

New CO₂ solvent process captures imagination

An innovative environmentally friendly method of capturing carbon dioxide from power stations will be outlined today at the National CCS Conference in Melbourne.

Dr Peter Cook, Chief Executive of the Cooperative Research Centre for Greenhouse Gas Technologies (CO₂CRC), will present the technology today to an international audience of industry, government and researchers as part of an update on the latest CCS research and development.

“The capture process is the most expensive part of carbon capture and storage (CCS) so reducing costs in capture can make a major difference to the overall cost of CCS. Our process can reduce those costs by 15 to 20 per cent, potentially saving an operator millions of dollars a year.” said Dr Cook.

The system, developed by the CO₂CRC solvent team at The University of Melbourne, uses potassium carbonate, an environmentally benign compound similar to baking soda, to capture CO₂ from large industrial sources for storage.

“Apart from the energy saving potential of this technology, which is considerable, the solvent used is non-volatile (will not evaporate) and oxygen-tolerant (will not break down over time).

“Another important benefit is that the system is able to deal with SO_x and NO_x, two of the by-products of combustion, converting them to solids that can be used in fertiliser manufacture,” said Dr Cook.

A major accelerator for the project has been the ability to trial the solvent and refine the process under industrial conditions at a coal-fired power station in Victoria’s Latrobe Valley. The research has been supported by the Victorian Government through their ETIS program.

CCS is one of the key technologies being developed globally to deal with our growing greenhouse gas emissions and will be part of an essential portfolio of options, along with renewable energy, energy efficiency and fuel switching. The International Energy Agency estimates that CCS, in which carbon dioxide is captured from large industrial sources and stored safely deep underground, could be responsible for as much as 19 per cent of the carbon dioxide emission reductions required to meet global targets.

Detailed discussion of the new solvent process will continue this week at CO₂CRC’s annual Research Symposium in Melbourne, where the latest research progress from CRC partners around Australia will be discussed. A worldwide provisional patent is pending.

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CO₂CRC collaborates with leading international and national CCS experts to conduct world-class research into carbon capture and storage. Organisations participating in CO₂CRC research include CSIRO, Geoscience Australia, the Universities of Adelaide, Curtin, Melbourne, Monash, NSW, Queensland and Western Australia, GNS Science (NZ), the Alberta Research Council of Canada and the US Lawrence Berkeley National Laboratory.

Industry and State core partners supporting CO₂CRC are Anglo American, ANLEC R&D, BG Group, BHP Billiton, BP Australia, Chevron, Foundation for Research Science and Technology (NZ), INPEX, KIGAM, Mitsui, NSW Industry & Investment, QER, QLD Department of Mines and Energy, Rio Tinto, Sasol, Schlumberger, Shell, Solid Energy, Stanwell, Total, the Victorian Department of Primary Industries, WA Department of Mines and Petroleum and Xstrata.