



Australian Government

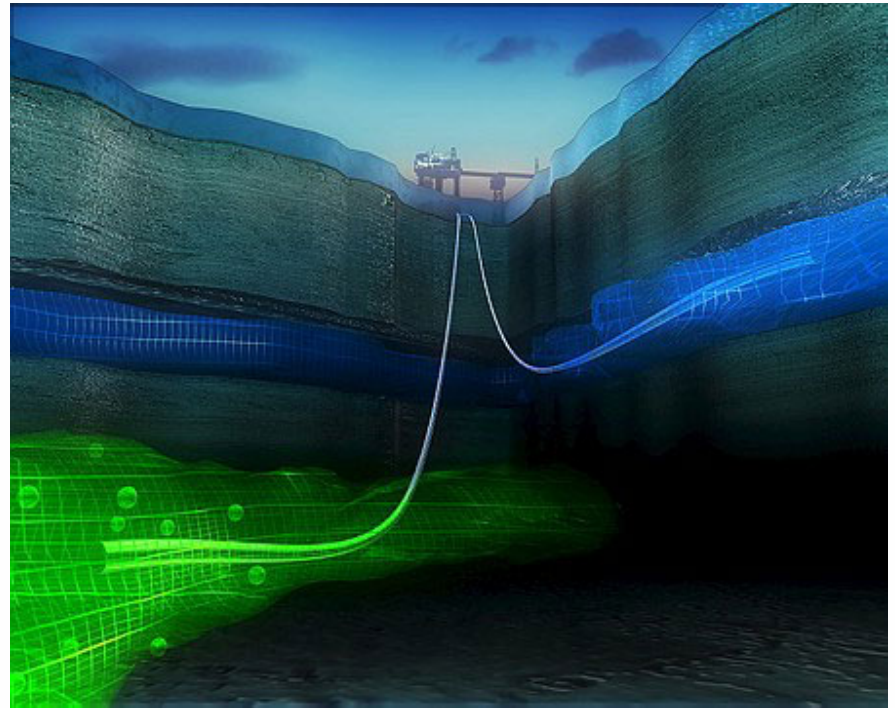
Department of Resources, Energy and Tourism

# Australia's CCS Policy and Regulation: An Overview

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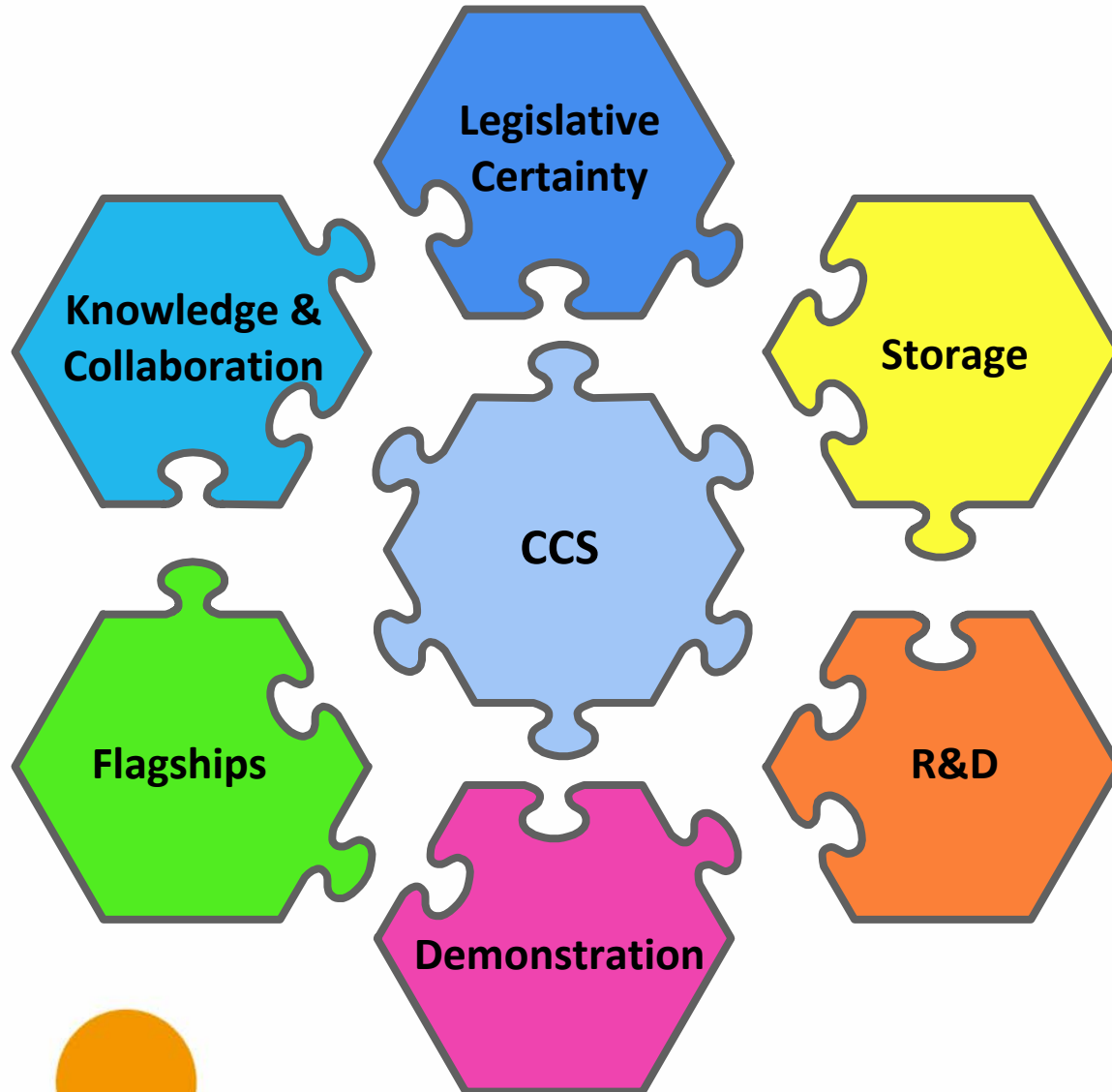
# Why CCS for Australia?

- Australia is reliant on coal but committed to reducing greenhouse gas emissions.
- CCS essential to maintain energy security whilst achieving large cuts in emissions.
- Package of measures to accelerate the deployment of CCS in Australia and internationally.



*Source: Carbon Sequestration Leadership Forum*

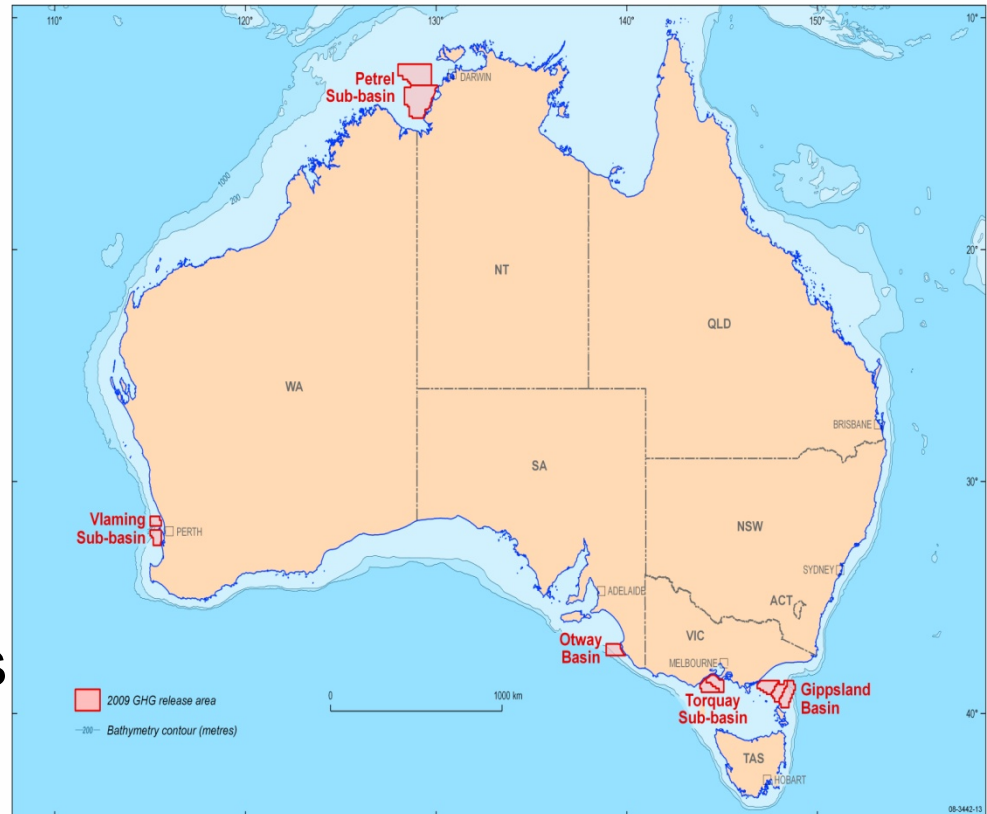
# Australia's CCS Policies



## Legislative Certainty

# Commonwealth GHG Storage Legislation

- *Offshore Petroleum and Greenhouse Gas Storage Act 2008*
- Major features:
  - title system similar to that used for petroleum
  - safe and secure storage
  - managing interactions with the petroleum industry
  - site closure and treatment of long term liability
- Release of 10 offshore areas



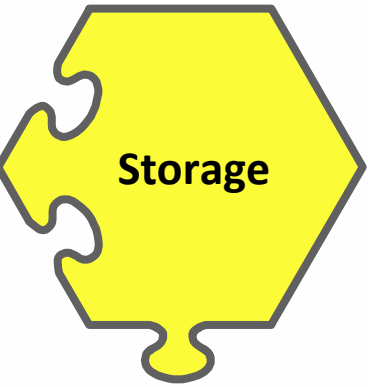


## CCS-Specific Regulations

Currently under development

- safe and secure storage
- incident reporting
- a significant impact test
- site closure requirements
- long term liability

Well advanced, expected to be passed in early 2011

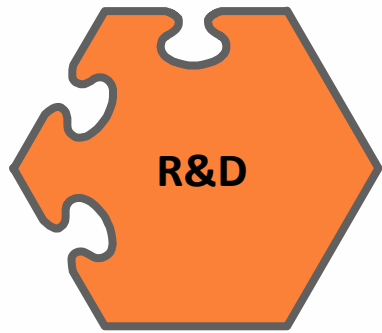


# National Carbon Mapping and Infrastructure Plan



Geographical distribution of emissions by industry estimated for 2020





# Research and Development

- Australian National Low Emissions Coal Research and Development (ANLEC R&D)
- Joint Australian Government & black coal industry
- \$150 million funding over seven years
- Seven research nodes
  - Economics and modelling
  - Alternatives and fundamentals
  - Brown coal
  - Geosequestration
  - Post combustion capture
  - Oxyfiring
  - Coal gasification





# Demonstration Projects

## National Low Emissions Coal Initiative

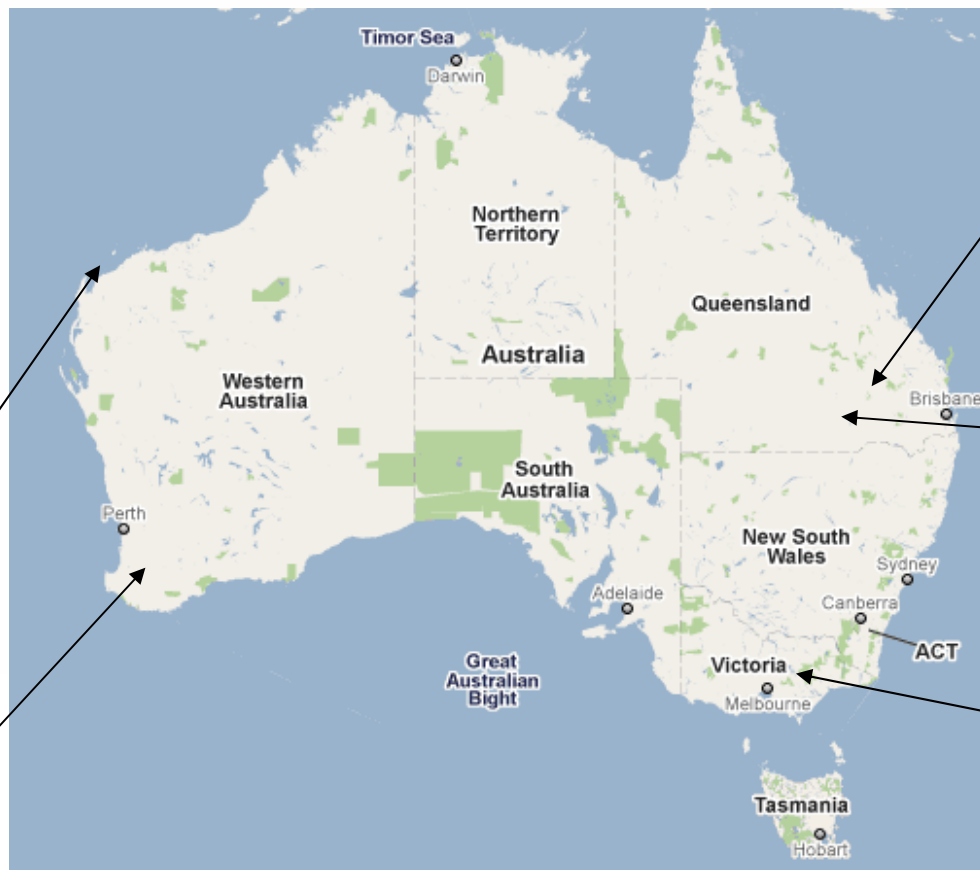
- Pilot scale and medium scale Post Combustion Capture (PCC)
  - Loy Yang (Victoria)
  - Munmorah (NSW)
  - Tarong (Queensland)
- Callide Oxyfuel
- Calera carbonation project
- Nippon Steel Engineering
- Otway storage project





# CCS Flagships & Commercial Scale Projects

Flagships



**ZeroGen**  
400MW IGCC  
sequestering  
3.0MT per  
year

**Wandoan** –  
330MW IGCC  
sequestering  
2.5MT per  
year

**CarbonNet** –  
hub to  
sequester 3 –  
5 MT

**Gorgon LNG Project**  
To sequester 3.5 MT  
per year

**Collie South West  
Hub** – to sequester  
2.4MT with potential to  
7 MT

- Also, the Gorgon LNG Project – will store 3.5 Mtpa CO<sub>2</sub>



# Knowledge sharing



Crucial to development and deployment and public acceptance

- Internationally: participation in regional and global activities to foster and accelerate knowledge sharing
- Nationally: projects receiving government funding will have strong knowledge sharing obligations



# Global collaboration

- Global CCS Institute
- Carbon Sequestration Leadership Forum
- International Energy Agency
- Major Economies Forum on Energy and Climate
- Asia Pacific Partnership on Clean Development and Climate
- Asia Pacific Economic Cooperation
- numerous bilateral initiatives (US, Japan, China, Republic of Korea etc)



Knowledge &  
Collaboration

# Australia-China Collaboration

Australia-China Joint Coordination Group on Clean Coal Technology (JCG)

- Commercial scale PCC project in China – Scoping Study

Asia Pacific Partnership on Clean Development & Climate (APP) – Cleaner Fossil Energy Taskforce

- Gaobeidian Post Combustion Capture pilot plant
- Extension of ECBM trial in Shanxi Province
- CAGS



Knowledge &  
Collaboration

## JCG R&D Grants



R&D

- 1. Integrated radar & optical satellite remote sensing for safeguarding CCS**  
Uni of NSW; National Research Centre [China]; China Shenhua Group
- 2. Assessing the value of co-optimising ECBM recovery and CO<sub>2</sub> storage**  
Uni of NSW; China Univ of Geosciences; Qinshui Lanyan Coalbed Methane
- 3. Chemical looping gasification of coal for zero emissions power generation**  
Uni of Qld; Southeast University, Nanjing; Zhejiang University, Hangzhou
- 4. Further dev of an aqueous ammonia PCC process for application in Australia and China;** CSIRO; Tsinghua University, Zhejiang University
- 5. Optimal practices for CO<sub>2</sub> ECBM productions for Chinese Coals**  
CSIRO; China University of Geosciences
- 6. Kinetics of steam fluidized bed drying and Oxy-CFB combustion characteristics of Victorian brown coal & Chinese lignite**  
Monash Uni; Shengli Energy; Kelong Pet. Chem. Equip; Liaoning Fu-an Grp

# Recent policy developments

New measures to ensure a cleaner future for power stations:

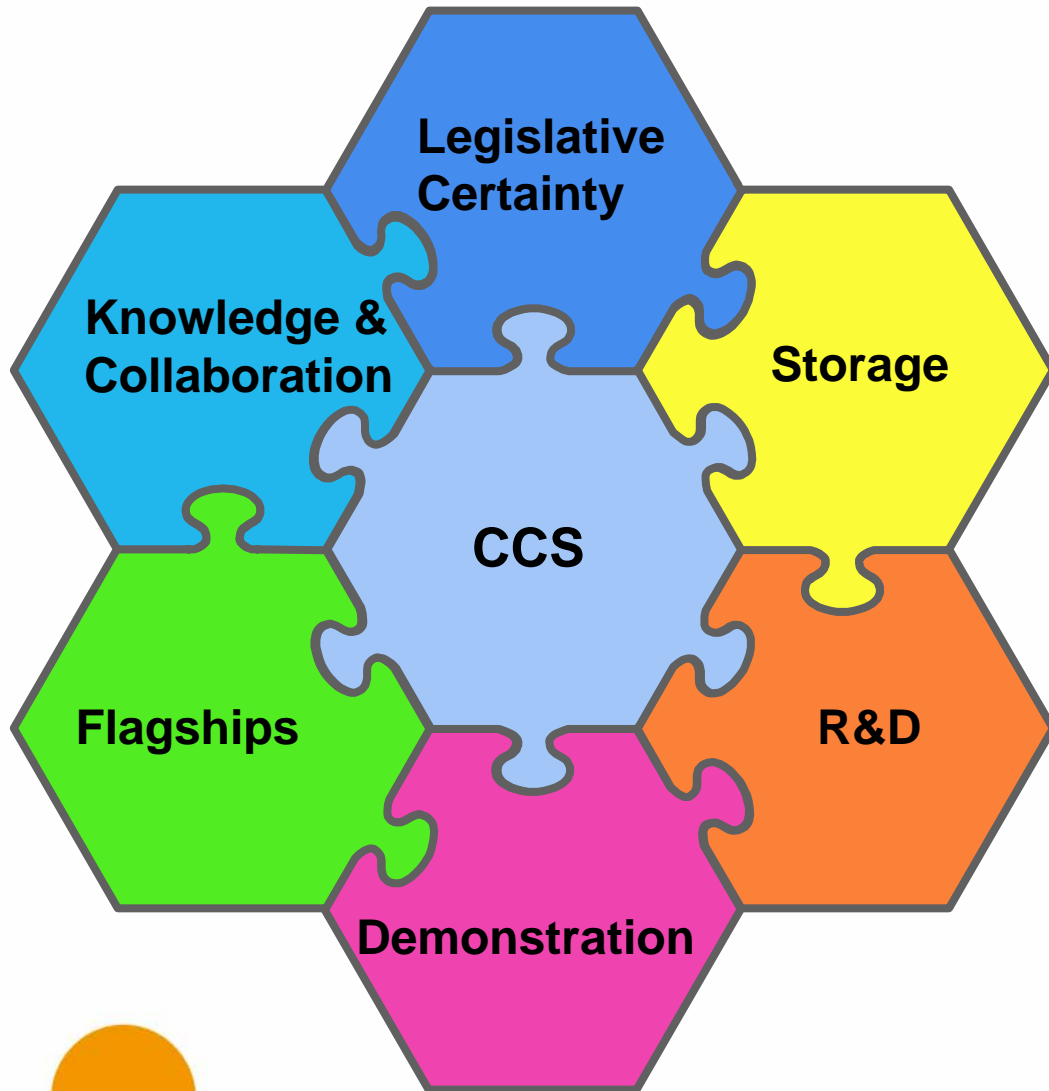
## ‘CCS Ready’

- new coal-fired power generators must be capable of retrofitting CCS technologies
- definition will build on international work

## Emissions standards for power stations

- standards to ensure carbon constraints are factored into decision making
- facility-level data published under the National Greenhouse and Energy Reporting Program

# Conclusion





Thank You

Further information is available at  
[www.ret.gov.au](http://www.ret.gov.au)

