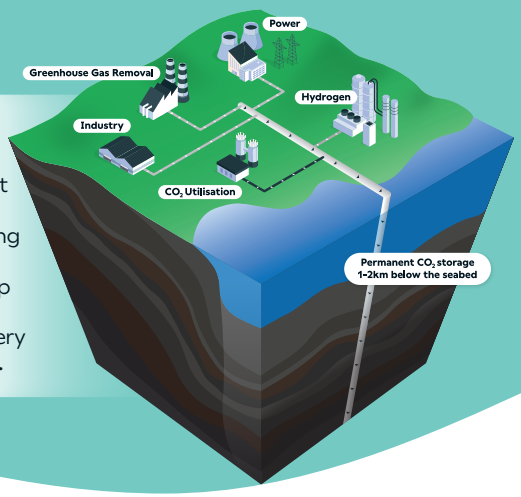
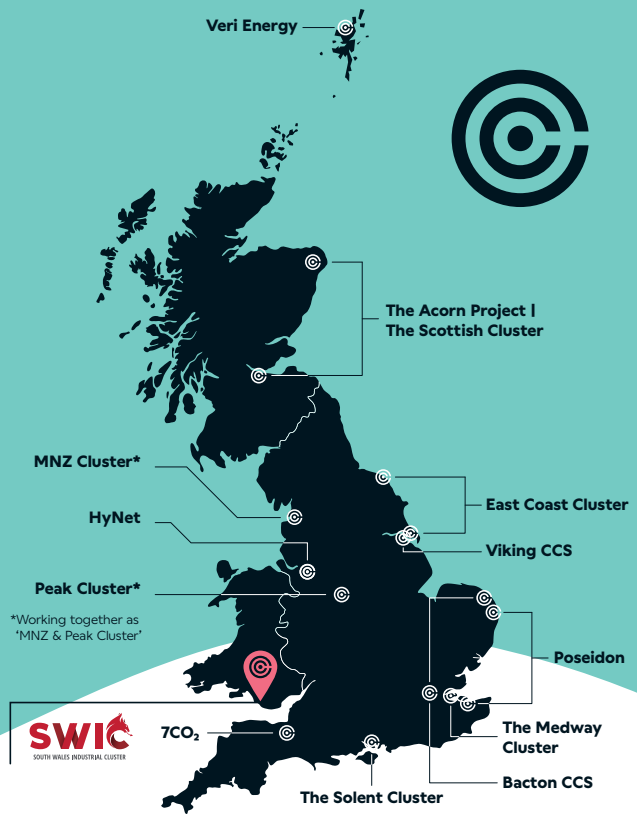
Carbon Capture, Utilisation and Storage in South Wales

THE SOUTH WALES INDUSTRIAL CLUSTER



A CCUS Cluster

Multiple industries sharing CO_2 transport and storage infrastructure, enabling industrial and power decarbonisation, deep emissions reductions and supporting delivery of net zero pathways.



What is CCUS?

Carbon Capture, Utilisation and Storage (CCUS) captures carbon dioxide (CO_2) from industry, power plants or even directly from the air. The process involves three key steps:

1. **Capture:** CO_2 capture technology captures CO_2 from industrial or energy-related emissions or directly from the air.
2. **Transport:** The captured CO_2 is compressed and transported by ship, road, rail or pipeline to storage sites.
3. **Storage or utilisation:** CO_2 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 industry is delivering in the UK:

CCUS is being developed in **regional industrial clusters**. The first projects are under construction in **Merseyside, North Wales and Teesside**, where industries share transport and storage infrastructure. Further projects are in development in the **Humber, Scotland, Derbyshire & Staffordshire, East Anglia, South Wales, the South Coast and Avonmouth**.

The UK Climate Change Committee highlights that CCS is essential to meeting the UK's climate commitments.[1]

CCUS is a vital tool for:

Cutting emissions from foundational industries: CCUS is the only realistic way to decarbonise industries like cement, chemicals and refining by capturing emissions created as a by-product of the production process.

Delivering deep emissions reductions: CCUS can capture 50–60 million tonnes (Mt) of CO_2 annually by 2035 – a level the Climate Change Committee says is essential for meeting the UK's climate targets, equivalent to offsetting the carbon footprint of Greater London twice over.

Retaining UK industries: CCUS enables industry to cut emissions, remain competitive the global low-carbon products market and supports up to 50,000 jobs by 2050.

Producing low-carbon hydrogen: CCUS enables low-carbon hydrogen for industry by capturing CO_2 during production.

Removing CO_2 from the air: Greenhouse Gas Removal (GGR) technologies actively remove CO_2 from the atmosphere, complementing decarbonisation efforts by helping address emissions from hard-to-abate sectors, such as agriculture and aviation.

Powering millions of homes: Gas-fired power stations with CCUS will produce 2-7 Gigawatts (GW) of low carbon, flexible power by 2030, enough for up to 5.25 million homes and balancing the grid when renewables are not available.

Boosting the UK economy: Building out CCUS will help unlock £26 billion in private investment by 2030, supporting a growing UK CCUS supply chain worth up to £2.6 billion by 2040, generating up to £30 billion in taxable revenue annually by 2050 and adding £94 billion Gross Value Added (GVA). With around a third of Europe's CO_2 storage potential, the UK is well positioned to lead in carbon storage and exports.

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

CCSA

What comes next?

The UK now has a credible pipeline of CCUS projects, but the next projects and clusters must move forward without delay. To secure a self-sustaining CCUS industry and realise its industrial, economic and climate benefits, the CCSA urges Government to:

1. **Deliver the actions required** to progress the build-out of the East Coast Cluster and HyNet as well as confirming the allocation of the development funding committed to Viking CCS and The Acorn Project.
2. **Provide an allocation framework** for government support contracts in the 2027 Spending Review and a clear nationwide route to market for CCUS deployment. This should include enabling Viking CCS, The Acorn Project, East Coast Cluster Humber Expansion and MNZ | Peak Cluster to reach financial close within this Parliament, and supporting other projects and clusters to deploy, including those using CO_2 transport by ship, road and rail.
3. **Implement policies and regulations** to stimulate low carbon products, carbon removal and European-wide CO_2 storage markets to enable the transition to a self-sustaining market.

SWIC
SOUTH WALES INDUSTRIAL CLUSTER

CCUS in South Wales: The South Wales Industrial Cluster | Milford Haven CO_2 Project

The South Wales Industrial Cluster (SWIC) is key to Wales's and the UK's climate targets, aiming for net zero industries by 2040 through CCUS deployment, low-carbon hydrogen and improved energy efficiency.

SWIC includes important economic zones such as the **Celtic Freeport** and the **Cardiff & Newport Investment Zone**. It supports a diverse industrial base including oil refining, nickel processing, steel recycling, cement, chemicals and power generation. SWIC's key milestones include government funding shortlisting, **targeting a Final Investment Decision by 2029/30**, with first CO_2 capture expected by 2033/34.

Milford Haven CO_2 Project

This project aims to capture up to 5 Mt of CO_2 annually from 2033. It covers the full value chain - from capturing the CO_2 at Pembroke Power Station, liquefying it and shipping it to permanent offshore storage with the Acorn Project in Scotland. The project uses Milford Haven's deep-water port, which already handles liquefied natural gas (LNG), to cool and liquefy captured CO_2 for shipping. Combining these steps in one location saves energy and benefits from local expertise in port operations.

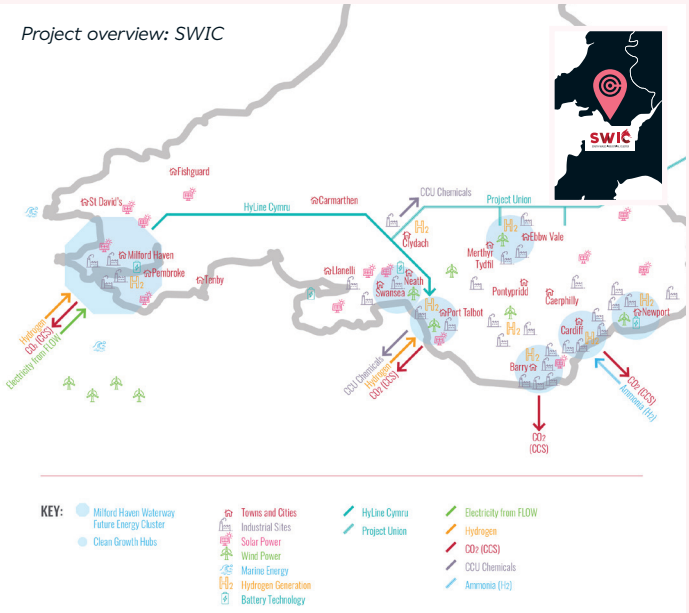
Key benefits include:

- **Decarbonisation potential:** Reduce Welsh emissions by up to 40%, playing a crucial role in meeting both Welsh and UK climate targets.
- **Job creation & protection:** Supports retention of 113,000 jobs and creates 94,000 new jobs during construction and operation of CCUS plants, helping South Wales remain a thriving industrial heartland.
- **Economic impact:** Unlocks £30 billion in investment and adds £6 billion in regional economic value by 2050, attracting new businesses and strengthening the local supply chain.
- **Flexible CO_2 transport:** Shipping CO_2 instead of relying solely on pipelines means industries can access multiple storage sites, scale operations as needed, and overcome geography limits - delivering £19 billion in economic benefits and a net regional boost of £8 billion.
- **Cross-border collaboration:** Partnership with The Acorn Project in Scotland (see map) ensures Welsh CO_2 has a secure storage location, connecting SWIC to the UK-wide low carbon economy.

Leading industry partners

RWE, Dragon LNG, Shell, The Acorn Project, Net Zero Industry Wales, Natural Resources Wales and Port of Milford Haven.

Project overview: SWIC



Carbon Capture and Storage Association
6th Floor, 10 Dean Farrar Street, London SW1H 0DX
020 3031 8750
info@ccsassociation.org

CCSA