Callide
Oxyfuel Project

FACT SHEET OXY01
DECEMBER 2013

Overview

The $245 million Callide Oxyfuel Project is a world leading project that aims to demonstrate how carbon capture technology can be applied to a coal-fired power station to generate electricity with low emissions. The project also aims to advance industry knowledge and investigation into carbon dioxide storage. The project is one of only a handful of coal-fired low emission projects in the world to move beyond concept into construction.

This fact sheet focuses on the carbon capture aspects of the Callide Oxyfuel Project.

How it works

Oxyfuel technology has been retrofitted to Callide A Power Station in Central Queensland, Australia. The key difference between a conventional power station and the oxyfuel process is that coal is burnt in a mixture of pure oxygen and recycled exhaust gases, instead of 'regular air'. The by-product of the oxyfuel process is a concentrated stream of carbon dioxide, which can be captured and stored.

Current Status

The Callide Oxyfuel Project entered the demonstration phase in December 2012. More than 150 staff and contractors worked more than 500,000 hours during the construction and initial commissioning phases of the project. The current focus is running the demonstration program until late 2014 to facilitate the commercialisation of the technology.

Benefits

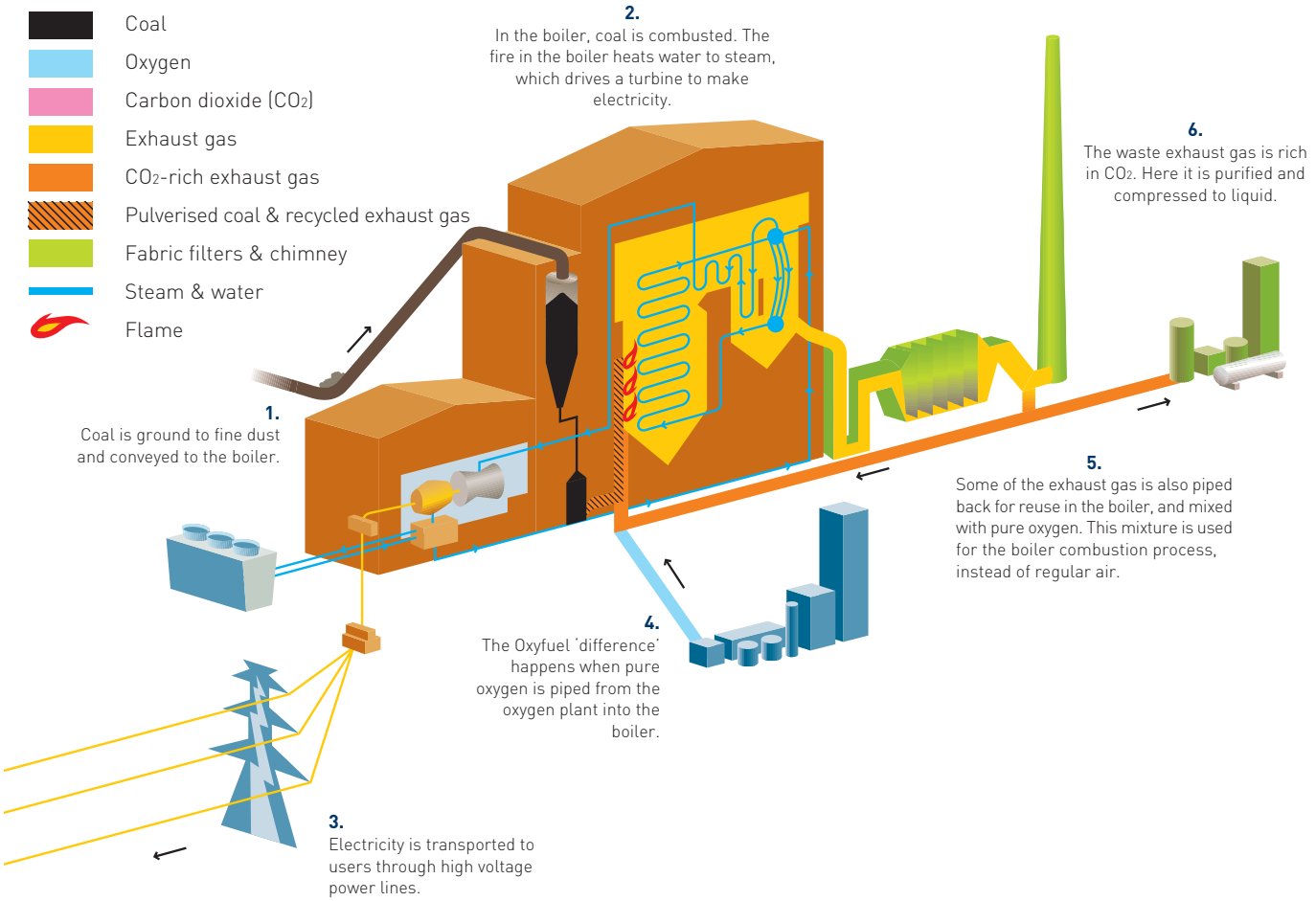
In a world where over 80 per cent of global energy production is derived from fossil fuels, and with demand expected to rise, the Callide Oxyfuel Project is a critical step towards a sustainable energy future. Demonstration projects such as the Callide Oxyfuel Project are essential if we are to research, develop and test such leading edge technologies for future application at a commercial scale.

Key Facts	
What	Retrofit of oxyfiring technology to Unit 4 (30 megawatts) at Callide A Power Station in Central Queensland.
Fuel	Black coal
Who	Joint venture between CS Energy, ACA Low Emission Technologies (ACALET), Glencore, Schlumberger, and Japanese participants, J-POWER, Mitsui & Co., Ltd., and IHI Corporation. The project was awarded $50 million from the Australian Government under the Low Emissions Technology Demonstration Fund. The Callide Oxyfuel Project has also received financial support from the Japanese and Queensland governments and technical support from JCOAL.
Cost	$245 million
Oxygen production plant capacity	660 tonnes per day
Oxygen purity	98%
Exhaust gas processed	147 tonnes per day
Design carbon dioxide production rate	75 tonnes per day
Timeframe	Demonstration phase 2012–2014

Oxyfuel Project

For further information, visit **www.callideoxyfuel.com**

The project – step-by-step:



1. Coal from the stockpile is ground to a fine powder and blown into the burners of the boiler.
2. In the same way as a conventional power station, the energy in the coal is used to heat water into steam inside the boiler. The steam is used to drive a turbine, which is connected to a generator to produce electricity.
3. The electricity is transported to customers through high voltage transmission lines.
4. Where oxyfuel differs from a typical coal combustion process, is inside the boiler. Instead of burning the coal in air, the coal is burnt in a mixture of pure oxygen and re-circulated exhaust gases.
5. Some exhaust gases are piped back around to the boiler. These recirculated exhaust gases become more rich in CO_2, because CO_2 is the by-product of burning coal.
6. This stream of CO_2-rich exhaust gas is then piped to a compression plant next to the power station, where it is compressed into liquid CO_2.

Oxyfuel Project Partners

CS Energy · IHI · Schlumberger Carbon Services · Mitsui & Co., Ltd. · Glencore · J-Power EPDC · COAL21 Fund · Australian Government · Queensland Government · METI Ministry of Economy, Trade and Industry

Supporting Collaborator: JCOAL Japan Coal Energy Center