



Tuesday, 19 February 2019: ASX ANNOUNCEMENT (ASX: LCK)

Pre-Commercial Demonstration Success

- Successful production of commercial syngas achieved
- A peak flow rate of 8,913sm³/h or 7.5mmcf/day has been achieved
- Syngas heating value is one of the highest in the world
- Process to upgrade 2C resource to 2P reserve has commenced
- Demonstrated that LCK has operated the ISG gasifier safely within established environmental parameters

Leigh Creek Energy Limited (ASX: LCK) (“LCK” or “the Company”) is pleased to announce that its Pre-Commercial Demonstration facility (PCD) at Leigh Creek has proven to be a great success with the commercial objectives of the PCD having been met or exceeded.

The data recorded as a result of the PCD reveals that the size of the gas resource is significant. This resource is one of the largest undeveloped, uncontracted and undervalued gas resources within the East Coast gas system in Australia. Unlocking the value of such a significant energy resource will provide LCK with the foundation to progress the Leigh Creek Energy Project (LCEP) to the next commercial stages.

Importantly the information gained from these operations means the Company has sufficient information to upgrade a portion of the Company’s large 2C reserve (LCK’s current 2C resource represents approximately 7.8% of the Australian East Coast gas resources) to a 2P reserve, and the Company looks forward to updating the market at the appropriate time.

Managing Director’s Comments

LCK Managing Director Phil Staveley commented: *“We have now achieved our stated objectives for the PCD. After 4 years of focussed and hard work we have achieved what we promised to the market. I wish to take this opportunity to thank our staff, consultants, and our shareholders who have supported us along this path. These are significant milestones for our Company but also for a gas industry in crisis. We are already progressing with the commercial arrangements for our project. The success of this trial has effectively unlocked a large energy resource of huge value and captured key data that validates the fact that this proven ISG technology can be successful in a commercial application. This data has already enabled the Company to quickly move toward upgrading a portion of its current 2C resource to a 2P reserve status, a significant step forward in both the Company’s future and providing gas in the Australian Energy Market.”*

PCD Outcomes

The PCD confirmed that the syngas produced is of sufficient quality and quantity to support a commercial project. The peak flow achieved was 8,913sm³/h or 7.5mmcf/day. On an annualised basis this would be 2.7bcf per year from one chamber and it is our intention to operate up to 20 chambers at any one time. Specific metrics of PCD performance will not be reported, as they are commercially sensitive and influential in the design and performance criteria of the commercial plant.

Since the 11th of October 2018, the Company has carefully managed its site operations to develop the gasifier and has undertaken test work that has fully delivered on our stated objectives. Consistent with the Company's release on 12 December 2018, the PCD has continued to operate within its conditions of approval and has had no reportable environmental or safety incidents.

PCD Objectives Achieved

On the 11th of October 2018, LCK informed the market of the PCD design parameters and objectives. These objectives have been achieved and in some cases exceeded and the successful outcomes are as follows:

- ✓ **Produce syngas comprising Methane (CH₄), Hydrogen (H), Carbon Monoxide (CO) and Nitrogen (N)**
 - The PCD has consistently produced all of the targeted commercial gases.
 - LCK has confirmed achieving an unaudited gas heating value (energy) of 6.6 MJ/Sm³, which is one of the highest for air-blown syngas achieved anywhere in the world.
- ✓ **Produce syngas at over 1 million cubic feet per day¹**
 - The PCD has produced syngas for a sufficient period and flow rate to confirm its suitability for commercial applications. The stated goal of the PCD was 1mmcf per day and at maximum flow rates we have achieved over 7 times that stated goal.
- ✓ **Capture information required to upgrade the existing SPE-PRMS of 2,964 PJ 2C resource to 2P reserve**
 - LCK is in the process of providing key data to MHA Petroleum Consultants, the specialist in unconventional energy, and an independent petroleum reserve engineering firm based in Denver, Colorado in order to upgrade a portion of LCK's existing SPE-PRMS 2C resource to a 2P reserve.



PCD facility at Leigh Creek

- ✓ **Demonstrate that LCK can operate the In-Situ Gasification (ISG) gasifier safely and in an environmentally responsible manner**
 - The Company reported on the 12th of December 2018 that “environmental results confirm the PCD is operating as expected, and in-line with scientific modelling”.
 - Ongoing monitoring by the Company and reported to the South Australian Government regulator continues to validate the fact that “the PCD can be operated in a safe, regulated and controlled manner and that the LCEP is ideally suited to commercialization via the ISG process.” The Company will continue to work with and provide the South Australian Government regulator with the data it needs to make any future decisions.
 - LCK had zero reportable environmental or safety incidents during the operation of the PCD.

- ✓ **Provide key data and information for the development of the commercial project**
 - LCK has collected and will continue to collect detailed information and data to support the feasibility of the commercial ISG project.

Expressions of Interest from Potential Commercial Partners

During the operations of the PCD, the Company has received multiple expressions of interest from domestic and international energy and fertilizer companies. The Company is continuing to advance these discussions toward a potential joint-venture or partnership and looks forward to updating the market at the appropriate time.

¹: Conversion factors:

sm ³ /hr	cf/hr	cf/day	cf/year
1	35.3	847	309,350
8,913	314,628.9	7,551,093	2,756,149,164

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Resource Compliance Statement

The information in this announcement that relates to the 2C Contingent Syngas Resource was detailed in an announcement lodged with ASX on 8 January 2016 and is available to view at www.lcke.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in that announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. All estimates are based on the deterministic method for estimation of petroleum resources.