



## Technology Investment Roadmap & Hydrogen Certification Responses

- LCK's ISG technology can increase security of domestic supply of urea and hydrogen
- LCK's hydrogen optionality can assist in building Australia's hydrogen economy
- LCK's views on Hydrogen Certification submitted

Leigh Creek Energy Limited (ASX:LCK or **Company**) has recently submitted a response to a government discussion paper where we highlight the use of our In Situ Gasification (ISG) technology to make large quantities of low cost hydrogen. LCK also submitted its views on the Government's proposed hydrogen certification scheme.

### Technology Investment Roadmap Discussion Paper

The Australian Government's Department of Industry, Science, Energy and Resources recently issued a discussion paper regarding a 'framework to accelerate low emissions technologies'. LCK provided a response, as requested, on June 21.

LCK's response focussed on the following:

1. The use of ISG linked with carbon capture, usage and storage (CCUS) technology, provides a clean technology that can produce hydrogen, ammonia or urea at commercial scale. Currently about 90% of urea is imported.
2. The use of ISG to produce urea will have the following economic benefits:
  - a. increase domestic manufacturing capability;
  - b. creation of new permanent manufacturing jobs;
  - c. decreased reliance on imports; and
  - d. reduce the cost of fertiliser to Australian farmers which will ultimately reduce the cost of food to the consumer.
3. Also, through its hydrogen optionality, LCK can contribute to the creation of Australia as a hydrogen powerhouse in South East Asia.
4. LCK reinforced the view that a molecule of hydrogen from fossil fuel with CCUS should be treated the same as a hydrogen molecule from renewable energy. Both should be designated as 'clean hydrogen' as its carbon footprint is almost as low as the production of hydrogen from 100% renewables. (See Table 1 overleaf), and as such should both be eligible for funding from the Government's Advancing Hydrogen Fund.
5. These initiatives will create thousands of direct and indirect jobs post COVID-19.

Table 1

Emissions Intensity of Production	
Production Technology	Emissions (kg CO <sub>2</sub> -e/kg hydrogen)
Electrolysis - Australian grid electricity	40.5
Electrolysis - 100% renewable electricity	0.0
Coal gasification, no CCS	12.7 - 16.8
<b>Coal gasification, with CCS - best case</b>	<b>0.71</b>
Steam methane reforming (SMR), no CCS	8.5
SMR + CCS - best case	0.76

Source: Australia’s National Hydrogen Strategy

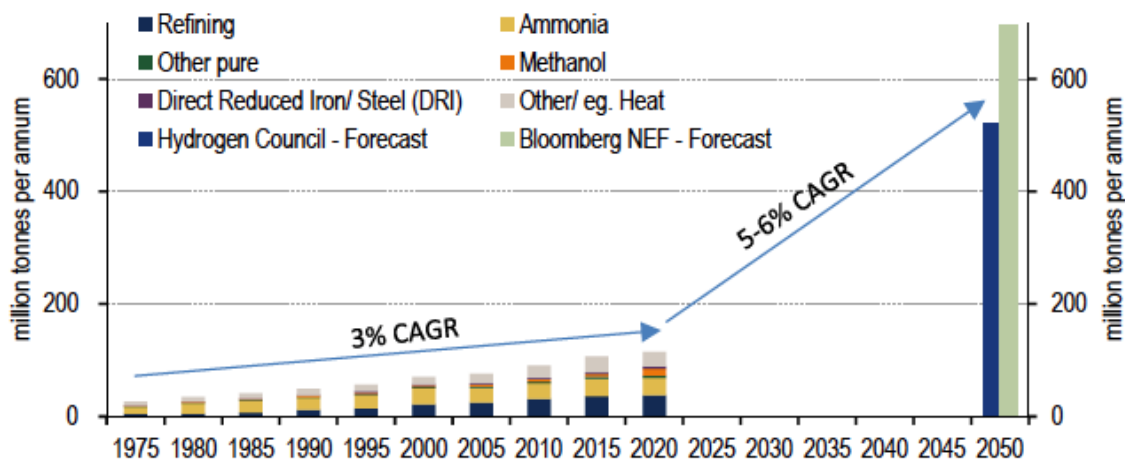
## Hydrogen Certification Survey

As LCK has previously produced hydrogen as part of its Pre Commercial Demonstration (PCD) activities, and LCK feels it is well placed to comment in this area. Currently within the industry, there is a lack of clarity about how hydrogen is classified, particularly its origins (e.g. from fossil fuel or from renewable energy). LCK promotes the option of a simple system that evolves as the industry evolves, with the emphasis that there is alignment with the potential major hydrogen markets in Japan and South Korea.

## LCK Managing Director’s comments

Phil Staveley Managing Director LCK said: *“Our aim for carbon neutrality by 2030 aligns well with the Government’s roadmap for low emissions technologies, both as a major urea producer or through our hydrogen optionality with global demand for hydrogen increasing rapidly. This optionality gives LCK a great opportunity to participate in the need for hydrogen growth of 5-6% per annum for the next 30 years (see Table 2 below).”*

Table 2



Source: International Energy Agency (IEA), Bloomberg, Hydrogen Council

**For further information, contact:**

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The Board of Leigh Creek Energy authorised this announcement be provided to the ASX.

## About Leigh Creek Energy

Located in South Australia, Leigh Creek Energy Limited (ASX:LCK) is an emerging energy company focused on developing its Leigh Creek Energy Project (LCEP). The LCEP will produce nitrogen based fertiliser and/or hydrogen products at Leigh Creek by utilising In Situ Gasification technologies.

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

For information on the ISG process [CLICK](#)