

# About Leigh Creek Energy



FACT SHEET

Leigh Creek Energy Ltd is an emerging energy company focussed on developing the Leigh Creek Energy Project in northern South Australia.

Headquartered in Adelaide, South Australia with over 40 employees, and 40 local contractors.

Listed on the Australian Securities Exchange (ASX) under the ASX code of LCK.

Holds Petroleum Exploration Licence 650 (PEL 650) overlying the previously mined Leigh Creek Coalfield.



## What is Leigh Creek Energy doing?

Leigh Creek Energy plans to produce energy from coal using a process known as in situ gasification (ISG) at the Telford Basin of the previously mined Leigh Creek Coalfield.

As part of the initial exploration phase, Leigh Creek Energy is undertaking an ISG demonstration which incorporates construction, operation and decommissioning of a single gasifier chamber and above ground infrastructure to produce synthesis gas (syngas) for a short period of approximately 60-90 days.

Leigh Creek Energy prepared an Environmental Impact Statement (EIR) and Statement of Environmental Objectives (SEO) which have been approved by the Government of South Australia. These documents can be found on the Leigh Creek Energy website.

## Why the Leigh Creek Coalfield?

The Leigh Creek site is favourable for ISG development as:

- The resource is at depth (over 500m) and has thick seams (10-20m thick)
- The geology is suitable (closed basin with coal at depth with thick mudstone overburden)

- The hydrogeology is suitable (no aquifers or users of groundwater) – Low permeability in the coal seam and surrounding rocks
- Existing infrastructure (roads, power, accommodation)
- Distant from environmentally sensitive areas (National Parks, Great Artesian Basin)
- No land use conflicts

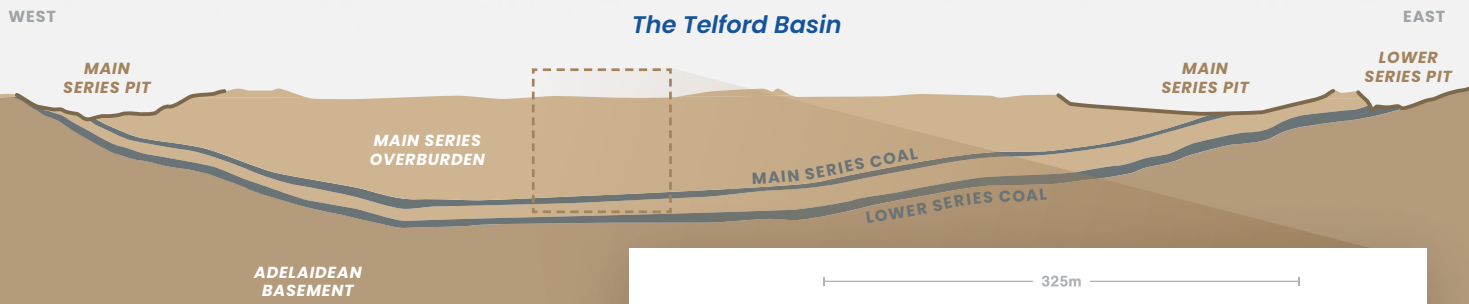
## What is the purpose of an ISG demonstration?

Undertaking an ISG demonstration will provide information to confirm that LCK can:

- Produce commercial quantities and qualities of syngas
- Operate safely and with minimal impact to the environment

Data obtained from the ISG demonstration allows:

- Assessment of possible commercial options (e.g. power, pipeline gas, ammonia)
- Development of commercial safety and environmental controls
- Development of commercial plant engineering designs

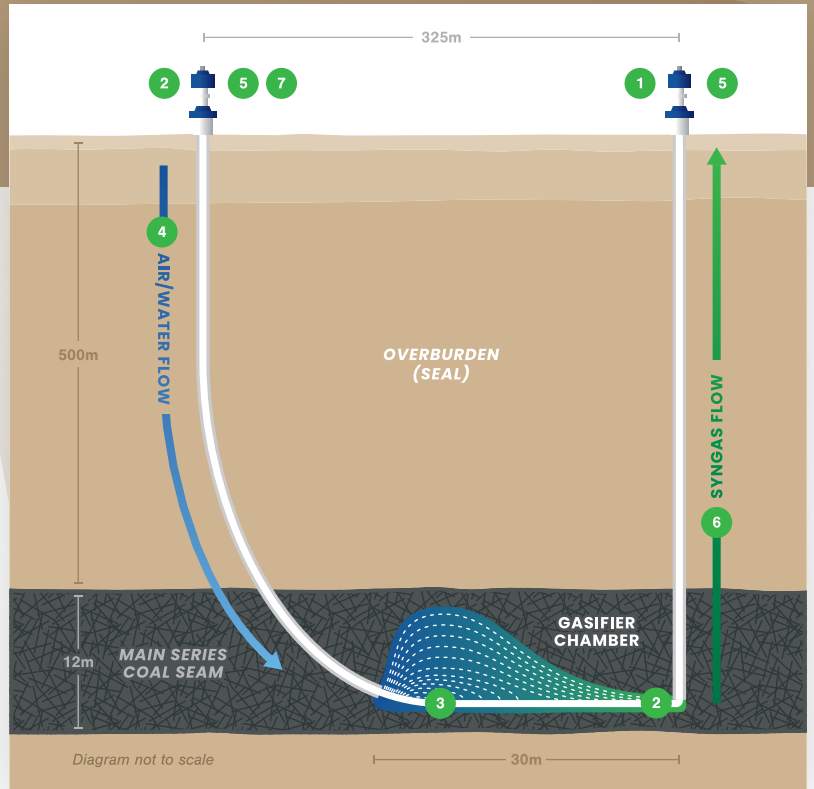


## How does the ISG process work?

The ISG process converts coal, through a chemical reaction, from its solid state into a gaseous form, resulting in the generation of syngas.

Syngas comprises methane, hydrogen and carbon monoxide energy gases with variable amounts of inert gases, carbon dioxide and nitrogen.

1. Outlet well is drilled to intersect coal seam.
2. Inlet well is drilled and steered to link up with Outlet well.
3. Initiation tool is placed down the inlet well to heat the coal and starts the gasification process.
4. Addition of air and water creates a series of chemical conversions transforming coal to syngas.
5. Process is controlled by using inlet and outlet wells to manage the flow of air and water.
6. Syngas will flow up through the outlet well and is analysed on the surface.
7. Process is stopped by turning off air



**1,153 PJ**

Leigh Creek Energy's 2P syngas reserve



LCK's 1,153 PJ of syngas could power all 9.9 million Australian homes continuously for 2.8 years



**Pipeline gas**

**865**  
petajoules

OR



**Ammonia**

**31**  
million tonnes

OR



**Urea**

**52**  
million tonnes

OR



**Electricity**

**240,363**  
gigawatt hours

Stats: ABS 2016 Census report

## Why ISG?

The remaining resource in the Telford Basin at Leigh Creek is deep and no longer economic to mine using open cut mining methods.

ISG technology is able to access the deep coal via a system of drilled linked wells.

Syngas can be used to make other products such as; electricity, synthetic natural gas, ammonia and derivatives (fertilisers or explosives), methanol and diesel.

To obtain information to inform the design for a commercial facility, Leigh Creek Energy proposes to construct, operate and decommission a small-scale ISG demonstration plant. This facility will involve the construction of an above ground plant (and associated service infrastructure) and the establishment of a below ground single ISG gasifier chamber. The demonstration plant would be commissioned and operated for a short period to produce syngas, so that the

Leigh Creek Energy acknowledges and respects the Adnyamathanha people, the Traditional Owners of the land on which our operations occur and pays our respects to their

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