

Friday, 2 August 2019: ASX ANNOUNCEMENT (ASX: LCK)

Pre-Commercial Demonstration Plant and Operations Compliance Confirmed and Pathway for Commercial Stages of the Project Outlined

- **PCD was operated in accordance with LCK's environmental obligations**
- **Substantive discussions to identify approval pathway for commercial project stages have begun**

Leigh Creek Energy Limited (ASX: LCK) ("LCK" or "the Company") is proud to announce that it has substantively concluded its consultation with South Australian Regulatory Authorities (Energy Resources Division, Department Energy and Mining (DEM) Mining (the "DEM" or "Regulator") regarding the operations and shutdown process for LCK's Pre-Commercial Demonstration stage ("PCD") of its namesake Leigh Creek Energy Project ("LCEP"). The Company has also begun detailed communications with the Regulator regarding the approval process pathway concluding with commercial project approval.

On 25 June 2019, LCK announced that it had successfully completed the processes to finalise the PCD.

Since then, LCK has formalised its documentation with the Regulator and at a meeting on 16 July 2019 it was confirmed:

1. The PCD operated in accordance with the approved Environmental Impact Report ("EIR") and Statement of Environmental Objectives ("SEO");
2. No environmental or safety incidents occurred during PCD operations;
3. DEM have confirmed that they have reviewed the three third party reports covering the PCD operation and agreed that the PCD was safely operated and operated fulfilling the PCD EIR and SEO environmental compliance requirements;
4. The final PCD shut down success will be confirmed following ongoing monitoring as required;
5. LCK will provide a full Closure Report when all monitoring commitments have been fulfilled. There is expected to be minimal changes to the environmental data
 - a. Air quality and groundwater quality reports have been submitted and are in line with the SEO and Monitoring Plans
6. The Regulator and LCK have agreed on a process for commercial approval.

Commercial Approval Process

Below are the main material provisions of the future approval process:

- LCK will submit an EIR as the first-stage of the commercial project;
- Additional environmental, social and economic baseline data will be acquired to support the next stage and broaden the scope beyond the footprint of the PCD to include the full resource area in LCK's Petroleum Exploration License 650;

- Seismic data and delineation drilling will be conducted to support the commercial project. This process will be separated into development stages which will form part of the field development program for the commercial-stage operations;
- Standard with other resource development processes, field development plans will be governed by Activity Notifications ("AN"). The number of ANs will be determined by the number of gasifiers depending on the desired production and output size.

Public Information on LCEP Monitoring Program

The Regulator's project website for the LCEP contains information regarding LCK's Monitoring Program and Data, summarised below.

Monitoring Data for the Leigh Creek Energy ISG Demonstration Plant Gasification Process

Monitoring data is presented in three monitoring zones:

1. Greater than 100 metre radius;
2. ~15-100 metre radius; and
3. ~0-15 metre radius.

Monitoring has confirmed that the PCD was operated within the approved SEO.

Fact Sheet Relating to PCD Monitoring Program

LCK is required to undertake considerable monitoring both on-site and in surrounding areas to ensure that its 2-3 month Insitu Coal Gasification (ISG), also known as Underground Coal Gasification (UCG), demonstration plant was compliant and operated safely within the approvals in relation to people and the environment.

LCK is required to provide monitoring data to DEM, who will make relevant data publicly available, once verified, on the Regulator's website.

The environmental data to be monitored includes:

- i. Air quality;
- ii. Groundwater and soil vapours; and
- iii. Subsidence.

Important Resources:

The Leigh Creek Energy Project Fact Sheet:

<https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/image/DDD/BROCH039.pdf>

LCK's Groundwater and Soil Vapour Monitoring Plan:

http://energymining.sa.gov.au/__data/assets/pdf_file/0003/326991/Leigh_Creek_Energy_PEL650_Groundwater_and_Soil_Vapour_Monitoring_Plan_Final_v2.02_-_14_August_2018.PDF

LCK's Air Monitoring Plan:

http://energymining.sa.gov.au/__data/assets/pdf_file/0010/326989/Air_Quality_Monitoring_Plan_Rev_02.PDF

Managing Director's Comments

LCK Managing Director Phil Staveley commented:

"We are pleased that following the shutdown of the PCD we have been able to work with the DEM to confirm that the PCD was operated within the approved Statement of Environmental Objectives, that there were zero environmental and safety incidents and that independent reports provided to the DEM showed that the PCD was operated safely and in accordance with all regulatory requirements. Additionally, a pathway to obtain commercial approval has been established. The DEM emphasised that LCK will have to provide a clear narrative of the data and information gained from the PCD. All of these items are normal and standard. Leigh Creek Energy continues to comply with these regulations."

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About Leigh Creek Energy

Leigh Creek Energy Limited (LCK) is an emerging energy company focused on developing its Leigh Creek Energy Project (LCEP), located in South Australia. The LCEP will produce high value ammonium nitrate products (fertiliser and industrial explosives) from the remnant coal resources at Leigh Creek, utilising In Situ Gasification (ISG) technologies, and will provide long term stability and economic development opportunities to the communities of the Upper Spencer Gulf, northern Flinders Ranges and South Australia.

The Company is committed to developing the LCEP using a best practice approach to mitigate the technical, environmental and financial project risks.

Resource 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.

Fast Facts

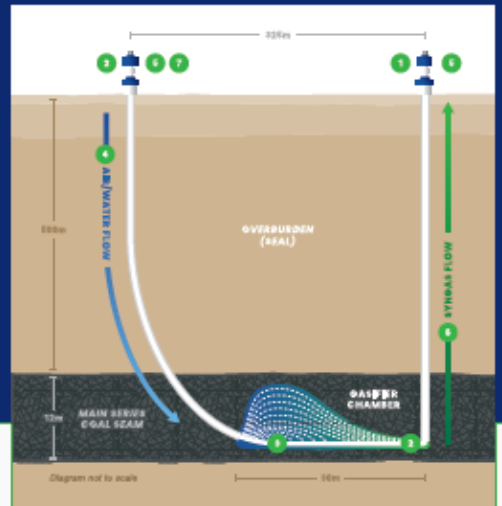
1153 PJ syngas - largest uncontracted gas reserve available to eastern Australia

How does the ISG process work?

The In-Situ Gasification (ISG) process converts coal, through a series of chemical reactions, from its solid state into a gaseous form, resulting in the generation of syngas, or synthetic gas.

Syngas comprises energy gases, such as methane, hydrogen and carbon monoxide with variable amounts of inert gases, such as carbon dioxide and nitrogen.

1. Outlet well is drilled to intersect coal seam.
2. Inlet well is drilled and steered to link up with outlet well.
3. Initiation tool is placed down the inlet well to heat the coal and starts the gasification process.
4. Addition of air and water creates a series of chemical reactions transforming coal to syngas.
5. Process is controlled by using inlet well to manage the flow of air and water.
6. Syngas will flow up through the outlet well and is analysed on the surface.
7. Process is stopped by turning off air and water supply from the inlet well.



The demonstration plant was located in the heavily modified Telford Basin in the former Leigh Creek Coalfield.

What is the Leigh Creek Energy Project?

The project location at the now closed Leigh Creek Coalfield was initially identified as a highly favourable location for In-Situ Gasification using environmental, technical and commercial criteria.

The coal reserve is technically suitable for undertaking ISG in a safe manner minimising environmental impact, and the local area is well serviced by existing and useful infrastructure.

The State Government Regulator's Independent Assessment Report concluded that "... the Leigh Creeksite represents one of the strongest opportunities for low risk commercial UCG anywhere in the world."

What is LCK's Pre-Commercial Demonstration?

LCK's Pre-Commercial Demonstration (PCD) commenced Q4 2018 and concluded Q1 2019 and had five main objectives:

1. Produce syngas comprising Methane (CH_4), Hydrogen (H_2), Carbon Monoxide (CO) and Nitrogen (N_2).
2. Produce syngas at over 1 million cubic feet per day.
3. Capture information required to upgrade the existing Petroleum Resources Management System (PRMS)

2,964 PJ 2C resource to 2P reserve.

4. Demonstrate safe and environmentally responsible ISG operations.

5. Provide key data and information for commercial project development.

The PCD was deemed a success having met or exceeded all objectives, taking the company another step closer to commercial operations.



LCK's PCD facility.

Leigh Creek Energy milestones



1,153 PJ
Leigh Creek
Energy's 2P
syngas reserve



LCK's 1,153 PJ of syngas could power all 9.9 million Australian homes continuously for 3.7 years



Pipeline gas
888
petajoules



Ammonia
31
million tonnes



Urea
52
million tonnes



Diesel
8
billion litres



Electricity
246,783
gigawatt hours

Stats: ABS 2018 Census report

What is a 2P Reserve?

The project has a PRMS reserve of 2P 1,153 PJ, which is now the largest uncontracted gas reserve available to eastern Australia and larger than what is commercially available in the entire Cooper Basin (ACCC, 2018).

LCK's certification comes after having successfully extracted gas at economic flow rates at its PCD.

The size of the reserve indicates that LCK has multiple commercialisation paths, mainly the sale of synthetic natural gas in the Australian East Coast market and/or using the gas to manufacture ammonia-based fertiliser products.

