CO2CRC Capture Research

CO_2 capture represents up to 80 per cent of the cost of geosequestration. The CO2CRC Capture Program researches, develops and demonstrates technologies that can reduce capture costs by 75 to 80 per cent.

These reductions are being achieved by focusing on a number of themes including:

- selecting the best separation medium and/or process;
- designing for optimal heat integration within the power plant; and
- selecting equipment that is fit-for-purpose for this new CO_2 removal application.

We have over 40 lead researchers, post doctoral fellows and doctoral students working at six universities around the country on a range of cost effective CO_2 separation techniques, such as:

- gas separation and capture technologies for the full range of CO_2-producing applications. (These include post-combustion, pre-combustion and oxyfuels power production and natural gas production);
- gas absorption processes;
- gas separation and gas absorption membranes;
- solid adsorption products and processes;
- cryogenic and hydrate gas separation processes; and
- other hybrid applications.

Over the past three years this work has resulted in innovative techniques to reduce costs and resulted in several world wide patents. An important aspect of commercialising technologies is to demonstrate them at ever increasing scale, thus moving from laboratory and desk based studies to plant based installations.

Consequently, the CO2CRC is involved in some major capture demonstration projects. They are:

- a world-first carbon dioxide CO_2 capture technology project to trial technologies capable of making significant cost savings in the removal of CO_2 from brown coal power generation. This is being conducted in association with the Victorian-based energy technology company HRL Developments. The project has received $2.06 million from the Victorian Government's Energy Technology Innovation Strategy (ETIS) Brown Coal R&D Grants program; and
- a $5.6 million research project that focuses on the reduction of emissions from brown coal power stations. Loy Yang Power, International Power and CSIRO have joined CO2CRC to work on the Latrobe Valley Post Combustion Capture Project, which has also received $2.5 million from the ETIS program. This will allow development and demonstration of CO_2 cost reduction at two power plants in the Latrobe Valley.

Each of these projects (among other we are developing) will provide data and experience to reduce emissions and capture costs for any, and all, fossil fuel fired power stations and support our vision of a low emission future.