



Australian Government

Department of Industry, Tourism and Resources

# Financing Existing CCS Projects: How has it been done and what are the lessons for emerging economies?

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*Counsellor*

*Australian High Commission*





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# Australian Government Climate Change Policy

- The Australian Government's Climate Change policy framework embraces:
  - Reducing domestic emissions at least economic cost
  - Developing low emissions technologies, improving energy efficiency and supporting household and communities to reduce emissions
  - Supporting world class science and adapting to the impacts of unavoidable climate change; and
  - Pursuing effective international responses to climate change that involve all major emitters and that reflect domestic policies





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## Australian Government Support for CCS

- Clean fossil fuels are part of a suite of approaches to climate change including energy efficiency, fuel switching and advanced energy technologies.
- The Australian Government is a strong believer in the potential of CCS to enable deep cuts in our greenhouse gas emissions.
  - Australia has significant endowment of fossil fuels especially coal and gas and CCS offers one of the only viable short to medium term opportunities for Australia to reduce greenhouse gas emissions while maintaining international competitiveness
- The Australian Government is supporting the deployment of CCS technology through a number of mechanisms:
  - International Engagement: IEA, CSLF, APP
  - Legal/Regulatory: Amendments to offshore legislation to provide access and tenure to storage sites
  - Financial: Budget, financial support for CCS projects
  - Public Awareness: Centre for Low Emissions Technology ([www.clet.net](http://www.clet.net))
  - Research and Development: Geoscience Australia, CO2CRC





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## Financing of CCS projects in Australia

- Stand-alone Commercial Projects
  - Monash Energy
  - Hydrogen Energy DF3 Project
- Commercial Projects with Government support
  - Low Emissions Technology Demonstration Fund (LETDF)
- Industry, research & government alliances
  - CO2CRC





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## Low Emissions Technology Demonstration Fund (LETDF)

- The \$500 million Low Emissions Technology Demonstration Fund (the Fund) is a merit-based programme designed to demonstrate breakthrough technologies with significant long-term greenhouse gas reduction potential in the energy sector.
- The Fund was announced by the Prime Minister in June 2004 as part of the Government's Energy White Paper, Securing Australia's Energy Future. The aim was to leverage at least \$1 billion in additional private investment in new low emission energy technologies.





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## LETDF (cont)

- **\$75 million to Fairview Power** for its coal bed methane extraction and CO<sub>2</sub> storage project.
  - This project will result in a reduction of one-third of the Injune power plant's carbon dioxide emissions by burning methane and sequestering captured carbon dioxide in the coal seams from which the coal bed methane has been extracted.
- **\$50 million to CS Energy** for its Callide A Oxy-fuel demonstration project.
  - This will retrofit new technologies into the existing coal-fired power station to capture exhaust gases with a high concentration of carbon dioxide and store it underground.
- **\$60 million to Chevron** for its Gorgon CO<sub>2</sub> Injection project.
  - This project will separate and capture carbon dioxide from natural gas production and inject it deep underground into a saline aquifer. The project will capture and store up to 3 million tonnes of carbon dioxide a year, making it the largest geosequestration project in the world.





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# Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC)

- The Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC) is one of the world's leading collaborative research organisations focused on carbon dioxide (CO<sub>2</sub>) capture and geological storage (geosequestration)
- The CO2CRC is a multidisciplinary, multi-institutional organisation comprising more than 100 researchers in Australia and New Zealand.
- The research is collaborative in nature with the objective being to develop safe and economical CO<sub>2</sub> geosequestration technologies to help make deep cuts in Australia and New Zealand's greenhouse gas emissions.



# CO2CRC Participants



Supporting participants: [Australian Greenhouse Office](#) | [Australian National University](#) | [CANSYD](#) | [Meiji University](#) | [The Process Group](#) | [University of Queensland](#) |



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## CO2CRC (cont)

- Over its seven-year life, the CO2CRC's expenditure is budgeted to be about A\$140 million with half of the funding from industry and the other from the Government, to cover all its activities.
- The CO2CRC principle activities include research into storage and capture, demonstration projects (Otway Basin Pilot Project) and international collaboration and commercial activities.
- The CO2CRC is due to wrap up its 7 years funded activities (2003-2010) under the current CRC round of funding by June 2010.





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## CO2CRC Otway Project

- The Otway Basin Pilot project (OBPP) is Australia's first project to demonstrate the geological storage and monitoring of CO<sub>2</sub> under Australian conditions. The location for the pilot project is in western Victoria, in an area used for grazing.
- The project has been designed to demonstrate all aspects of CCS and aims to provide technical information on geosequestration processes, technologies and monitoring and verification regimes that will help to inform public policy and industry decision-makers and assurance to the community.





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## CO2CRC Otway Basin Pilot Project Funding

- Budget for Stage 1 of the OBPP is around A\$30million. Funding for Stage 1 is being provided by a number of sources both industry and government.
  - A\$8.85 million from the Australian Greenhouse Office
  - A\$4.1 million from AusIndustry (part of the Department of Industry, Tourism and Resources)
  - A\$3.1 million from the Department of Science, Education and Training
  - A\$4.0 million from the Victorian Government
  - A\$6.5 million from industry
  - A\$3.2 million from the CO2CRC





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## What have we learnt ?

- Stand alone commercial projects in the absence of a pricing signal for carbon dioxide through an emissions trading scheme are unlikely to occur.
- Government intervention and or direct participation is needed for early projects.
- Encouraging collaborative R&D domestically and internationally will reduce the overall costs of CCS over time.
- In addition to financial support, Governments also need to ensure that legal and regulatory frameworks are in place and that community confidence and awareness of projects is managed.
- Make CCS a profitable and viable business operation.
- Identify and encourage private capital and other financial institutions (insurers) to contribute to this development.





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# THANK YOU

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