Callide
Oxyfuel Project

Callide Oxyfuel Project—Completion of World's First Integrated Oxyfuel Combustion and CO2 Capture Demonstration in a Utility Power Station

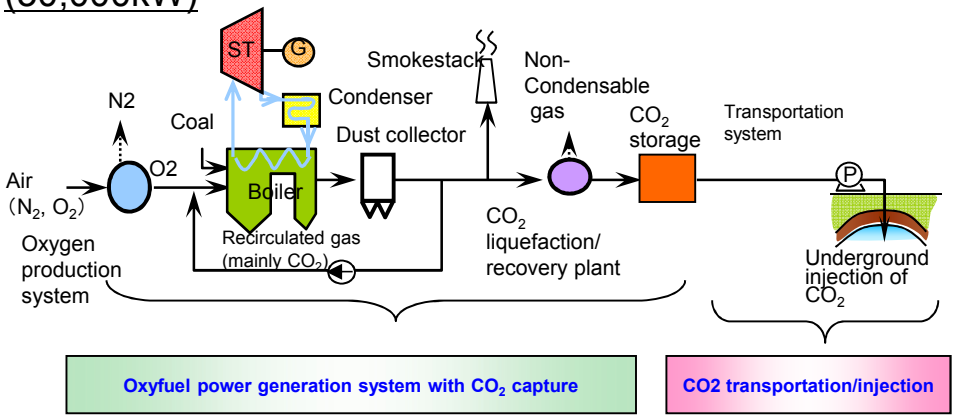
Press Release Information

March 2, 2015

Profile of the Callide Oxyfuel Combustion Project

○Near zero-emission coal-fired thermal power generation using oxyfuel combustion technology has been demonstrated at the Callide A Power Station (generating capacity: 30,000kW), a coal-fired thermal power station located in Central Queensland, Australia. The aim of the project is the practical implementation of a carbon capture and storage (CCS) technology.

Demonstration of the world's first CO_2 capture and underground injection using oxyfuel combustion technology in a coal-fired thermal power station (30,000kW)



What is oxyfuel combustion?

A technology used in thermal power stations, etc., to burn fuel in oxygen, in order to facilitate CO_2 capture by producing boiler exhaust gases consisting mainly of CO_2

System

- Equipment to produce oxygen through air separation
- Exhaust gas recirculation and combustion temperature adjustment to allow use of existing boiler technology

Features

- Suitable for existing or new power stations
- Reduction of energy requirements and costs for CO_2 capture
- Major reduction in nitrous oxide (NOx) emissions

Aim

To demonstrate the reliability and practicality of an oxyfuel thermal power generation system and the process of CO_2 capture and underground injection, to obtain data for commercial implementation, and to accumulate operating tests

Budget

Approximately A$245 million in total
(including subsidies from the Japanese and Australian governments)
Japan-side contribution: Approx. A$40 million
(approx. A$20 million (approx. ¥1.9 billion) each by the government and private sector)

Participants

Japan→ J-LLP(formed by J-POWER, IHI, Mitsui & Co.), JCOAL (collaborating partner)
Australia→ CS Energy, Glencore, Schlumberger, ACA Low Emissions Technologies

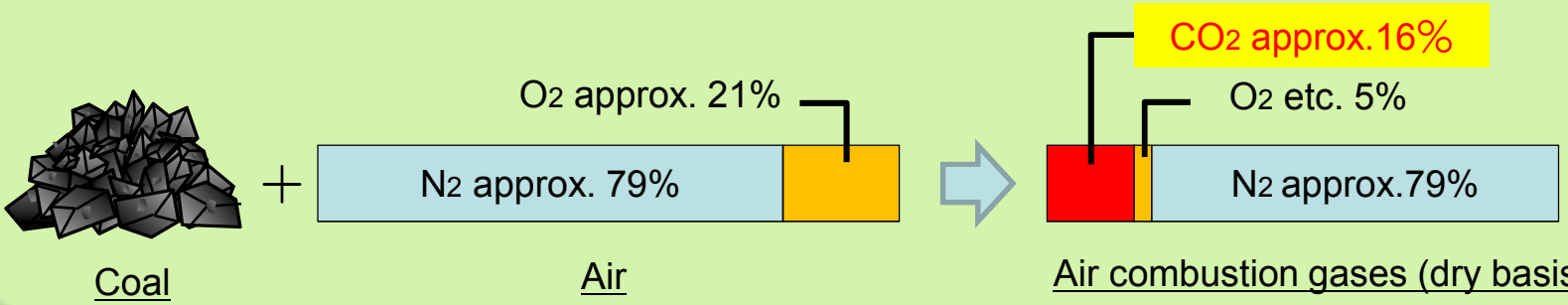
Schedule

2008-2012 Modification of existing thermal power station
2012-2015 Test operation of oxyfuel combustion
2014 CO_2 injection/monitoring
2014-2016 Post-injection CO2 monitoring, feasibility assessment

Principal of the Oxyfuel Combustion System

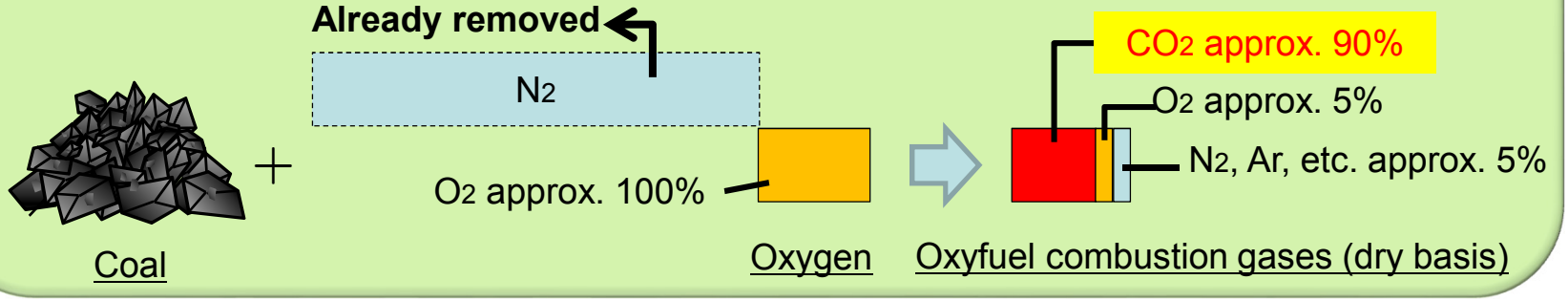
Air combustion

Because air is approximately 79% nitrogen (N_2), the carbon dioxide (CO2) concentration in exhaust gas produced when coal is burned using conventional air combustion is around 16%.

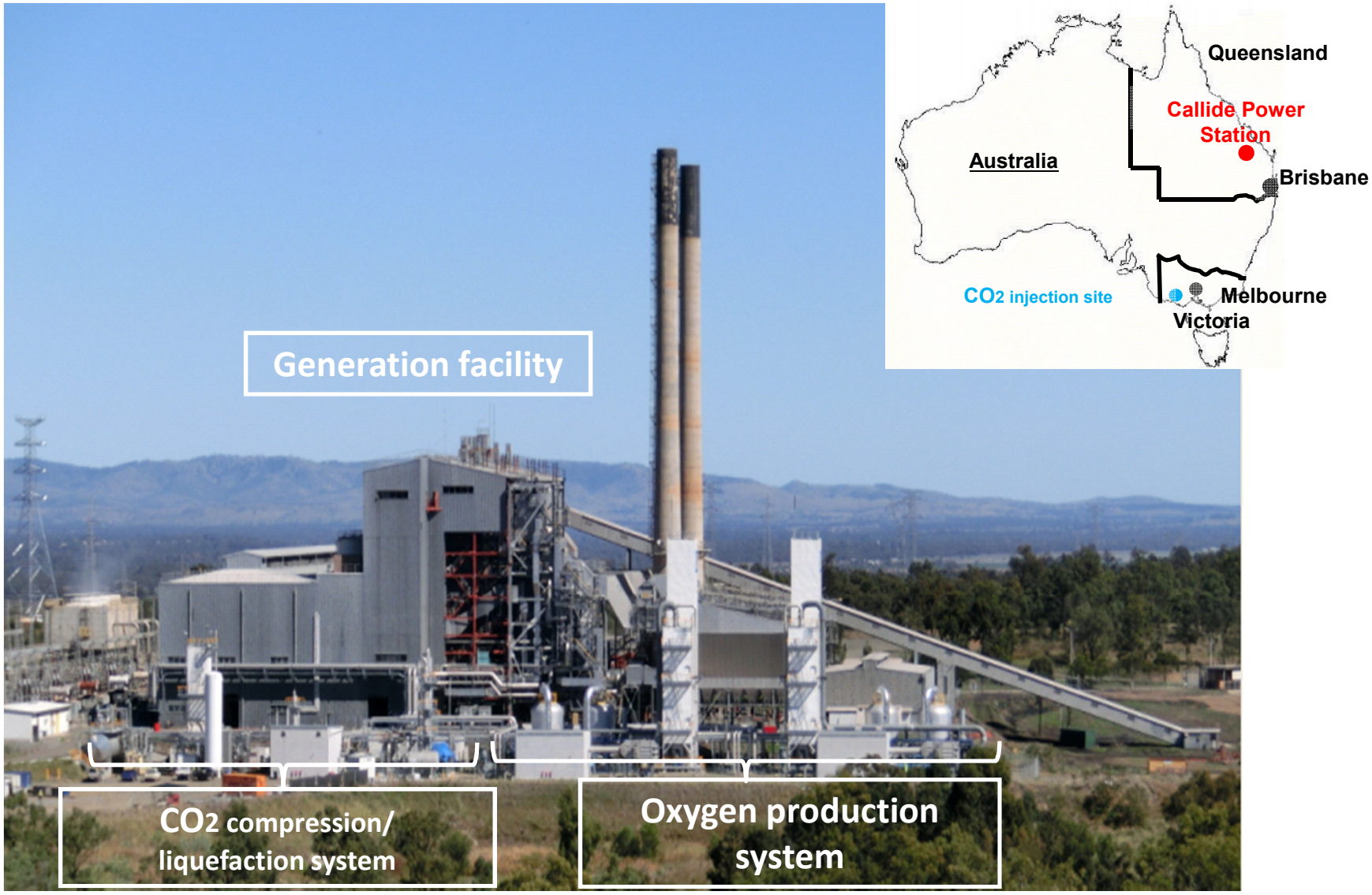


Oxyfuel combustion

Oxyfuel combustion uses the oxygen (O_2) remaining after the nitrogen (N_2) has been separated from the air. This raises the concentration of CO_2 in the exhaust gas to over 90% while reducing the volume of gas to about one-fifth. The gas can then be compressed and captured.



Overview of the Callide A Power Station



Oxyfuel Project Partners

CS energy

IHI

COAL21 FUND

GLENCORE

Schlumberger Carbon Services

J-POWER EPDC

MITSUI & CO.

Australian Government

Queensland Government

METI
Ministry of Economy, Trade and Industry

Supporting Collaborator

JCOAL
Japan Coal Energy Center