

JOHN DRAPER

Director

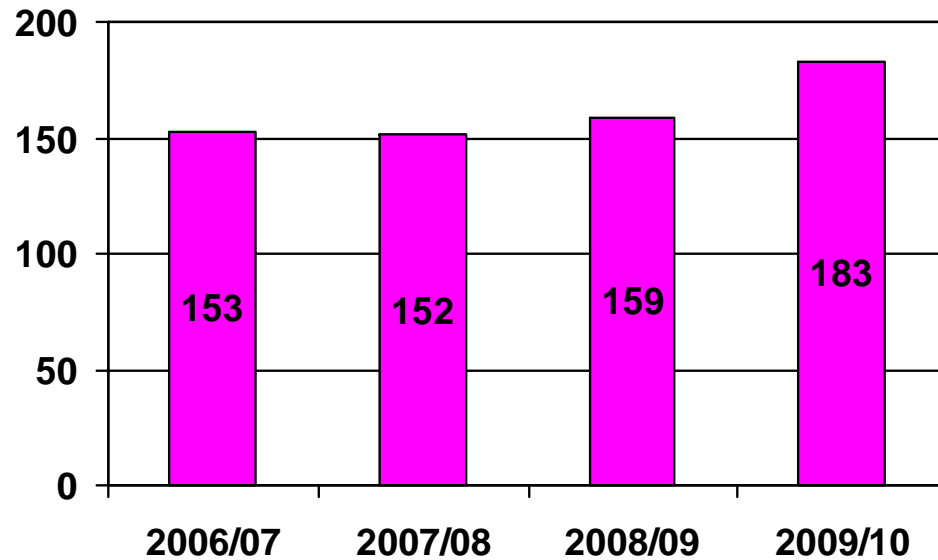
Carbon Geostorage Initiative
Geological Survey of Queensland
Queensland Government

Queensland's commitment to coal technologies and opportunities

September 2010

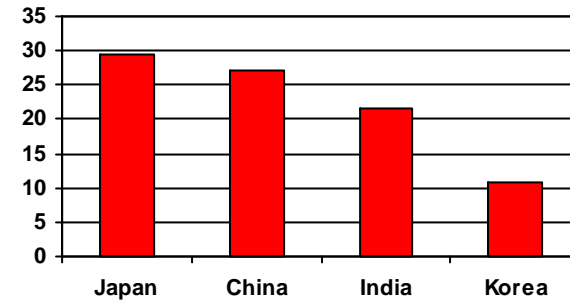
Queensland's coal industry overview

QLD Coal Exports by Financial Year (Mt)

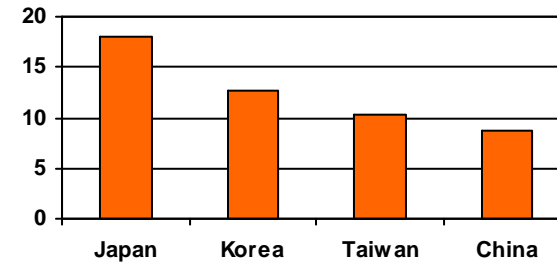


Major Customers 2009

Coking Coal (Mt)



Thermal Coal (Mt)





Queensland's response to Climate Change

- Coal-fired electricity generation provides secure, cheap and reliable energy for Queensland
- The Queensland Government recognises the carbon intensity challenge we face with coal as a primary fuel for electricity
- The Queensland Government is committed to accelerating the development and deployment of a portfolio of energy technologies to achieve deep cuts in greenhouse gas emissions from the stationary energy sector
- Portfolio response includes:
 - **Low emission coal technologies**
 - **Renewable energy technologies**
 - **Energy efficiency savings**



Low Emission Coal Technologies – Queensland's approach

- Current situation: early stages of scientific understanding and technology development
 - Globally, no fully integrated CCS coal-fired power station is in operation
 - Plant manufacturers increasingly promoting the capability to provide generation with CO₂ capture technology on a commercial basis
 - Lack of certainty regarding a carbon price
- The success of demonstration projects will depend on the quality of the project arrangements and the consolidation of the necessary national frameworks
- Enduring benefits to Queensland:
 - Ongoing viability of the coal industry
 - Knowledge and IP will be widely accessible
 - Development of science to advance CO₂ storage
 - Assessment of CO₂ storage capacity



Coordination and Funding

- **State**
 - Queensland Clean Coal Council
([\\$900 million joint state / coal industry fund](#))
- **National**
 - National Low Emissions Coal Council
 - National Carbon Mapping and Infrastructure Plan
 - CCS Flagships Program ([\\$2 billion to develop industrial-scale low emission coal projects](#))
- **International**
 - Global CCS Institute (est. by the Prime Minister in September 2008)
([Supports the G8 target to launch 20 large-scale CCS projects around the world by 2010](#))



Queensland-based LECT projects

- Carbon Geostorage Initiative
(Queensland CO2 Geological Storage Atlas – internationally recognised publication)
 - ZeroGen commercial scale IGCC + CCS
 - Wandoan commercial scale IGCC + CCS
- } shortlisted under the CCS Flagships Program:
- Callide Oxyfuel Project
(international consortium of investors, including strong Japanese support)
 - Tarong Post-combustion capture trial (pilot)



International Collaborations

- Queensland has access to international expertise in low emission coal technology through its collaborations with Japan, the United States, Germany and China and through membership of the CO2CRC.
- Queensland has strong links with the Japan in development low emission coal technology
- Collaboration with Japan includes industry support for:
 - Callide Oxyfuel Project; and
(JPower, IHI Corporation, Mitsui & Co., JCoal and METI)
 - ZeroGen commercial scale IGCC + CCS Project
(Mitsubishi Corporation / Mitsubishi Heavy Industries)



Geological Storage of Carbon Dioxide

- The most critical element in implementing low emission coal technologies is the availability of viable geological storage for the captured carbon dioxide.
- The Carbon Geostorage Initiative (CGI) is a government program to identify and evaluate carbon geosequestration sites in Queensland that will have the potential for long-term, safe and secure storage of carbon dioxide emissions.



Carbon Geostorage Initiative (2008-2012)

Stage 1 – Assessment of Queensland’s Sedimentary Basins

- Atlas and Geographic Information System (released in September 2009)

Stage 2 – Assessment of Priority Basins

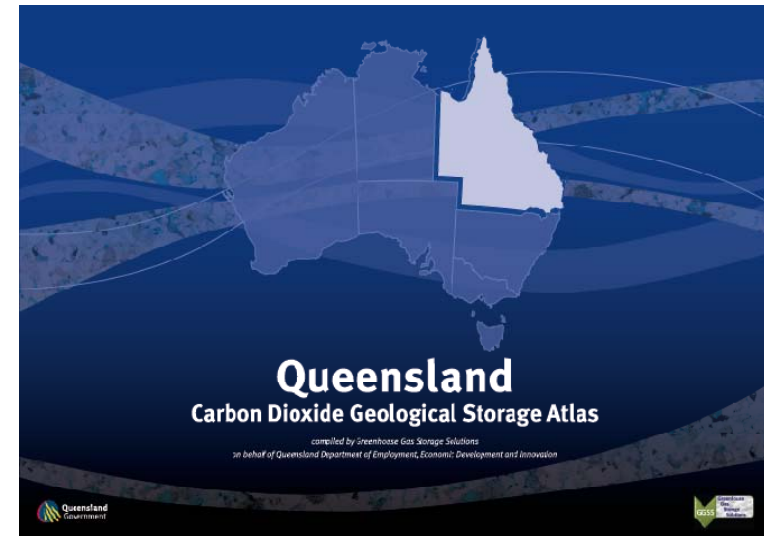
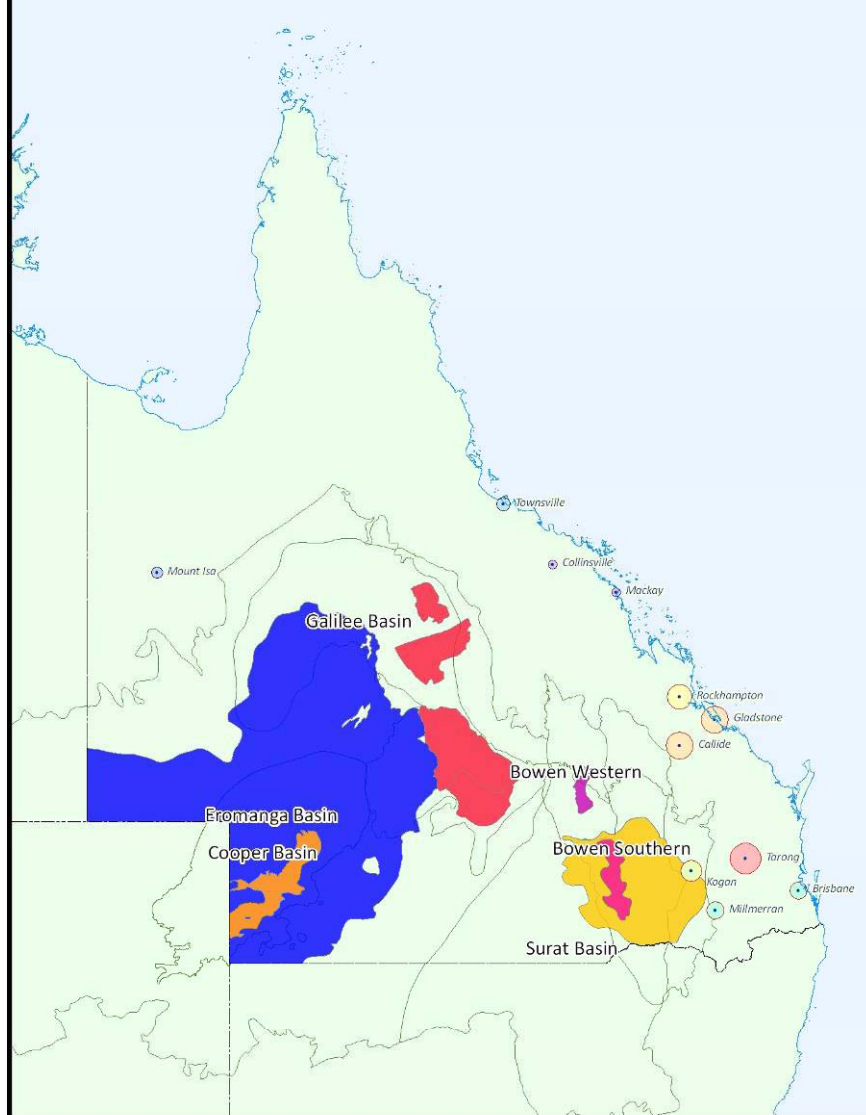
- New Data Acquisition (work plan under development)
 - seismic, drilling, chemical analysis, physical properties
- All pre-competitive data

Stage 3 – Industry Site Characterisation

- Linked to exploration tenure

CGI – Stage 1

Potential Carbon Dioxide Storage Areas



Basin/subbasin	Storage (Mt)
Bowen Western (Denison Trough)	100
Bowen Southern (Roma Shelf)	280
Cooper Basin	172
Galilee Basin	3,430
Surat Basin	2,962
Eromanga Basin	46,413

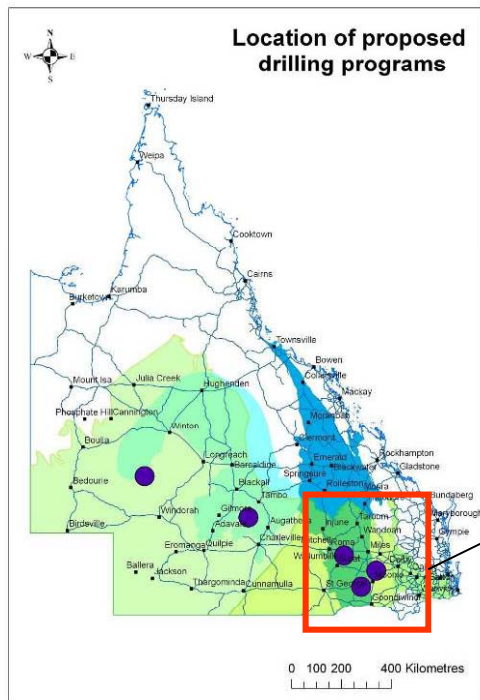
CGI Basin Assessment Program (Stage 2)

Current Funding

Queensland Government – \$10 million

Australian Coal Association Low Emissions Technologies Limited - \$20 million

Australian Government - \$20 million

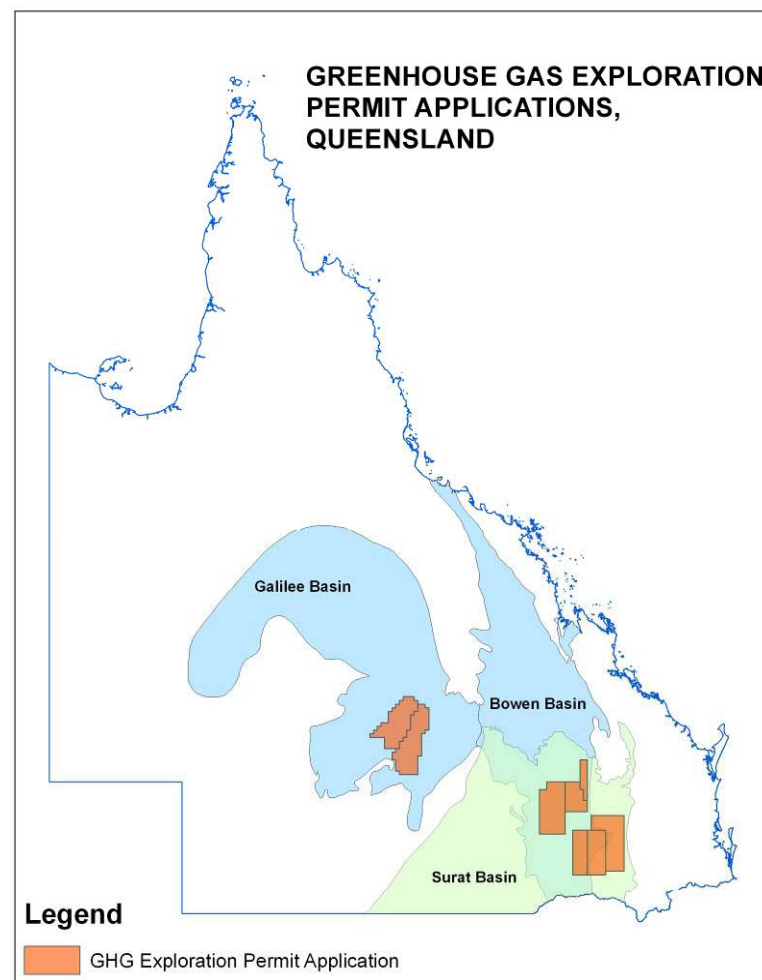


Priority area

Assessment in the Bowen and Surat basins will involve drilling and seismic data reprocessing.

Carbon Geostorage in Queensland – Legislation/Regulation

- *Greenhouse Gas Storage Act 2009* and *Greenhouse Gas Storage Regulation 2010* provide framework for exploration for, and development of, geological storage sites.
- First call for tenders for exploration areas closed on 15th June 2010
- Applications are currently being assessed





Opportunities – Carbon Storage

- Collaborative partners will enable additional data to be collected.
- Additional funds are required to extend the data collection to other high potential basins such as the Galilee and Eromanga Basin.
- During the CGI drilling program, numerous core and fluid samples will be taken. Material could be provided for specific research.
- Targeted science is needed in a number of aspects of carbon storage, particularly in low salinity groundwaters.
- Companies exploring for storage are forming research alliances with a number of organisations and would welcome additional expertise.
- Please contact me directly if you are interested in opportunities to be involved in carbon storage research in Queensland.
- Details:

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Summary

- Queensland's coal industry continues to expand.
- The Queensland Government is actively supporting low emission coal technologies.
- Geological storage of carbon dioxide is the key to successful implementation of low emission coal technologies.
- The Carbon Geostorage Initiative has been tasked by the Queensland Government to assess Queensland's storage potential.
 - The first stage of the assessment was the release of an Atlas and Geographic Information System in September 2009.
 - A work plan to capture new data is under development.
- Queensland has legislation and regulations in place to allow exploration for, and development of, subsurface geological storage.
 - Applications for first land released for exploration are currently being assessed.
- Collaboration in carbon storage research in Queensland would be welcomed.



Thank you