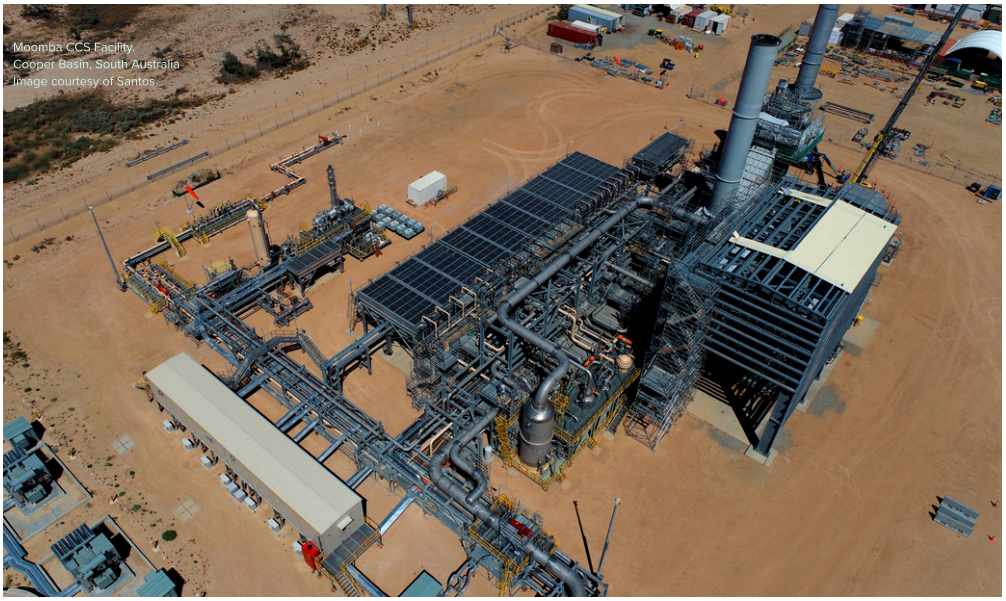
GLOBAL CCS INSTITUTE

CCS Facility Profile

NATURAL GAS PROCESSING CO_2 CAPTURE AND STORAGE

Moomba CCS

The Moomba CCS Project is a large-scale carbon capture and storage initiative located in South Australia. The project captures carbon dioxide (CO_2) associated with gas processing operations and permanently stores it in a depleted gas reservoir. Initially designed to store CO_2 from joint venture operations, the project also intends to utilise surplus storage capacity for third-party emitters, positioning Moomba as a potential regional CO_2 storage hub. The project is registered with the Australian Clean Energy Regulator (CER) and operates under Australia's CCS Methodology to generate Australian Carbon Credit Units (ACCUs) for up to 25 years.



Moomba CCS Facility.
Cooper Basin, South Australia
Image courtesy of Santos

At a glance

FACILITY:
Moomba CCS Project

SECTOR:
Natural Gas

LOCATION:
Cooper Basin, South Australia

PROPONENTS:
Santos (Operator) and Beach Energy

COMMISSIONED:
2024

1. Project Overview

The Moomba CCS Project is a large-scale carbon capture and storage initiative located in South Australia. The project captures carbon dioxide (CO_2) associated with gas processing operations and permanently stores it in a depleted gas reservoir.

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2. Business Case & Policy Context

Moomba CCS plays a central role in the decarbonisation strategies of Santos and Beach Energy, supporting compliance with Australia's Safeguard Mechanism.

Under the Safeguard Mechanism:

- Facilities emitting more than 100,000 tCO_2e annually (Safeguard Facilities) must reduce net emissions in line with baselines set by the CER.
- Baselines decline by 4.9% per year between 2023 and 2030.
- Net emission reductions in excess of the set baseline automatically generate Safeguard Mechanism Credits that can be traded between Safeguard Facilities.
- CCS provides a structural abatement pathway to meet these declining baselines while maintaining production.

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Revenue & Commercial Framework:

The project generates Australian Carbon Credit Unit (ACCUs) through verified CO_2 storage. ACCUs:

- May be sold into the carbon market
- May be retained to offset corporate emissions
- May be surrendered to offset Safeguard Mechanism obligations
- Provide a long-term revenue stream (up to 25 years under the methodology)

As of March 2026, ACCUs were trading at approximately AUD 36 per tCO2e.

The combined impact of:

- Declining regulatory baselines
- Verified carbon credit generation
- Long-term storage capacity
- Existing infrastructure

created a commercially viable investment case, demonstrating how policy certainty can mobilise private capital into CCS infrastructure.

Moomba CCS Key Facts

Capacity & Storage	Commercial & Financial Metrics	Strategic Significance
✓ **Capture Capacity (Phase 1):** Up to 1.7 Mtpa CO_2 (from Moomba Gas Plant) ✓ **CO_2 Stored:** 2.0 Mt CO_2 (as of April 2026) ✓ **Storage Type:** Depleted oil and gas reservoir (Strzelecki–Marabooka field) ✓ **Injection Depth:** ~1.8 km below surface ✓ **Pipeline Length:** 50 km	✓ **Capital Expenditure (Phase 1):** ~USD250 million ✓ **Estimated Storage Cost:** Lifecycle costs around USD30 per tonne CO_2 ✓ **Carbon Credits Generated:** 907,872 ACCUs received in 2025 ✓ **Credit Mechanism:** Registered under the Australian CCS Methodology with the Australian Clean Energy Regulator ✓ **Eligible Credit Period:** Up to 25 years	✓ **Supports compliance** with Australia's Safeguard Mechanism ✓ Demonstrates **large-scale reinjection** into a depleted gas field ✓ Establishes potential **third-party storage hub** capacity ✓ Provides long-term **ACCU revenue** generation pathway

Enabling Regulation

In 2024 the South Australian Government amended the Petroleum and Geothermal Energy Act 2000, changing its name to the Energy Resources Act 2000 and including specific provisions for the geological storage of CO2 onshore and offshore within three nautical miles of the coast. This legislation provides regulatory clarity to CO2 storage project developers in South Australia.

3. Technology & Operations

CO_2 Capture Process:

Carbon dioxide is separated from methane using conventional Benfield Acid Gas Removal units. Following separation:

1. Water is removed from the CO_2 stream
2. The CO_2 is compressed to approximately 14 MPa (around 140 times atmospheric pressure) using a four-stage compressor
3. Waste heat from compression is recovered to generate steam
4. Steam powers a turbine that produces electricity for on-site operations
5. This integration improves operational efficiency by reducing net energy demand.

Transport & Storage:

- Compressed CO_2 is transported via a 50 km pipeline
- CO_2 is injected into the Strzelecki–Marabooka depleted gas reservoir
- Storage occurs approximately 1.8 km below the surface
- The formation provides permanent geological storage

Monitoring and verification processes ensure compliance with regulatory requirements and underpin ACCU generation.

4. Strategic Significance

Moomba CCS demonstrates:

- Integration of CCS into existing gas infrastructure
- Alignment of regulatory policy and private sector investment
- Commercialisation of carbon storage via credit generation
- Repurposing of depleted hydrocarbon reservoirs for long-term CO_2 storage
- Potential evolution into a third-party storage hub with a capacity of up to 20Mtpa capable of servicing both domestic and international sources of CO2

The project represents a practical example of how regulatory certainty, carbon markets, and infrastructure reuse can enable large-scale emissions abatement.