

CO₂ 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 CO₂ removal application.

We have more than 50 lead researchers, post doctoral fellows and doctoral students working at six universities around the country on a range of cost-effective carbon dioxide separation techniques, such as:

- ◆ gas separation and capture technologies for both the full range of carbon dioxide-producing applications, including post-combustion, pre-combustion and oxyfuels, power and natural gas production, and all fossil fuel energy sources, such as black and brown coal, natural gas and biofuels;
- ◆ gas absorption processes;
- ◆ gas separation and gas absorption membranes;
- ◆ solid adsorption products and processes;
- ◆ cryogenic and hydrate gas separation processes; and
- ◆ other hybrid applications.

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 CO₂ capture technology project to trial technologies capable of making significant cost savings in the removal of CO₂ 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 CO₂ cost reduction at two power plants in the Latrobe Valley.

Each of these projects (among others 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.