2 February 2021 **ASX RELEASE (ASX:LCK)**

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Leigh Creek Energy Limited ("LCK" or "the Company") today released the attached update on its commitment to operate sustainably into the future by implementing its comprehensive environment, social and governance (ESG) strategy

Highlights of the ESG Presentation

- LCK is adhering to the United Nations Global Compact principles
- Outline of the environmental credentials of the Leigh Creek site
- LCK's ESG achievements to date
- Plan for becoming carbon neutral by 2030
- Zero recordable safety incidents since incorporation
- Sponsorship provided by LCK for organisations in and around Leigh Creek
- Policies and guidelines that the Company operates under

LCK Managing Director Phil Staveley commented on the ESG presentation:

"The Board and all our people are absolutely committed to plans for environmental sustainability, social equality and support, and firm governance. As stated in the ESG presentation, we have the technical expertise to achieve our carbon neutral goal by 2030, given our expertise and genuine commitment to this target I am sure we will reach that goal."

The Board of Leigh Creek Energy Limited authorised this announcement to be provided to the ASX.

Further information:

Investors
Nicola Frazer
T: +61 402 311 607 | E: nicola.frazer@lcke.com.au
Tony Lawry
T: +61 412 467 160 | E: tony.lawry@lcke.com.au

Media
Tristan Everett
T: +61 403 789 096 | E: tristan.everett@marketeye.com.au

www.lcke.com.au

Leigh Creek Energy

Ahead of the Curve

ESG

Environmental,
Social,
Governance.

LEIGH CREEK ENERGY
Growing our future

February 2021

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Disclaimer

This presentation has been prepared by, or for Leigh Creek Energy Limited (LCK). It contains, and we may make other written or verbal forward looking statements with respect to certain of LCK's plans, current goals and expectations relating to future financial condition, performance, results, strategic initiatives and objectives. By their nature, all forward-looking statements involve risk and uncertainty and are subject to factors that could cause actual results to differ materially from those indicated in this presentation and/or any statement, including forward-looking statements. Some of the factors that could cause actual results or trends to differ materially, include but are not limited to: price fluctuations; actual demand; currency fluctuations; drilling & production results, reserve estimates, loss of market, industry competition, market developments and government actions, environmental and physical risks, legislative, fiscal and regulatory developments, local, regional and international political, regulatory, economic and financial market conditions, political risks, the effect of information and technology and third-party service providers for certain of our operations and systems, legal proceedings and regulatory investigations, the impact of operational risks, including inadequate or failed internal and external processes, systems and human error or from external events (including cyber attack), risks associated with arrangements with third parties, including joint ventures, the failure to attract or retain the necessary key personnel; systems errors or regulatory changes, the effect of fluctuations in share price as a result of general market conditions or otherwise, the effect of simplifying operating structure and activities, the effect of a decline in any ratings or recommendations for losses due to defaults by counterparties or restructurings, on the value of investments, changes in interest rates or inflation, changes in equity and/or prices on our investment portfolio, the impact of natural and man-made catastrophic events on business activities and results of operations, reliance on our standing among customers, broker-dealers, shareholders, agents, wholesalers and/or other distributors of our products and/or services, changes to brand / reputation, changes in government regulations or tax laws in jurisdictions where we conduct business, the inability to protect intellectual property, the effect of undisclosed liabilities, the timing of any regulatory approvals, integration risk, and other uncertainties, such as non-realisation of expected benefits or diversion of management attention and other resources, relating to future acquisitions and/or pending disposals, project delays or advancement, approvals and cost estimates amongst other items and the cumulative impact of items.

While we try to ensure that the information we provide is accurate and complete, LCK advises you to verify the accuracy of any information and/or statement, including a forward-looking statement before relying on it. LCK has no obligation to update the forward-looking statements in this presentation or comm other forward-looking statements we may make. Forward-looking statements in this presentation are current only as of the date on which such statements are made.

This presentation may also contain non-IFRS measures that are unaudited, but are derived from and reconciled to the audited accounts. These should only be considered in addition to, and not as a substitute for, or superior to, our IFRS financial measures. All references to dollars, cents or $ in this presentation are to Australian currency, unless otherwise stated.

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. MHA Petroleum Consultants LLC is now part of Sproule International Limited. 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.

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.

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.

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ESG Commitment

Leigh Creek Energy (LCK) is committed to delivering on our inclusive corporate responsibilities. We will develop our project in a sustainable way and ensure that we provide a safe workplace and the highest level of governance.

Our sustainability commitments will drive all we do and ensure we deliver for all of our stakeholders.

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Our Leaders. Our Commitment.

"ESG brings all our teams together and drives us to look beyond the status quo of just doing business. It is embedded in our purpose which is the fabric of who we are."

- Noreen Byrne
GM People & Sustainability

"LCK has the unique opportunity to lead the way in looking after the community we work in and to positively impact our environment for future generations."

- Cristian Bolda
GM Operations

"We have the technical expertise to achieve our carbon neutral goal, given our expertise and genuine commitment to this target I am sure we will reach that goal."

- Phil Staveley
Managing Director

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Leigh Creek Energy Project

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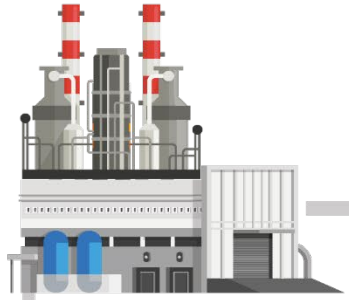
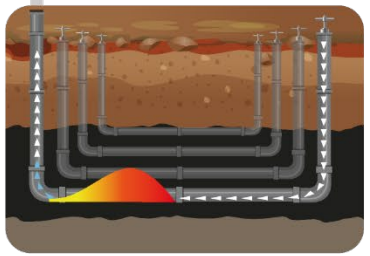
Leigh Creek Energy project at a glance

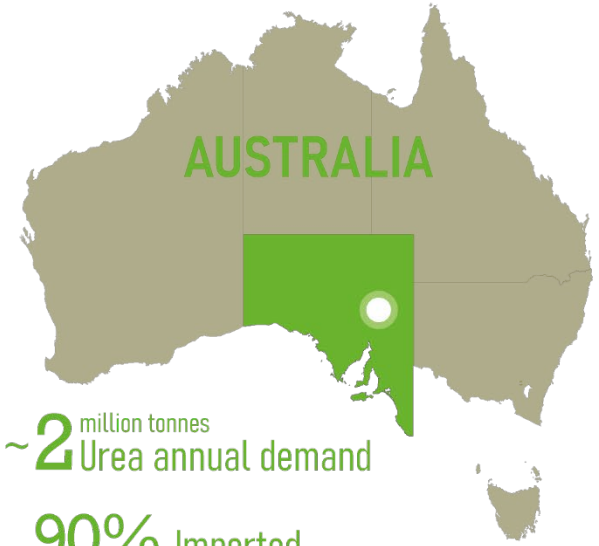
UPSTREAM DOWNSTREAM



Urea world's most commonly used fertiliser

ISG





~2 million tonnes Urea annual demand

90% Imported

BENEFITS

- Competitive price
- Domestic production
- Australian jobs

CO_2 neutral by 2030

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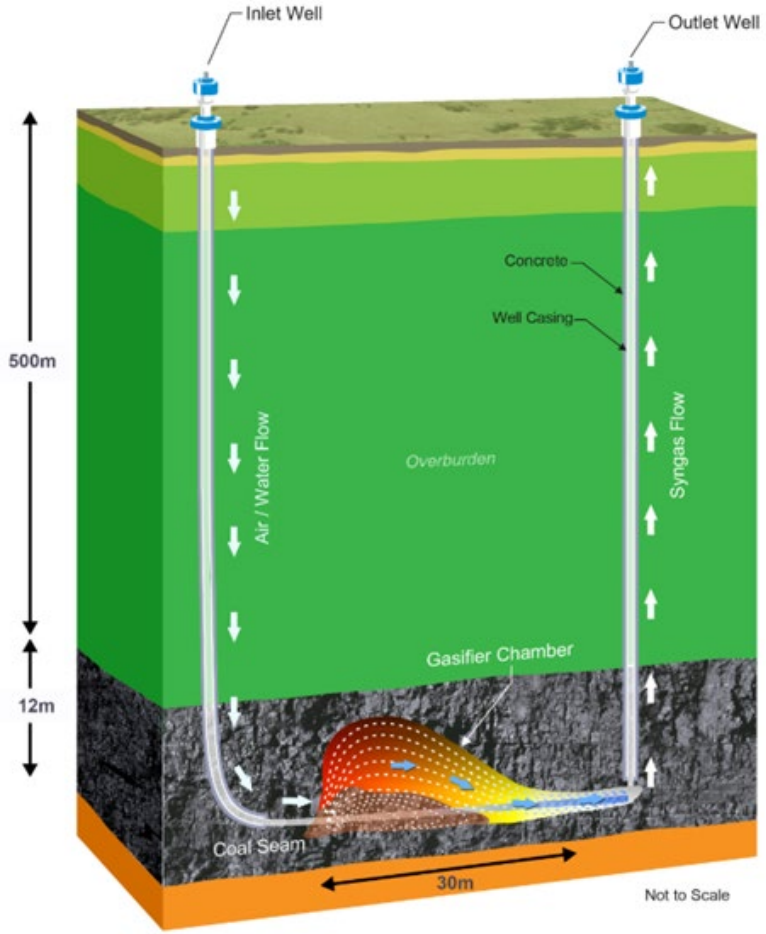
Leigh Creek Energy Project (LCEP)

- The LCEP is being developed to generate syngas from coal using gasification technology
- Leigh Creek is an ideal project location as it's outside the Great Artesian Basin and has access to rail, road, air and power infrastructure
- The Leigh Creek coal field contains 1,153PJ of gas reserves making it the largest uncontracted gas resource in South Australia
- The Company proved its gasification capability by successfully operating a pre-commercialisation demonstration (PCD) well in 2019
- Syngas can be produced and used for low carbon urea production to supply the Australian and export market
- The Company's natural advantage is that all inputs for urea production can be sourced from on site making it potentially one of the lowest cost urea producers in the world



The In-situ Gasification Process

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ESG Overview

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Environmental – Social – Governance (ESG)

Environmental: how our company protects and preserves the planet

Social: how our company treats our employees, suppliers and local communities

Governance: how our company is managed and led

Our ESG plan pushes us ahead of the curve in delivering on our inclusive corporate responsibilities.

We have commenced our programs to ensure:

Everyone is included	Everyone prospers	Everyone thrives
• by helping create vibrant, inclusive communities; and • providing safe, fair and fulfilling work environments	• by delivering our project responsibly and ensuring profitability; and • working in partnership with our stakeholders	• by reducing our environmental impacts; and • facilitating a circular economy in the regions we work

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Ahead of the Curve

LCK committed to ESG early and processes have evolved ahead of its peers

2019

LCK committed to an ESG work program.

We believed that it was important to develop a purposeful way of working that we, as individuals could be proud of, long after we had gone.

2020

WE SUPPORT UN GLOBAL COMPACT

We were accepted as a signatory of the United Nations Global Compact Principles (UNGC).

This was a major milestone which will allow for 100% transparency on our achievements by way of annual reporting.

2021

Complete year one ESG reporting.

Targets to continue to be reported on with a focus on people, safety, environment.

We will continue to drive, report and improve as we move towards our project going live in 2024.

2024+

Project goes live.

Our commitment to pursuing and demonstrating the highest standards in ESG will be a priority.

We will continue to adapt and improve.

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UNGC

- Participant of the UNGC
- The UNGC is the world's largest corporate sustainability initiative with over 12,000+ members in over 160 countries
- The 10 compact principles are the foundation that we have aligned our policies, procedures, and governance framework
- The principles will guide the company's targets and achievements and ensure ongoing accountability and complete transparency
- Mandatory reporting has commenced and will be submitted on an annual basis
- This is how we go about our business, it drives our purpose

WE SUPPORT
UN GLOBAL COMPACT

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Environment

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Environmental Achievements

We will make a positive environmental difference in all areas of our business by excelling at best practice.

- Emissions Reduction
  - February 2020 – LCK committed to aim to be **carbon neutral** by 2030
  - Commenced discussion with the University of Adelaide on CO_2 studies
  - Commenced studies for use of excess CO_2 from commercial phase of project for **carbon capture** and **underground storage** (CCS)
- Water Management
  - **Zero impact** throughout PCD
- Chemicals of potential concern (CoPC) Management
  - **Zero impact** throughout PCD
- Ecological Impacts
  - Commenced preliminary work on **carbon farming** through capture (local fauna studies and soil carbon)
  - Reducing our footprint
    - Going Green Initiative – travelling to work via public transport and/or running, walking or cycling

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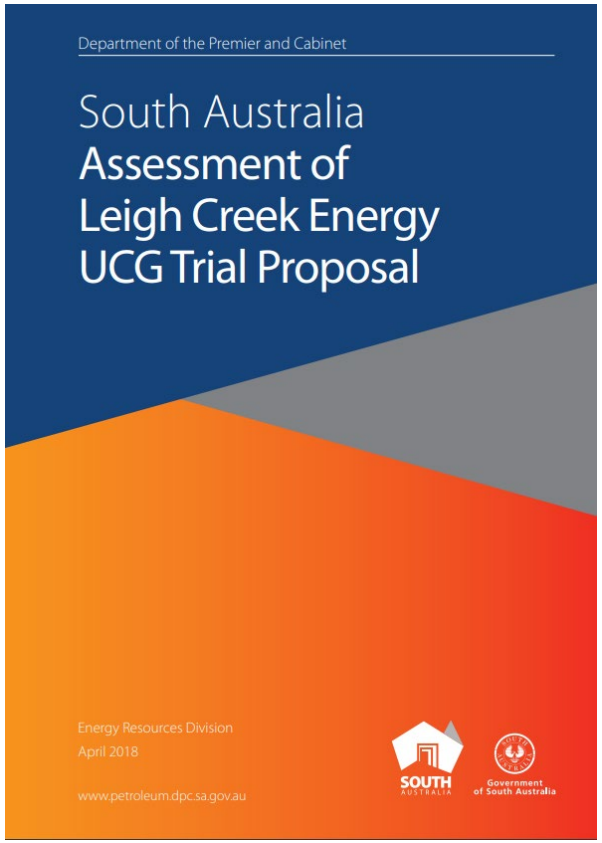
Leigh Creek Energy Environmental Credentials

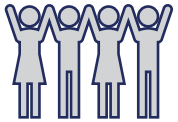
In the South Australian Government's Assessment Report on the proposed PCD well, Independent Expert, Dr Gary Love, stated that: **"..the Leigh Creek site represents one of the strongest opportunities for low risk commercial UCG anywhere in the world."** (1)

Site characteristics that minimise environmental risk:	**Operational actions** that reduce environmental risk:
Very low permeability of coal	Low risk of hydraulic fracturing (known breakover pressure)
Fractures and fracturing risk deemed low through comprehensive geotechnical investigations	Well designs aligned to industry standards
No aquifers in the vicinity of the gasification zone means that groundwater is limited to impermeable rock units (aquitards) which have no value for groundwater users	Depressurisation highly localised due to low permeability
	Strict monitoring of groundwater, air and soil in process area



(1) https://www.petroleum.sa.gov.au/regulation/projects-of-public-interest/leigh-creek-in-situ-gasification/useful_downloads/313687

Social



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Social Achievements

- Health and Safety
  - Impeccable **safety record**
  - Implemented a company-wide **mental health** programme,
  - Promotion and awareness of positive mental health initiatives, including involvement with Black Dog Institute, foodbank, Smith Family, breast cancer awareness, supporting inclusive Australian Rules football team
- Risk Management
  - Company wide strategy governed by the board and led by the committee
- Corporate and Social Responsibility
  - Commenced work towards **supporting regional education** through its traineeship, tertiary education sponsorship and apprenticeship programmes
  - Community **sponsorship of local and indigenous** programmes
  - Promoted and donated to local and national charities
  - Strong resources sector gender equality structure, with 43% female senior team, 25% female staff

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Governance

Governance Achievements

- Strong commitment to good corporate governance and **promoting investor confidence**
- **Annual compliance training** program implemented in 2020
  - Provide refresher courses on compliance to ensure staff maintain and meet the highest standards, e.g.
    - Insider Trading
    - Bullying and harassment
    - Whistleblowers
- Anti-corruption and business ethics
  - Implemented **Whistleblower Policy** and Procedure throughout the company
- Board and internal **reporting**
  - Reporting against the ASX Corporate Governance Principles and Recommendations 4th edition for the financial year ended 30 June 2021

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Carbon Neutral Plan

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Defined Pathway to Low Carbon Urea Production

Key steps underway

- Preliminary geological studies have identified that the deeper structures which are suitable for gasification are also suitable for post gasification storage of CO_2
- Capacity to allow for carbon capture and underground storage design has commenced and will conclude at FID stage 2
- Commencement of carbon farming program in arid areas
- Option to produce urea from renewable sources by 2030

Stage 1 Commercial Development

Expand gas production + commence earning revenue	PFS Completed	PPL Issued	EPCM Awarded	EIR & SEO In Progress	Field Development Plan In Progress	FID Planned	• Gasification wells • 5MW small scale power plant

Stage 2 Commercial Development

Large scale gas + urea production	PFS Completed	EIS In Progress	EPC In Progress	Feasibility Study Planned	FEED Planned	FID Planned	• Large scale gasification well drilling campaign • Large scale power plant • Construct urea plant

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Carbon Neutral by 2030

- The use of ISG linked with carbon capture and underground storage, provides a clean technology that produces urea at commercial scale
- As the production of urea will consume significant amounts of the CO_2 created, LCK is on target to achieve this goal
- LCK has commenced preliminary investigation into the how to remove the excess CO_2 not used in the production of urea by the following means:
  - ✓ Capture the CO_2 and store it underground (geosequestration)
  - ✓ Carbon farming (soil carbon storage)
  - ✓ Carbon offsets (renewables - pumped hydro, thermal power, solar, etc)
  - ✓ Revegetation of remote areas to push back on desertification of the arid areas

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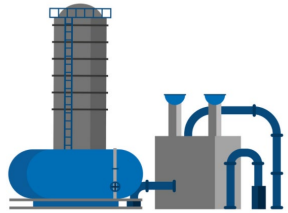
Carbon Management

Urea production generates Scope 1 and 2 carbon emissions

Scope 1 Emissions

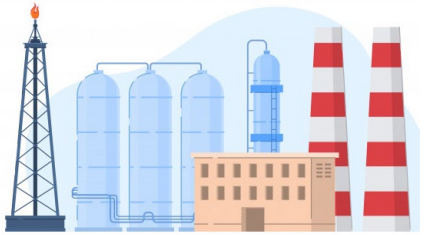
Gas Processing

Syngas



Scope 2 Emissions

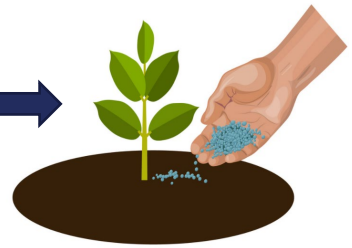
Ammonia Synthesis



CO_2 Usage

Urea Production

Granular Urea



Remaining CO_2

LCK has a plan in place to manage these emissions

CO_2 Management

- *Geosequestration*
- *Carbon Farming*
- *Carbon Offsets*

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Carbon Storage

What makes us different?

Other projects	LCK Project
Existing CO_2 underground storage projects around the world are based on the redundant oil/gas fields. These require additional investigations and modelling & add significant costs to the projects.	The studies are done prior to the drilling of the production wells. This avoids significant post construction costs and allows for low cost carbon neutrality in the production of urea.

Our studies have indicated that, LCK will produce excess CO_2 which will be stored by the following processes:

- Redundant gasifiers will be used as underground reservoirs for the capture and storage of carbon at depth
- A thorough analysis is performed before the approval process/during the gasifier design, which covers the permeability, geostability, geological structure, fractures, and any possible fluid flow path
- CO_2 density increases rapidly at approximately 800m depth it reaches a supercritical state. At depths below 1.5 km, the density and specific volume become nearly constant (1)
- 1 tonne CO_2 gas occupies 556.2m^3 of volume at the surface but utilising CCS in our gasifiers will decrease the volume to 15.02m^3 liquid stored at +800m (1)

(1) https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_wholereport-1.pdf

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Summary: LCK is Ahead of the Curve

Environmental

- Carbon neutral by 2030
- Carbon capture and underground storage
- Zero impact (water and chemical)
- Going Green Initiatives

Social

- Outstanding safety record
- Mental health programme
- Supporting our local community through education and sponsorship programmes

Governance

- Annual compliance training (various refresher courses)
- Strong focus on all ESG matters

Our business is working towards us achieving our Environmental, Social and Governance goals.
***Together**, we will succeed.*

Leigh Creek Energy Limited
L11, 19 Grenfell Street
Adelaide SA 5000
Phone +61 (8) 8132 9100
Email contactus@lcke.com.au
Website http://www.lcke.com.au/

Phil Staveley | Managing Director

Nicola Frazer | Investor Relations
Tony Lawry

Delivering on a focused strategy

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