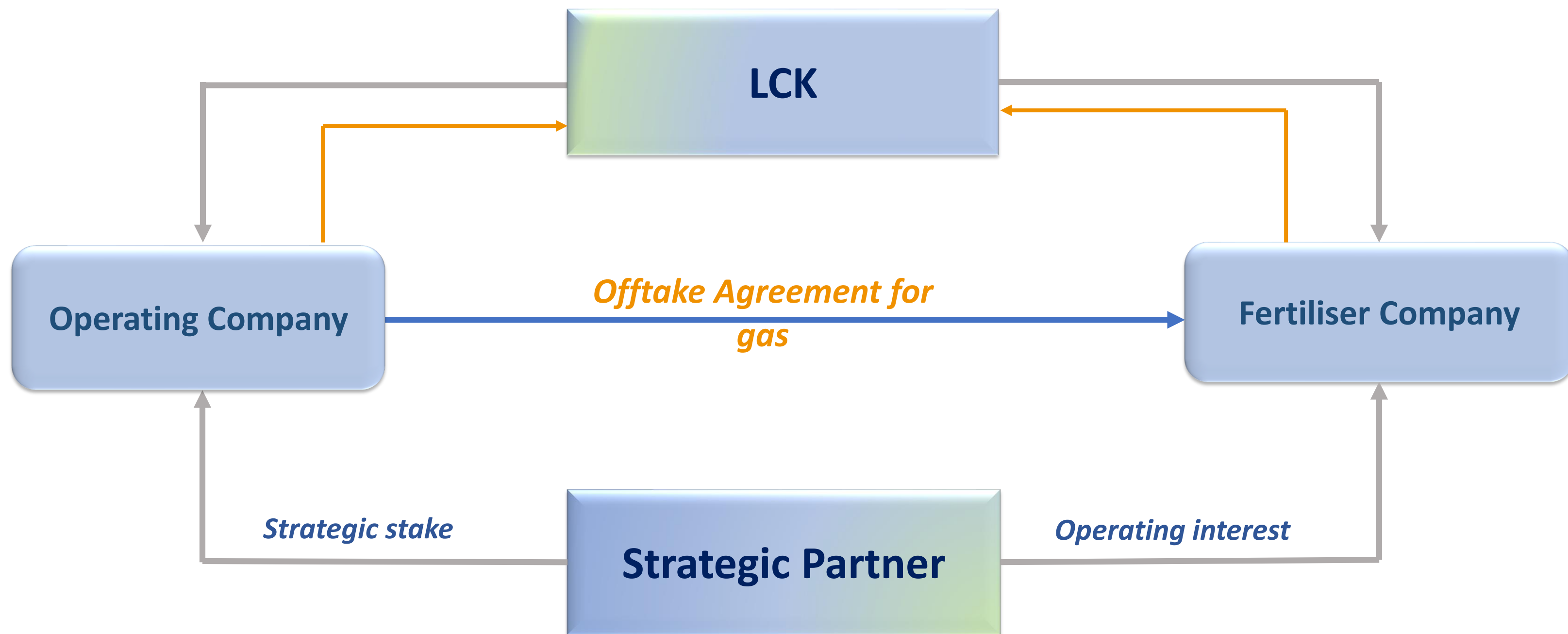


Source: Leigh Creek Energy Limited

Pathway to Commercial



Funding pathway progressing



LCK earns income from Operating Company and Fertiliser Company

International interest

1. Joint Venture with China New Energy (LCK major shareholder)

- Binding Term Sheet signed
- JV in final stage negotiation
- ISG operations in China
 - CNE - funding, access to coal and knowledge and familiarity with the Chinese regulatory system
 - LCK - ISG knowledge and expertise
- LCK remuneration
 - Cost-plus basis initially
 - Success-based payment, ongoing interest in the project

2. Indonesian Joint Venture

- Interest from major Indonesian companies
- On hold due to COVID-19

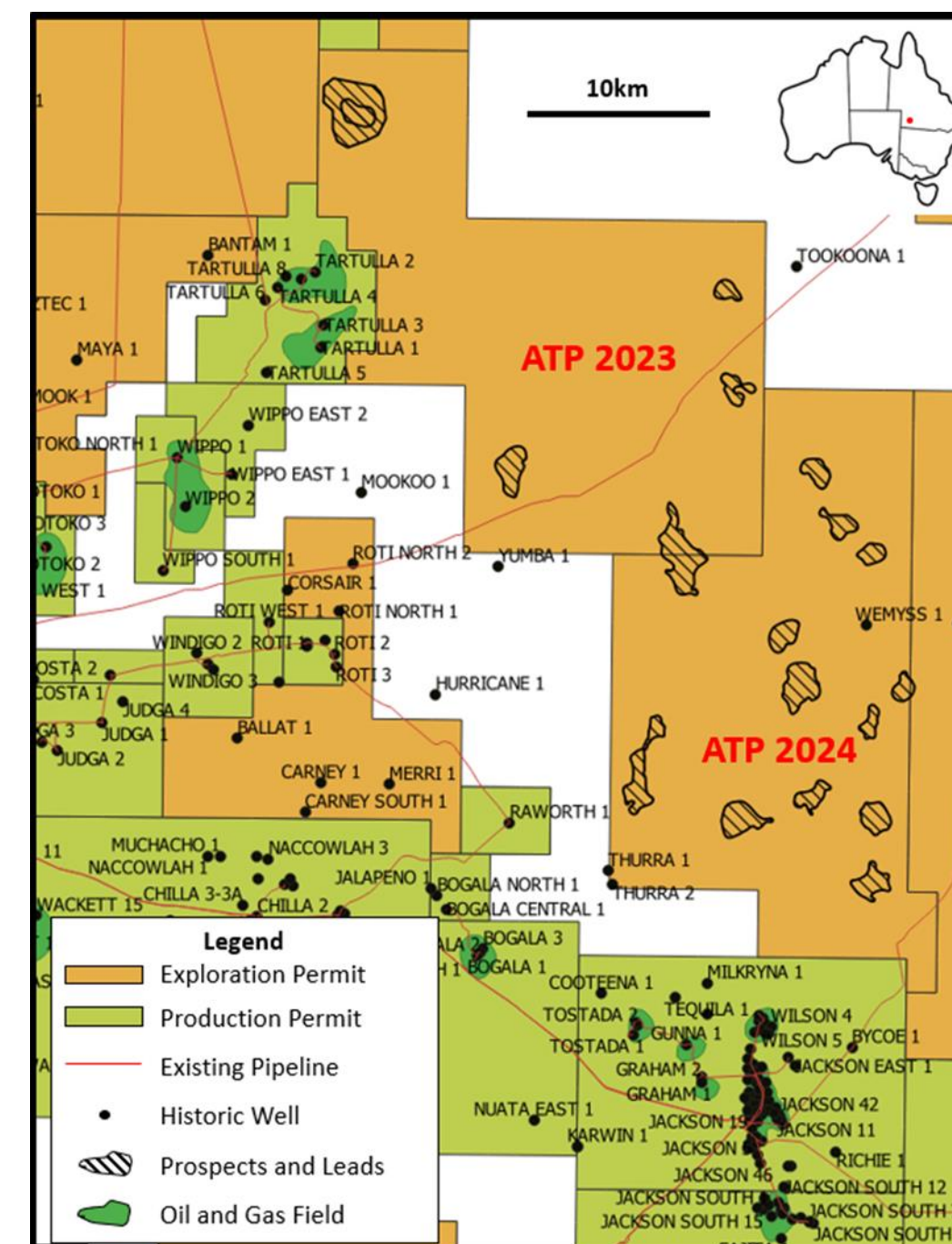
3. Shanghai Energy Exchange - admission in progress



Asset portfolio diversified – Bridgeport Farm-In

- Option for 20% participating interest of Authority to Prospect (ATP) 2023 and ATP 2024
- Bridgeport operated asset
- Under-explored, highly prospective oil and gas permits in the Cooper and Eromanga Basins
- Low cost operator in Bridgeport Energy (QLD) Pty Limited (a wholly-owned subsidiary of New Hope Group)
- Seismic and drilling activities in FY2021/22

Cooper and Eromanga Basins



Fertiliser market

Fertiliser market: 8 billion people rely on it!

Global demand rising

- 170 mtpa and rising
- Forecast urea prices rising (see chart)

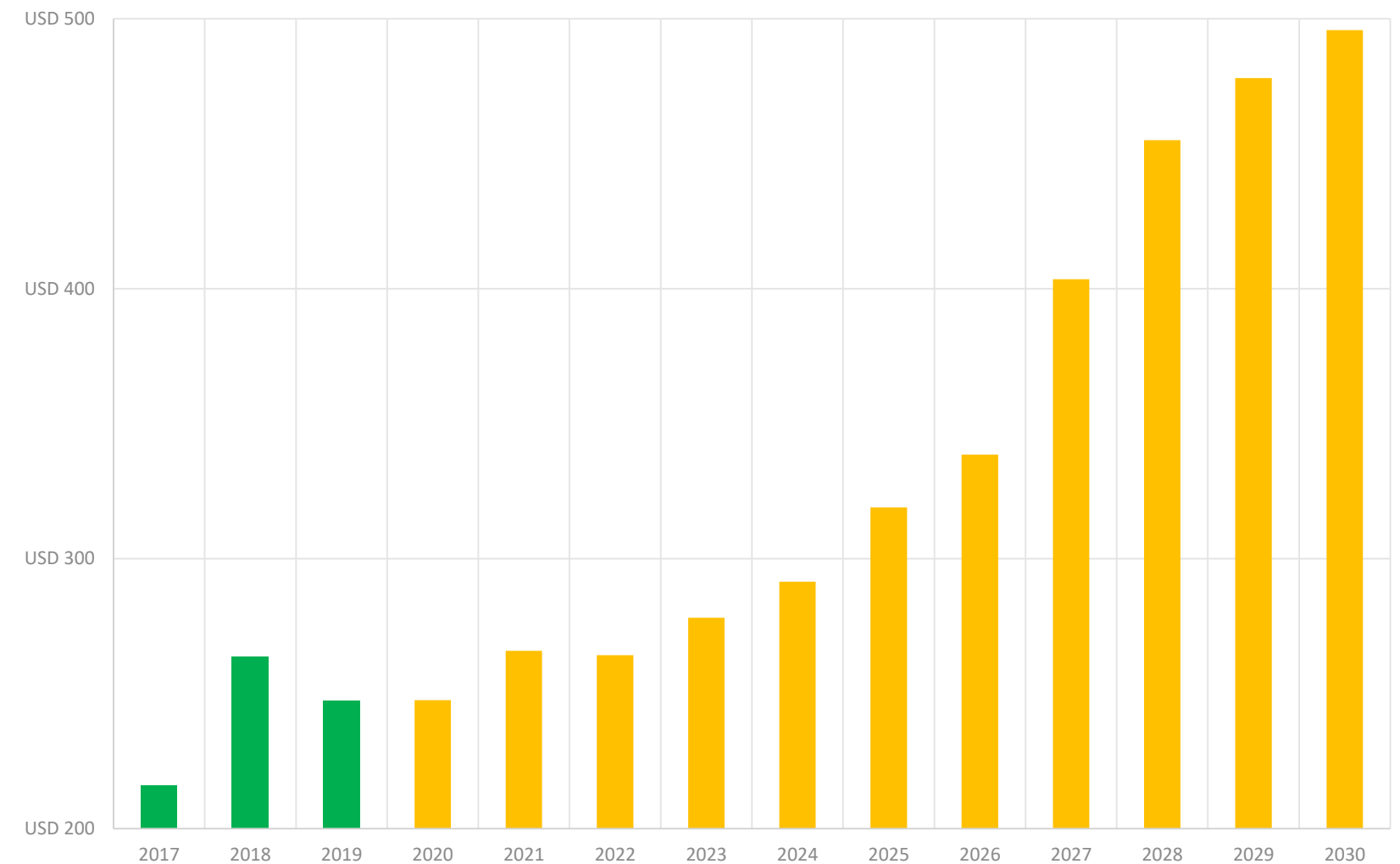
Australian demand

- Fertiliser volumes ~2+mtpa
- Imports circa 90% of fertiliser products
- Urea demand 1.2mtpa (~300ktpa produced domestically)

LCK

- Up to 2mtpa from LCEP
- Production costs at bottom of cost curve

Urea Forecast (Middle East FOB Granular)



Source: CRU

LCK: Fertiliser is the main game

1. Urea is fertiliser; Fertiliser is food; Food security is the ultimate macro trend
2. At the bottom of the global cost curve
3. Urea production consumes CO₂ – Reducing CO₂ footprint is one of the necessities for corporate sustainability
4. Produce syngas at \$1/GJ
5. Production cost <\$100/tonne ⁽¹⁾
6. Annual gross operating margin ⁽¹⁾ of \$700 m
7. IRR 30% ⁽²⁾

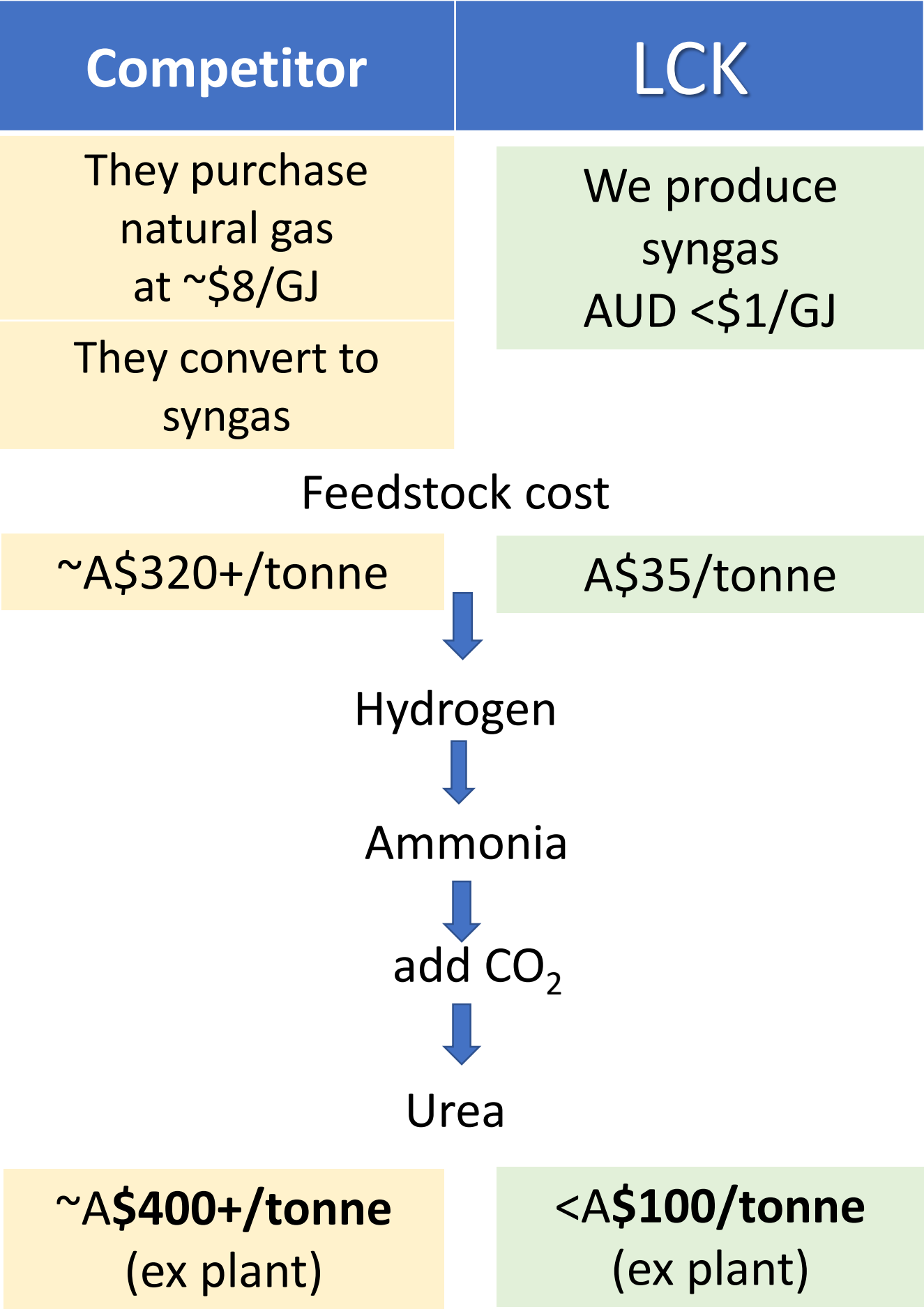
(1) Based on thyssenkrupp Report 2018 for 2mtpa of urea

(2) Leveraged IRR based thyssenkrupp Report for 2mtpa of urea



Simpler, cheaper urea production

LCK can produce world scale quantities of Australian made urea at bottom of global cost curve



- LCK has:**
- Stable supply of gas input for life of project
 - Stable cost of gas input for life of project
 - Immunity from global gas market fluctuations
 - Immunity from global trade restrictions / issues

Hydrogen economy (the Hero fuel)

1. Market for hydrogen is emerging and strongly supported by all levels of government
2. COAG Energy Council, November 2019: Emissions targets, energy security, jobs, economic development, de-carbonising energy hungry industry sectors
3. Clean Energy Finance Corporation \$300m Advancing Hydrogen Fund
 - “support ... clean, innovative, safe and competitive Australian hydrogen industry”
 - Projects: advance hydrogen production, develop export and domestic supply chains and infrastructure, hydrogen hubs and building domestic demand
 - Fossil fuel to hydrogen specifically focused



Angus Taylor, Federal Energy Minister

“... gas has even more potential as a resource to produce and transmit hydrogen.” (national media, 6 July 2020)



“... making more fertiliser was a “cracking opportunity” for Australia (to) achieve the government’s goal of growing agriculture to a \$100 billion-a-year industry by 2030. ... I like to think of the other side of COVID-19 as being a gas-fired recovery ... ”

Alan Finkel, Australia’s Chief Scientist

“... hydrogen could be Australia’s “hero” fuel source ...”

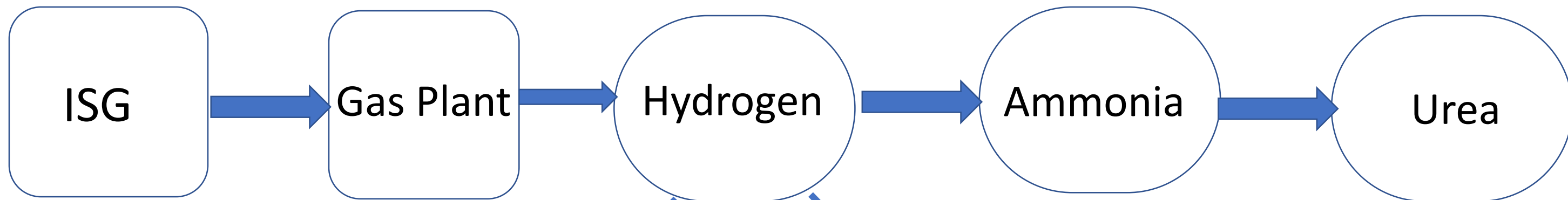
“By producing hydrogen from natural gas ... ” (National Press Club, 12 Feb 20)

“gas-fired hydrogen could reduce the risk associated with total reliance on renewable energy (national media, 6 May 2020)



LCK Hydrogen Option

Hydrogen is a pathway gas for LCK's fertiliser production



Based on LCK Report by thyssenkrupp, 2018

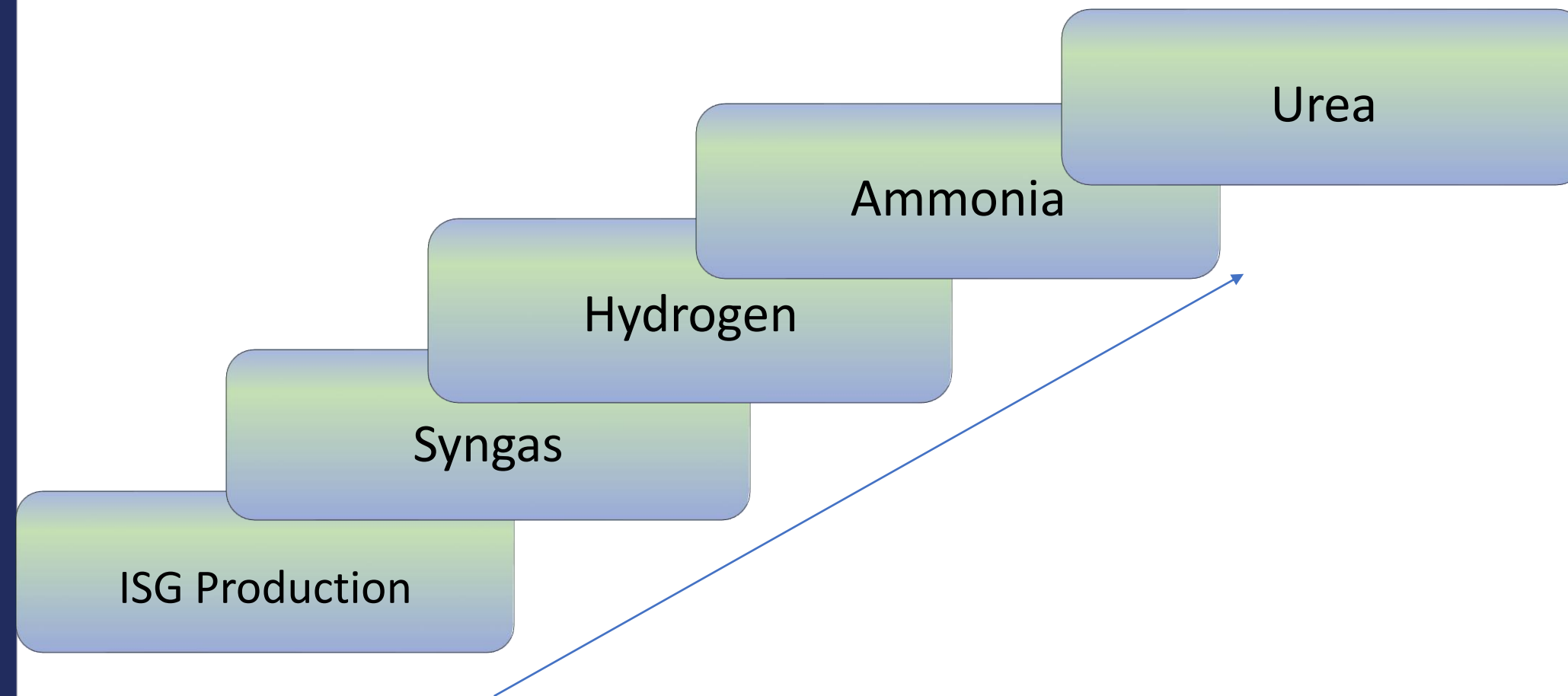
Hydrogen now:

- \$105B international market
- 6-8% growth pa
- Mostly industrial and niche markets
- Zero emissions fuel

Why is hydrogen attractive to LCK now?

- Interim product in producing fertiliser i.e. costs nothing for the optionality
- 200,000,000 kg/a at less than \$1/kg
- Reduced capital expenditure, lower operating cost
- Potential for grant funding
- Option to include hydrogen production into engineering design

Carbon Neutral by 2030



Syngas + Hydrogen/Ammonia – Urea – Carbon Capture & Storage (CCS) = Carbon Neutrality

Urea production requires 0.73t CO₂ to produce 1t of urea(1)

(1) Based on thyssenkrupp report 2018

LCK will reduce the remainder of the CO₂ through

- ✓ Revegetation
- ✓ Renewables (pumped hydro, thermal power, solar, etc)
- ✓ Capture the CO₂ and store it underground (Geosequestration)

Significantly reduces LCK's carbon footprint



Headlines – The Top Ten

1. 1,153PJ 2P Gas – huge – from 31% of LCK coal
2. 30+ year project
3. ‘Best in the World’ Site – suitable geology, infrastructure in place
4. Successful demonstration completed
5. Full cycle fertiliser producer; disruptive on cost
6. Clearly defined pathway to commercial
7. Interest from several of the world’s largest fertiliser companies creates potential growth opportunities
8. Highly profitable business case to manufacture urea fertiliser – de-risks Australian supply
9. No cost optionality - hydrogen
10. Risk managed - diversified portfolio of assets



CONTACT US



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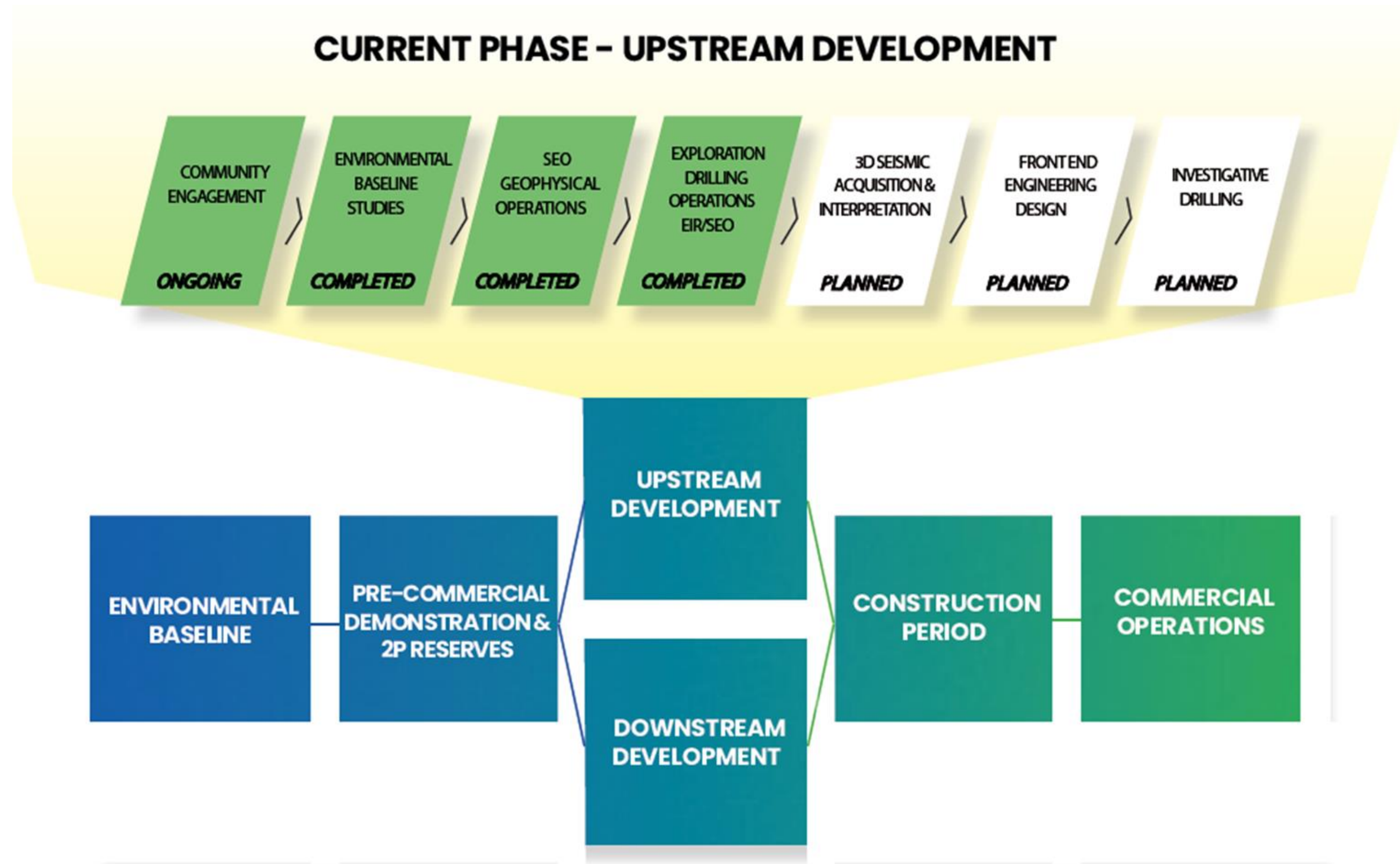
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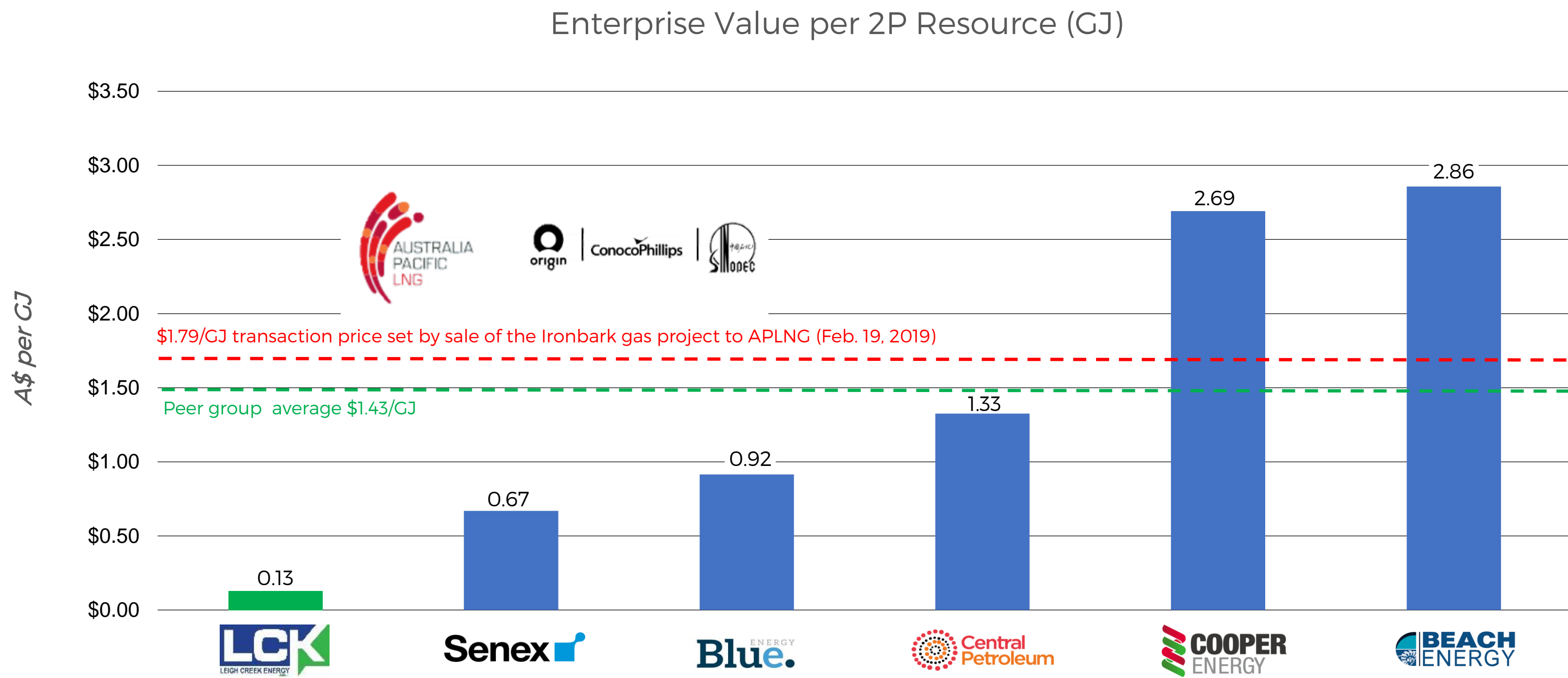
APPENDICES



Corporate Strategy



Enterprise Value to Reserve Comparables

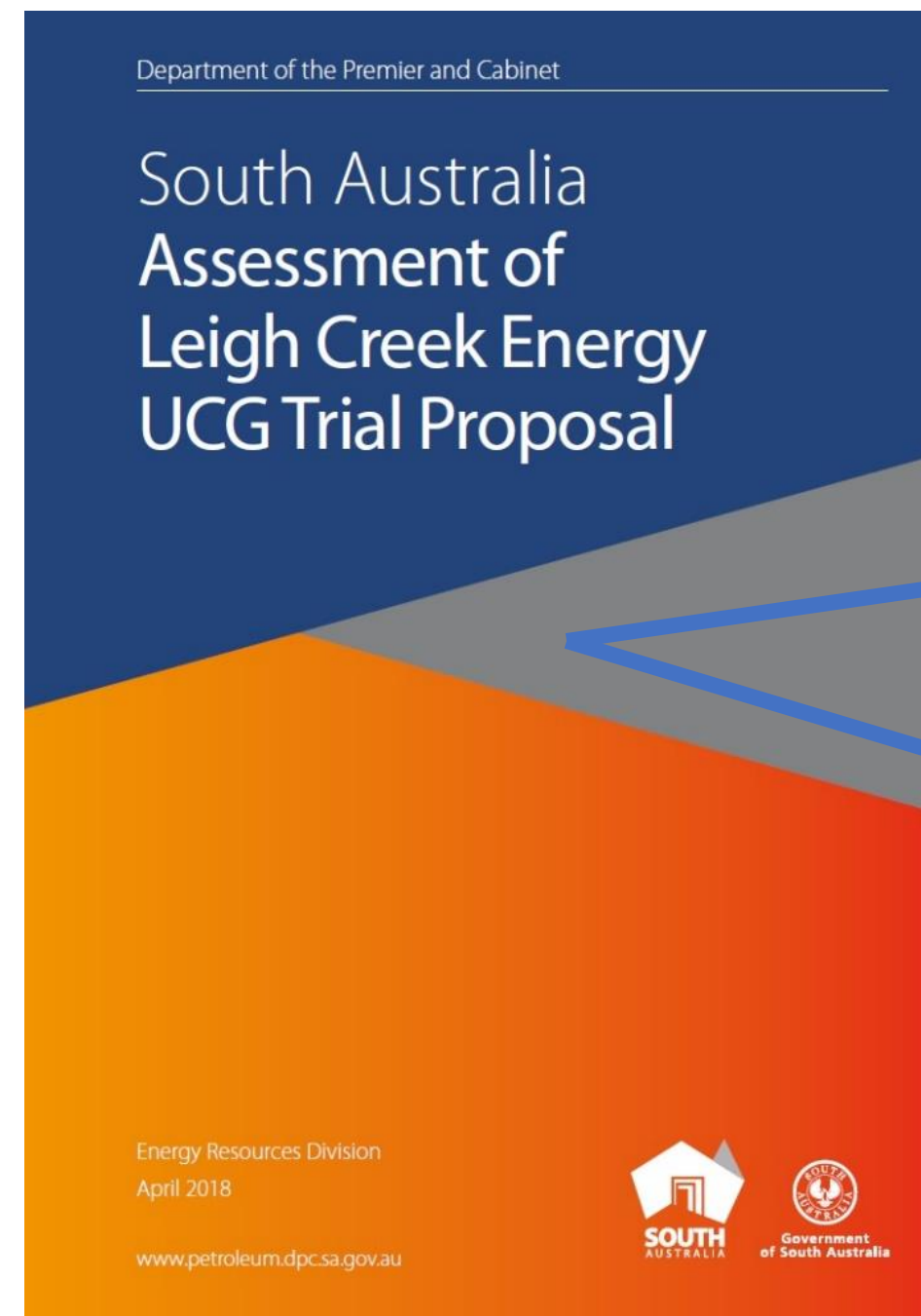


Source: Leigh Creek Energy, Bloomberg as of March 25th, 2019

SA Government Independent Scientific Assessment

CONCLUSIONS

1. Geology
2. Underground Water
3. Regulatory Oversight
4. Management and Operations



“the Leigh Creek site represents one of the strongest opportunities for low risk commercial UCG anywhere in the world”

**“material differences related to site suitability, operational practices and ... regulatory oversight”
(SA and Qld comparison)**

South Australian legislation specifically contemplates and outlines approval pathway for ISG projects (Section 35, *Petroleum and Geothermal Energy Act 2000*)