MYTH VS FACT

CARBON CAPTURE AND STORAGE (CCS)

✗ CCS is an unproven technology

✓

Put simply by Julio Friedmann, a senior research scholar at the Center on Global Energy Policy at Columbia University: "Yes, it does work."

There are 27 CCS projects operating globally as at September 2021.
– Global CCS Institute. (2021). CO2RE Database.

This includes projects that have been operating for more than 20 years.

CCS technology is already having a positive impact around the world.

CCS is recognised by academics, industry professionals and governments around the world as an essential technology to reduce emissions. Currently, 83 per cent of countries' Long Term Low Emissions and Development Strategies features CCS as a necessary technology.

Capacity also grew from 75 million tonnes a year (Mtpa) at the end of 2020 to 111 Mtpa in September 2021 – a 48 per cent increase in less than a year.

✗ CCS is not necessary because there are better ways to reduce emissions

✓

The IEA's Net Zero by 2050 report states that CCS is crucial to meeting emissions reductions targets, needing to capture and store 7.6 Gt of CO2 per year in 2050.

IEA Executive Director Dr Fatih Birol told delegates at a high-level workshop in early 2020:

"When we consider the scale of the energy and climate challenge, the critical importance of carbon capture is inescapable."

✗ CCS unnecessarily prolongs fossil fuel use

✓

CCUS provides a key option to address emissions from existing energy assets, supports a cost-competitive scaling up of low-carbon hydrogen production, and removes carbon from the atmosphere.

According to Allison Hortle, Senior Researcher at CSIRO Energy, "CCS is just one of the portfolio of solutions to reduce emissions while meeting increasing energy demands.

"It's not the only answer, but it is one of many.

"We all want to move rapidly towards a sustainable energy future, but we need a good toolbox to do that. CCS is one of those tools."

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MYTH VS FACT

CARBON CAPTURE AND STORAGE (CCS)

✗ CCS requires a lot of energy, adding to emissions rather than reducing them

✓

CCS projects have used a baseline target of 90% capture of the emissions produced from burning fossil fuels for decades, and can exceed 95% efficiency.

The International Journal of Greenhouse Gas Control found that capture rates of up to 98% were possible at "relatively low marginal cost".

The energy input required to capture CO2 with CCS varies depending on the partial pressure of the CO2, i.e. the component of CO2 in the gas.

The higher the partial pressure of CO2 in the gas, the easier and more efficient the capture becomes.

As such, economies of scale will play a factor in reducing the capital costs and energy input of CCS as the size and number of projects continues to increase.

✗ CCS is not safe, with high potential for leaks from storage reservoirs

✓

CCS is a proven technology with more than 45 years of "safe, commercial operation" using proven technologies.

Extensive subsurface studies are carried out prior to well injection to ensure sites are appropriate for storage. This includes seismic analysis of CO2 migration in the rock (aka plume monitoring) and test drilling.

Research shows it is "virtually impossible" for CO2 to leak at sufficient depths of one to two kilometres under the Earth's surface in suitable storage basins.

This is true even for regions prone to earthquakes. In Hokkaido, for example, natural earthquakes have not caused any damage to reservoirs at the large-scale Tomakomai CCS Demonstration Project.

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