

Direct air capture

Fast facts



The world needs to capture more than **5.6 billion tonnes of CO₂** every year by 2050¹



Over **200 million tonnes of CO₂** every year needs to be captured from the atmosphere utilising direct air capture technology² to reach climate goals



Direct air capture and storage **stores atmospheric CO₂** to offset and remove legacy emissions



Santos is well positioned to use direct air capture technology to **expand its large-scale Moomba CCS project**

What is direct air capture?

Direct air capture (DAC) is a technology used to capture carbon dioxide (CO₂) directly from the atmosphere, either for storage or to produce carbon-based products.

When CO₂ is captured from the atmosphere and stored using carbon capture and storage (CCS), it provides a way to both directly offset unavoidable CO₂ emissions and remove legacy emissions from the atmosphere. Carbon capture and storage is a technology which has been in operation since the 1970s and is a large-scale method of storing carbon deep underground.

Alternatively, captured CO₂ can be used to create carbon-neutral products, such as synthetic fuels, allowing existing value chains to operate without contributing to global emissions.

The demand for direct air capture is likely to be significant, with over 200 million tonnes of CO₂ needing to be captured from the atmosphere by 2050 to reach climate goals³.



The world needs affordable and reliable ways to provide the energy to power our homes and businesses while reducing emissions.

Direct air capture is a key technology to reach our climate goals and, working with carbon capture and storage, has the potential to negate emissions elsewhere in the economy, especially in hard-to-abate sectors that the world still needs to manufacture essential everyday products like cement, steel and the chemicals that are the building blocks of the clothes we wear, our medical equipment, the packaging we use for bread and milk, the pipes that carry our water, toothpaste, detergents and many other things.

¹ International Energy Agency, World Energy Outlook, 2019

^{2,3} International Energy Agency, Net Zero by 2050, 2021

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Why carbon capture and storage?

The IEA's Executive Director, Fatih Birol, emphasised that reaching net-zero goals without CCS will be almost impossible. To reach climate goals, the world needs to capture more than 5.6 billion tonnes of CO₂ globally every year by 2050⁵.

Early deployment of CCS is essential to drive down costs and establish infrastructure in order to reach this milestone⁶. It's critical that policy support in the near term is directed towards the development of innovative technologies and supporting infrastructure⁷.

Australia has a natural competitive advantage in CCS with known high quality, stable geological storage basins and expertise gained through more than half a century of oil and gas production.

With scale and experience, CCS is expected to become cheaper and more competitive, creating the potential to deliver large scale emissions reductions for existing sectors including resources, energy and manufacturing, and for new industries such as large scale hydrogen production.

Did you know?

The Cooper and Eromanga Basins, where the Carbon Assist™ trial is located, has capacity for injection of over 20 million tonnes of CO₂ per year for more than 50 years⁸.

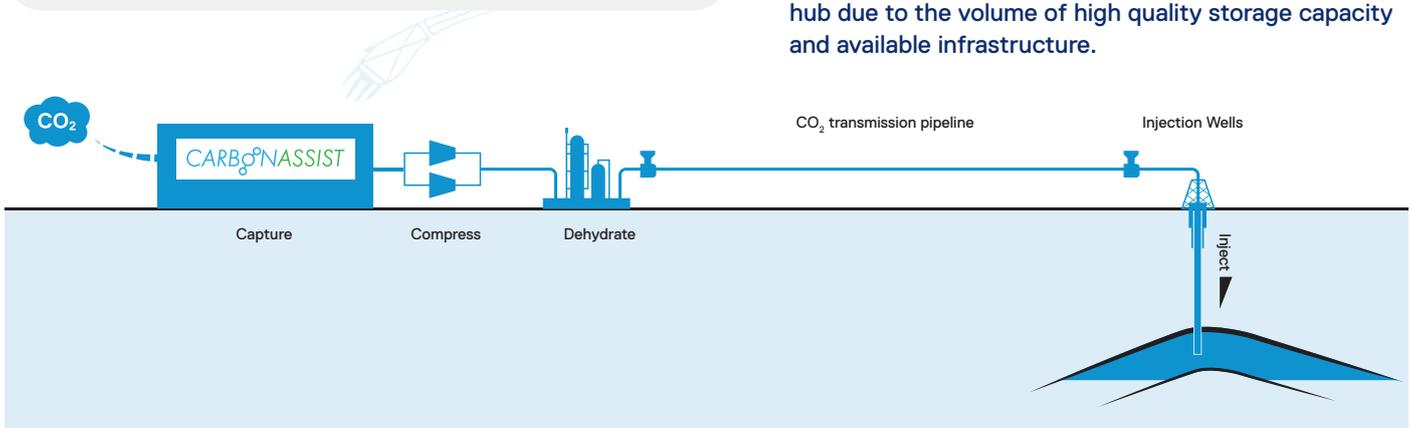


Carbon Assist™ trial unit

What is CSIRO Carbon Assist™?

CSIRO, the Australian government's national science agency, has developed a ground breaking carbon capture technology, which aims to become the lowest cost capture technology in the world. This technology is expected to provide superior carbon capture performance and economics and can be used in both Direct Air Capture (DAC) and Post Carbon Capture (PCC) applications.

Santos has partnered with CSIRO to co-fund a field demonstration project for two DAC and two PCC units utilizing Carbon Assist™ technology. The units will be trialed in locations proximal to Santos' Moomba CCS site, which is well placed to become a large-scale DAC hub due to the volume of high quality storage capacity and available infrastructure.



⁵ International Energy Agency, World Energy Outlook, 2019

^{6,7} International Energy Agency, World Energy Outlook, 2021

⁸ Australian Bureau of Statistics, Survey of Motor Vehicle Use, Australia, 12 months ended 30 June 2018