



Tuesday, 8 January 2019: ASX ANNOUNCEMENT (ASX: LCK)

Leigh Creek Energy Produces Quality Syngas

- Leigh Creek Energy Project (“LCEP”) achieves 13 days continuous production of commercial quality syngas at the Pre-Commercial Demonstration Plant (“PCD”) and 89 days of continuous production
- Continuous production data confirms In-Situ Gasification (“ISG”) syngas has potential as low-cost feedstock for high-value ammonia and urea products
- Syngas now producing up to 20% methane

Leigh Creek Energy Limited (ASX: LCK) (“LCK” or “the Company”) is pleased to announce that significant progress has been made at the LCEP PCD.

Previously the Company reported the initial results of the PCD’s three-phase gasification process including first phase ignition, the second phase pyrolysis and the final phase commercial gasification. We are pleased to report that the data and production results are indicating that the LCEP has successfully reached stable production within the gasification phase whilst operating at low flow rates. The Company is currently working on increasing flow rates to inform the technical feasibility of ISG.

Milestones in Gas Production:

- Oxygen in the syngas has declined significantly, demonstrating the generator is now operating within the expected parameters
- Results as of December 29th, 2018 show that the PCD was producing all the gases required to make ammonia and urea
- Results as of January 7th, 2019 showed that the same gases were still being generated and that CH₄ production had now reached 20% of the produced gas

PCD results indicate that ISG has potential to enable a paradigm shift in the cost economics of Fertilizer production

Globally, ammonia and urea is made by reforming Natural Gas into synthesis gas or syngas. In Australia, this process requires fertilizer producers to purchase natural gas at prices between \$8 and \$12 per GJ (*The Australian Newspaper ‘Energy Costs Threaten Industry’ 12 December 2018*), and then convert (reform) that gas at an extra cost to produce the syngas needed as the feedstock for ammonia and urea production. Australia’s only current producer of Urea recently stated that every \$1 increase in gas feedstock cost reduces their profitability by A\$14m thus lowering their economic viability (*Incitec Pivot Profit Report Half Year 2018 ASX Announcement*).

As LCK produces syngas directly, we have a significant competitive advantage. The successful production of syngas (including CH₄, CO, CO₂, H₂, and N₂) from the PCD demonstrates that LCK can produce these gases.

In a concept study authored by Thyssenkrupp that was commissioned and released by Carbon Energy Ltd. in 2018 (*Carbon Energy Limited ASX Announcement 30 October 2018*), ammonia produced via the ISG process has a potential production cost of A\$190 per tonne. These figures compare to current average market price for ammonia of A\$650 to A\$700 per tonne stated in the same announcement.

For personal use only

Managing Director's comments

LCK Managing Director Phil Staveley commented: *"After careful and expert management of the gasifier, the production of gases needed for ammonia and urea is now occurring. The process of achieving commercial quality of syngas production is a statement to the industry and our stakeholders that the technical risks of operating in-situ gasifiers at the Leigh Creek site have been drastically lowered. Once we achieve commercial rates of gas flow and associated data we will look forward to providing further detail on the pathway to commercialisation."*

PCD Timeframe

The Company advised the market on 15 November 2018 that the South Australian government regulator had approved a suspension of up to 4 weeks of the 90-day period to allow LCK to optimise the commissioning parameters of the PCD. Since then, as reported above, we have successfully achieved production of quality syngas during the commissioning phase. We have now requested a further suspension to allow us to increase syngas flow rates.

For further information contact:

Ben Jones | Media and Communications

T: +61 419 292 672 | E: ben.jones@lcke.com.au

Tony Lawry | Corporate and Investor Relations

T: +61 (0) 412 467 160 | E: tony.lawry@lcke.com.au

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.