

WHAT IS CARBON CAPTURE AND STORAGE?

Carbon capture and storage, also known as CCS or geosequestration, refers to the separation of carbon dioxide (CO₂) from major industrial sources and its deep geological storage, safely and permanently deep underground.

The fossil fuels coal, oil and natural gas currently supply around 85 per cent of the world's energy needs, however they are a major source of CO₂. CO₂ is the most common greenhouse gas after water vapour and the gas contributing most to global warming.

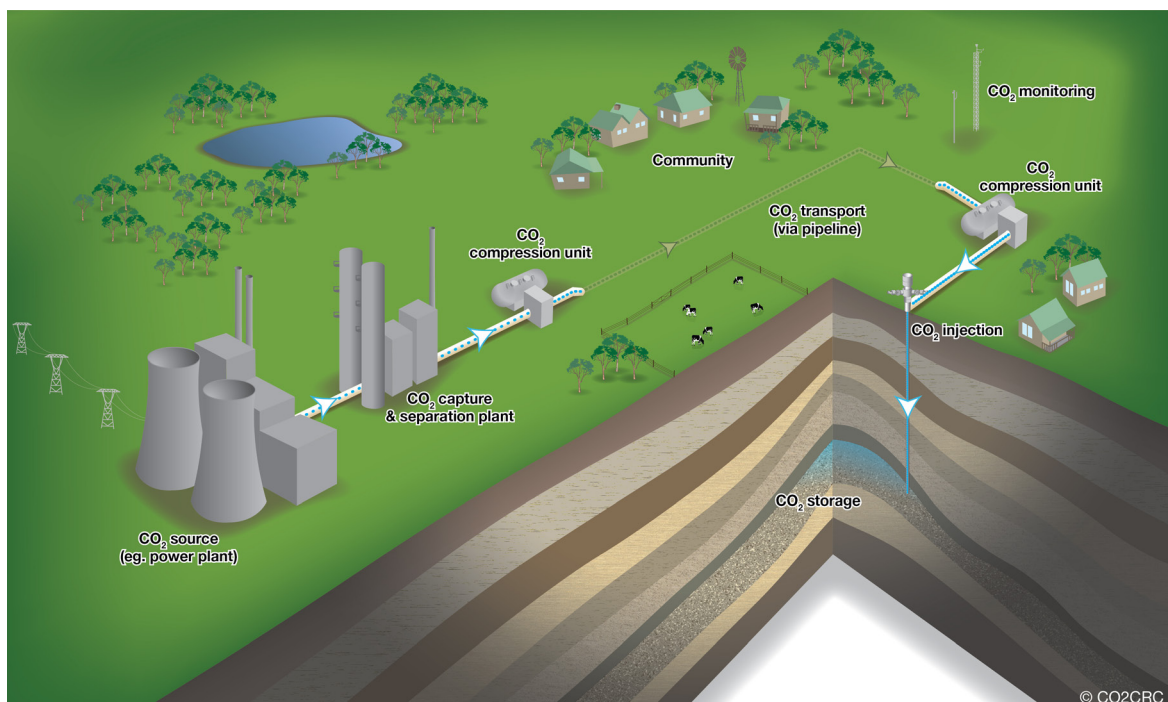
The International Energy Agency predicts that fossil fuels will continue to be heavily used around the world for many years to come, especially as the demand for energy is increasing. The urgent need to reduce atmospheric concentrations of CO₂ means we need a portfolio of solutions to tackle our emissions, including energy efficiency, using less carbon-intensive fuels, enhancing natural carbon sinks (vegetation), and harnessing renewable energy from the wind, earth, sun and tides. Carbon capture and storage is an important part of this portfolio.

CCS is currently the only technology that will allow us to decrease greenhouse gas emissions while using fossil fuels and retaining our existing energy-distribution infrastructure. CCS can reduce emissions from fossil fuel-burning power stations, whether gas or coal-fired, by as much as 90 percent. It is an important technology for Australia, which is heavily reliant on fossil fuels and has extensive potential geological storage resources.

While CCS is often referred to as 'clean coal', it is also applicable to a wide range of other CO₂-producing industries such as oil and natural gas processing, cement manufacture, fertiliser manufacture, iron and steel manufacture and the petrochemical industry.

While the concept of CCS as a means of reducing greenhouse gas emissions has arisen only in the past decade or so, CCS uses technologies that have been widely practiced in different industries for many years. Over 50 million tonnes of CO₂ are currently stored geologically every year around the world, often as part of oil recovery operations.

The CO2CRC research effort focuses on developing and demonstrating efficient, economic and safe methods of capturing carbon dioxide and geologically storing it in the deep subsurface.



A simplified overview of the carbon capture and storage process.