Informing the deployment of *Carbon capture, utilization, and storage*

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World Business Council *for Sustainable Development*

ARUP

Foreword

As we work together, globally, to address the impacts of climate change, we will need a range of solutions to tackle a complex and interconnected challenge.

Carbon capture, utilization, and storage (CCUS) offers a viable and practical way to prevent greenhouse gas from entering the atmosphere by capturing carbon dioxide emissions from industrial sources and storing them safely and permanently. This process can play a valuable role in achieving sustainable development goals and safeguarding our planet's future. CCUS technologies can also provide pathways to carbon dioxide removal. It is for these reasons that CCUS is recognized in the United Nations Framework Convention on Climate Change as a critical technology for a low carbon future.

Despite this CCUS is often misunderstood. There are common misconceptions surrounding the role of CCUS in net-zero mitigation pathways. These misconceptions can confuse stakeholders, reducing the likelihood that they invest in CCUS projects to decarbonize their value chains.

In this report we address these misconceptions by showcasing the progression of CCUS over multiple decades. A mix of science, policy and business case innovation means the reality behind these misconceptions can be explained and supported by proof points.

Let's be clear – bringing CCUS projects to reality is complex. It requires a reimagining of value chains. It demands significant cooperation and risk sharing between stakeholders that previously didn't interact.

This is where **CCS-as-a-service** plays a role. By unbundling the value chain and enabling third-party capture, transport, and storage services, the barriers to entry for emitters are lowered while incentives are aligned across a network of specialized providers.

Here, with an eye to how to overcome them, we discuss the main deployment challenges facing businesses today. Financing CCUS remains a core challenge, but innovative models and technological advancements are emerging to bridge the gap between ambition and implementation.

International regulatory frameworks for CCUS are at the heart of the growth in CCUS applications, with jurisdictions adopting varied approaches based on local policy, legal structures, and environmental priorities. Without these systems CCUS deployment would falter.

Together, these developments signal a maturing CCUS ecosystem, one that is increasingly capable of supporting the global transition to net-zero.

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01. Introduction

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Many sectors are under growing pressure to deliver credible reductions in product level carbon intensity. Achieving this when emissions are driven by process chemistry or where electrification is constrained by high-temperature requirements such as in cement, steel and chemical refining industries is particularly challenging.

Carbon Capture, Utilization and Storage (CCUS) is often presented as part of the solution, yet it remains surrounded by misconceptions about maturity, energy use, safety, and whether it delivers meaningful emissions reductions. This report cuts through the noise by summarizing evidence from deployments, technology advances, and policy and regulatory developments, so demand-side leaders can assess when CCUS may credibly support lower-carbon products and decarbonized value chains.

Context

CCUS can prevent CO_2 from entering the atmosphere by capturing emissions at source and storing them safely and permanently. It can also enable carbon dioxide removal pathways when biogenic or atmospheric CO_2 is captured and durably stored. Real-world delivery is complex because CCUS requires new value chain coordination and risk sharing across parties that historically did not interact. Deployment also depends heavily on policy and regulatory frameworks that vary by jurisdiction. These factors have contributed to misunderstanding and skepticism, which can slow adoption by demand-side companies that need clear proof points to justify the significant investments required to implement CCUS.

Objective of this report

The objective of this report is to provide demand-side leaders in hard to abate industry with a fact-based, decision-relevant overview of CCUS, including technical realities, infrastructure requirements, economics, and the policy and regulatory conditions that enable credible deployment for lower carbon intensity products.

Specific objectives

- → Clarify common misconceptions about CCUS
- → Summarize the current state of global deployment and the direction of travel for scaling CCUS in hard-to-abate sectors.
- → Explain the value chain from capture through transport (including non-pipeline options) to permanent storage, and why shared networks and clusters can improve access and affordability.
- → Describe the main deployment challenges and what can be done to improve project bankability.
- → Distinguish emissions reductions from carbon dioxide removals and explain how CCUS technologies can enable removal pathways.

Limitation of this report

This report is a strategic overview and is not a substitute for site-specific engineering design, permitting, commercial contracting, or detailed life cycle assessment required for investment decisions or product claims. It is based on publicly available information and reflects research as of December 2025, so project pipelines, costs, and policy frameworks may evolve after publication.

Cutting through the noise on carbon capture and storage

Table 1 shows the common misconceptions about CCUS that are addressed in this report. Exploring these misconceptions together with a summary of global CCUS progress, policy drivers, and technology developments provides a holistic view to where CCUS is today.

This report offers evidence from current deployments, regulatory frameworks and technological advances, which demonstrate the viability and value of

CCUS as a materially significant contributor to the decarbonization of hard to abate sectors.

Table 1: Common misconceptions about CCUS and a brief reality check (as justified throughout the report)

#	*Misconception*	*Reality check*	*Section*
1	**CCUS is unproven**	CCUS is deployed across multiple sectors, and emerging and existing policy frameworks are supporting its deployment for net-zero.	CCUS Progress, page 8
2	**CCS point source only captures 30-50% of emissions**	Modern systems routinely achieve capture rates above 90%, with efficiencies improving rapidly and technological routes diversifying and increasing.	CCUS technology and infrastructure, page 11
3	**CCUS takes so much energy to run it cancels out the benefit**	While most forms of CO_2 capture require energy, they will use waste heat wherever this is available and can also use geothermal, renewable or battery power. Most lifecycle analyses show substantial net emissions reductions and that operating costs can be managed.	CCUS technology and infrastructure, page 11
4	**Transporting CO_2 is dangerous, and risks cannot be mitigated**	CO_2 is already transported safely as an industrial gas by multiple modes, and the main hazards are managed through established engineering standards and operating procedures.	CCUS technology and infrastructure, page 12
5	**We should use all the CO_2 we capture rather than storing it underground**	CO_2 utilization can create value, but most uses store CO_2 only temporarily and often re-release it later (for example in fuels), so deep, durable climate benefit at scale relies on permanent geological storage.	CCUS technology and infrastructure, page 13
6	**Subsurface storage is not durable or safe**	CO_2 storage is regulated, monitored, and can be secure over significant timescales.	CCUS technology and infrastructure, page 14
7	**CCUS locks in use of hydrocarbons**	CCUS enables decarbonization of sectors which have no other route to full decarbonization. These include cement production and waste-to-energy.	CCUS policy drivers and affordability, page 20
8	**Carbon capture and storage is the same as carbon dioxide removal**	CCS prevents new emissions by capturing CO_2 before it reaches the atmosphere, whereas CDR is removal because it extracts CO_2 from the atmosphere and stores it durably.	Interactions between CCUS and carbon dioxide removal pathways, page 23

02. CCUS *progress*

02. CCUS *progress*

The scale and pace of global deployment

The International Energy Agency maintains a comprehensive database of CCUS projects. Unless otherwise stated, figures are from this source.[1]

Operational and planned CCUS capacity

There is currently 51 million metric tons of CO_2 (Mt $CO_{2)}$ per year of capture capacity in operation globally (Figure 1), with a further 21 $MtCO_2$ per year under construction, giving a global total of 72.3 $MtCO_2$ per year. By 2030 there is a further 327 $MtCO_2$ per year planned to be operational. Noting that less than 10% of this capacity is in construction (as of 2025) this is a highly ambitious target.

When examining the global distribution of CCUS projects and their applications, there is a clear trend to hydrocarbon processing applications (64% of current deployments – Figure 2) in oil and gas producing regions, especially the Americas (Figure 3). This is closely linked to the treatment of sour gas (high CO_2 content) methane extraction and the use of CO_2 as a fluid in enhanced oil recovery (EOR). These projects create a base of expertise and infrastructure that allows rapid scaling into emissions abatement applications.

In Europe, the sole focus of CCUS projects is on reducing emissions across power generation and industry. By 2030 Europe is projected to hold 31% of global CCUS capacity.

Figure 1: Growing pipeline of projects entering delivery and operation[1]

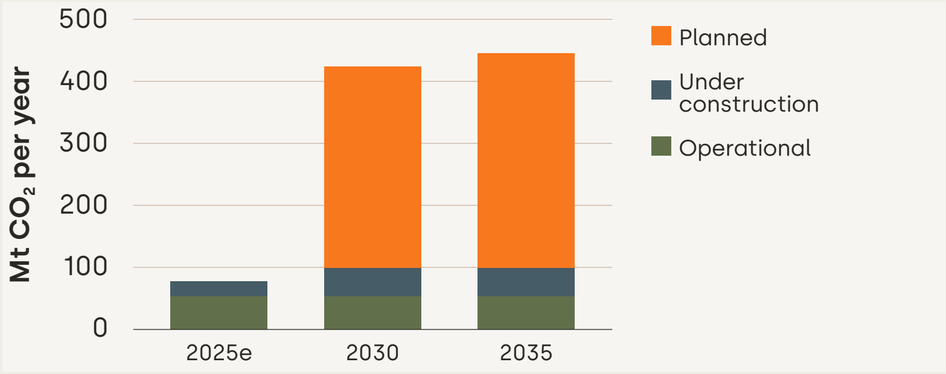


Figure 2: Anticipated % growth in CCS is especially in cement, chemicals and steel where decarbonization options are limited[1]

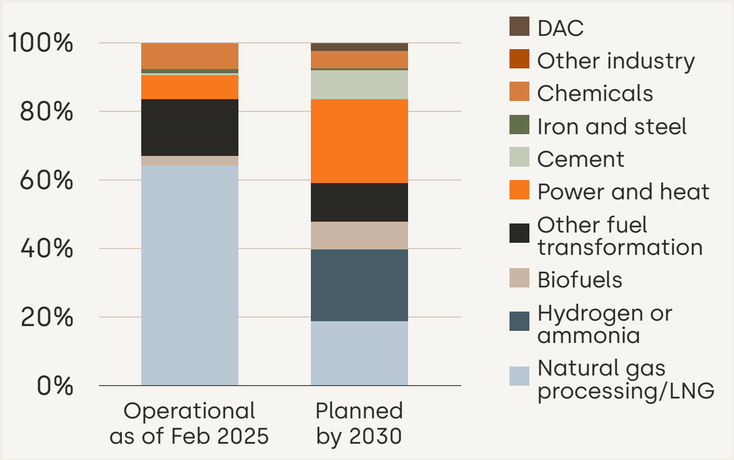
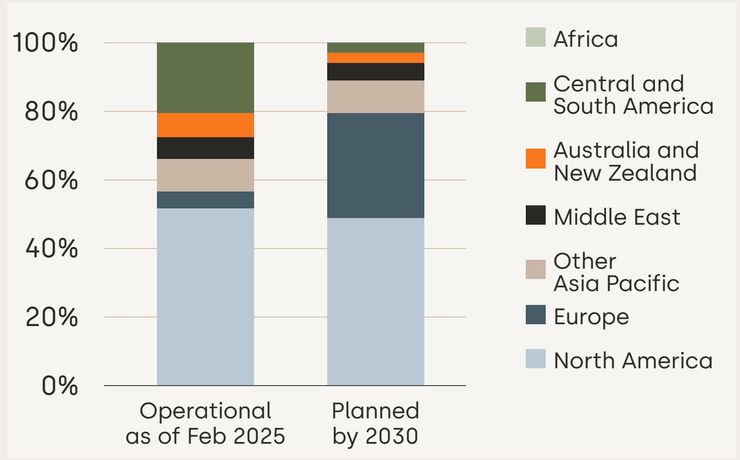


Figure 3: North America's CCS operations likely to be overtaken by Europe (and China) in deployment of new CCUS projects by 2030[1]



The London Register of Subsurface CO_2 Storage provides the world's first comprehensive record of operational underground CO_2 storage sites, demonstrating that geological CO_2 storage is a mature, scalable technology delivering results today. Figure 4 shows the annual amount of CO_2 storage by country. Drawing on real-world data from active projects across a diverse set of regions, the London Register offers robust evidence that large-scale CO_2 storage is not a future concept but an established solution operating safely at industrial scale.

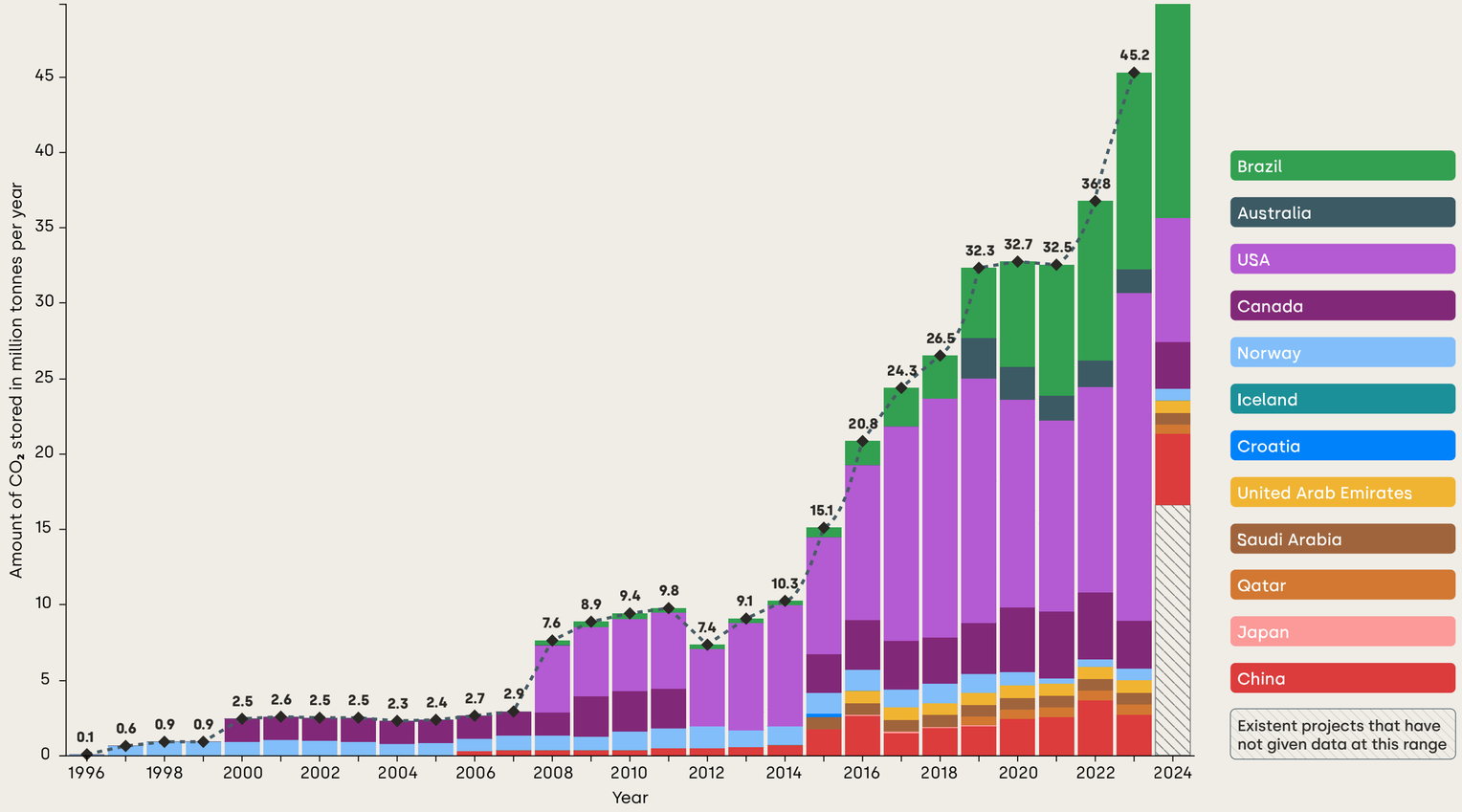
Misconception 1 - "CCUS is unproven"

CCUS is a proven technology with decades of operational experience and a growing portfolio of large-scale projects worldwide. Facilities such as Quest in Canada and Northern Lights in Norway, alongside multiple industrial capture projects, demonstrate that CO_2 can be captured, transported and stored safely and effectively.

The London Register of Subsurface CO_2 Storage further illustrates this momentum by recording growing volumes of CO_2 stored globally.

Where applied to suitable sources, the remaining barrier is typically not technical feasibility but implementation conditions. When policy frameworks and commercial models are designed and applied well, they can create the confidence and incentives needed to deploy this proven technology at scale.

Figure 4: Annual amount of CO_2 storage by country, as per the London Register of Subsurface CO_2 Storage



03. CCUS technology *and infrastructure*

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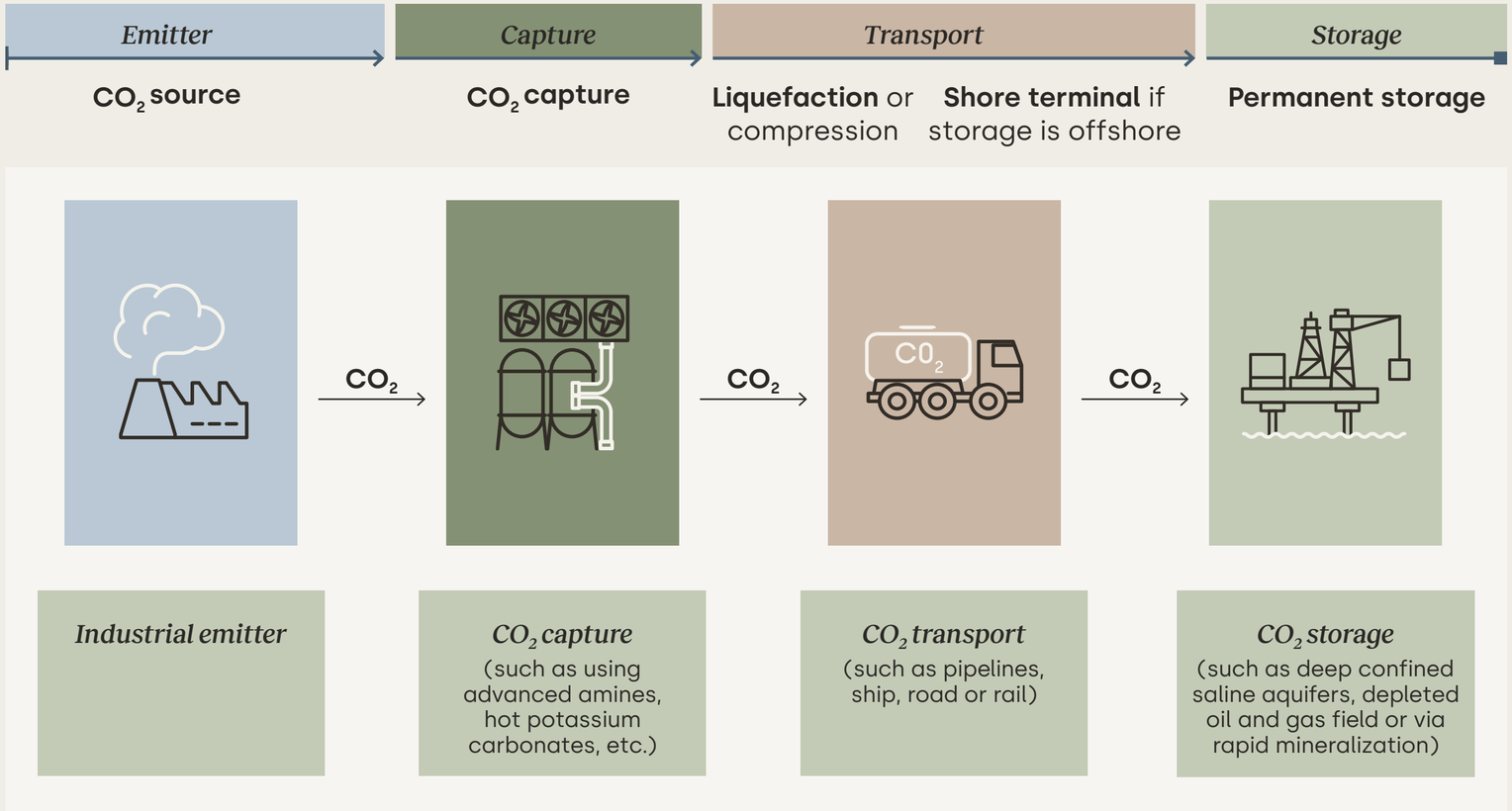
Understanding the CCUS value chain

The value chain

Figure 5 provides a high-level overview of the value chain for carbon capture with storage. Carbon capture and utilization (CCU) is similar, but the final storage destination is replaced with a facility that can use the CO_2 in a product.

The suitability of CCUS varies across each industrial sector. It is often possible for companies to retrofit carbon capture technology to existing sites with minimal disruption to the underlying process. This minimizes the need for the replacement of equipment or changes to processes. However, it should be stressed that alternative decarbonization solutions, such as hydrogen or electrification, may be the most competitive decarbonization strategy.

Figure 5: Overview of emerging infrastructure for large-scale transport and storage of CO_2



Overview of CO_2 capture technologies

An overview of the process for capturing carbon dioxide, together with performance criteria of for amine-based capture technologies is provided in the Appendix.

Post- combustion capture technologies are now diversifying rapidly. They present emitters with new opportunities to reduce environmental impact and improve energy efficiency.

To further improve post-combustion capture system performance there are three main technologies being developed as shown in Table 2. This is a focused, non-exhaustive comparison of the wider developments across pre-combustion and post-combustion capture technologies.

Misconception 2 – "CCS point source only captures 30-50% of emissions"

There are multiple CO_2 capture technologies, and performance depends on matching the approach to the emissions stream and site constraints. Capture systems are commonly designed to remove roughly 85–95% of CO_2 from flue gas, while commercial capture can reduce power-plant CO_2 emissions per kWh by around 85–90% under typical designs.[2] Public disclosure of capture performance varies by project, but transparent reporting can build confidence that systems are operating as intended. Higher capture rates can be technically achievable in some cases but choosing them is a commercial decision that balances additional CAPEX and OPEX against the value of deeper abatement and any regulatory or customer requirements.

Misconception 3 – "CCUS takes so much energy to run it cancels out the benefit"

Carbon capture does come with a significant energy overhead, but this does not erase the emissions benefit when systems are designed and operated properly. In power generation applications, MIT estimates that carbon capture would consume between 15 and 25% of a fossil fuel power plant's output[3] and BGS estimates 25-40%.[3]

In industrial capture, using available waste heat or process integration can materially reduce the incremental energy burden. As a result, most credible assessments treat energy use as a manageable engineering and integration challenge rather than a reason that CCUS cannot deliver substantial net CO_2 reductions.

Table 2: Comparison of three common technologies for post-combustion carbon dioxide capture

Advanced solvents
Advanced solvents use absorption (physical or chemical) to capture CO_2, resulting in typically high regeneration energy requirements and high capture efficiency. Applications are primarily in large-scale industrial absorber and stripper column systems, with the advantages of high capture efficiency and well-established, commercially mature processes.
Solid sorbents
Solid sorbents use adsorption (physical or chemical, including metal-organic frameworks) to capture CO_2, resulting in generally lower regeneration energy and variable efficiency depending on the material. Applications include packed beds, fluidized beds, and structured reactors, with the advantages of potentially lower energy consumption and reduced operating costs.
Cryogenic
Cryogenic systems use low-temperature separation through condensation and sublimation, resulting in relatively low regeneration energy requirements and high capture efficiency and CO_2 purity. Applications include packed beds, distillation columns, and phase separation systems, with the advantages of producing high-pressure, high-purity CO_2 and offering potential energy integration or cold energy recovery benefits.

Pipeline transport

Similar to many utilities and services, clusters of users and low-distance logistical chains delivers considerable savings. Transport via pipeline is a clear example of the savings achieved by colocation and shared infrastructure. Pipelines have a high CAPEX but can provide extremely large capacity, which drives a low OPEX.

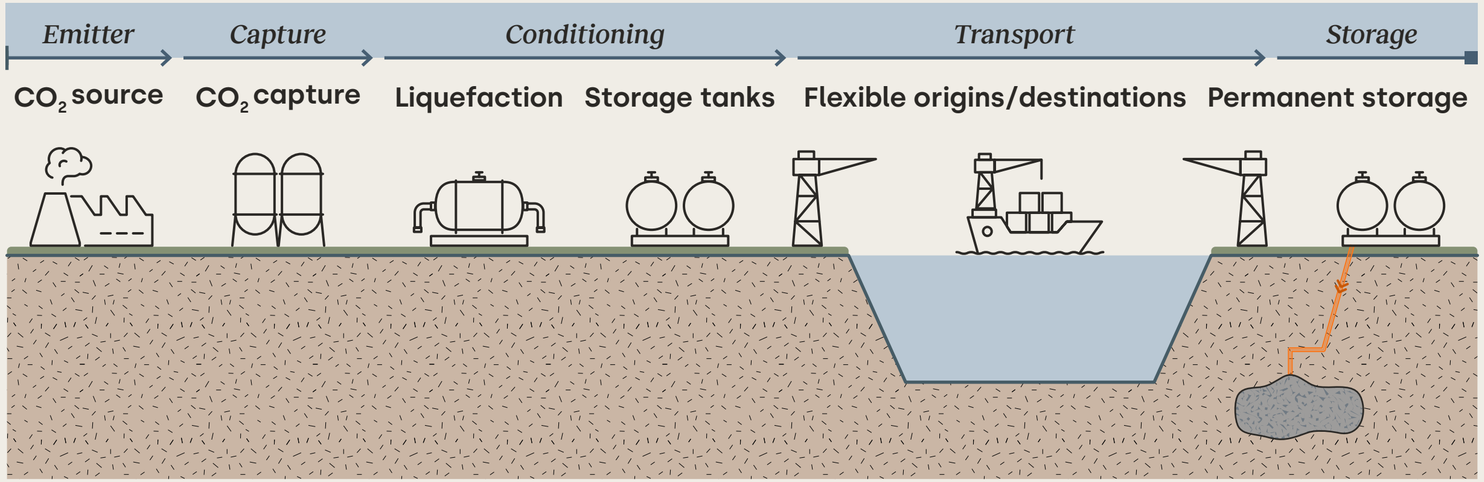
Non-pipeline transport

Non-pipeline transport (NPT), as shown in Figure 6, provides greater flexibility between emitters and storage locations, particularly where fixed infrastructure is not yet in place.

CO_2 can be transported over significant distances, in a similar operation to liquefied natural gas shipping, which enables cross-border trade. This means countries with little or no proven storage, such as South Korea and Japan, could transport their CO_2 to Malaysia and Indonesia, which have considerable storage ambitions based on favorable geology and existing infrastructure. A existing commercial example of this is already in operation with the Norwegian Longship project.

Road and rail play an important role for smaller volumes and early-stage projects, linking dispersed emitters to aggregation hubs, pipeline injection points, or port terminals within a broader "hub-and-spoke" network model.

Figure 6: Non-pipeline transport enables countries and regions to safely ship CO_2 to storage destination



Misconception 4 - "Transporting CO_2 is dangerous, and risks cannot be mitigated"

Like any industrial waste product, CO_2 must be transported with care. Robust mitigation plans and operating procedures allow this to become routine for businesses. The US has the most experience with CO_2 pipeline operation with over 5,000 miles of pipelines in service. Since reporting began in 1988, not a single fatality has been reported, with only one accident reaching the reportable threshold (overnight stay in a hospital).[4] CO_2 has an excellent safety record and considerable industrial experience exists throughout the oil and gas sector around managing the transfer of methane and other hazardous gases.

In non-pipeline transport, CO_2 is already moved commercially as refrigerated liquid by road and rail under hazardous materials regulations, and via ship under established maritime frameworks. The primary hazards are asphyxiation in high concentrations and cold-temperature effects during depressurization, not flammability, and these hazards are managed through engineered containment, gas detection and monitoring, operating procedures, and training.

Carbon dioxide utilization (CCU) and mid-term storage

Utilization of CO_2

A range of technologies to make use of captured CO_2 are developing, with limited scalability. Today 230Mt of CO_2 is used annually, mainly in fertilizer manufacture and enhanced oil recovery.

Revenue generation from captured CO_2 is an area of ongoing research and development, with several promising products in development including building materials, synthetic fuels and fertilizers.

The International Energy Agency estimates a capacity for using 15Mt of captured CO_2 per year from new pathways by 2030.[5] The majority of these use cases have a short- to mid-term storage durability; weeks to months for synthetic fuels for instance. Captured CO_2 used in building aggregates is one of the rare carbon capture and utilization pathways which may lead to high carbon storage durability because the CO_2 is chemically mineralized into the product, not just embedded or temporarily stored.

Given the large volumes of CO_2 currently emitted to the atmosphere, the primary driver for developing carbon capture and storage (CCS) infrastructure is safe and permanent waste disposal during the decarbonization of hard-to-abate sectors.

Turning CO_2 into a valuable commodity can help create an income stream from a waste product. When considering this, it is worth noting the main challenges:

→ Permanence of the storage – using captured CO_2 in products such as synthetic fuels only delays its release to the atmosphere, as the CO_2 is emitted once the fuel is combusted. See Appendix Table A1 for more details.

→ Cost – with a complex and costly supply chain, a product using captured CO_2 may simply be uncompetitive.

Misconception 5 – "We should use all the CO_2 we capture rather than storing it underground"

CO_2 utilization can create economic value and support innovation, such as producing fuels, chemicals, or building materials, but it rarely delivers permanent climate benefits. Most CO_2-based products, like synthetic fuels, re-release CO_2 when consumed, meaning they only delay emissions rather than eliminate them.

For net-zero, permanent geological storage is essential. It ensures captured CO_2 remains out of the atmosphere for thousands of years, providing true and durable emissions reduction. This is why IPCC and IEA pathways prioritize storage as the backbone of CCS strategies, especially for hard-to-abate sectors. Utilization can complement storage, but it cannot replace it as the primary solution for deep decarbonization.

Permanent geological sequestration and storage

Geological storage can keep CO_2 away from the atmosphere safely and permanently. There are different trapping mechanisms that ensure the CO_2 is durably stored. Injection into saline aquifers results in structural and residual trapping, plus dissolution trapping, where CO_2 dissolves within the water formation. These formations can store very large volumes safely due to their high capacity and because CO_2 enriched water becomes denser and sinks.

In Norway, over 20 million tonnes of CO_2 has been stored at the Sleipner field, a saline aquifer, since 1996. The CO_2 is injected into layers of sandstone some 800-1000m below the seabed, then capped with an impermeable layer of mudstone.

Depleted oil and gas fields are also considered because they offer extensive geological data of the storage structure, proven containment and opportunities to repurpose existing assets. These sites support structural trapping beneath impermeable layers together with residual, solubility and mineral trapping within rock pore spaces. Mineral trapping is an emerging mechanism used in several high-profile projects. Earthshot Prize winners, 44.01 in Oman, and Carbfix in Iceland, both inject CO_2 -rich water into basalt rock formations, where it mineralizes into stable carbonates. This is an acceleration of a natural process.[6]

Storage regulations

Storage regulations exist to ensure that captured CO_2 remains securely and permanently stored below ground. Monitoring of stores so that containment can be demonstrated to the regulator and the public is critical. It shows the permanent mitigation of CO_2 from the atmosphere and provides confidence that storage is safe.

A key principle is that monitoring should be risk-based. Constant observation of the entire storage complex would be prohibitively expensive and unnecessary, given the high confidence in the store integrity.

Monitoring is therefore targeted at the most high-risk areas, such as the injection point, old infrastructure and natural faults. Periodic store surveys also help to validate computer models of the plume migration.

Storage regulations are highly regionalized, with layers of complex requirements from international agreements, through national, state and local requirements. Rather than exhaustively list these, the fundamentals are well represented by the ISO standard (**ISO 27914:2017 Carbon dioxide capture, transportation, and geological storage — Geological storage**) to which most of the regulations conform.

Misconception 6 - "Subsurface storage is not durable or safe"

A well understood storage site with proven trapping mechanisms, an appropriate injection rate and effective monitoring under a competent regulator presents an exceptionally low level of risk for an industrial process.

A UK Government study found the probability of a caprock leak to be less than 1 in 10,000.[7] Even in the highly unlikely event of localized containment loss, the stored CO_2 would be subject to multiple, sequential trapping mechanisms. Residual trapping, dissolution into brine, and long-term mineralization progressively immobilize the plume, such that large-scale or complete re-emission of stored CO_2 is inconsistent with observed subsurface behavior and decades of operational evidence.

04. CCUS policy drivers *and affordability*

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Building blocks of a CCUS financial system

A number of concepts shape the financial framework for CCUS. A comparison of national policy mechanisms is provided in Table 3 overleaf. Some key terms to be aware of include:

Free allowances – a permitted amount of CO_2 a company may emit, anything above this is subject to a charge. Free allowances may gradually reduce over time to create a progressive increase in the cost to emit.

Emissions Trading System (ETS) – a company may choose to sell its free allowance; a company may need to buy ETS 'credits' for exceeding its free allowance; or a company may remove CO_2 from the atmosphere, creating credits.

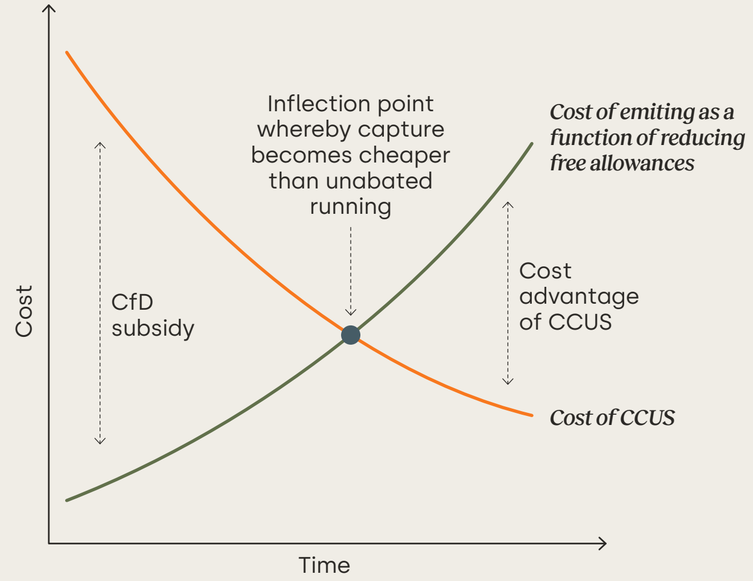
Carbon Border Adjustment Mechanism (CBAM) – CBAM is a climate policy tool developed by the European Union. It is designed to prevent offshoring of carbon emissions and ensure fair carbon pricing for imported goods. It targets carbon-intensive products such as cement, iron and steel, aluminum, fertilizers, electricity and hydrogen. CBAM requires importers to report the carbon intensity of these goods. From 2026, importers are required to purchase certificates reflecting the carbon price that would have been paid if the goods were produced under EU emissions standards. The UK plans to introduce CBAM from 2027, while Canada and California are exploring similar methods.

Contracts for Difference (CfD) – A government payment to make up the difference between the cost of operating with CCUS.

At the start of operations, CCUS-enabled industries will not be competitive with those that do not have this overhead. Contracts for Difference are being applied to CCUS, having been used successfully to enable the growth of renewable energy generation. They ensure a modest but guaranteed return to investors, providing confidence to investors which means private capital is more available. Examples include CCUS business models in the UK and SDE++ in the Netherlands. An important difference between these two is that the UK CfD has a strike price with payments to/from the government either side of this, while SDE++ only has a price floor with no repayment to government.

As free allowances reduce and the market price of ETS credits increases, the subsidies paid through CfDs will reduce to zero – this is the timeline we see in Figure 7.

Figure 7: Determining the break-even year from the reducing costs of CCUS against the increasing carbon pricing and how subsidies support this transitionary period



Market model for CCUS

A market economy is where operators are incentivized to capture CO_2 by giving it an inherent value. This can either be in the form of utilizing it, or indirect subsidies in the form of tax relief. In the US, the 45Q tax credit has successfully supported the deployment of CCUS. Different national models are compared in table 3. Companies can claim up to $85 per metric ton for CO_2 stored geologically (US Department of Energy, 2023) or $180 for Direct Air Capture (45Q Tax Credit Modifications – One Big Beautiful Bill, 2025).

The UK currently has four clusters designed to be supported by the Contract for Difference-style CCUS business models. A transitional period is envisaged from 2030-2035 whereby the revenue drivers (ETS, CBAM and reducing Free Allowances) will create the market for CCUS operations free of subsidy. This is combined with cost reductions from increasingly mature systems. The CCUS Market Transition Report by Offshore Energies UK in 2025 found that as long as the revenue mechanisms are put in place, it is realistic to suggest that income will exceed costs across a range of applications in the early 2030s.

Table 3: National model comparison[8]

Country/Region	*Policy Drivers*	*Business Models*	*Benefits*	*Challenges*
United States	Tax incentives (45Q+), DOE funding	Gas power with CCS, regional hubs	Strong financial incentives, encourages private investment	High upfront costs, regulatory complexity
China	Centralized planning, pilot funding	State-led projects, industrial clusters	Large-scale projects, significant government backing	Dependency on sustained government support
Norway	Carbon tax, public funding	Full-scale value chains, export services	Strong government support, long-term stability	High costs, limited carbon pricing, limited private sector involvement, regulatory and bureaucratic hurdles
European Union	ETS revenues, Innovation Fund	Regional hubs, public-private partnerships	Market-driven, integrates with broader climate policies	High dependency on government support
Canada	Carbon pricing, provincial funds	Oil sands integration, CCS hubs	Strong government support, established CCS projects	Public acceptance issues, complex regulatory environment, fluctuating carbon prices
Australia	Emissions Reduction Fund, grants	Gas sector integration, private sector-led	Existing infrastructure for follow-on projects, government support	Geographic limitations, high costs
Netherlands	SDE++ subsidies, EU Innovation Fund	Industrial hubs, public-private collaboration	Broad technology support, long-term financial stability. Funding focused on most cost-efficient methodologies	Limited policy ambition, high costs
Indonesia	Becoming a regional leader in CCS through enabling policy to support industry and carbon imports	Carbon storage as a service	A highly developed regulatory framework to maintain output while meeting climate commitments	Public acceptance, regulatory delays, competitive application process, dependency on market prices may encourage non-strategic investment
United Kingdom	Industrial clusters, government funding and regulatory frameworks	Industrial clusters, CCS Infrastructure Fund, Contracts for Difference (CfDs)	Focus on industrial clusters, strong government support, clear regulatory framework	High costs and public acceptance

How affordable is CCUS?

What does it mean for the cost of products?

The cost impact of carbon capture and storage varies significantly along the value chain. While emitters must carry high upfront capital requirements and higher production costs, the effect on final product prices is often far smaller once costs are diluted through manufacturing processes, supply chains and end uses. This makes the topic of willingness to pay particularly relevant, since even large changes in production costs may translate into relatively minor differences for end consumers.

For basic materials, the direct production cost effect can be substantial. Cement production costs can rise from US$30-80 per tonne to US$60-130 per tonne when CCS is added.[9]

Steel shows a smaller increase, with CCS raising production costs by roughly 10%. This is significantly cheaper than other options, such as fuel switching, which can raise costs by 35-70%.[10]

Adding carbon capture and storage to conventional gas power generation may increase the consumer price by 90-110%.[11] Current UK wholesale prices are between £35 and £65 per MWh, implying a potential upper boundary of about £130 per MWh in potential future costs.

Consumer price is £0.26 per KWh, where wholesale price accounts for around 34%; doubling this share would raise the price to around £0.44 per KWh. This estimate does not include potential cost reductions from market growth and technology development, as discussed later and provided in table 4.

Despite the significant product level cost increases, the cost impact on end-consumers down the value chain is an important consideration. For instance, research assuming full cost pass-through of low carbon cement shows that the large basic commodity cost increase translates into marginal end-user impacts – roughly 1-3% of the total asset cost.[12]

Consumer willingness to pay

A 2024 survey indicated that 40% of respondents were willing to pay a premium for cement products with 25% reductions in carbon intensity, rising to 49% for reductions exceeding 50%.[13]

Demand is also evident as Heidelberg Materials presold their entire 2025 production run of evoZero, CCUS enabled cement.[14]

No major country applies a simple, uniform ‘carbon tax’ where an emitter pays a fixed amount – for example, US$100 for every tonne emitted. However, this is a real output of the Free Allowance system, whereby excess emissions are penalized and emissions reductions are incentivized over time. As companies’ free allowances reduce, the carbon price should rise, strengthening

the market for the emissions trading system (ETS) and increasing incentives for CCUS, when the cost of emitting a tonne of CO_2 exceeds the cost of abatement.

Technology advances and their financial impact

Building on the financial frameworks and policy levers described earlier, this section focuses on how technology and delivery improvements can reduce costs over time.

Although the CCUS value chain is complex, many of its components are already mature enough to model cost reduction pathways with reasonable confidence. Experience from other capital-intensive industries shows that costs can decline as designs standardize, supply chains scale, and operators learn by doing. Precedents in both oil and gas, and clean energy deployment, provide examples of process improvement rates.

In CCUS, progress is particularly focused on reducing the energy demand of capture systems and improving reliability and utilization across networks.

Table 4 provides an overview of some of the cost reduction factors possible through technical innovation and value chain collaboration.

Table 4: Cost reduction variables to improve the business case for CCUS[15]

Cost reduction factor	*Cost reduction variables*	*Description*
Advancements in capture technologies	10-30 £/tonne of CO_2	Drop from £60-80 per tonne to £40-50 per tonne as capture technologies mature.
Shipping	10-25 £/tonne of CO_2	Non-pipeline transport options, such as shipping or rail, provide flexible and scalable alternatives for emitters operating far from major pipeline networks.
Cluster development	10-15 £/tonne of CO_2	Estimated cost reduction range when leveraging shared infrastructure compared to stand alone facilities.
Integration with existing infrastructure	5-10 £/tonne of CO_2	Using existing pipelines or storage facilities, particularly in regions with mature oil and gas infrastructure like the US or North Sea.
Standardization and modularization	5-10 £/tonne of CO_2	Could save within that range, particularly in regions adopting uniform specifications across emitters. Standardizing components like CO_2 compressors and absorbers, as well as modularizing designs reduces custom engineering costs and shortens timelines.
Liquefaction	6.5 £/tonne of CO_2	Assuming electricity costs of £0.10/kWh, liquefaction consumes around 65 KWh of CO_2 with energy costs varying on electricity price.
Energy efficiency improvements	5-8 £/tonne of CO_2	Reducing energy consumption during capture and regeneration could save this much per tonne of CO_2 capture. Process innovations such as heat recovery in capture systems reduce the overall energy demand.
Storage – onsite buffer storage for non-pipeline transport (NPT)	2-4 £/tonne of CO_2	Onsite buffer storage requirements for NPT modes add to CAPEX but are shared across multiple emitters in cluster configurations. Costs for buffer storage vary based on capacity but are estimated to be around this value.
Micro-networks for small emitters	20-30 % per tonne	By forming "micro-networks," smaller emitters can pool resources and share operational costs, reducing barriers to participation in carbon capture services. Dependent on the level of integration and proximity to storage sites.
Flue gas blower	15 % of total OPEX	Positioning blowers downstream of pre-treatment cooling systems reduces their size and power demand, achieving up to 15% OPEX savings.

Balancing urgency with impact

CCUS is sometimes framed as a technology that "locks in hydrocarbons". This report includes that misconception because it is a common concern among decision-makers and stakeholders. In practice, many industrial systems and long-lived assets are already committed for years or decades, and the climate question becomes how to reduce cumulative emissions from those assets while accelerating renewables, efficiency and electrification.

WBCSD has developed the following set of decision tests to ensure CCUS is used only where it delivers a clear climate benefit, does not displace higher-priority abatement, and is implemented credibly. These recommendations are not government policy. They are a practical framework to support consistent, transparent choices across sectors and geographies.

The objective is for CCUS to deliver the biggest climate benefit fastest. That can include industrial applications where alternatives are limited, selective retrofits of long-lived, high-emitting assets where replacement is slow, and time-bound uses where the grid cannot meet flexibility or demand requirements. These recommendations are designed to ensure that CCUS complements alternative decarbonization pathways.

Recommendations to avoid carbon lock in:

1. **Apply "abatement first" tests:** Use CCUS only where it demonstrably reduces cumulative emissions compared to the realistic counterfactual, using appropriate life cycle assessment boundaries (including energy penalty and methane where relevant), and where there is credible access to permanent storage and robust MRV.

2. **Time-bound transitional uses:** For power applications, treat CCUS as a conditional, time-bound option that is appropriate only when it delivers material emissions reductions versus what would otherwise run and supports system reliability, and is not a substitute for accelerating renewables, efficiency and electrification.[16, 17]

3. **Scale shared storage networks:** Prioritize shared transport and storage networks (clusters, hubs, and interoperable systems) that increase utilization, reduce costs, and lower cross-chain risk for multiple users, including enabling cross-border approaches where appropriate under relevant international frameworks.

4. **Maintain transparency:** Build confidence and avoid credibility risk by ensuring transparent reporting of storage outcomes and verification, using public registers and audited data where available, and clear disclosure of system boundaries (abatement vs removals).[18, 19]

Misconception 7 – "CCUS locks in use of hydrocarbons"

In the EU and UK, CCUS is being developed as regulated, permanent CO_2 storage infrastructure to reduce emissions across power generation and industry. In sectors such as cement, which have significant process CO_2 emissions (meaning emissions due to chemical transformations, rather than combustion), CCUS will be vital to achieving decarbonization. The strategic question is where CCUS delivers the biggest climate dividend fastest. In coal-heavy or rapidly growing power systems, retrofitting existing coal capacity with CCUS may deliver a positive climate benefit if the alternative is continued unabated operations.

In mature grids, new coal with CCUS is generally inconsistent with a sustainability-first pathway where lower-carbon options may be available. For gas + CCUS serving critical loads (e.g., reliability gaps or behind-the-meter applications), developers should design conditions that prevent long-term dependence: high capture rates, declining emissions intensity, tight methane standards, and a clear off-ramp linked to renewable grid availability.

CCUS plays a complementary role in a just and equitable net-zero transition alongside rapid deployment of renewables, efficiency improvements, and electrification.

05. Interactions between CCUS and carbon dioxide *removal pathways*

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How removals complement CCS

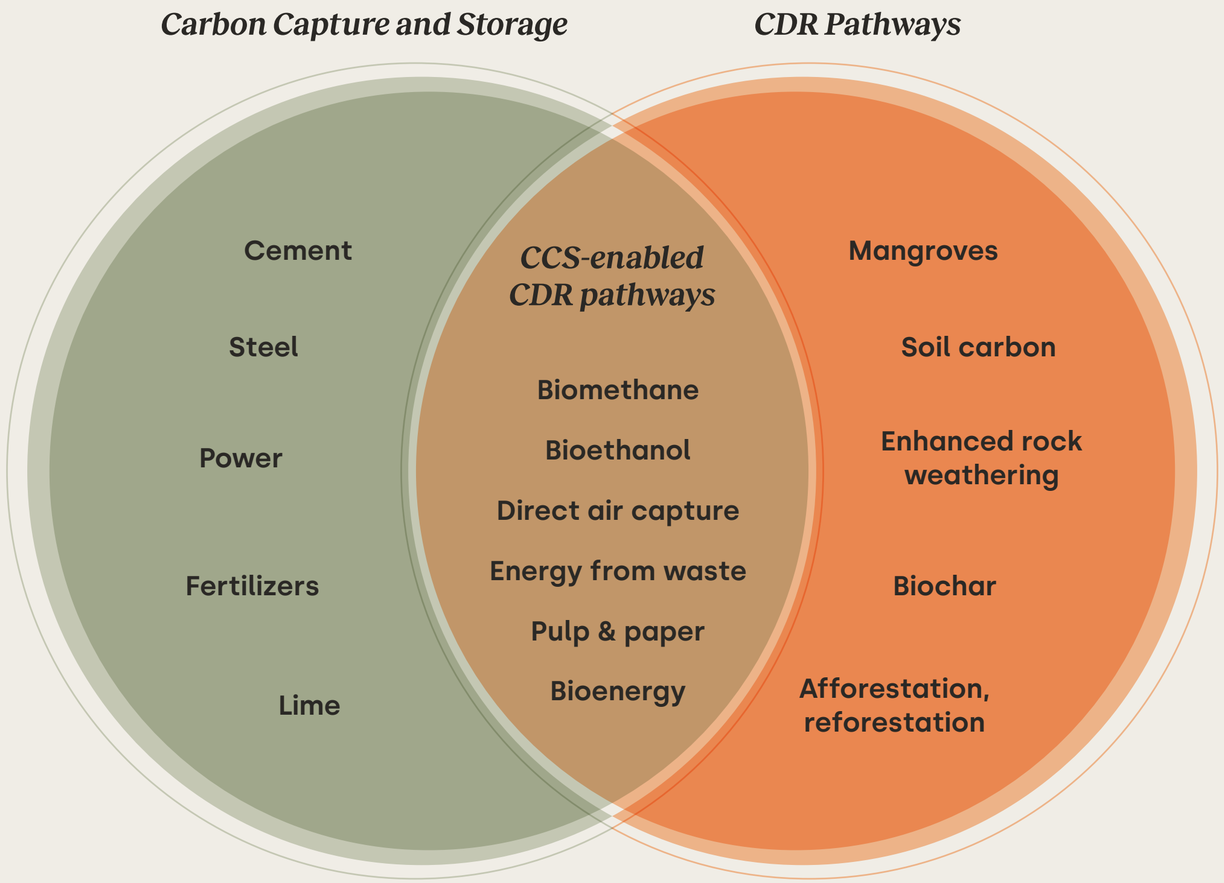
What is CDR and does it differ from CCS?

Industrial carbon capture and storage mitigates emissions by capturing CO_2 before it reaches the atmosphere and storing it permanently. Carbon dioxide removal (CDR) explicitly removes CO_2 from the atmosphere and stores it durably. CDR is required at gigatonne scale per year by mid-century in all credible net-zero scenarios to neutralize hard to abate residual emissions.[17]

Many CDR pathways use CCS infrastructure (capture plants, compression, transport, hubs, geological storage) as an enabler to removing carbon dioxide from the atmosphere. A sample of some CCS enabled CDR pathways are shown in Figure 8. The distinction between these CDR enabled pathways and other CCS applications in industry is that they capture, process and permanently store atmospheric or biogenic CO_2 emissions.

Biogenic CO_2 is released from the combustion or processing of biomass. When biogenic CO_2 is captured and stored as in BECCS or if CCS is applied to energy-from-waste, pulp and paper, or distilling applications, it can result in a net reduction of atmospheric CO_2, provided value chain emissions are accounted for and verified by a robust life cycle analysis and sustainability standards are met.

Figure 8: CCS and the overlap with carbon dioxide removals



Synergies in growing carbon management industries

Carbon dioxide removal (CDR) is expected to grow rapidly because most credible net-zero pathways require durable removals at gigatonne scale to counterbalance residual emissions. This growth creates a practical opportunity for shared infrastructure with CCS. Many CDR pathways rely on the same core assets as CCS, including CO_2 conditioning and compression, intermediate storage, shipping or pipelines, and permanent geological storage. As removals volumes increase, they can help improve utilization of transport and storage networks and support earlier investment in multi-user hubs.

Co-location is a key driver of these synergies. CDR projects can be strategically sited near existing industrial clusters, ports, and planned CO_2 transport corridors, reducing connection distances and enabling shared terminals, metering, and monitoring systems.

For example, biogenic CO_2 sources (such as biomass-based processes) can often integrate with the same CO_2 networks being developed for industrial abatement, while Direct Air Capture with Storage (DACCS) can be located close to storage resources and low-carbon energy supply. This network effect can reduce unit costs over time and strengthen the business case for project investments.

Removals can also help accelerate the build-out of CCS infrastructure by broadening the demand base and diversifying revenue streams. High-integrity CDR credits can attract additional sources of finance, which can support the development of multi-user storage hubs and associated transport capacity. In turn, earlier development of shared infrastructure can benefit hard-to-abate industrial emitters by expanding access to storage and reducing the risk of stranded capture projects caused by uncertain transport and storage availability.

Misconception 8 – "Carbon capture and storage is the same as carbon dioxide removal"

Carbon capture and storage (CCS) and carbon dioxide removal (CDR) are distinct climate strategies, though they share some technical overlaps:

CCS captures CO_2 from point sources (e.g., power plants, industrial facilities) to mitigate emissions entering the atmosphere. It reduces or prevents emissions but does not remove historical CO_2 already in the atmosphere.[20]

CDR actively removes CO_2 from the atmosphere and stores it permanently. Examples include Direct Air Capture with Storage (DACCS), bioenergy with CCS (BECCS), and nature-based solutions like afforestation and reforestation. These create negative emissions which are essential to counterbalance residual emissions in net-zero pathways.[21]

06. From insight to action: *next steps for CCUS deployment*

06. From insight to action: *next steps for CCUS deployment*

Regulatory and trade enablers for an independent CCUS market

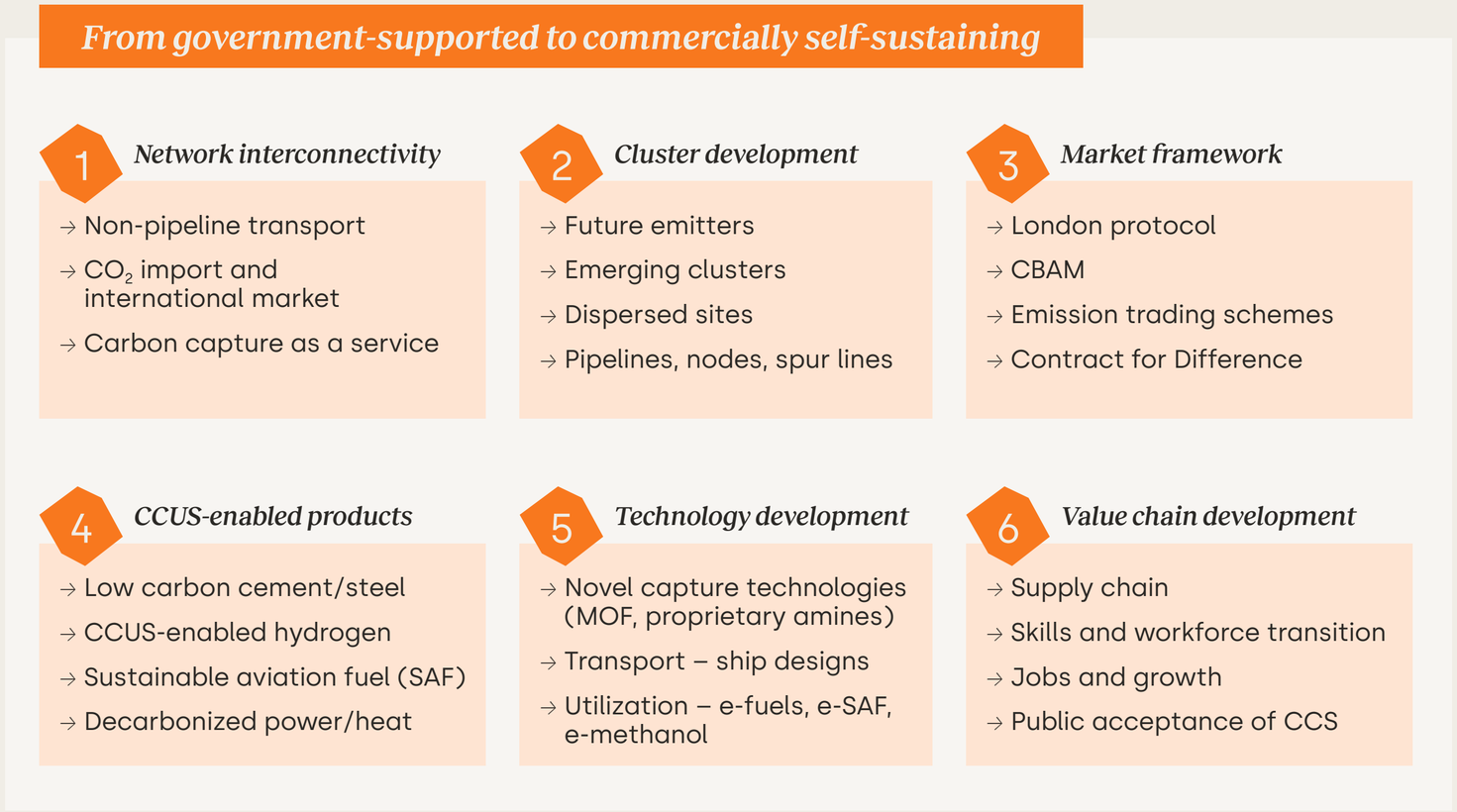
To scale and improve the affordability of carbon capture, utilization and storage (CCUS) the industry will need to transition away from direct government subsidies to a market model – focus areas to achieve this are detailed in Figure 9. Improving access to this market for all parts of the value chain is dependent on supportive policies and regulatory environment.

Demonstrating equivalence in carbon intensity and permanence of storage is critical to enabling a cross-border trade.

Alignment across jurisdictions on the standards of low carbon products, from consumer goods to the energy itself, allows for simpler transactions where the carbon intensity of goods must be accounted for. An example of this is the UK and the EU, which both have separate Emissions Trading Systems. As the smaller market, the UK has greater price volatility. Alignment between these two schemes would improve price stability and enable straightforward carbon accounting when the Carbon Border Adjustment Mechanism (CBAM) is applied. The same principle also applies when looking at global trade. Taiwan's forward-thinking efforts seek to define standards for CCUS abated power generation, to protect their manufacturing base.

Common standards on CO_2 storage help to protect the emitter and the storage operator. An emitter sending their CO_2 to be stored in a different jurisdiction (with equivalent or approved storage regulations) can then claim the relevant carbon credits or emissions reductions against their own activities.

Figure 9: Focus areas – merchant model development[15]



Moving beyond misconceptions to deployment reality

CCUS is often debated through a set of recurring misconceptions. Some question whether it is proven, whether it uses too much energy, or if transport and storage are safe.

This report has shown that these debates are best resolved by focusing on outcomes and conditions, not hearsay. CCUS is already being deployed across multiple sectors and continues to mature through a mix of policy, engineering experience, and improved commercial models.

CCUS does impose an energy penalty, but the correct question is whether lifecycle emissions are materially reduced and whether operating costs can be managed through design, integration and low-carbon energy inputs.

Building the conditions for scale

The next phase of CCUS is a shift from isolated, custom-made projects to repeatable systems. The long-term ambition is framed around moving from government-supported deployment toward more commercially self-sustaining markets as carbon value signals, standards and infrastructure mature.

Six practical focus areas to enable commercially self-sustaining projects in the next decade:

→ Network interconnectivity and CCS-as-a-service to connect dispersed emitters to storage via flexible transport options and cross-chain risk sharing.

→ Cluster development that designs shared infrastructure for expansion, enabling new emitters to connect over time through strategically located nodes and spur lines.

→ Market frameworks that provide predictability through carbon pricing, trade and policy mechanisms, with rules that recognize verified storage outcomes.

→ CCUS-enabled products where interoperable standards for carbon intensity allow buyers to procure lower-carbon products such as cement and steel with confidence.

→ Technology developments focused on integration, operational performance, and cost reduction through learning-by-doing and standardization.

→ Value chain development and collaboration covering supply chains, skills, jobs, and public confidence through transparent communication and verifiable outcomes.

For demand-side leaders, a practical starting point is to turn CCUS interest into decision criteria: define what credible CCUS means for your products, then engage suppliers early to understand CCS-as-a-service business models together with project timelines, infrastructure access, and procurement specifications.

For all stakeholders, the enabling actions are consistent. Collaborate to build shared networks, align standards, and maintain transparency so that misconceptions are replaced by measured outcomes and impactful emission reductions.

07. Appendix

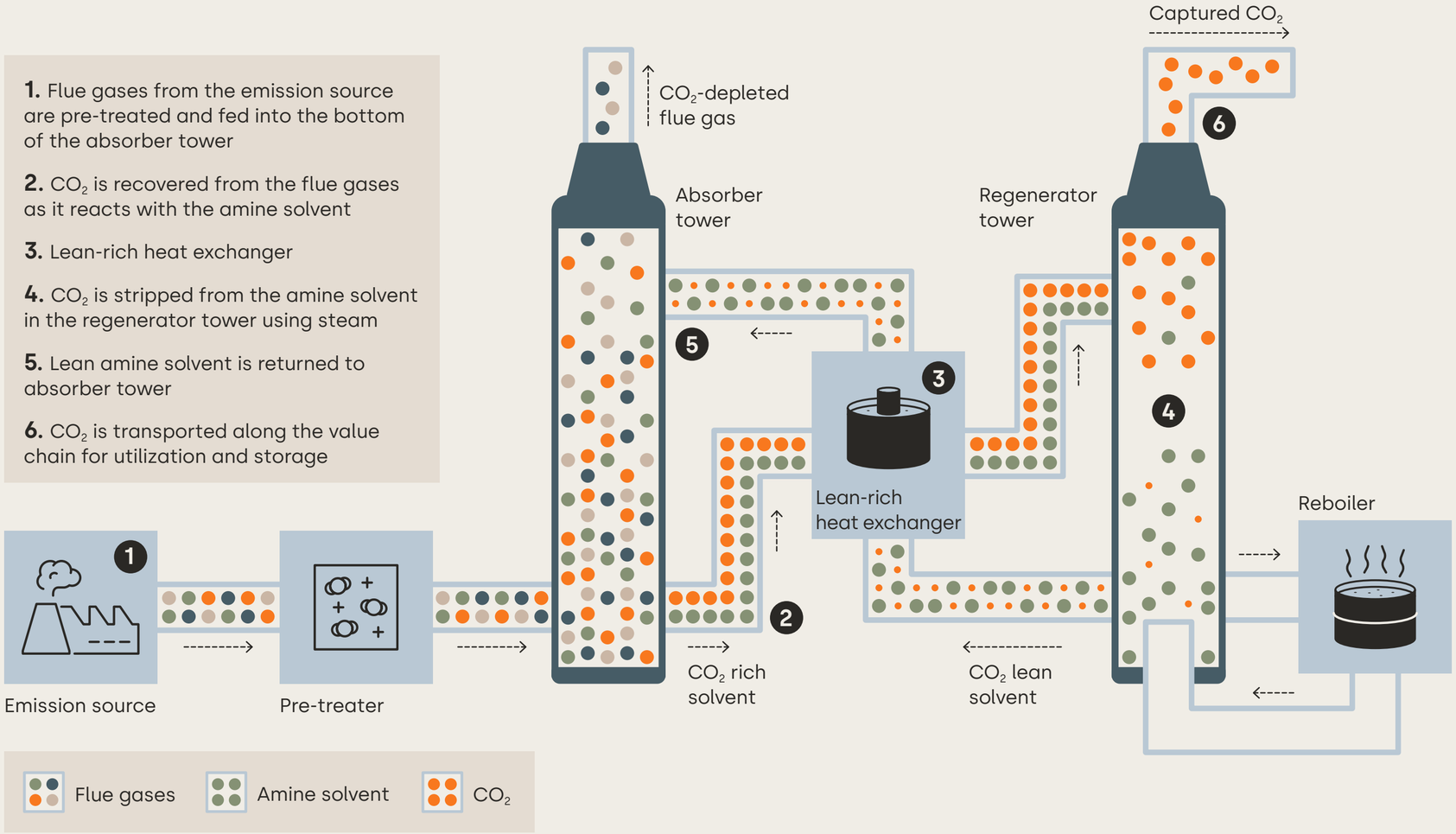
07. Appendix

How do we capture carbon?

The most common form of removing CO_2 from emissions currently uses amines. Here we show how amines work in a post-combustion carbon capture system. Amines are an organic compound derived from ammonia, replacing some hydrogen with hydrocarbon groups on the molecule.

Amine solvents, in various proprietary chemistries, react with the CO_2 in the gas stream within an absorber tower, stripping it from the gas before a desorption phase using heat. After CO_2 is released from the amine solvent in the regenerator tower, the solvent is returned to the absorber tower where it can be reused until the amine is exhausted, producing a waste flow of the concentrated toxic solvent.

Figure A1: The system architecture of conventional flue gas CO_2 capture[22]



How to assess post-combustion solvent performance

The method of CO_2 capture from exhaust gas is measured across 5 key performance parameters:

CO_2 loading factor

The amount of CO_2 the solvent can absorb (per unit of solvent). A higher loading factor means that the solvent can capture more CO_2 before it becomes saturated and needs to be regenerated.

Capture efficiency

The percentage of CO_2 emissions that are captured and prevented from entering the atmosphere – calculated as the ratio of captured CO_2/source CO_2. A higher value indicates a higher capture efficiency.

Regeneration energy

The amount of energy required to release the absorbed CO_2 from the solvent during regeneration (a lower energy requirement is desirable).

The regeneration temperature is the temperature range required to release the absorbed CO_2 (lower temperatures are desirable to prevent solvent degradation).

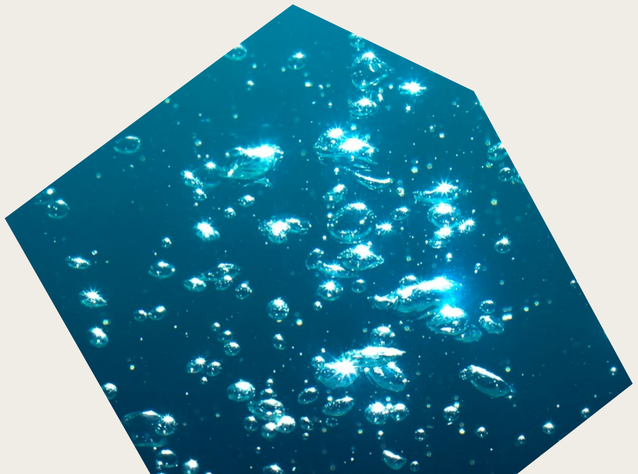
The cyclic capacity indicates the amount of CO_2 that can be absorbed and then released during the regeneration process (high ranges are desirable).

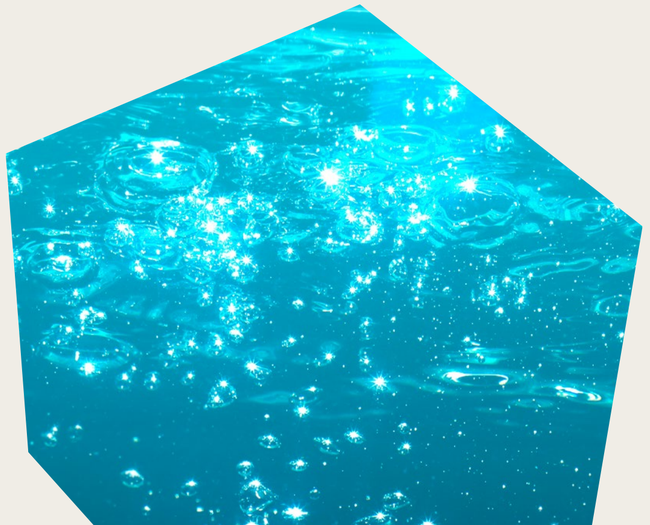
Degradation rate

The speed at which a solvent deteriorates. This is determined by measuring the formation of degradation products over time and assessing the stability of the solvent.

Corrosivity

Increased corrosion resistance is important for a commercial solvent as this maintains optimum performance levels and prolongs solvent life.





Use of captured CO_2 vs storage

From building materials, agriculture and synthetic fuels, generating revenue from this waste product is an attractive model.

Common challenges for viable use of waste CO_2 are:

Cost

With the overhead of capturing CO_2, carbon capture and utilization (CCU) increases the cost of final products compared to business as usual. This may change, however, with the phasing in of Carbon Border Adjustment Mechanism/ Free Allowances which increase the cost of carbon intensive products.

Capacity

The IEA reports that global CO_2 emissions in 2024 were 37.8 gigatonne, with only a small fraction of that (about 250 million tonnes per annum) captured and used. As CO_2 emissions decline, some estimates suggest that CCU could grow by 2x4x and by 2050.[23]

Power requirements

The full chain of capture, transport and processing requires significant power. For a clean low-carbon process, this energy must come from zero-emission sources. This increases costs and diverts clean power from other applications where electrification may deliver further emission reductions.

Durability of storage

Uses in agriculture and fuels eventually lead to the CO_2 returning to the atmosphere when that product is expended. This raises the question of value, given costs and power required, if the outcome is only a delay in greehouse has emissions.

Captured CO_2 used in building aggregates offers the biggest scope for durable storage – as discussed in Appendix Table A1 overleaf.

Table A1 summarizes a study by Imperial College London and Ecofys[24] that found the following uses of carbon capture and utilization (CCU) as the most promising:

Table A1: Efficacy of CO_2 uses

	Carbonation	*Concrete curing*	*Novel cements*	*Horticulture*	*Polymer processing*	*Synthetic methane/methanol*
Waste stream	***Reacting CO_2 with calcium and magnesium to produce carbonates to be used as a construction material.***	***Using CO_2 to produce calcium carbonate which can replace steam concrete curing methods.***	***Researchers are looking to develop cements which use CO_2 as an ingredient.***	***Using CO_2 to enrich the growing environment for fruit and vegetables.***	***CO_2 can be used in polycarbonate production.***	***CO_2 is converted to synthetic fuels such as methane CH_4 or methanol CH_3OH.***
Efficiency of CO_2 absorption	CO_2 is absorbed and locked in minerals	CO_2 is part absorbed, additional CO_2 absorbed during lifetime	CO_2 is part absorbed, additional CO_2 absorbed during lifetime	CO_2 is stored in crop	CO_2 is temporarily stored in the material (up to 50%)	CO_2 is temporarily stored in the fuel
Duration of storage	Permanent	Permanent	Permanent	Short-lived (days, weeks)	Lifetime of the material (years)	Short-lived (weeks)
Other abatement effects	CO_2 displaces other materials in the mineral mix leading to increased yield	(Claimed) Material displacement	Material displacement	Displacement of natural gas use	Displacement of epoxide use (volatile compound) use (up to 50%) with CO_2 which is safer	Displacement of natural gas use
Energy input and intensity of processing	Dependent on process	Limited to energy for CO_2 capture, transport, conditioning	Dependent on process	Limited to energy for CO_2 capture, transport, conditioning	Low	High

Endnotes

1. IEA, “CCUS Projects Database” (2025). Retrieved from: https://www.iea.org/data-and-statistics/data-product/ccus-projects-database

2. IEA, “Carbon Capture Utilisation and Storage”. Retrieved from: https://www.iea.org/energy-system/carbon-capture-utilisation-and-storage

3. BGS, “Understanding carbon capture and storage”. Retrieved from: https://www.bgs.ac.uk/discovering-geology/climate-change/carbon-capture-and-storage/

4. Great Plains Institute, "A Review of the Safety Record of CO_2 Pipelines in the United States" (2024). Retrieved from: https://carboncaptureready.betterenergy.org/wp-content/uploads/2024/08/CO2-Pipeline-Safety.pdf

5. IEA, “CO_2 Capture and Utilisation” (2025). Retrieved from: https://www.iea.org/energy-system/carbon-capture-utilisation-and-storage/co2-capture-and-utilisation

6. A.K. Furre, “Sleipner 26 years: how well-established subsurface monitoring work processes have contributed to successful offshore CO_2 injection” Geoenergy, Volume 2 (2024). Retrieved from: https://www.lyellcollection.org/doi/pdf/10.1144/geoenergy2024-015

7. WSP, Crondall Energy, GeoEnergy, “Deep Geological Storage of CO_2 on the UK Continental Shelf” (2023). Retrieved from: https://www.gov.uk/government/publications/deep-geological-storage-of-carbon-dioxide-co2-offshore-uk-containment-certainty

8. A.H. Emanuelsson & F. Johnsson, “The Cost to Consumers of Carbon Capture and Storage – A Product Value Chain Analysis” (2023). Retrieved from: https://www.mdpi.com/1996-1073/16/20/7113

9. Worley, “CCUS: Understanding the challenges and opportunities for the cement industry” (2025). Retrieved from: https://www.worley.com/en/insights/our-thinking/conventional-energy/ccus-understanding-challenges-and-opportunities-for-the-cement-industry

10. IEA, “Simplified levelised cost of competing low-carbon technologies in steel production” (2020). Retrieved from: https://www.iea.org/data-and-statistics/charts/simplified-levelised-cost-of-competing-low-carbon-technologies-in-steel-production

11. IEAGHG, “Effects of Plant Location on the Costs of CO_2 Capture” (2018). Retrieved from: https://ieaghg.org/publications/effects-of-plant-location-on-the-costs-of-co2-capture/

12. A.H. Emanuelsson & F. Johnsson, “The Cost to Consumers of Carbon Capture and Storage – A Product Value Chain Analysis” (2023). Retrieved from: https://www.mdpi.com/1996-1073/16/20/7113

13. Ramboll, “Will lower-emission concrete be the standard within 5 years?” (2024). Retrieved from: https://www.ramboll.com/carbon-capture-for-cement-production/will-lower-emission-concrete-be-the-standard-within-5-years

14. Reuters, “Heidelberg sells out of net-zero cement from Norway plant, CEO says” (2025). Retrieved from: https://www.reuters.com/sustainability/climate-energy/heidelberg-sells-out-net-zero-cement-norway-plant-ceo-says-2025-06-18/

15. OEUK, “Carbon Capture & Storage in the UK: Accelerating Towards the Merchant Model” (2025). Retrieved from: https://oeuk.org.uk/product/carbon-capture-storage-in-the-uk-accelerating-towards-the-merchant-model/

16. Carbon Direct, “Carbon Capture for Natural Gas-Fired Power Generation” (2025). Retrieved from: https://www.carbon-direct.com/research-and-reports/carbon-capture-for-natural-gas-fired-power-generation-low-emissions-power-to-meet-rapid-growth-in-electricity-use

17. IPCC, “Sixth Assessment Report” (2023). Retrieved from: https://www.ipcc.ch/assessment-report/ar6/

18. North Sea Transition Authority, “Carbon storage public register”. Retrieved from: https://www.nstauthority.co.uk/regulatory-information/carbon-storage/carbon-storage-public-register/

19. Imperial, “First complete record of global underground CO_2 storage gives hope during COP30 despite emissions rising” (2025). Retrieved from: https://www.imperial.ac.uk/news/articles/engineering/earth-science/2025/first-complete-record-global-underground-co2/

20. IPCC, “Carbon Dioxide Removal and Carbon Capture Utilisation and Storage in AR6 WGIII” (2024). Retrieved from: https://www.ipcc.ch/site/assets/uploads/2024/06/005_SB60_IPCC_Side_Event_WGII_TFI.pdf

21. IPCC, “IPCC AR6 WGIII: CDR Factsheet – Carbon Dioxide Removal”. Retrieved from: https://www.ipcc.ch/report/ar6/wg3/downloads/outreach/IPCC_AR6_WGIII_Factsheet_CDR.pdf

22. Arup, "Carbon Capture: Solvent, Sorbent, and Cryogenic technologies review" (2025). Retrieved from: https://www.arup.com/insights/carbon-capture-solvent-sorbent-and-cryogenic-technologies-review/

23. BCG, “Fulfilling the Promise of Carbon Capture and Utilization” (2025). Retrieved from: https://www.bcg.com/publications/2024/four-applications-of-carbon-capture-and-utilization

24. Imperial College London and Ecofys, “Assessing the Potential of CO_2 Utilisation in the U.K.” (2017). Retrieved from: https://assets.publishing.service.gov.uk/media/5cc9bd9c40f0b64c1e187664/SISUK17099AssessingCO2_utilisationUK_ReportFinal_260517v2__1_.pdf

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We advise on, plan and design the future of the built environment, bringing together advisory and technical expertise across more than 150 disciplines.

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