

Low Emissions Technology

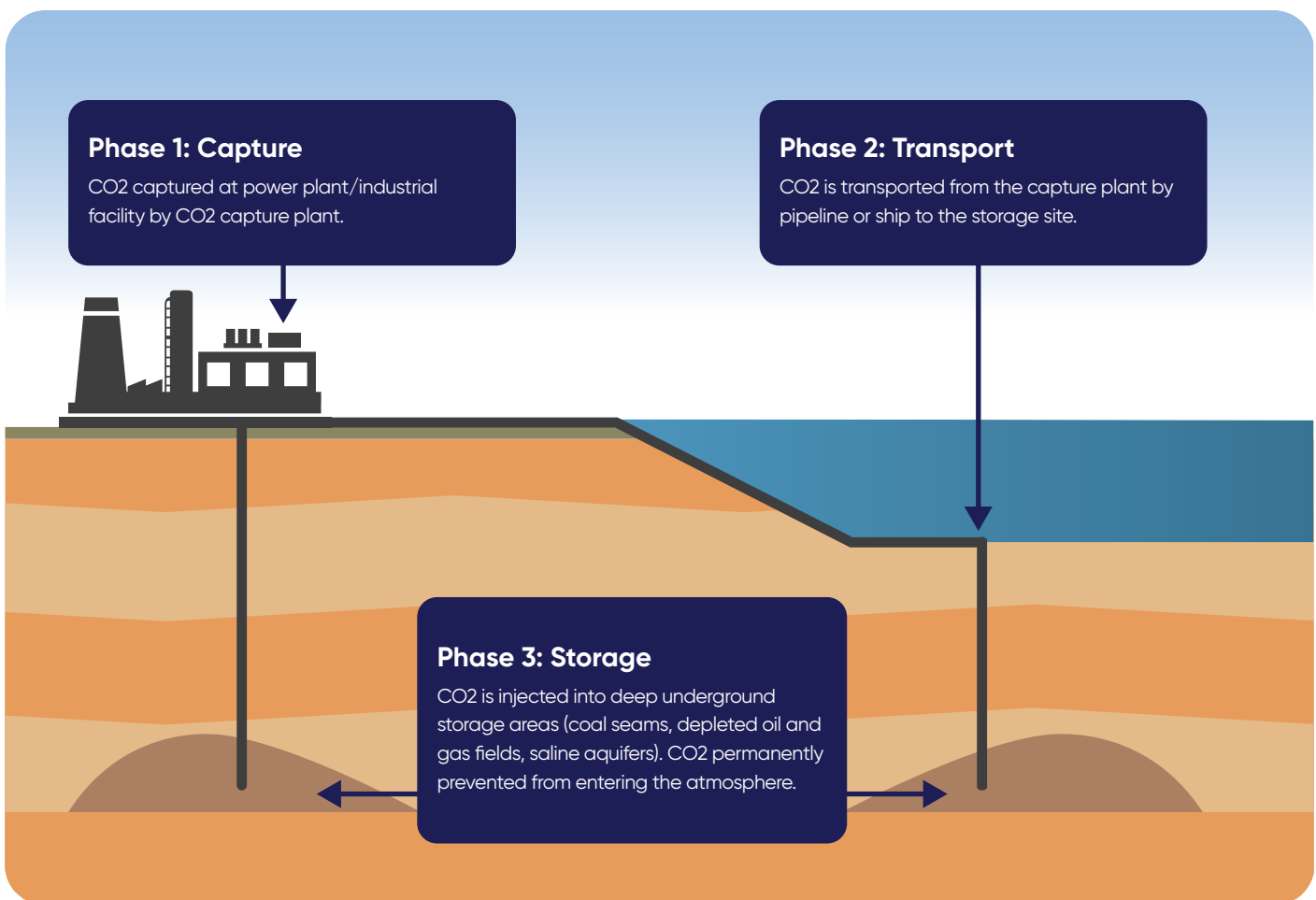
Carbon Capture and Storage (CCS), Carbon Capture, Utilisation and Storage (CCUS)

Clean energy technologies, particularly carbon capture and storage (CCS) and carbon capture, utilisation and storage (CCUS), can provide an effective means of reducing carbon emissions from large energy projects without having to make significant changes to energy supply infrastructure.

CCS could reduce greenhouse gas emissions, while allowing fossil fuels to be used to generate reliable and affordable power. According to CCS think tank, the Global CCS Institute, CCS technologies are the only ones capable of reducing large-scale emissions from myriad industrial sources.

How does CCS/CCUS work?

CCS is a three-stage process where CO₂ emissions are captured, compressed and then safely and permanently injected and stored in a site – normally underground – where it's unable to enter the atmosphere. The process is known as carbon sequestration.



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Global perspectives

CCS is recognised across the world as a critical technology for meaningful emissions reduction. Investment in CCS also supports the development of high value jobs, economic growth, infrastructure re-use and the deferral of shut-down costs. Significant progress is underway and as at November 2020, the [Global CCS Institute](#) confirmed that a number of successful CCS facilities are operational, in construction or in development.



Experts around the world agree that CCS is likely to play an important role in lowering global emissions and the transition to a cleaner energy future. With fossil fuels being part of global energy supply for some years to come, CCS is a key technology option to decarbonise the use of natural gas and prevent emissions from entering the atmosphere.

"CCUS, is an important emissions reduction technology that can be applied across the energy system. CCUS technologies also provide the foundation for carbon removal or "negative emissions" when the CO₂ comes from bio-based processes or directly from the atmosphere."

- International Energy Agency

"A delay in the development of other CCUS technologies would have a major impact on the prospect of getting to net-zero emissions in 2050. For example, CCUS is the only scalable low-emissions option to remove CO₂ from the atmosphere and to almost eliminate emissions from cement production. If progress in these technologies were delayed and could not be deployed at scale, then achieving net-zero emissions by 2050 would be vastly more difficult."

- IEA Net Zero by 2050 Report, pg. 98

"Limiting the availability of CCUS would considerably increase the cost and complexity of the energy transition by increasing reliance on technologies that are currently more expensive and at earlier stages of development."

- International Energy Agency, 2021

"CCS is the only large-scale option for permanent removal of CO₂ from the environment."

- Allison Hortle, Senior Researcher, CSIRO

"To achieve net-zero emissions, today's worldwide installed capacity of CCS must increase more than a hundredfold by 2050."

- Global CCS Institute, Global Status Report 2020