

Tuesday, 4 December 2018: ASX ANNOUNCEMENT (ASX: LCK)

## Pre-Commercial Demonstration progress

- Gas flows have been continuing for 53 days
- Gasifier currently in Pyrolysis - the final phase before commercial Syngas flow
- PRMS upgrade process imminent

Leigh Creek Energy Limited (ASX: LCK) ("LCK" or "the Company") is pleased to provide the following status report on the Company's Pre-Commercial Demonstration facility (PCD) at Leigh Creek.

The progress outlined in this announcement brings LCK closer to commencing the process to upgrade a portion of its 2,964 2C PRMS resource, to proven and probable reserve status. This re-valuation of the company's major asset will add significant value.

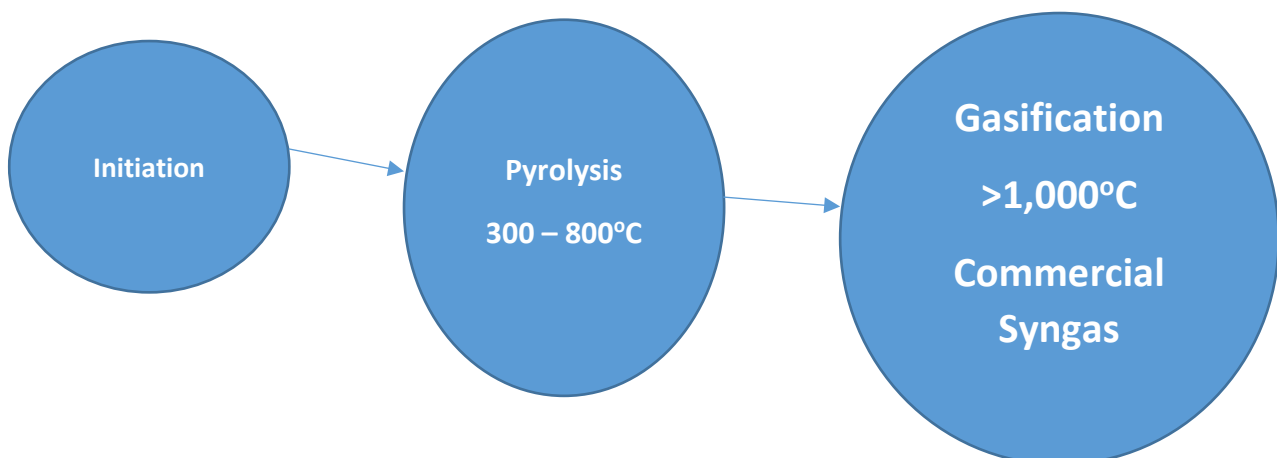
### Managing Director's comments

LCK Managing Director Phil Staveley commented: *"The PCD is developing as expected, both technically and operationally. LCK's on-site Operations Team and Adelaide based technical experts continue to manage the development of the PCD gasification chamber toward commercial flow rates, by managing the gasifier's operating parameters, such as pressure, water inflow and outflow rates. This process is continuing and importantly has not stopped since the gasifier was initiated on 10 October 2018. Through this we continue to work closely with the Regulator to ensure appropriate oversight."*

### PCD Operations Update

LCK initiated the gasifier on 10 October 2018 (refer ASX announcement 11 October 2018). After initiation there is a gradual process for the gasifier to develop through to full syngas production, typically taking a period of weeks.

The development of a typical ISG chamber is shown in the following graphic:



There is a large body of scientific research on the process of ISG processes and gasification development, which indicates some common principles. This knowledge bank will now increase through our learnings in the early development phase of the gasifier, and will assist with future gasifier initiations and developments during the future commercial stages of the project.

After ISG initiation, deep coal combusts and gradually enlarges a gasification chamber through a series of chemical reactions collectively known as combustion. When LCK last provided a PCD status report (refer ASX announcement 15 November 2018) combustion was occurring at the Leigh Creek PCD.

As the gasification chamber develops with increased heat, the combustion chemical reactions of coal change to pyrolysis, producing a different combination of gases. This occurs at temperatures in the range of 300 – 800°C. The gas combination during this stage are similar to gasification gases, comprising H<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub> and C<sub>2</sub>H<sub>4</sub>, or Syngas, but in a different combination. **The Leigh Creek PCD is currently in the pyrolysis stage.**

As the temperature and consequent size and configuration of the gasification chamber increase, conditions develop exponentially for stable gasification processes to be maintained, typically at temperatures above 1,000°C. The principal chemical reactions during this phase relate to the interaction of very hot gases interacting with the coal to form Syngas. **This is the commercial gas (production) phase of which the Company continues to work towards.**

The South Australian Regulator has released a technical paper on the development of the Leigh Creek PCD gasifier, which can be found at:

[http://www.energymining.sa.gov.au/data/assets/pdf\\_file/0003/335928/LCKE\\_Review\\_-\\_Part\\_3\\_-\\_Clifford\\_W\\_Mallett.pdf](http://www.energymining.sa.gov.au/data/assets/pdf_file/0003/335928/LCKE_Review_-_Part_3_-_Clifford_W_Mallett.pdf)

LCK's major objective is to achieve commercial Syngas flow and commencement of the PRMS upgrade process in Q4 2018, with an upgrade of a portion of LCK's 2,964 2C PJ resource to reserve status in Q1 2019.

We are now entering an exciting and significant phase of the development of our major asset at Leigh Creek. LCK continues to achieve milestones on the way to becoming a major fertiliser manufacturer in the Australian and international markets.

The Company looks forward to providing further updates to the market as the PCD further develops and achieves Syngas at commercial flow rates.

**For further information contact:**

Ben Jones | Media and Communications  
T: +61 419 292 672 | E: [ben.jones@lcke.com.au](mailto:ben.jones@lcke.com.au)

Tony Lawry | Corporate and Investor Relations  
T: +61 (0) 412 467 160 | E: [tony.lawry@lcke.com.au](mailto: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 products such as electricity, methane (synthetic natural gas) and 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 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](http://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.*