

# CO2CRC capture demonstration projects

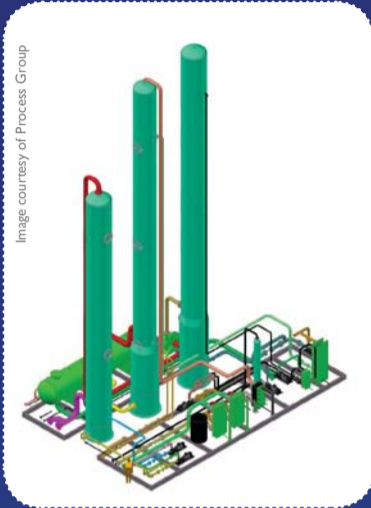
Monash University

Research and development on adsorbents

University of Melbourne

Developing solvent and membrane technologies

## Post-combustion



Demonstration of post-combustion capture (PCC) in plant settings at the Hazelwood power plant

The Latrobe Valley Post Combustion Capture Project is funded by the Victorian Government under its Energy Technology Innovation Strategy (ETIS) Brown Coal R&D program. It will be conducted over a three year period.

CO2CRC, Loy Yang Power, International Power and CSIRO are working on the PCC research project that focuses on the reduction of emissions from brown coal power stations. The project involves seven interlinked research, plant testing and evaluation tasks.

CO2CRC is leading the research activities at International Power's Hazelwood site.

## Pre-combustion



Demonstration of pre-combustion carbon dioxide capture technologies for brown coal power generation in pilot plant settings in Victoria

This \$4.11 million pre-combustion CO<sub>2</sub> capture project, led by CO2CRC, has been made possible with a \$2.06 million grant from the Victorian Government's Energy Technology Innovation Strategy Brown Coal R&D Grants Program.

It will use syngas produced from HRL's pilot size gasification plant at Mulgrave to test a range of pre-combustion capture technologies for eventual use in HRL's Integrated Drying Gasification Combined Cycle (IDGCC) technology using new equipment designed for the project. Amongst these separation technologies a hot carbonate process developed by CO2CRC will be trialled.

- Burn brown coal for power generation
- Capture and separate CO<sub>2</sub> (25 tonnes per day)

Monitor for effects of:

- CO<sub>2</sub> concentration;
- moisture content;
- SO<sub>x</sub> and NO<sub>x</sub> concentration, and
- fly ash properties

on the behaviour of sorbent systems and other novel separation technologies – membranes and adsorbents.

Gasifier

- Dry the brown coal
- React it at high pressure and temperature to form a synthesis gas
- Capture and separate the CO<sub>2</sub>
- Combust hydrogen

Identify and quantify the impact of:

- H<sub>2</sub>S, CH<sub>4</sub>, CO and water, and
- pre-combustion gas temperature and concentration

on each of the separation technologies – solvents, membranes and adsorbents.

- Assess capture processes and energy integration options
- Optimise process operating parameters
- Develop engineering solutions
- Review technical and economic viability of the commercial use of capture process for existing and new Victorian brown-coal power stations
- Inform on-going research and development