

**Carbon Sequestration Leadership Forum  
Melbourne Meeting, 13-15 Sept 04**

***Technology Roadmap***

***Dr Peter Cook  
Australia***



# CARBON DIOXIDE CAPTURE & STORAGE

## RESEARCH DEVELOPMENT & DEMONSTRATION IN AUSTRALIA

A Technology Roadmap  
2004



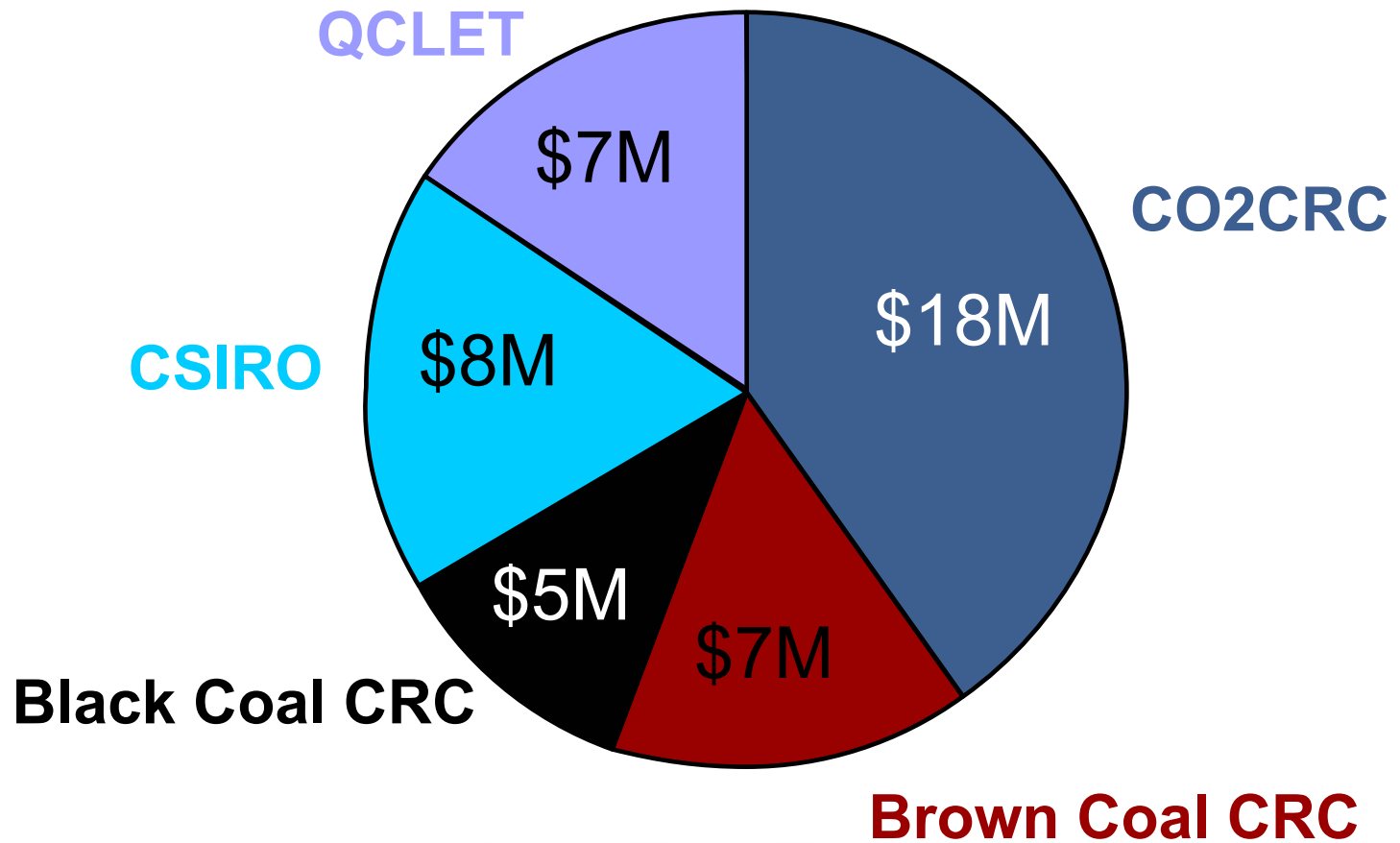
Cooperative Research Centre for Greenhouse Gas Technologies, Canberra, Australia



# TECHNOLOGY ROADMAP AUSTRALIAN INITIATIVES

- **FEDERAL GOVT CLEAN ENERGY FUND**
- **STATE GOVT INITIATIVES**
- **INDUSTRY INITIATIVES**
- **ENHANCED COMMUNICATIONS ON CCS**
- **INCREASED INTERNATIONAL COLLABORATION**
- **UPDATED ROADMAP**

# Approximate annual research funding for ZETs in Australia




# Approximate Program Expenditure

Program 1 

Program 2 

Program 3 

Program 4 

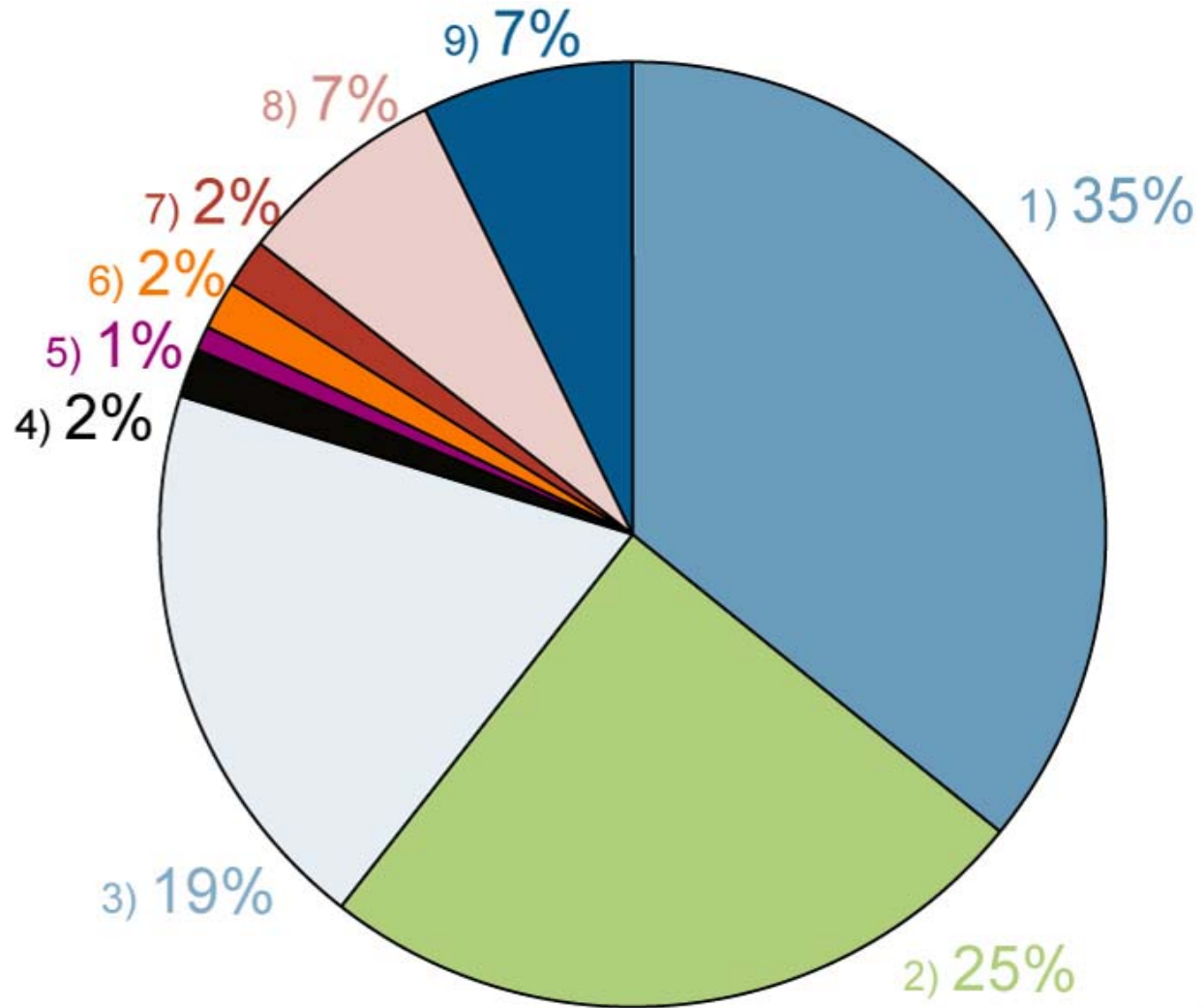
Program 5 

Program 6 

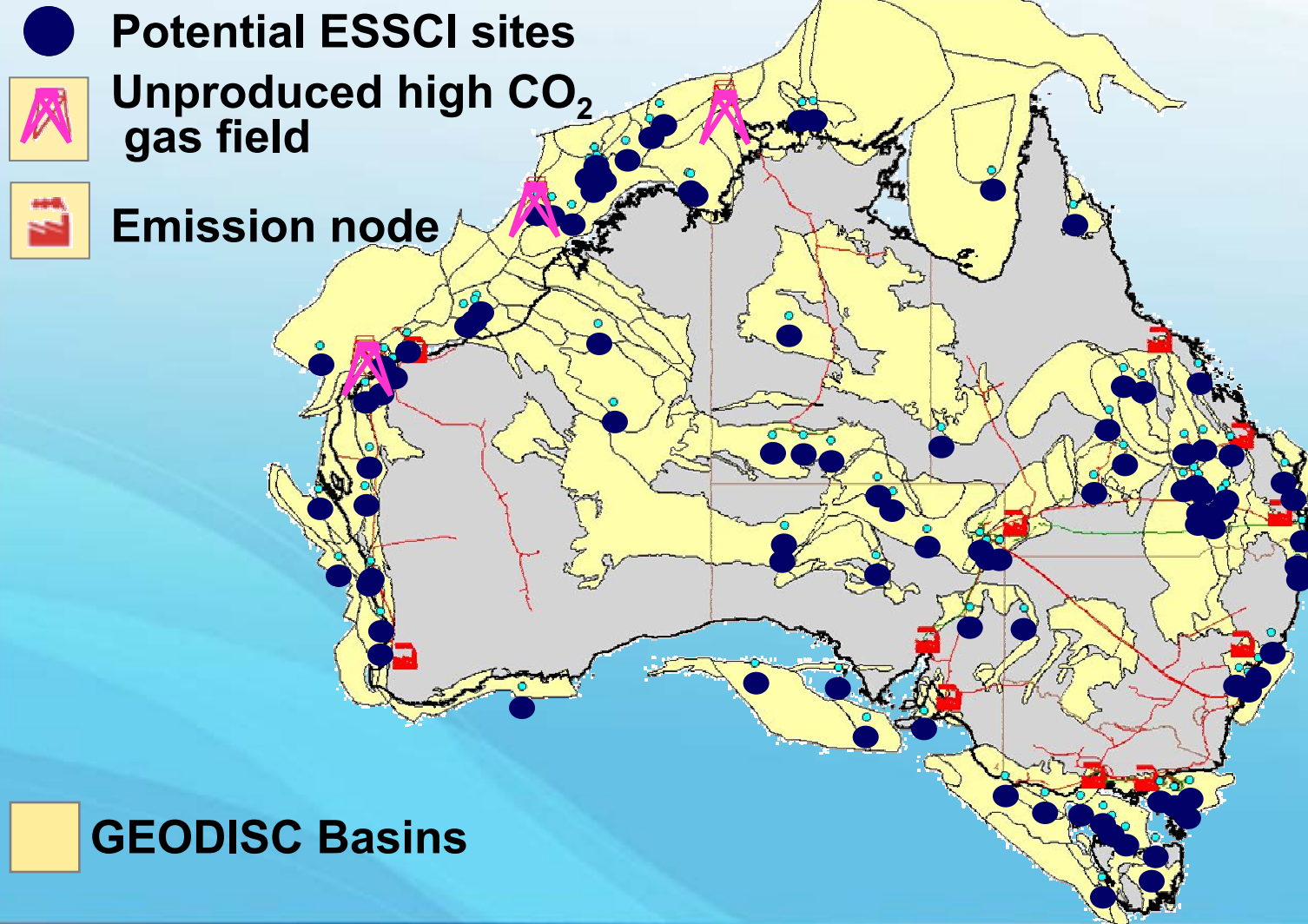
Program 7 

Program 8 

Program 9 



# CO<sub>2</sub> source-sink studies *(after Bradshaw et al)*



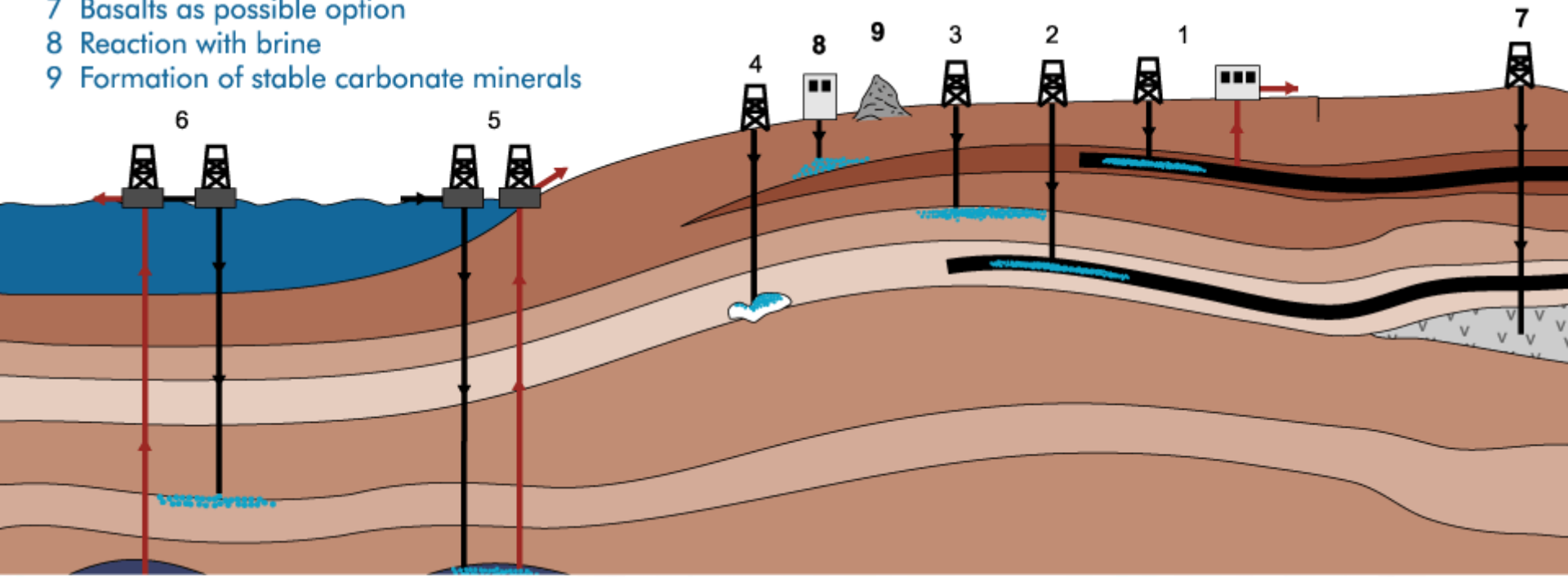
- 48 basins were considered viable sites for study (out of > 300)
- 102 sites analysed
- 65 proved viable ESSCIs
- 22 sites not viable; 15 regional basin overviews

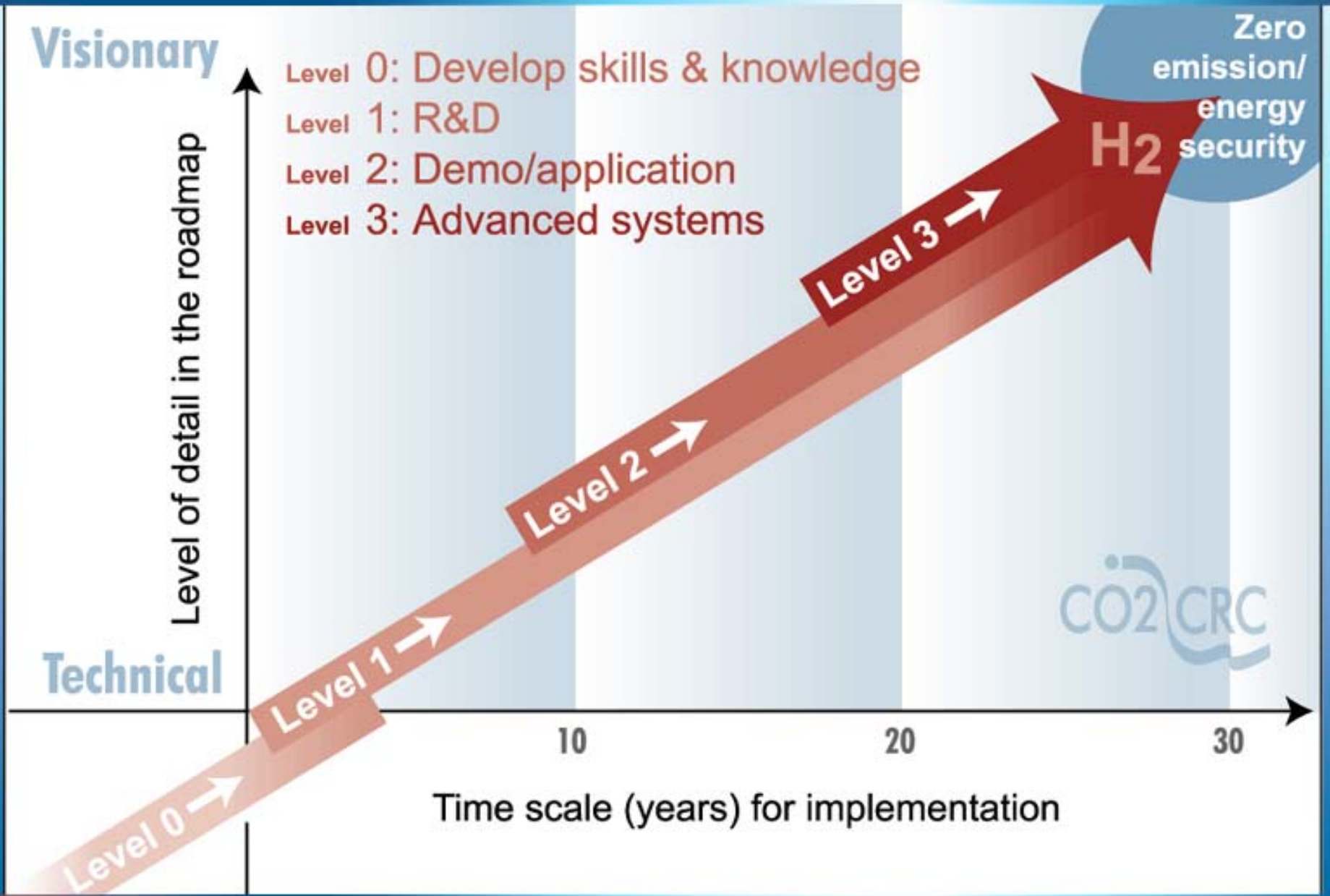
*Location of Australian sites (ESSCIs - Environmentally Sustainable Sites for CO<sub>2</sub> injection) assessed for the CO<sub>2</sub> storage potential (after Bradshaw et al, 2001)*

# CO<sub>2</sub> storage options

## CO<sub>2</sub> Storage Options

- 1 Use of CO<sub>2</sub> in enhanced coal bed methane recovery
- 2 Deep unmineable coal seam
- 3 Depleted oil & gas reservoirs
- 4 Large voids and cavities
- 5 Use of CO<sub>2</sub> in enhanced oil recovery
- 6 Deep unused saline water-saturated reservoir rocks
- 7 Basalts as possible option
- 8 Reaction with brine
- 9 Formation of stable carbonate minerals

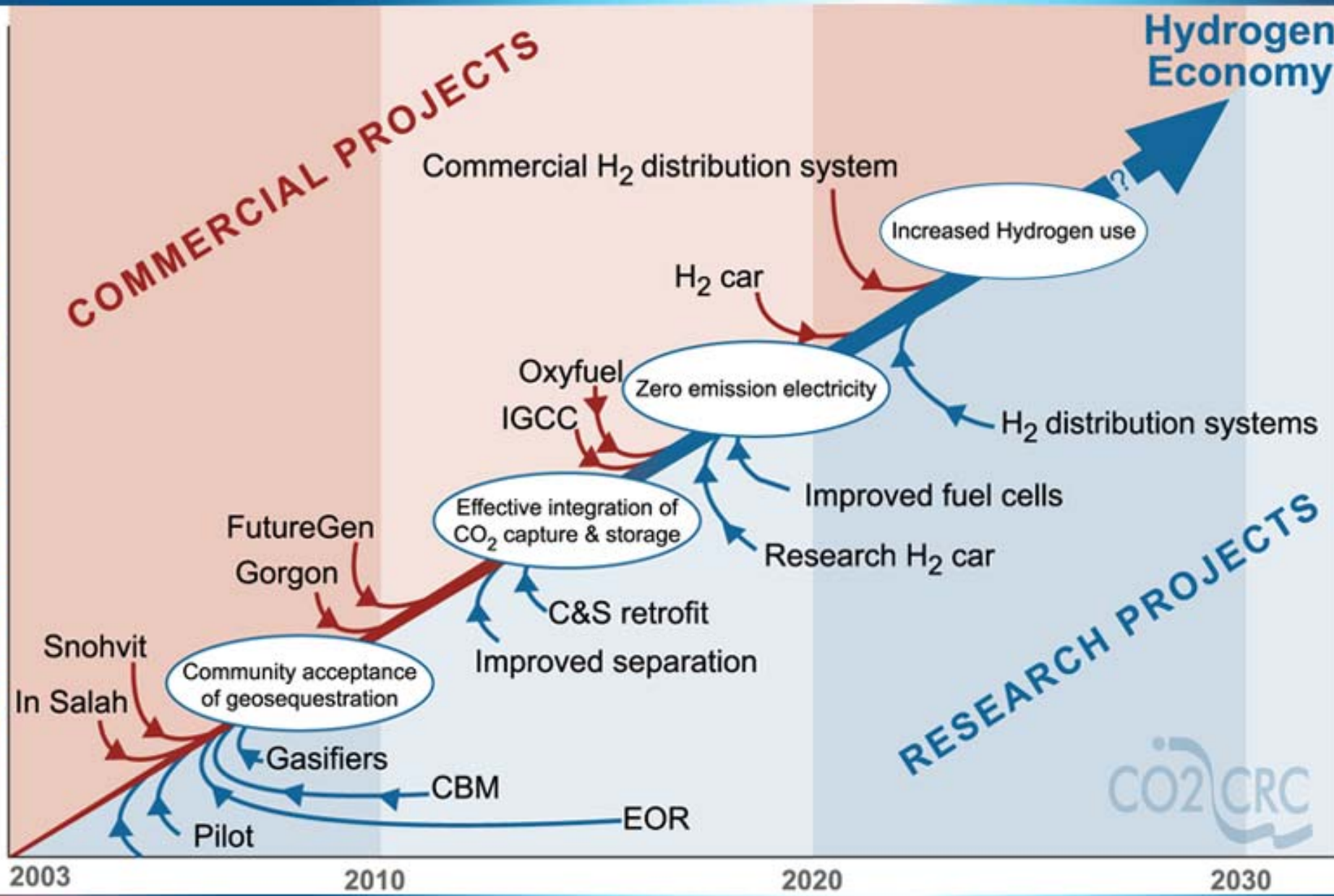




*Schema for the Australian CCS Technology Roadmap illustrating the four levels of mapping related to degree of detail and timing and commercialisation.*

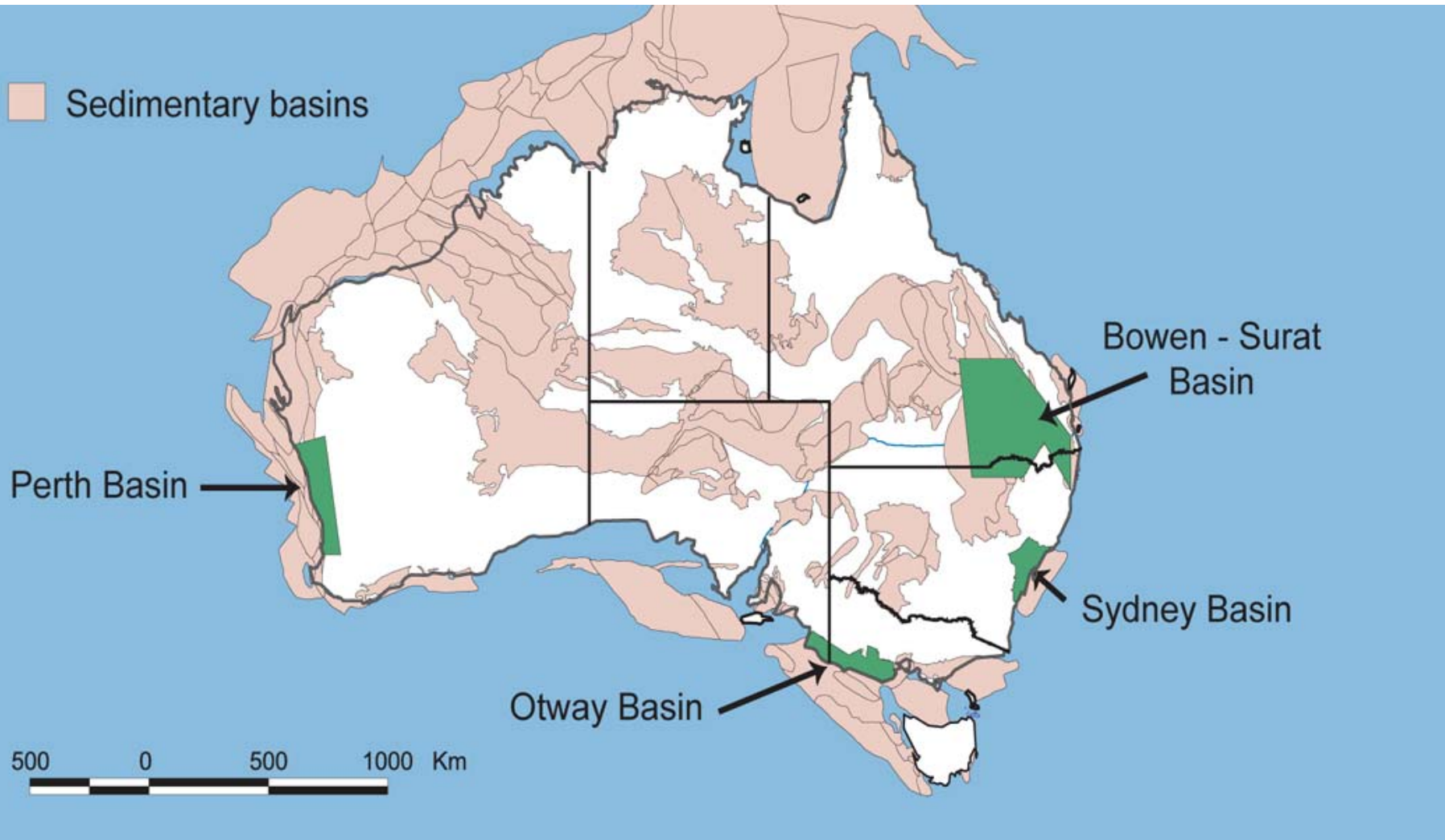


Progress towards the hydrogen economy

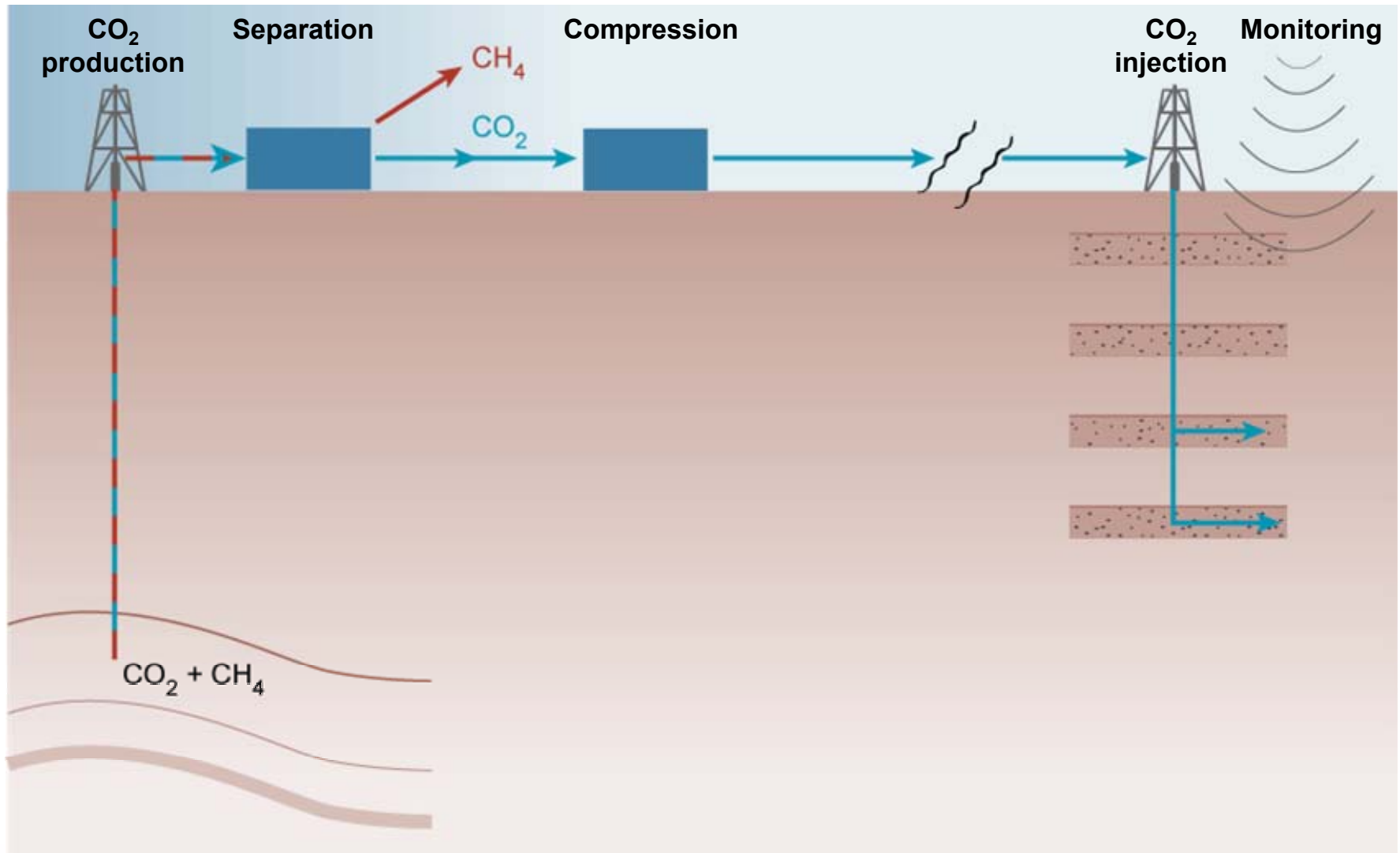


*Level 3 technology roadmap for CCS showing likely progress towards the hydrogen economy*

## Region currently being studied for potential pilot projects



# Conceptual Representation of possible Pilot Project



# Carbon Sequestration Leadership Forum

## CO2CRC



**Australian Government**

**Geoscience Australia**

**Australian Greenhouse Office**

**Department of Industry, Tourism and Resources**



**RIO TINTO**



**ChevronTexaco**



# Proposed Australian Pilot Projects

