

Carbon capture and storage

Fast facts



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



Carbon capture and storage (CCS) is a **large-scale emissions reduction solution**



Santos' CCS projects are expected to achieve **large-scale emission reductions at low cost**



Australia has carbon storage capacity to inject more than **half our annual emissions** for at least 100 years²



There are more than 20 **large-scale operational CCS projects** around the world, storing about **40 million tonnes per annum of CO₂**

What is carbon capture and storage?

Natural gas is an abundant, reliable and low-cost energy source that is used in power generation, cooking and heating, powering vehicles, and as a key ingredient in manufacturing everyday materials used to build our homes and appliances. It is formed naturally and is trapped in rock formations deep underground for millions of years.

When natural gas is produced or used for industry or to create energy, carbon dioxide (CO₂) is produced as a by-product. Carbon capture and storage (CCS) is the process of capturing CO₂ then safely storing it deep underground, often in the reservoirs that previously held oil and gas in place for tens of millions of years.

CCS technologies have been in operation since the 1970s and are proven as a large-scale CO₂ storage solution. There are currently more than 20 large-scale CCS projects in operation around the world, storing about 40 million tonnes per year of CO₂.³ This is equivalent to almost all the annual carbon emissions of the entire Australian passenger vehicle fleet.⁴



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

CCS provides a way to address emissions from existing assets, from hard to abate sectors and provides a cost-effective pathway to scale up low-carbon hydrogen production and atmospheric CO₂ removal.

¹ International Energy Agency, World Energy Outlook, 2019

² Carbon Storage Taskforce, National Carbon Mapping and Infrastructure Plan - Australia, 2009

³ Global CCS Institute, Global Status of CCS, 2021

⁴ Australian Bureau of Statistics, Survey of Motor Vehicle Use, Australia, 12 months ended 30 June 2018

Bayu-Undan carbon capture and storage



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.

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 Bayu-Undan CCS project can provide significant long term employment opportunities in Timor-Leste and Darwin, Australia.

What is the Bayu-Undan CCS Project?

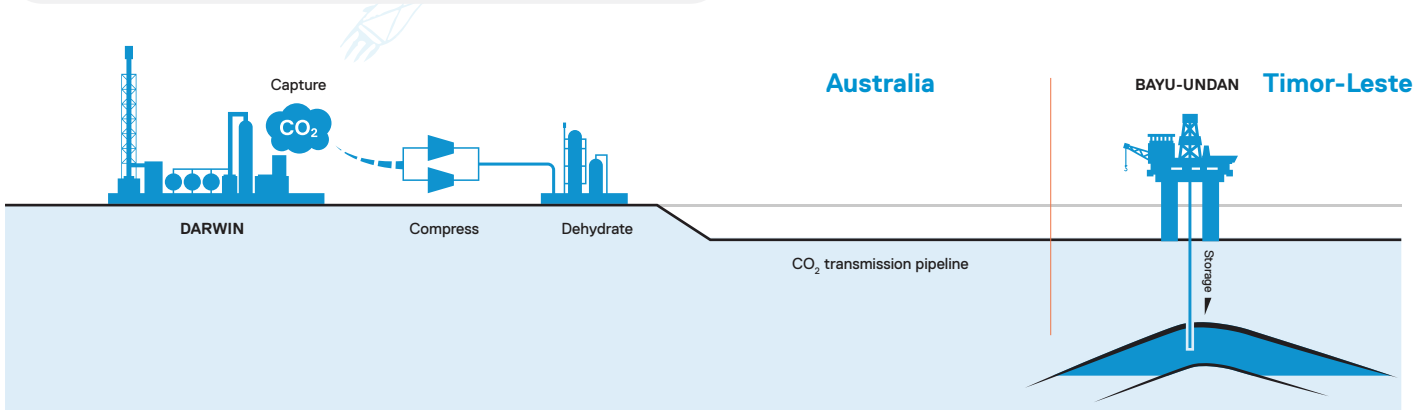
The Bayu-Undan CCS Project supports the development of a world class emissions reduction hub in Darwin, Australia with CO₂ injection through a re-purposed Bayu-Undan gas production facility in Timor-Leste offshore waters.

The historic containment of gas for tens of millions of years in the Bayu-Undan reservoir presents a well understood opportunity to store large volumes of CO₂.

With the onshore capture and export facilities located in Darwin, the project is well located for the capture and separation of CO₂ from the Barossa reservoir, other resource developments and industrial sources of CO₂ in the area. The Bayu-Undan CCS project could have a storage capacity of around 10 million tonnes of CO₂ each year, once production from the field ceases.

With economies of scale and the re-use of existing infrastructure, the project is expected to be highly competitive in terms of cost and one of the largest CO₂ storage projects currently planned in the world.

Santos is actively engaged with a range of stakeholders interested in progressing the development including the Timor-Leste, Australian Federal and Northern Territory State Governments, as well as the various Joint Venture partners who own the facilities that will be constructed or modified to enable the project.



⁵ International Energy Agency, World Energy Outlook, 2019

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