



Geovault is an Australian-owned company involved in onshore carbon capture and storage (CCS) as a "CCS as a service" industry provider. We partner with large emitters to provide long term underground geological storage for carbon dioxide, helping them to reduce GHG emissions to meet state and federal emission reduction targets.

HOW IT WORKS

CCS comprises 3 elements

Capture – GHG that would otherwise be emitted into the atmosphere is captured from industrial emitters and separated into a high concentration CO₂ stream).

Transport – CO₂ can be transported by road, rail, pipeline, and ship, usually compressed into a liquid form, which takes up less space and is more efficient.

Storage – CO₂ is then stored deep underground (usually more than 1km) in carefully selected rock formations such as sandstones.

[Click here for a video showing how CCS works](#)

FAQ'S

Are you storing it in underground caves?

No, the CO₂ is safely and permanently contained in the millimetre scale pore space in suitable rocks, which act like a sponge to contain the liquid CO₂.

How do you stop it leaking?

We carefully select the best sites for storage, so that it can't escape. This is the most crucial part of CCS and requires lots of data and analysis before a site is approved. As well choosing the best storage rocks, the liquid CO₂ is kept underground by an impermeable caprock.

How do you know it's safe?

Before, during and after CO₂ injection underground we use a variety of monitoring tools to check the CO₂ is safely contained deep underground.

Is it fracking? Will it get into the drinking water?

It isn't fracking. We are storing CO₂ at pressures much lower than fracture pressures, rather than producing hydrocarbons. We inject far below potable water levels with specially designed wells. The CO₂ is permanently contained in place under layers of impermeable rock.

I heard it doesn't work and is only used by oil companies?

CCS has been in use globally since the 1970's. It hasn't been more widespread as it comes at an additional cost, and it has been cheaper to just vent the CO₂ into the air. Governments are now imposing stricter limits and incentives.

So why not just plant more trees?

We should. And we should also use CCS to prevent emissions from entering the atmosphere. CCS can also be used to reduce atmospheric CO₂ levels through CDR (carbon dioxide removal) technologies such as DACSS (direct air capture), where low concentration atmospheric CO₂ is removed from the atmosphere and safely stored underground, and BECCS (bio energy CCS) where biomass is grown and used as an energy source with CCS employed to stop CO₂ re-entering the atmosphere.

WHY DO WE NEED CCS?

Even with the ramp up of renewable energy, many vital industries will continue to emit GHG gases, e.g., cement production cannot be achieved without heating lime, which liberates around 8% of global CO₂ emissions each year.

CCS is uniquely placed to provide GHG emission reduction to the hard to abate industries (cement, steel, refining, ammonia) where there is a single point source (like an industrial facility). It will be important in the production of clean hydrogen.

