CO2Tech
A CO2CRC Company

Building a carbon-reduction industry in the Gippsland

Australian industrial emissions have several challenges: maintaining capacity, increasing sovereign capability and supporting jobs whilst reducing emissions are the over-arching concerns in the present climate. Most industries are focusing their efforts on technology changes supported by renewable energy or future fuels to drive their long-range planning.

Some are considering carbon capture and storage as an option in their portfolio of decarbonisation pathways. This is aligned with international practice, especially in Europe where resolving conflicting priorities of maintaining industry and reducing emissions has been partially dealt with in the hard-to-abate sector with CCS hubs that gather CO_2 from industrial sources, transport them and then store them permanently underground; projects such as Northern Lights in Norway.

CO2Tech has identified 3+ notable emissions hubs along the East Coast that correspond to strong industrial centres that greatly contribute to the Australian economy, but also represent a concentrated source of emissions:

- **Gladstone Hub:** 13 million tonnes of CO_2 emissions per annum from facilities in Safeguard.
- **Sydney-Newcastle Hub(s):** 10 million tonnes of CO_2 emissions per annum from facilities in Safeguard.
- **Bell Bay Hub:** 1.6 million tonnes of CO_2 emissions per annum from facilities in Safeguard.

CO2Tech has screened storage options for these hubs and has determined that the most viable storage solution for these hubs is likely to be shipping CO_2 to the offshore portion of the Gippsland Basin for permanent underground storage.

The Gippsland is an ideal location to decarbonise the East Coast through CCS:

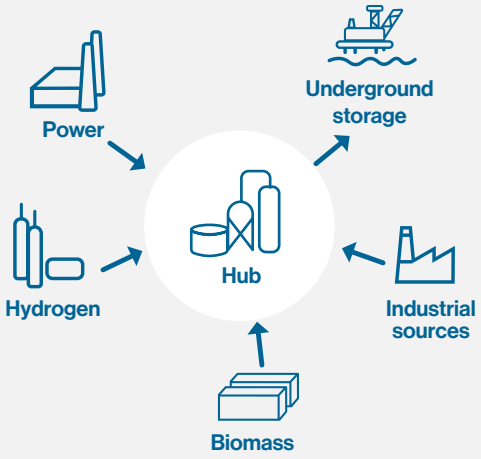
- **Low cost:** Nearest offshore location
- **Regulation:** Avoid building new pipelines and competing water-use concerns
- **Timing:** Established infrastructure and skilled workforce from established hydrocarbon industry
- **Geology:** Depleted reservoirs and saline aquifer options with world-class seals and reservoirs
- **Approvals:** Well-characterised basin (wells, seismic, environmental baseline reports)
- **Synergy:** Advanced storage projects (CarbonNet and Exxon) and future projects (HESC).

CO2Tech will provide:

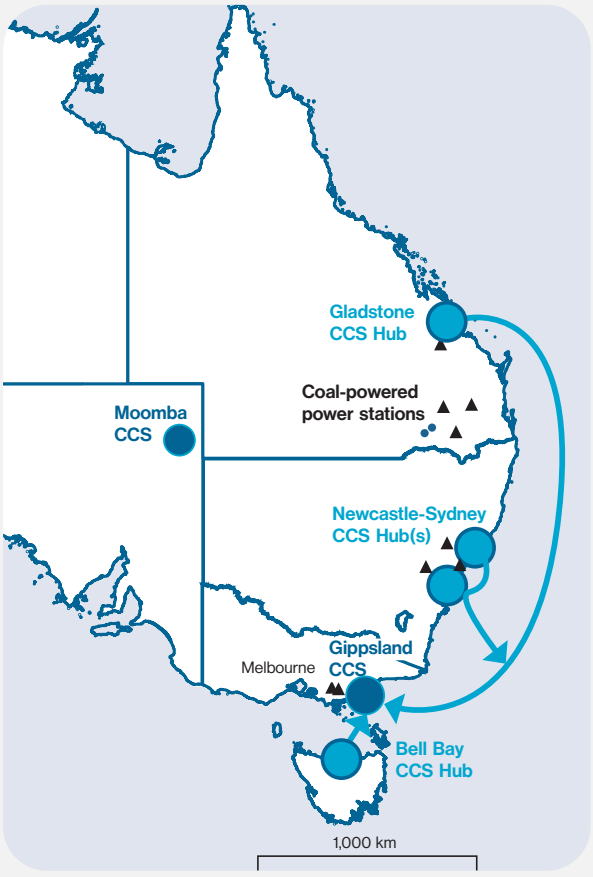
- A fast-paced screening study on the techno-economic fundamentals for carbon capture, gathering and export of CO_2 utilising shared infrastructure amongst commercial partners in the Gippsland region
- Techno-economic feasibility for CO_2 import and sequestration with a range of volumes from Eastern Australia and potentially abroad and will complement additional studies CO2Tech is undertaking in these regions

Policy in Australia is beginning to crystalise around the importance of onshoring emissions, decarbonisation and shared infrastructure and CCS in the Gippsland could play a large role driving investment and job creation in the region.

A CCS hub consolidates emissions from various industries and prepares for transport and storage underground.



Schematic representation of possible CO_2 gathering decarbonising the Eastern Seaboard towards the Gippsland.



CO2Tech is proposing a fast paced, screening study with a consortium approach to reduce costs and build collaboration amongst regional industries. This is a scoping proposal that can be developed with prospective clients' specific needs if required, this study could be the first phase of a techno-economic investigation that may lead to more detailed studies subject to outcomes. The study is expected to take approximately 9 months.

Why CO2Tech?

CO2Tech has unrivaled practical experience in capturing CO_2 from industrial emissions in Australia. It can leverage its unique access to advanced storage projects providing the crucial connection between carbon capture and permanent underground CO_2 storage.

Practical experience in post-combustion capture and advanced, proprietary CO_2 capture technology HyCaps

Market

Low-cost post-combustion CO_2 capture from power, industry, oil and gas, and hard-to-abate sectors.

Novelty

Features

- Hybrid technology.
- Combine solvent absorption and membrane in a single process.
- Solvent regeneration without phase change.

Benefits

- Lower energy requirement.
- Modular design, easy to scale up.
- Ability to operate on any liquid solvent.
- Suitable for retrofit and greenfield applications.
- Lower footprint, OPEX and CAPEX.

COSMIC – Costing Model for Integrated Carbon Capture and Storage

CO2Tech hosts a unique techno-economic evaluation software called COSMIC, that leverages it's proprietary subsurface database and expertise.

Market

Applicable to all sectors considering CCUS solutions.

COSMIC has an easy-to-use Graphic User Interface (GUI) that provides options for various CO_2 capture technologies, CO_2 compression and different modes of CO_2 transport. Fossil fuel based or renewable energy can be selected to meet the energy requirements for the CCS chain.

COSMIC uses simple mass and energy balances to determine the type and size of equipment required. Equipment costs are estimated using published/literature data, CO2CRC costing data base, scaling law and the use of Lang factors. The model also calculates the mass of CO_2 captured and CO_2 avoided.

Our clients

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