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CCUS

Asia Pacific CCUS Conference and Exhibition

Commitment to Action: Unlocking the Full Potential of CCUS

26–27 August 2025 | Kuala Lumpur, Malaysia

CCS Regulation in South Australia – From Concept to Operation

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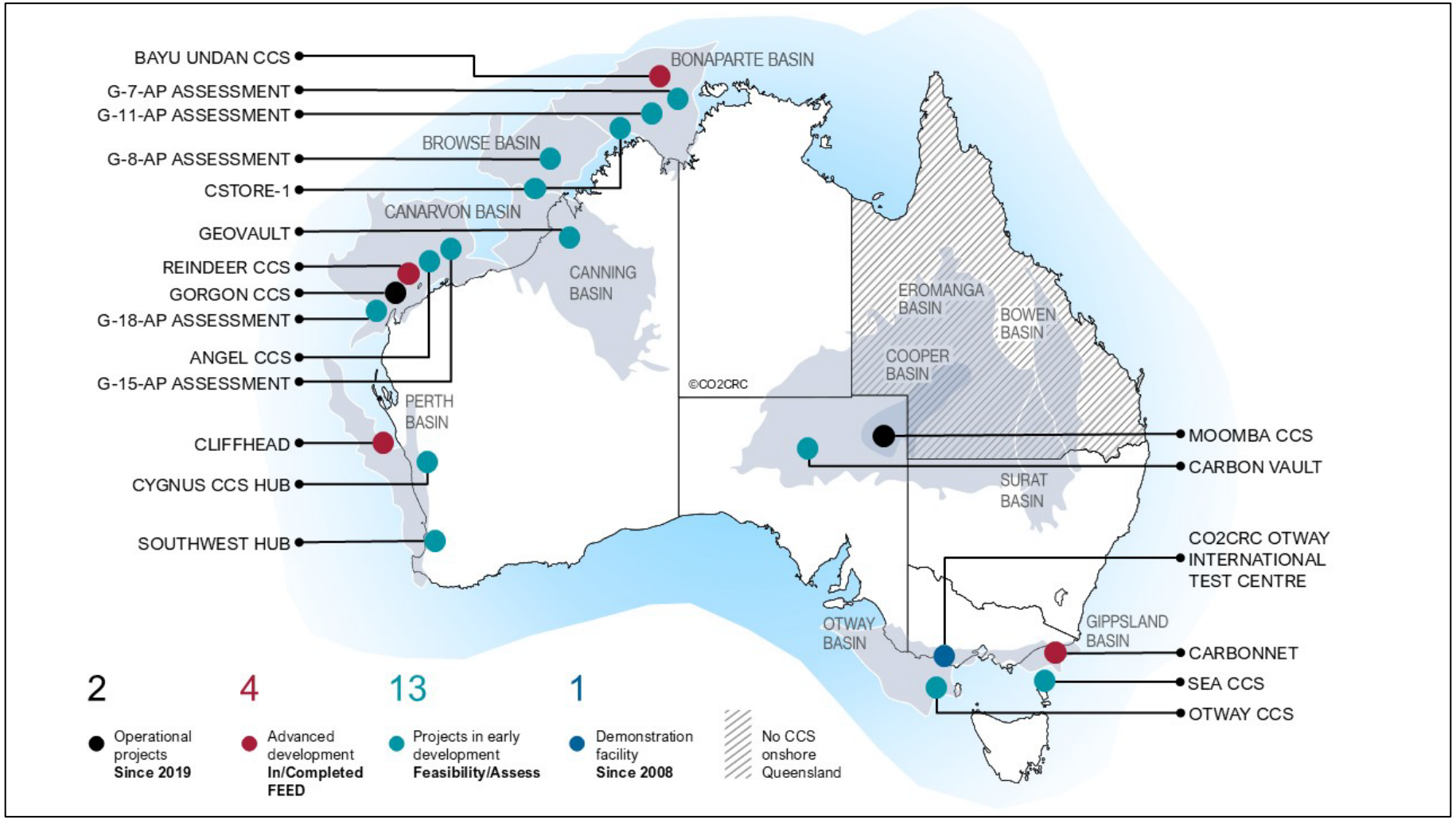
CCUS Projects in Australia



Source: CO2CRC

Leading Practice Regulatory Framework

- Australian Regulatory Guiding principles for CCS developed in 2005.
  - ➢ Nationally consistent assessment processes
    - *Risk based, case specific regulation*
    - *Non-prescriptive, adopting industry standards*
  - ➢ Resource access and property rights
    - *Secure CCS storage rights*
  - ➢ Monitoring and verification
    - *Demonstrate containment*
  - ➢ Long term liability post closure
    - *Once secure storage is demonstrated – liability reverts to state*
- Implemented via jurisdictional legislation.

ISO/TC 265 standards portfolio

Carbon capture

ISO/TR 27912 CO_2 capture systems, technologies and processes

ISO 27919-1 Performance evaluation methods for post-combustion CO_2 capture integrated with a power plant

ISO 27919-2 Evaluation procedure to assure and maintain stable performance of post-combustion CO_2 capture plant integrated with a power plant

ISO/TR 27922 Overview of CO_2 capture technologies in the cement industry

ISO XXXX Performance evaluation of CO_2 capture connected with a CO_2 intensive plant

ISO XXXX Performance index and standard test method of absorption solvent performance for CO_2 capture

Transportation

ISO 27913 Pipeline transportation systems [proposed for revision]

ISO/TR XXXX CO_2 shipping and trans-shipping

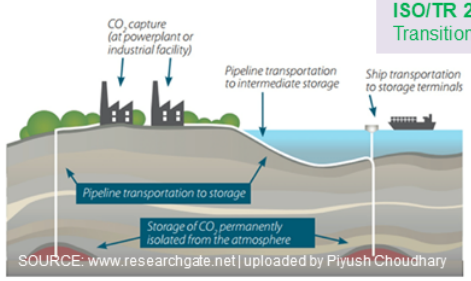
Underground storage

ISO 27914 Geological storage [proposed for revision to include quantification and verification]

ISO 27916 CO_2 storage using enhanced oil recovery (CO_2-EOR)

ISO/TR 27923 Geologic storage of CO_2 injection operations and infrastructure

ISO/TR 27926 CO_2-EOR - Transitioning from EOR to storage



Key
Black: Published document
Green: Document under preparation
Grey: New proposed project
Red: Project cancelled

Status: June 2021

Overarching aspects

ISO 27917 Vocabulary — Cross cutting terms

ISO/TR 27925 Flow assurance

ISO/TR 27918 Lifecycle risk management for integrated CCS projects

ISO/TS 27924 Risk management for integrated CCS projects

ISO/TR 27915 Quantification and verification

ISO 27920 Quantification and verification

ISO/TR 27921 CO_2 stream composition

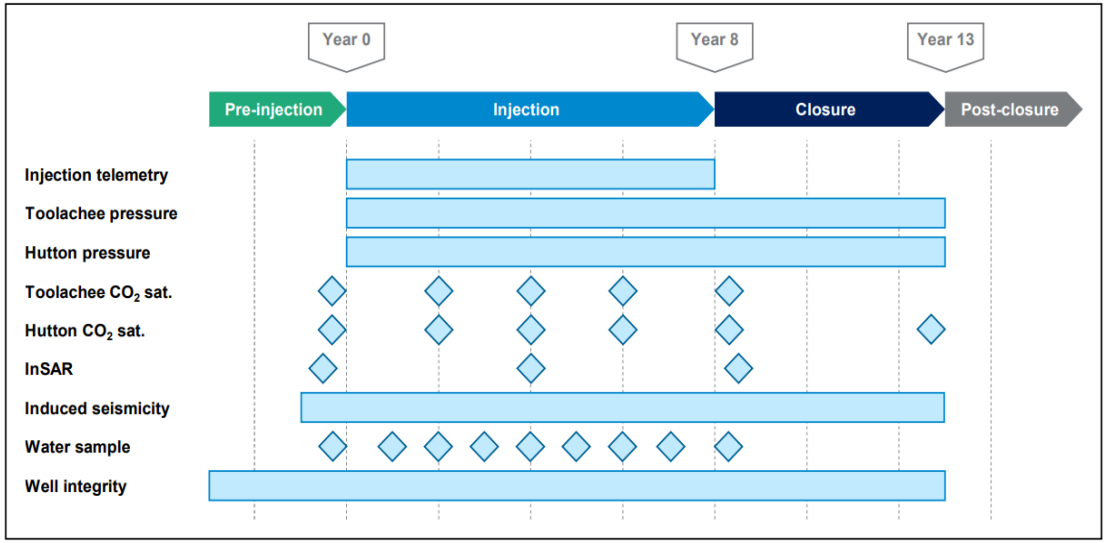
South Australian Legislation

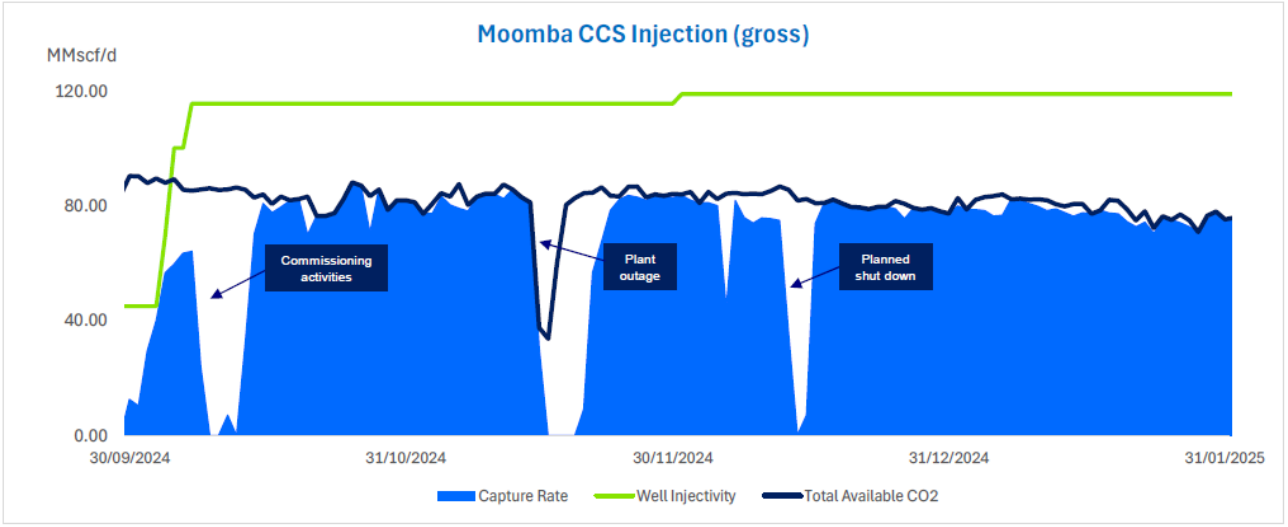
- South Australian *Energy Resources Act 2000* (ER Act):

  - Originally proclaimed back in September 2000 as the *Petroleum and Geothermal Energy Act 2000*;
  - Objective/risk based regulatory framework;
  - Incorporates co-regulatory agencies – e.g. Department for Environment and Water, EPA
  - Covers licensing and regulation of exploration and exploitation of:
    - Petroleum, natural hydrogen, geothermal, gas storage;
    - Transmission pipelines and processing facilities for regulated substances.
  - Three stages of approvals for all regulated activities:
    - **Stage 1** - Licensing
    - **Stage 2** - Environmental Assessment (environmental objectives and consultation)
      - EIR and SEO
    - **Stage 3** - Activity Notification and Approval

Moomba CCS

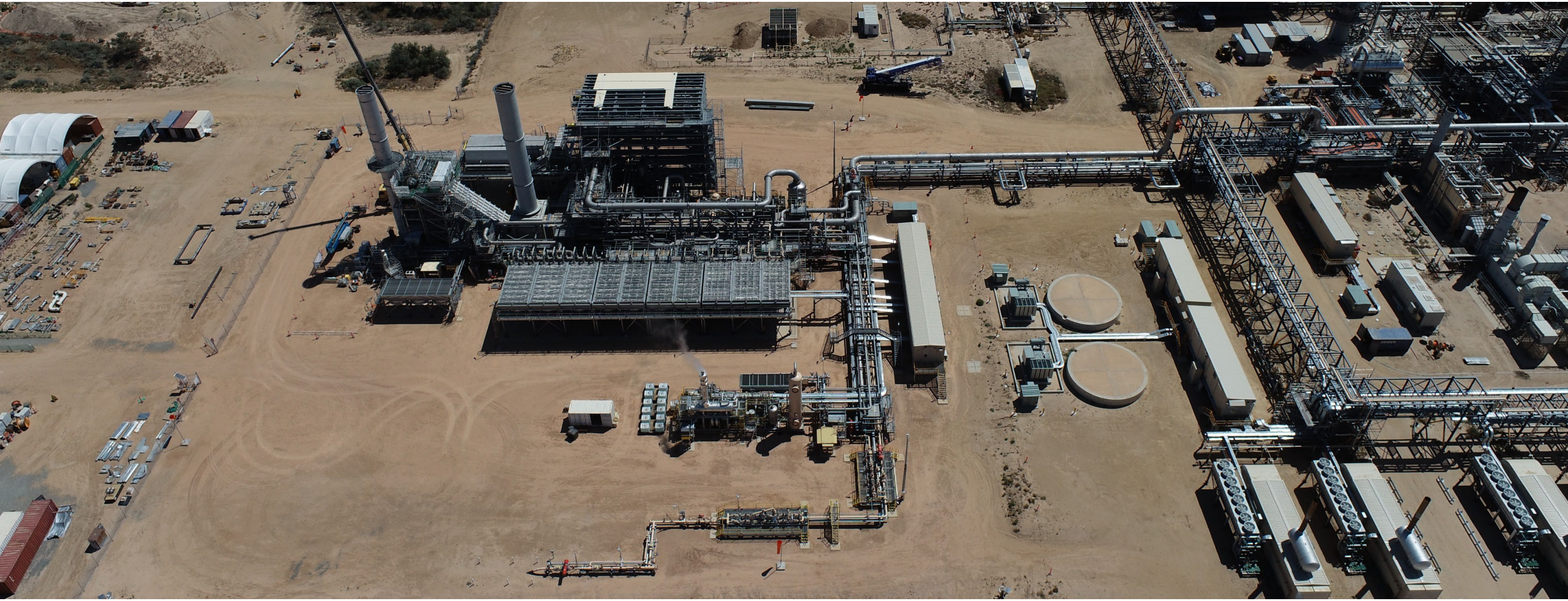
- First phase operational since 30 September 2024.
- Operated by Santos with JV partner Beach Energy.
- Current injection rate of 1.7 Mtpa of carbon dioxide, from Moomba gas processing plant to depleted fields.
- 1.7 Mtpa represents **~7% of South Australia's emissions**.
- Future phases target 20 Mtpa, from external sources.
- Monitoring and verification to date confirms plume behaving as expected with no loss of containment.





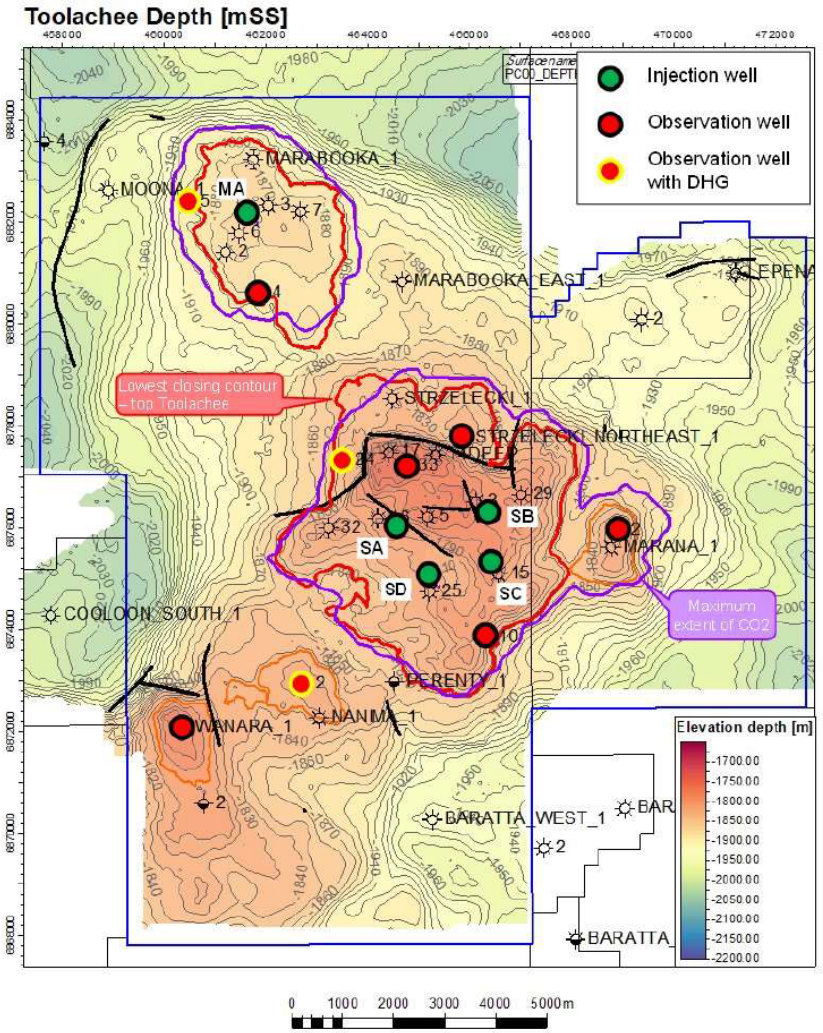
Source: Moomba M&V Plan and Reports

Moomba CCS Facility



Source: Santos Ltd

Moomba CCS Subsurface



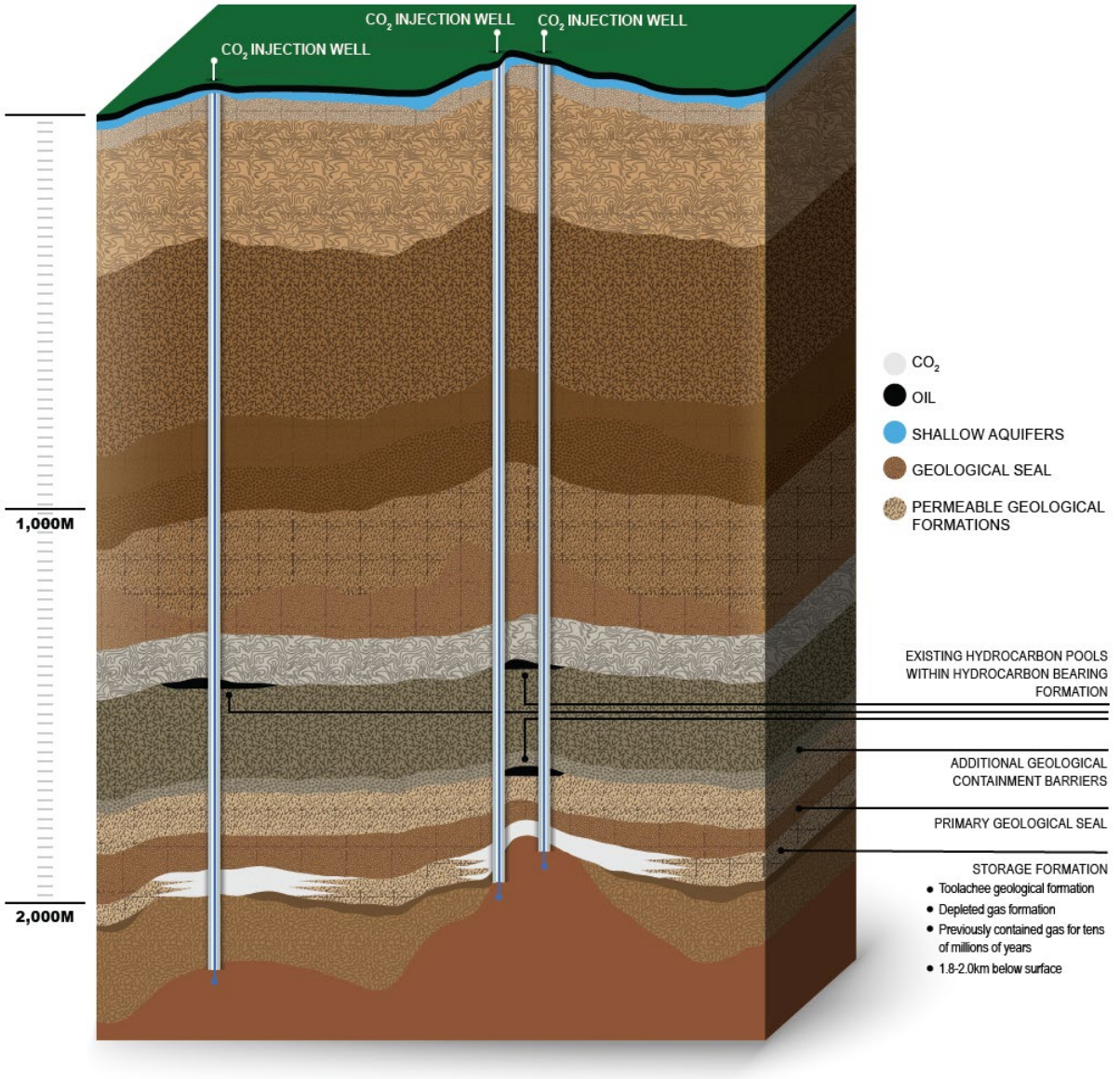


Figure 2 Strzelecki and Marabooka CCS Storage Complex

Import Opportunity

Three Local Clusters and Global Import Opportunity

The analysis considers three phases with three clusters of industry generating CO_2 as well as global import scenario. The phases are generally independent and the program can be modified to capitalise on the best-for-state opportunities.

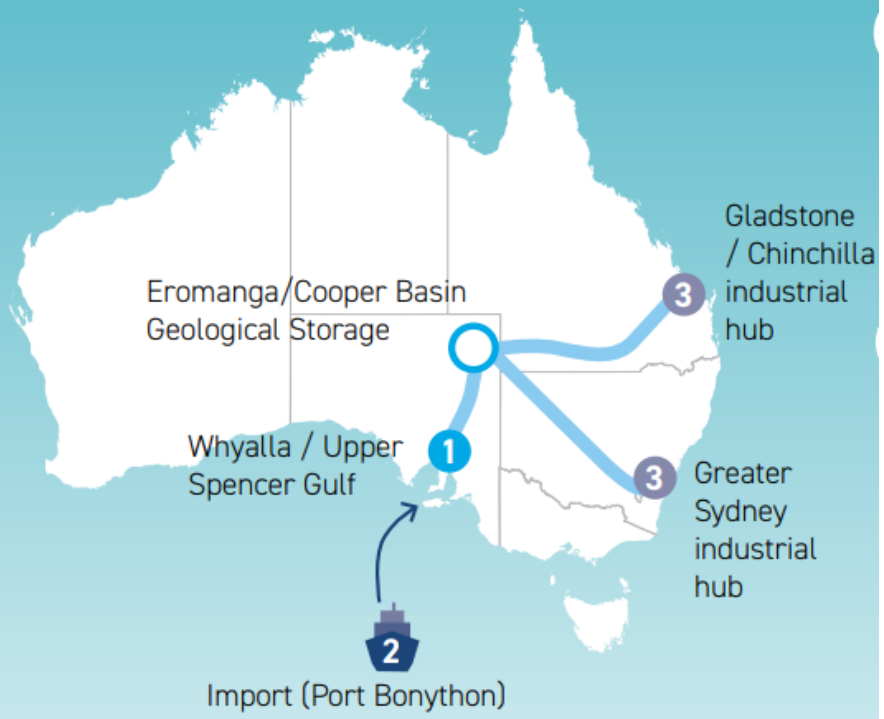
Phase 1 – Upper Spencer Gulf / Whyalla Cluster - A CCUS hub is developed at Whyalla in the Upper Spencer Gulf, with infrastructure development occurring entirely within SA to maximise state economic activity. A pipeline is constructed for the transport of CO_2 to the storage location.

Phase 2 – Global Importation – Development of CCUS import infrastructure, with CO_2 imports occurring via Port Bonython from trade partners such as Japan and South Korea. Additional pipeline infrastructure supports the transport of CO_2 for storage.

Phase 3 – Greater Sydney & Gladstone/ Chinchilla Clusters - QLD and NSW CCUS hubs are implemented with an interstate pipeline for the transport of CO_2 into SA for storage.

Next Steps

ISA undertook this study to understand the potential establishment of a CCUS industry in SA and the ability to address local, national and international opportunities. This study indicates that a range of opportunities exist for SA and presents one potential scenario for infrastructure and partnerships. The next steps will further explore the opportunities and feasibility of CCUS for SA.



Source: [Infrastructure SA, CCUS Infrastructure and National Supply Chain Study]