Tuesday, 10 September 2019: **ASX ANNOUNCEMENT (ASX: LCK)**

LCK low cost, disruptive technology in fertiliser production

Announcement Summary:

- **Disruptive process resulting in urea production prices of sub USD$100 ex plant.**
- **Low cost gas feedstock at lower than AUD$1.00/GJ.**
- **LCK will have price stability over the life of the project.**
- **LCK will have gas supply stability over the life of the project.**
- **Thyssenkrupp Concept Select Study confirms project viability.**

Thyssenkrupp Concept Select Study finalised

Leigh Creek Energy Limited (ASX: LCK) ("LCK", or "the Company") is pleased to announce that it has finalised the thyssenkrupp Concept Select Study on ISG to Fertiliser. The study is a key component of our commercialisation plans, confirming operating and associated ongoing costs for the production of fertiliser products. This follows the successful completion of the Pre Commercial Demonstration (PCD) which successfully produced a flow rate in excess of 1tcf p/d from a single gasifier, and the Concept Select Study by leading global fertiliser technology company Thyssenkrupp.

Thyssenkrupp

LCK engaged thyssenkrupp to undertake a Concept Select Study for the LCEP. In the last decade thyssenkrupp have constructed and commissioned 14 new fertiliser plants with a total annual urea capacity of almost 12 million tonnes. Thyssenkrupp Industrial Solutions also offers a urea production portfolio featuring state of the art technologies from leading licensors. The urea plant design by thyssenkrupp in the Concept Select Study has been built, commissioned and is in operation in several locations around the world.

Disruptive Process in Fertiliser Production – an Australian context

The LCEP will provide syngas into its fertiliser plant for a fraction of the cost of current natural gas producers.

Nitrogen based fertilisers are produced from gas feedstock. This is generally from pipeline quality natural gas, which is then converted to synthesis gas (syngas) to produce ammonia (NH_3) which is then converted to urea by the addition of carbon dioxide (CO_2).

In the traditional process of manufacturing urea companies buy expensive natural gas and then convert that gas to syngas. LCK provides significant cost advantage as our direct product gas is syngas. The LCEP has effectively backward engineered global fertiliser production by providing the required syngas feedstock from the ground in situ (the disruptive process), which is then converted to urea by the addition of carbon dioxide (CO_2).

By way of example, approximately 40 GJ of gas is used to produce 1 tonne of urea. At current Australian gas costs if a producer was able to acquire gas, even as low as $8 per GJ they would have a raw cost of $320 per tonne for gas feedstock which they would then convert to syngas at extra cost. In comparison to our competitors $320 gas feedstock price LCK will be able to provide syngas feedstock at less than $40 per tonne of urea.

We note that the country's major fertiliser supplier (Incitec Pivot) had to rely on Queensland Government support with an emergency measure to help them obtain gas supply.

The LCEP will further disrupt the Australian fertiliser market through the following key advantages over existing and planned producers:

- Lower gas feedstock prices.
- Certainty of gas supply.
- Stable gas feedstock prices; and
- Close proximity to pivotal rail hub point for nationwide distribution.

Lower Gas Feedstock Prices

Building on the successful PCD, further subsurface gasifier design enhancements and the completion of the Concept Select Study undertaken by thyssenkrupp earlier this year calculated an indicative cost of less than AUD$1.00/GJ for syngas delivered into the proposed fertiliser plant at Leigh Creek.

This shows that LCK can deliver the gas feedstock into the proposed urea plant at a fraction of other current and planned Australian operations leading to urea production prices of sub USD$100 ex plant.

The less than AUD$1.00/GJ cost is based on LCK being able to produce commercial syngas as confirmed in our 2P PRMS reserve, and includes all costs such as drilling, well head, casing, compression, peripheral equipment, gathering systems, separation, cleaning gas plus OPEX for gasifier operation. The sub USD$100/tonne is based on OPEX figures provided by thyssenkrupp. All these cost assumptions are independently verifiable and provided by third parties.

Stable Gas Feedstock Prices

It should be noted that these syngas costs will be stable throughout the project life as production costs will not be affected by global energy prices which will rise over the life of any fertiliser plant and foreign exchange fluctuations, both of which impact other producers. AUD/US has fallen from above $1.00 into the $0.60 range, putting extreme pressure on Australian farmers and food producers. LCK welcome the opportunity to become a lower-cost provider of energy to the Australian market.

Fertiliser plants face immediate and future challenges to secure gas feedstocks at low costs to maintain a competitive production cost structure.

LCK will de-risk its production cost structure through providing a low cost, stable syngas feedstock over the project lifecycle.

Low Cost World Scale Plant

The estimated capital cost from thyssenkrupp for development of the 2 million tonne per annum plant is AUD$3.27bn. Linking this to the LCEP's feedstock syngas at less than AUD$1.00/GJ will enable LCK to produce urea at less than USD$100/tonne ex plant.

This compares favourably to the current published urea spot price for the region of USD$263.50 (Source: www.indexmundi.com).

This puts the LCEP on par with the world's lowest cost urea producers, Saudi Arabia and Russia. LCEP will also have a significant cost advantage over the current Australian domestic production and also compares favourably to recently announced plants, e.g. Perdaman's recent announcement of a $4bn, 2 million tonne per annum urea plant with natural gas as the feedstock (Source: www.perdaman.com.au).

For exports, this significant cost advantage in production will allow the LCEP to compete favourably in local export markets with the lowest cost producers globally who have similar ex plant costs but higher transport costs into Asia Pacific markets. As well as the cost advantage the Leigh Creek location has access to rail for easier distribution and shipping.

Managing Director's Comments

LCK Managing Director Phil Staveley commented:

"It is pleasing to receive validation from a company like thyssenkrupp that LCK can build a modern world scale plant in South Australia capable of producing urea that will compete with the lowest cost urea producers globally. At a cost that is sub USD$100, amongst the lowest urea costs globally, this is an extremely attractive and robust project, now and in the long term."

Context

The Company has previously informed the ASX (see ASX announcements 20 May 2019 - Corporate Presentation, and 26 February 2019) that it has been evaluating two options for East Coast Australia's largest uncontracted 2P 1,153PJ gas reserves from the Leigh Creek Energy Project (LCEP):

- Nitrogen fertilisers, particularly urea; and
- Pipeline quality gas to supply the tight east coast market.

The conclusions contained in this report allow LCK to move forward to commercial production with confidence. We also want to acknowledge the invaluable contribution through this process by our largest shareholder who operates a Fertiliser manufacturing plant in China.

We look forward to providing the market with more pivotal announcements relevant to the provision of gas supply and the Leigh Creek Energy Project in the coming days and weeks.

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Forward Looking Statement

This announcement contains forward-looking statements based on conservative estimations with regards to gas and fertiliser production costs that are subject to risk factors associated with the gas and energy industry. The expectations reflected in these statements are currently considered reasonably based as they are based on studies and reports provided by thyssenkrupp, Ingauge Energy and Prudentia Process Consulting. They may be affected by a range of variables that could cause actual results or trends to differ materially, including but not limited to: price and currency fluctuations, the ability to locate markets for Fertiliser, project site latent conditions, approvals and cost estimates, obtaining funding for the commercial project, development progress, operating results, legislative, fiscal and regulatory developments, economic and financial markets conditions.

Resource Compliance Statement

The information in this announcement that relates to the 2P Syngas Reserve was detailed in an announcement lodged with ASX on 27 March 2019 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

About Leigh Creek Energy

Leigh Creek Energy Limited is an emerging energy company focused on developing its Leigh Creek Energy Project (LCEP), located in South Australia. The LCEP will produce synthetic natural gas and/or ammonium nitrate products (fertiliser and industrial explosives) from the remnant coal resources at Leigh Creek, utilising In Situ Gasification 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.