

Carbon Capture, Utilisation & Storage: Key to a net zero future

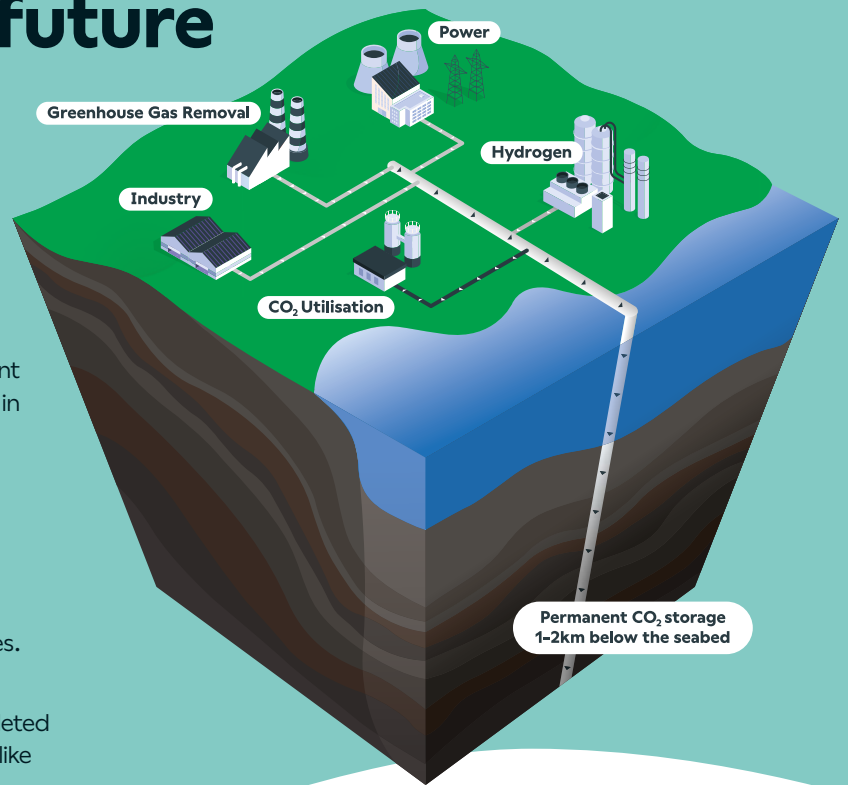


What is Carbon Capture, Utilisation & Storage (CCUS)?

CCUS is the game-changer we need: A proven technology that captures carbon dioxide (CO₂) emissions from industries and power generation, as well as enabling low carbon hydrogen production and greenhouse gas removal technologies. It transports the CO₂ to a permanent and secure storage site, deep under the seabed or uses it in products like synthetic fuels or mineralised products.

The process involves three key steps:

- 1. Capture:** CO₂ is separated from industrial or energy-related emissions.
- 2. Transport:** The captured CO₂ is compressed and transported by ship, road, rail or pipeline to storage sites.
- 3. Storage or utilisation:** CO₂ is injected into geological formations offshore 1-2km below the seabed (e.g., depleted oil and gas fields or saline aquifers) or used in products like concrete or fuels.



CCUS is key to net zero, according to experts:

CCC:
CCS is a necessity, not an option.¹
We cannot see a route to Net Zero that does not include CCS.²

IEA:
CCUS is critical to achieve net zero emissions, but rapid progress is needed by 2030.³

IPCC:
To limit warming to 1.5°C, all IPCC pathways require fossil fuels with CCS or renewables, plus carbon removal.⁴

Why CCUS is essential: The UK's net zero lifeline

CCUS is essential for achieving the UK's ambitious climate goals; recognised by the **Climate Change Committee (CCC)**, the **International Energy Agency (IEA)**, the **International Panel on Climate Change (IPCC)** and several leading academic experts as a critical technology for reaching net zero emissions. It will play a crucial role in decarbonising vital sectors like cement, chemicals, glass, fuel refining, aviation and power generation, ensuring their continued operation in the UK, while tackling climate change and securing the long-term sustainability of our key foundational industries.

By capturing over **50 million tonnes (Mt) of CO₂ annually by 2035** – equivalent to offsetting the carbon footprint of the entire population of Greater London twice over – CCUS will significantly contribute to the UK's net zero ambitions. CCUS also helps reduce air pollution, improves air quality and contributes to a healthier planet.

¹ Climate Change Committee (2019) *Net Zero: The UK's Contribution to Stopping Global Warming* (pg.23). Available [here](#).

² Climate Change Committee (2025) *The Seventh Carbon Budget* (pg.14). Available [here](#).

³ International Energy Agency (2023) *Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach* (pg.15). Available [here](#).

⁴ Intergovernmental Panel on Climate Change (2022) *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report*. Available [here](#).

CCUS in action: UK deployment

CCUS is being deployed in key industrial “clusters”:

Track-1: HyNet and the East Coast Cluster

HyNet in North West England and Wales, and the East Coast Cluster in North East England, are the **first-mover** projects. In October 2024 the Government committed funding to the first five CCUS projects and Net Zero Teesside Power and the Northern Endurance Partnership became the first CCUS projects to reach Financial Close, marking a major milestone. The clusters will decarbonise industries while generating low-carbon dispatchable power, complementing variable renewable generation from solar and wind.

Track-2: Viking CCS & the Acorn Project

These clusters will **further expand CO₂ capture and storage**, decarbonising the Humber (the UK’s largest industrial cluster) and enabling Scotland’s North Sea oil and gas workers to transition into this new industry.

Track-1 Expansion:

The expansion of HyNet and the East Coast Cluster will allow more emitters to connect to transport and storage infrastructure.

Other projects and clusters:

MNZ | Peak Cluster, 7CO₂, Bacton Thames Net Zero, the Poseidon Project, South Wales Industrial Cluster, the Solent Cluster and Veri Energy **need a clear route to market** to move into delivery.



Economic benefits

- **Jobs:** Create 50,000+ skilled jobs by 2050 and retain jobs in critical industries.
- **Economic Growth:** Attract £26bn private investment by 2030 and contribute £94bn Gross Value Added (GVA) by 2050.
- **Low-Carbon Power:** Enable 2–7 Gigawatts of dispatchable power by 2030⁵, enough to power 1.5–5.25 million UK homes annually.
- **Supply Chain & Exports:** Grow the UK CCUS supply chain to £2.6bn by 2040, generating £4.3bn in GVA annually by 2050.
- **Global Leadership:** Maximise the UK’s 78 billion tonnes of CO₂ storage potential – a third of Europe’s total available CO₂ storage capacity – and generate £30bn annually by 2050 by leading in carbon storage and technology exports.

Environmental benefits

- **Carbon Budgets:** CCUS is essential for meeting Carbon Budgets 5, 6 and 7, capturing 20–30 Mt of CO₂ annually by 2030 and 50–60 Mt by 2035.
- **Decarbonisation:** CCUS is the only viable option for hard-to-abate sectors like cement, chemicals and refining.
- **Greenhouse Gas Removals (GGRs):** CCUS enables CO₂ removal through sustainable Bioenergy with CCS (BECCS), Direct Air Capture and Storage (DACS) or Energy From Waste with CCS (WECCS).
- **Reducing Air Pollution and Improving Air Quality:** CCUS captures CO₂ and other pollutants from industrial processes and power generation, significantly reducing air pollution. This contributes to cleaner air, improved public health and a healthier environment.



Call to action:

To capture the full potential of CCUS, position the UK as a global leader and deliver on the ambition of being a clean energy superpower, the CCSA urges the Government to:

1. **Commit funding to pre-selected projects in CCUS Track-1, Track-2, and Track-1 Expansion and other projects** aiming to deliver within the same timeframe.
2. **Establish regular funding allocation** rounds to provide a clear route to market for other CCUS projects and supply chain.
3. **Advance progress on non-pipeline transport (NPT)** to enable non-pipeline based and cross-border projects to be able to take part in CCUS allocations.

⁵ National Energy System Operator (2024) *Clean Power 2030: Advice on achieving Clean Power for Great Britain by 2030* (pg 29). Available [here](#).