

CO₂ STORAGE PROSPECTS IN SOUTH EAST QUEENSLAND

POSSIBLE INTEGRATION WITH OXY-FUEL COMBUSTION OR IGCC POWER GENERATION PILOT PROJECTS

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Abstract

During the Australian Petroleum Cooperative Research Centre's GEODISC Research Program conducted from 1999 to 2003, the various CO₂ geological storage options and capacities for Australia were studied at a very high level. This included most of the major sedimentary basins, and in particular looked at basins with CO₂ storage potential which were adjacent to major sources of greenhouse gas emissions. This included the Bowen, Surat and Galilee Basins in South East Queensland. In general the conclusions from this work indicated that, whilst it was considered unlikely that a suitable storage site would be found adjacent to the power stations, it may be possible to find storage suitable sites in the Bowen and Surat Basins.

It was also concluded that whilst sites would be identified in saline formations and depleted oil and gas fields which could support smaller scale (ie pilot/demonstration projects or small scale commercial projects) for a number of years, many fields were unlikely to be available in the short-term. On a risked basis it was considered unlikely that all of the sites available in the Bowen/Surat Basins would be able to support commercial storage of CO₂ for the whole of the South East Queensland power industry for any substantial period of time, and that potential storage locations further away from the sources would probably need to be located for this purpose. Preliminary evaluation of the Galilee Basin indicated that it might represent an upside in CO₂ storage potential but was more than 500 kilometres away from many of the power stations which were the source of the CO₂ emissions.

This work has been progressed during the first two years of the CRC for Greenhouse Gas Technologies (CO2CRC) with work just completed on a project conducted by CO2CRC for the Australian Coal Association with funding provided in part by AusIndustry via their Innovation Access Fund. This study had tasks identified in both New South Wales and South East Queensland specifically addressing the technological challenges in identification of suitable CO₂ storage sites in both areas. Whilst specific tasks for SE Queensland related to the evaluation of reservoir damage that might have occurred during drilling, CO₂ storage potential in coal seams and during enhanced coal-bed methane recovery and risks that might exist from CO₂ storage to potable water resources in the Great Artesian Basin, many other aspects of potential CO₂ storage in South East Queensland have been, and continue to be investigated. Many of these are of direct relevance to both pilot projects and commercial scale storage projects associated with next-generation, clean-coal technology power generation. The current status of these studies will be reviewed in this presentation.