

Otway Basin Carbon Dioxide Sequestration Trial Advances

The Australian Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC) through its operating company CO2CRC Project Pty Limited (CPPL) has been awarded two production licences in the onshore Otway Basin of western Victoria in which to conduct its first carbon dioxide sequestration trial.

The pilot gas injection, storage and monitoring program has started with injection likely to start mid next year and will last at least until 2010.

Up to 100,000 t of CO₂ is expected to be injected over two years. Post injection, the next two years will involve monitoring the carbon dioxide to determine how it behaves when stored underground, and whether this behaviour is consistent with the computer models developed.

During the project, scientists will extract naturally occurring carbon dioxide and methane from a gas well, separate the methane from the carbon dioxide and use the methane to drive a compressor. The compressor condenses the carbon dioxide to liquid so it can be transported via pipeline to the well-head of a depleted natural gas field where it will be injected and stored.

The program will involve production of carbon dioxide from the Buttress gas field at a rate of around 3 MMcf/d, piping the gas 2-3 km and injecting it 2 km underground into the Cretaceous Waarre reservoir on the flank of the depleted field via a well to be drilled later this year.

In the region, monitoring has started to establish baseline data and will continue for the next

4-5 years to gauge the movement of CO₂ in the reservoir.

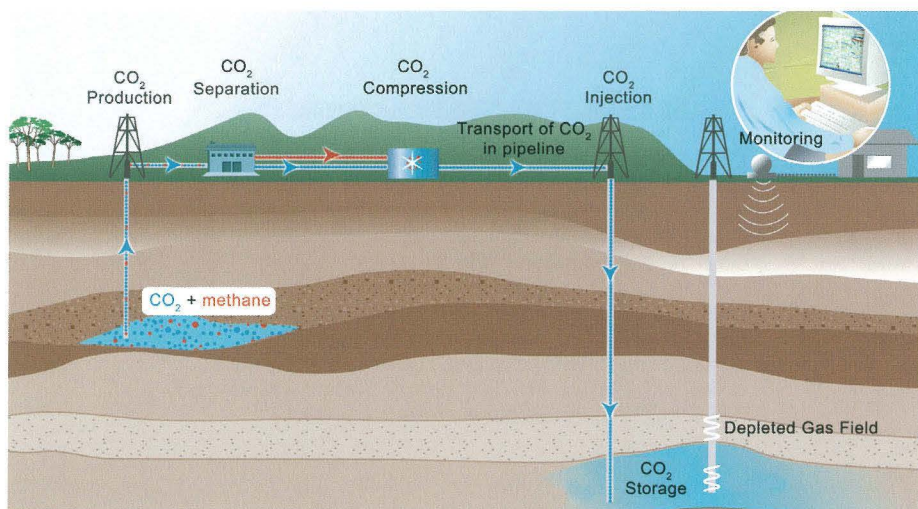
The Victorian government has allocated \$4 million to the program. Funding is also coming from petroleum companies and overseas research groups. About 30 researchers will be involved in the project.

Program Manager of the CRC Storage Program, Professor John Kaldi, said studies that CO2CRC researchers have been doing include the evaluation of subsurface fluid migration paths and the timing of CO₂ migration through the deep saline aquifers identified as injection targets in the Otway basin.

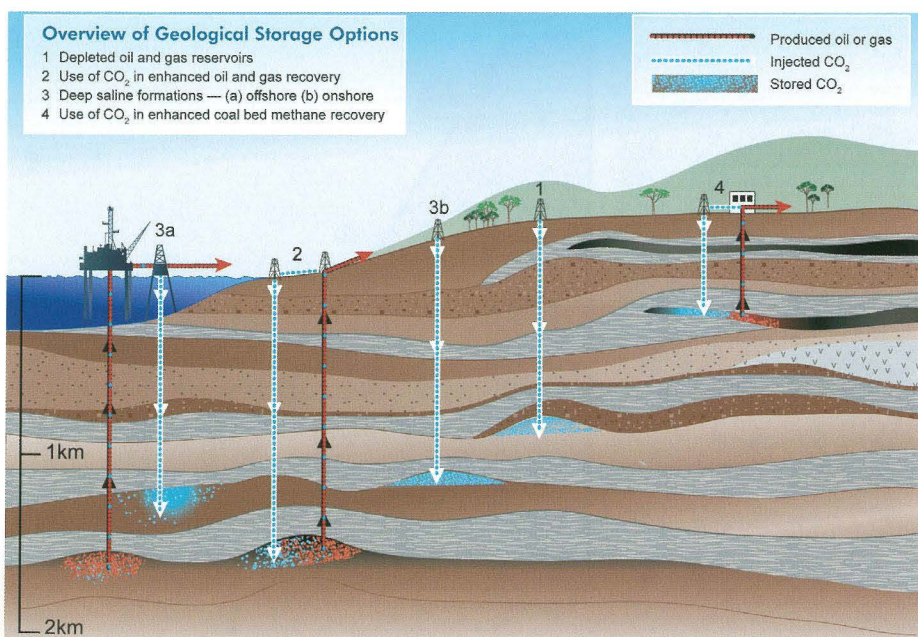
"Our analyses lead us to believe that there will be suitable storage of CO₂ injected into specific target formations with at least 99% retention for a minimum of 1000 years", he said. "Earth forces such as continental plate movements are on a time scale of hundreds of thousands to millions of years."

"More sudden earth movements, like earthquakes, occur with greater frequencies, and one of the critical risks that we have had to analyse is that of faults in the area becoming re-activated - slipping and thus causing earthquakes, with the associated possibility of leakage."

Kaldi said detailed geomechanical studies of the rocks and the faults in the Otway Basin had been done and a detailed risk analysis has indicated that the test site is appropriate for a sequestration trial. ■



The Otway Basin CO2CRC pilot project concept. Pictures courtesy: CO2CRC.



Geological storage options for the Otway Basin CO₂ pilot project.