PRE-TREATMENT OF FLUE GAS AND CO2 CAPTURE PROJECT

- $350,000 funding for *'Combined low-cost pre-treatment of flue gas and capture of CO2 from brown coal-fired power stations using a novel integrated process concept – closing the Sulphur loop (coCAPco2)'*; submitted by **Commonwealth Scientific and Industrial Research Organisation (CSIRO)**. Project participants include **AGL Loy Yang Pty Ltd** and **Energy Australia.**

This project builds upon earlier BCIA-funded research and aims to significantly reduce capital costs – by up to $200 million for a 550MW plant - in retrofitted post-combustion capture of CO2 from coal-fired power stations. The research objective is to integrate the removal of sulphur (SO2) and carbon (CO2) in a single column, with a single liquid absorbent, thus removing the requirement for a separate flue gas desulphurisation unit.

The initial BCIA-funded research project proved the sulphur pre-treatment and CO_2 removal steps could be successfully integrated into a combined process for amine and amino acid-based liquid absorbents. That project obtained a proof-of-concept for the amino acid system through collaboration with a European consortium (iCap). This project aims to obtain a proof-of-concept for the removal of sulphur from amine based absorbents utilised in the combined SO_2/CO_2 removal process. Researchers will focus on the feasibility and cost-effectiveness of a range of methods for regeneration of these liquid absorbents including distillation and alternatives such as crystallisation, electrodialysis, ion-exchange and nanofiltration. The research project is targeting a $40 to $50 per tonne avoided CO_2 cost with specific application to Victorian brown coal-fired power plants.

The technology concept could be further developed and utilised to retrofit the State's existing power stations and existing flue gas desulphurisation units throughout the world. The expected outcomes of this project will also feed into the development route for deployment of a new combined technology as a viable alternative to the installation of a flue gas desulphurisation unit prior to post-combustion capture of CO_2.