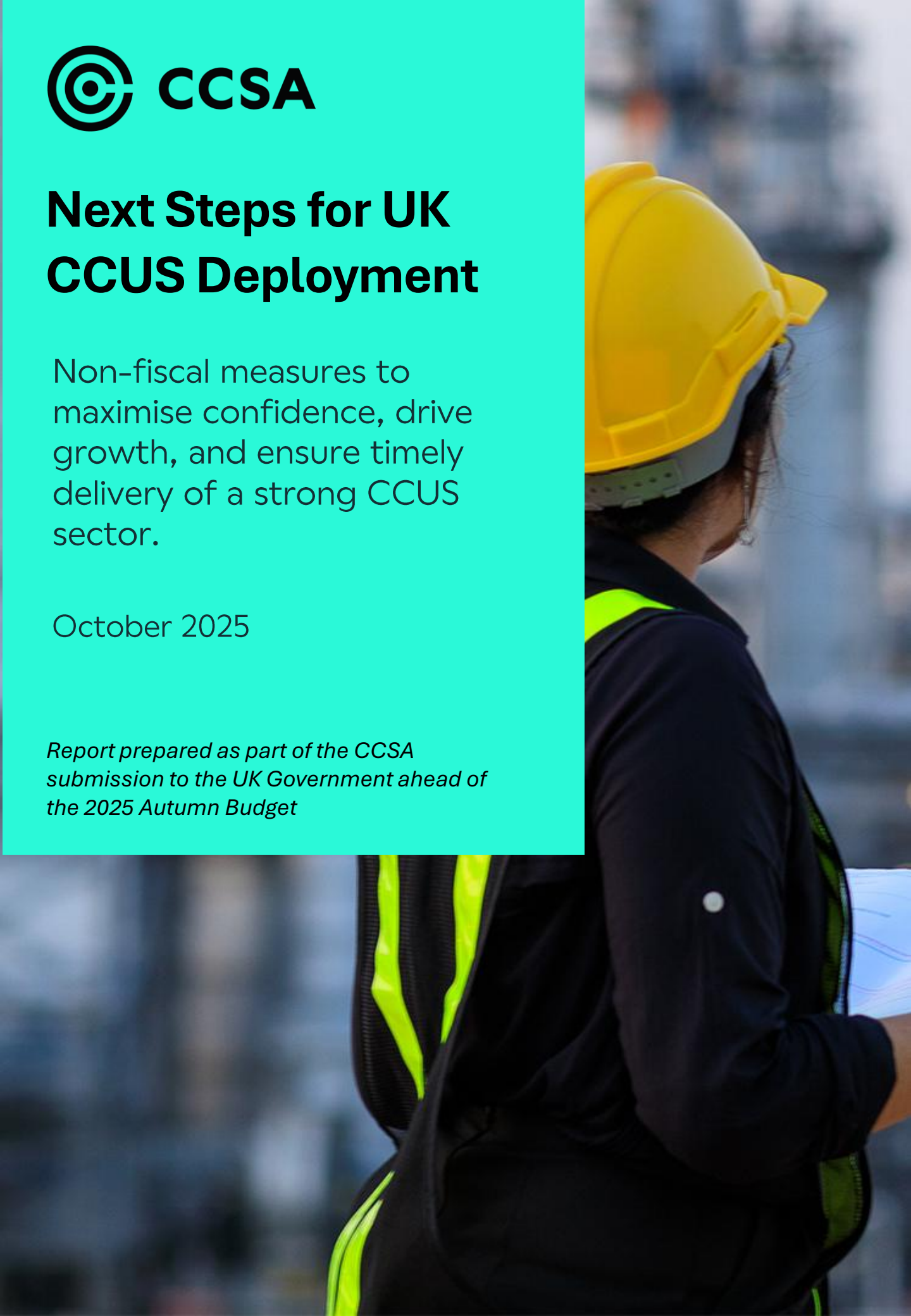
CCSA

Next Steps for UK CCUS Deployment

Non-fiscal measures to maximise confidence, drive growth, and ensure timely delivery of a strong CCUS sector.

October 2025

Report prepared as part of the CCSA submission to the UK Government ahead of the 2025 Autumn Budget



Executive Summary

2025 has been a pivotal year for the UK's CCUS sector, and with five Final Investment Decisions (FIDs) now secured, industry is demonstrating delivery of projects that will underpin the sector's future development.

The CCSA warmly welcomed the Spending Review 2025 (SR25) allocation of £9.4 billion in capital budgets, to enable the build-out of the East Coast Cluster (ECC) and HyNet while committing to provide development funding for the Acorn Project and Viking CCS to reach FID within this Parliament. The publication of the Infrastructure Strategy and Industrial Strategy has provided an important long-term policy signal, recognising CCUS, including Greenhouse Gas Removals (GGRs), as an essential cross-cutting solution and identifying it as one of six "Frontier Clean Energy Industries" at the heart of the UK's transition. Alongside this, investment by the National Wealth Fund (NWF) into the development of the Peak Cluster pipeline recognises the crucial role of CCUS in securing the future of our foundational industries, as well as the role of public finance in driving deployment.

The UK's CCUS sector is critical to regional economic growth, safeguarding foundational industries, and cementing the UK's position as a clean energy superpower, already **generating over £1.2 billion in turnover annually and projected to grow by nearly 10% each year**[1]:

- ✓ Delivering the first four Government-backed clusters could add over **£8 billion in GVA** annually to 2030, rising to more than **£94 billion by 2050**[2], with over 80% of the supply chain deliverable by UK firms;
- ✓ CCUS is vital to the delivery of clean and secure power, with over 14 GW of dispatchable, CCUS-enabled projects in development;
- ✓ Crucially, CCUS safeguards the UK's industrial base, protecting **80,000 jobs** in the **£8 billion per year**[3] mineral products sector while creating new opportunities in low-carbon cement, low-carbon fuels and hydrogen;
- ✓ The UK's significant geological CO_2 storage potential and expertise in related supply chain services could enable significant export opportunities. The UK storage sector alone could grow to be worth **£30bn per year by 2050**[4] through the creation of multiple CCUS clusters and enabling CO_2 shipping;
- ✓ CCUS underpins the UK's target of at least 5 Mtpa of engineered removals by 2030, rising to 23 Mtpa by 2035. The global removals market could exceed $1 trillion, with the UK well placed to capture **a $100 billion**[5] share and support up to **135,000 skilled jobs**[6].

To harness these growth opportunities and maximise the impact of committed financial support, several key non-fiscal measures should be advanced to build investor confidence, strengthen the sector's readiness to transition to a self-sustaining market, and lay the foundations for delivery beyond the initial CCUS clusters. These actions will ensure Government can approach the 2027 Spending Review (SR27) with confidence that the UK is on track to unlock its full CCUS potential.

[1] WPI Economics, Economic benefits of industrial decarbonisation: A low carbon industrial future for the UK, 2023
[2] Wider enabled benefits identified through a literature review of the cluster-specific studies for the Track-1 and Track-2 clusters. See CCSA SR25 response for further details.
[3] Mineral Products Industry (MPA), Profile of the UK Mineral Products Industry, 2023
[4] CCSA, CCUS Delivery Plan Update, 2023
[5] McKinsey, Scaling carbon removals and voluntary carbon markets, 2023
[6] BeZero Carbon, From risk to reward: Making the UK the carbon markets capital of the world, 2025

In the immediate term for this Autumn Budget, the below non-fiscal government actions will help to build investor and developer confidence, making the most of existing Government commitments made to CCUS and ensuring the successful establishment of the sector:

1. **Confirm next steps for allocating the development funding committed to Viking CCS and The Acorn Project, along with steps for progressing the build-out of the East Coast Cluster and HyNet. Alongside the allocation of committed supply chain investment, this will set those clusters and projects on track to reach financial close within this Parliament.** *This should include:*
    a) *Set out next steps for the delivery of the £9.4bn committed in the spending review, including allocation of dedicated development funding and establishing a clear pathway for the Acorn Project and Viking CCS to reach FID within this Parliament*
    b) *Working with the additional capture projects to fill up HyNet and East Coast Cluster stores and realise FID as soon as practical*
    c) *Disseminating Lessons Learnt from the Track 1 Process*
    d) *Ensure committed funding for public supply chain investment, previously part of the Green Industries Growth Accelerator (GIGA), is allocated through GB Energy and The National Wealth Fund*

2. **Provide a clear route to market and allocation framework for other CCUS projects, and accelerate CO_2 transport by ship, road and rail.** *This should include:*
    a) Work with industry to design a future allocation framework, including an allocation timetable and application process for economic licenses, to move the sector beyond the previous cluster sequencing approach
    b) Clear guidance is needed on the pathways for Standby projects to secure a viable future connection to HyNet, along with future expansion of the ECC
    c) Prioritise delivery of a shipping, road and rail Market Framework to enable confidence for ongoing private development investment in non-pipeline transport (NPT) projects critical to the further establishment of the sector
    d) Work with industry to deliver cost reductions and transition to a self-sustaining sector

3. **Implement policies and regulations to stimulate low-carbon products, carbon removal and European-wide CO2 storage markets to support the transition to a self-sustaining market.** *This should include:*
    a) Facilitate cross border CO2 storage worth £30bn per year by 2050
    b) Establish low carbon product markets through non-fiscal measures including low carbon standards and green public procurement obligations, to drive demand and private investment
    c) Protect UK industries from carbon leakage through continuing to explore UK and EU ETS alignment, alongside delivering a robust CBAM by 2027
    d) Create demand for engineered GGRs by creating an international GGR buyers' club to harness global demand, led by the UK and other developed economies that are already deploying CCS and GGRs

Contents

Overview: Economic Benefits of CCUS

CCUS has a vital role safeguarding UK industry while contributing to economic growth and enabling the Clean Energy Superpower mission, delivering over **£94 billion in GVA** and **more than 50,000 jobs by 2050**[2], concentrated in the UK's industrial heartlands.

Sustained momentum is now essential so that SR27 can secure this opportunity of long-term delivery, ensuring CCUS can fulfil it's critical role in the UK's net zero pathway.

The CCUS industry welcomed its recognition in the Government's Industrial Strategy as one of six 'frontier clean energy industries', placing it at the centre of the UK's growth agenda.

The sector is now primed to scale, with the potential to deliver over 50,000 additional jobs by 2050[2], concentrated in the UK's industrial heartlands. **Sustaining momentum through to SR27 is critical, at which point a further funding envelope is required** to realise the next clusters and full pipeline of capture, and transport & storage projects, while securing the long-term delivery of the UK's CCUS clusters.

The Government is right to recognise CCUS as essential to regional economic growth, safeguarding foundational industries, and cementing the UK's position as a clean energy superpower.

The opportunity

Evolving supply chains and delivering growth

The UK CCUS sector already generates over £1.2bn in turnover per annum and is projected to grow by 9.6% annually[1]. Delivering the first four Government-backed clusters could add over £8bn in GVA per year to 2030, supported by billions in private investment[2]. **Realising the sector's full potential could generate over £94bn in GVA by 2050[2].**

The UK supply chain is well placed to capture this growth. Its CCUS market is expected to rise from **£1.6bn in 2030 to £2.6bn in 2040,** with the wider sector worth up to £100bn for domestic manufacturers[7]. Crucially, over 80% of the CCUS value chain can already be met by UK companies, putting much of this opportunity within immediate reach.

The UK builds on strong foundations—drawing on the legacy of its oil and gas sector and leveraging expertise in engineering, procurement, construction, and manufacturing. High-value opportunities already present in the UK include column vessel manufacturing, heat exchangers, process controls, modular CCS technology, and offshore network services.

CCUS also provides a lifeline for foundational industries such as cement, waste, glass, and chemicals enabling renewed investment in UK industrial communities, enabling decarbonisation and keeping production, jobs, and demand in the UK.

Finally, this is not just a domestic prize. By 2050, global CCUS markets are forecast to reach **£181bn annually for industrial systems** and **£54bn for CO_2 transport and storage**[8]. Maintaining and funding a clear delivery pipeline and deployment trajectory in the UK will give the supply chain the confidence to invest, enabling the UK to secure a leading share of these export opportunities.

Creating a Clean Energy Superpower

CCUS will form an integral part of the delivering a clean, resilient energy system, required to meet the UK's climate targets. Gas CCS, Bioenergy with CCS (BECCS), Energy from waste with CCS (WECCS) and Hydrogen to Power (H2P) projects are all required to deliver low carbon dispatchable capacity.

At a time of increasing geopolitical instability, this is essential for domestic electricity security and emissions reduction, providing flexibility and resilience when renewable output falls, and reducing reliance on unabated gas. As renewable penetration grows, dispatchable CCS power will be critical not only for realising the ambitions of Clean Power 2030 but also for achieving net zero by 2050.

The Government's Clean Power 2030 Action Plan identifies a need for 2–7 GW of low-carbon dispatchable power by 2030[9]. The CCC's Carbon Budget 7 advice confirms this, projecting a ramp-up to 8 GW by 2035, 15 GW by 2040, and 38 GW by 2050. This would require an average build rate of 1.8 GW per year from 2030 onwards[10].

[7] Rystad Energy & OEUK, UK oil and gas supply chain and opportunities in the energy transition, 2024 and The UK Offshore Energies Association, CCUS Supply Chain Report
[8] Vivid Economics, Energy Innovation Needs Assessment – Sub-theme report: Carbon capture, utilisation, and storage, 2019
[9] DESNZ, Clean Power 2030 Action Plan, 2024
[10] CCC, Seventh Carbon Budget, 2025

The UK is well positioned to deliver. There is an estimated pipeline of over 14 GW of CCUS-enabled dispatchable power, with many of these well developed and in a position to be commissioned by 2030 to support this clean power target.

This includes Net Zero Teesside Power (bp/Equinor), which is expected to deliver 0.7 GW from 2028 and achieved financial close in December 2024. Similarly, Uniper's Connah's Quay Low Carbon Power Project was recently selected as a priority project within the HyNet Project Negotiation List and could also be producing 1.38GW within similar timescales. Other projects include SSE and Equinor's Peterhead and Keadby Carbon Capture Power Stations with generating capacities of over 0.7 GW each. Delivery of the Viking CCS cluster will see an additional 4 GW of decarbonised power including VPI Immingham's 1.2 GW CHP. Together with further gas, BECCS, WECCS, and H2P projects, this pipeline can more than meet near-term targets and build momentum towards net zero.

Importantly, utilising low-carbon dispatchable power is recognised as a cost-effective route for achieving a decarbonised power system. In its analysis of pathways to a clean power system by 2030, NESO highlights that **deploying significant volumes of low-carbon dispatchable generation can reduce overall system costs**. This is achieved through lower curtailment and export costs, alongside a greater ability to align generation with demand. Notably, even relatively modest levels of dispatchable capacity are shown to materially ease the challenge of meeting the 2030 clean power target[11].

Furthermore, as the CCUS sector evolves, and new markets open up, we expect the CCUS projects to be able to transition to more merchant and self-sustain models. As described in next section, this will require the development of supportive markets such as for greenhouse gas removals, low carbon products, cross border CO2 storage and the wider carbon markets - all of which will help to reduce the cost of CCUS to consumers as part of a cost-effective decarbonisation route.

[11] NESO, Clean Power 2030: Advice on achieving clean power for Great Britain by 2030, 2024

Protecting our industries and creating new ones

CCUS is crucial to decarbonising the wider UK economy by enable foundational industrial sectors such as cement, lime, refining, and chemicals to participate in the low carbon products market.

- The UK is particularly well positioned to take advantage of the growing global cement demand. The concrete and cement sector is a critical part of the mineral products industry which has a combined **GVA of £8bn per year and directly employs 80,000 people**[3]. Of this, the manufacturing of cement and associated products has a total **GVA of £3.6bn per year**[3]. This directly supports thousands of high-wage, high-skilled jobs, often in remote regional areas like the Peak District. Supporting this sector to decarbonise with CCUS also offers significant additional opportunity to boost regional employment and investment. The delivery of the Morecambe Net Zero (MNZ)-Peak Cluster could create and safeguard more than 13,000 jobs across the Peak District and Cumbria among the UK's leading cement and lime producers[3]. This could result in an **£154m increase in skills uplift and wages, attract £5bn of investment, and generate £1.8bn in GVA** by 2050[12].
- A further example of a critical role for CCUS in decarbonising foundational industries is within refineries. The fuels industry plays a vital role in decarbonising transport and other sectors by enabling the transition to lower-carbon fuels, hydrogen, and carbon capture technologies. The UK's downstream sector **supplies 96% of transport fuel, with 55% from domestic production and 45% from imports.** Refineries utilising CCUS will be essential for producing lower-carbon products, including sustainable aviation fuel, and components for alternative fuel vehicles such as lightweight plastics, fire retardants, tyres, adhesives, and lubricants. Hydrogen and bio-blended low-carbon fuels will also be key.
- An established CCUS sector will also be essential to achieving the UK's hydrogen production target of 10 GW by 2030, with at least 4 GW from CCUS-enabled hydrogen. Estimates show that the hydrogen sector in the UK could support around **30,000 direct jobs** by 2030 and create more than **£7bn in annual GVA**[13].
- Analysis suggests that SAF, now critical to the Government's plans for a third Heathrow runway and delivering on the SAF mandate, is projected to grow at a **Compound Annual Growth Rate (CAGR) of 26.2% between 2022 levels to 2050**[14]. CCUS can enable the UK to become a low carbon product superpower by enabling the development of emerging low carbon sectors and supporting foundational industries to produce these products. This will unlock significant economic benefit and export opportunities for the UK economy.

CO2 Cross Border Storage Potential and Greenhouse Gas Removals (GGRs)

In addition, the UK's significant geological CO_2 storage potential and expertise in related supply chain services could enable significant export opportunities. A study produced for Treasury by the CCSA and Xodus, demonstrates that stores with economic licences and the ability to export storage capacity have the potential to deliver, by 2040, **£4bn per year in CO_2 export revenues and £7bn in total capital investment**[15]**.** The UK storage sector alone could grow to be worth **£30bn per year by 2050** through the creation of multiple CCUS clusters and enabling CO_2 shipping[4].

CCUS is also crucial to enabling and bringing down the cost of negative emissions technologies such BECCS, DACCS and WECCS, which will be essential to achieving the UK's decarbonisation targets and net zero. The UK, is currently targeting at least **5 Mtpa of engineered removals by 2030, increasing to 23 Mtpa by 2035**[16]. Over 28 million tonnes of GGR credits have now been sold globally, with more than half of that having been contracted in the 12 months since May 2024[17]. Looking forward, the market for carbon dioxide removal is forecast to be as large as $1 trillion, according to McKinsey[5]. **The potential share of this market in the UK, given its geological storage advantage, could well exceed $100bn**. The UK carbon credit market has the potential to significantly boost the economy, generating up to £1 billion in tax revenue and 135,000 skilled jobs by 2035, according to research from BeZero Carbon[6].

[12] MNZ & Peak Cluster, Putting the UK's cement and lime industry on the path to net zero: The MNZ-Peak Cluster Vision, 2025
[13] Hydrogen UK, Economic Impact Assessment for the Hydrogen Sector, 2024
[14] Transparency Market Research, Sustainable Aviation Fuel Market, 2022
[15] CCSA & Xodus, The Economic Value to the UK of Providing Carbon Dioxide Storage Services to EU Emitters, Report provided direct to Treasury, 2025. *Available on request.*
[16] HM Government, Carbon Budget Delivery Plan, 2023
[17] CDR.fyi as of 3rd June 2025

2025 has been a significant year for the UK's CCUS sector

2025 has been an important year for the UK's CCUS sector, reaffirming that the UK is making real strides towards realising its world-leading opportunity for CCUS deployment. With five FIDs now secured - Northern Endurance Partnership and Net Zero Teesside (December 2024), Eni's Liverpool Bay project (April 2025), and Heidelberg Materials' Padeswood cement works and Encyclis' Protos Energy Recovery Facility (September 2025) - **industry is demonstrating clear delivery of clusters and projects that will underpin the sector's future development.**

The CCSA warmly welcomes the Spending Review 2025 (SR25) allocation of £9.4 billion in capital budgets over the SR period. This will support the build-out of the East Coast Cluster and HyNet, and provide development funding to support the Acorn and Viking CCS projects in reaching FIDs within this Parliament. In addition, the **National Wealth Funds' £28.6 million equity investment in the Peak Cluster** recognises the crucial role of CCUS in securing the future of our cement and lime industries, as well as the role public finance can play in driving the sector forward. Together, these are critical signals of the UK's intent to progress CCUS across all regions and to decarbonise domestic industries at pace.

The CCSA also welcomes the publication of the Infrastructure Strategy and Industrial Strategy, both of which provide an important long-term policy and investment signals to the sector through their recognition of the essential and cross-cutting role of CCUS in the UK's decarbonisation pathway.

In particular, the Infrastructure Strategy reconfirms significant support for CCUS and hydrogen infrastructure, evidenced by the £725 bn of Government funding committed to Infrastructure over the next decade. The Industrial Strategy strengthens this direction and reasserts the importance of CCUS in industrial decarbonisation by identifying 'CCUS including GGRs' as one of six "Frontier Clean Energy Industries".

Associated measures (such as support for the development of a Hydrogen & CCUS Skills Curriculum, endorsement of industry's ambition of 50% UK local content for CCUS by 2030, and the commitment to collaborate with the EU on a regulatory framework for cross-border CO_2 transport and storage) represent important steps in building a commercial CCUS market. Importantly, the establishment of targeted public investment funds, such as the GB Energy Clean Energy Supply Chain Fund and the National Wealth Fund, further reinforces the UK's intent to create the conditions for CCUS to scale.

Finally, the publication of the HyNet Project Negotiation List (PNL) provides much-needed clarity for projects granted priority status, marking another significant step forward in giving investors the certainty required to accelerate deployment.

Next steps for deployment

To secure a clear delivery trajectory and maximise the impact of these commitments, several key non-fiscal measures should be advanced through the Autumn Budget to build investor confidence, strengthen the sector's readiness to transition to a self-sustaining market, and lay the foundations for delivery beyond the initial CCUS clusters. These actions will ensure the Government can approach the 2027 Spending Review (SR27) with confidence, at which point further funding commitments will be required to unlock the next clusters and the UK's full CCUS potential.

PART 1. Immediate next steps for the sector

Providing clear direction on near-term priorities is vital to shaping an investable route to market. Without this clarity, projects and investors lack certainty and the UK risks losing its CCUS opportunity to international competitors.

The CCSA outlines immediate non-fiscal actions that will establish a clear and investable route to market, building on the government commitments made within the spending review earlier this year.

The CCUS industry has welcomed the Government's Spending Review commitment, which allocated £9.4 billion to support capture projects linked to the HyNet and East Coast Cluster stores, alongside development funding for Acorn and Viking, with the intention of reaching financial close within this parliament. However, since the announcement, there has been limited public clarification on the next steps.

In the near term, publicly demonstrating tangible progress will not only build confidence in the directly supported projects but also provide a broader signal of reassurance to the sector as a whole. Below, we set out immediate government actions that would build on this commitment.

1a. Set out next steps for the delivery of the £9.4bn committed in the spending review, including allocation of dedicated development funding and establishing a clear pathway for the Acorn Project and Viking CCS to reach FID within this Parliament.

The CCSA welcomes the recent bilateral engagements between Government and the teams at Acorn and Viking CCS following the Spending Review. We understand that discussions are progressing. It is now crucial to establish a clear timeline for the allocation of the committed development funding, alongside an agreed pathway between Government and the project teams towards achieving FID. This will help maintain confidence in the projects and support the continuation of development expenditure until SR27, at which point a funding envelope must be committed so that FID can be taken promptly.

Providing an industry-wide update on this progress would also send positive signals to the market regarding delivery and build wider confidence in CCUS delivery.

1b. Working with the additional capture projects to fill up HyNet and ECC stores and realise FID as soon as practical

The CCSA welcomes the publication of HyNet's PNL as a significant step forward, bringing much-needed clarity for those projects granted priority status. We recognise that the list reflects a broad range of CCUS applications that will support the development of new UK markets, including greenhouse gas removals (GGRs), low-carbon products, and enhanced energy security. We are grateful that these priority projects now have the certainty to proceed.

We are aware that, for those projects yet to take FID, bilateral discussions continue between the priority projects and Government. **It is important for both these projects, and the wider industry, that the momentum is maintained with clear timetables in place for bringing all the priority projects to FID as soon as practicable.**

For East Coast Cluster, there is similarly strong potential for broader benefits to the UK, including connecting to further capture projects in Teesside and expanding to the Humber. The CCSA recognises the ambition of Northern Endurance Partnership (NEP) to reach an integrated FID in the Humber. To enable this, timely approvals from DESNZ and Ofgem on sequential tranches of development expenditure are required. These approvals, in turn, will enable sufficient Front-End Loading (including activities such as Front-End Engineering and Design (FEED) and other early project development work) to bring the integrated FID to fruition in a timely manner. Ensuring this clear delivery trajectory is essential for unlocking the wider industrial and regional benefits of East Coast Cluster.

1c. Disseminating Lessons Learnt from the Track 1 Process

As part of the build out of Hynet and East Coast Cluster, and the development of Acorn and Viking CCS, it is important that lessons from bringing the initial Track 1 projects to financial close are captured and shared. Key areas include:

- Establishing clear, jointly agreed objectives and metrics (e.g. volumes, timelines, and minimum performance criteria)
- Replicating successful financial structures
- Sharing effective cross-chain contractual arrangements
- Refining processes for anchor project selection, cluster configuration, and phased build-out
- Building on supply chain and skills development initiatives
- Enhancing communication and external affairs strategies to strengthen public support

Applying these lessons across projects should enable both Government and industry to streamline and accelerate decision-making.

While much of this learning will take place bilaterally between Government and future projects, it is equally important that insights are reported and disseminated to the wider industry, including brining in lessons learnt from EU Member States and other global CCUS projects. This will help advance the next stage of sector development. The CCSA is committed to facilitating this process in partnership with industry and Government.

1d. Ensure committed funding for public supply chain investment, previously part of the Green Industries Growth Accelerator (GIGA), is allocated through GB Energy and The National Wealth Fund

As set out in the Government's Industrial Strategy, industry has committed to a voluntary target of achieving 50% UK local content across the CCUS value chain by 2030. To realise this ambition, industry is working with Government to develop a monitoring and evaluation framework that will track the health and success of the UK supply chain.

Progress towards this target is already evident. Both the Eni Liverpool Bay and Northern Endurance Partnership supply chains are exceeding the 50% local content expectation, demonstrated through contractual arrangements already secured with UK suppliers.[a]

This ambition was made alongside the previous Government's commitment to a £960 million GIGA Fund, announced in Autumn 2023, to support supply chain investment in clean energy industries including CCUS and hydrogen. However, this funding has not yet been brought forward under the new Government.

We welcome, however, the recent announcements on GB Energy, which has identified domestic supply chain investment as one of its three priorities for building long-term resilience and economic growth. We also expect CCUS to form a critical part of GB Energy's portfolio in delivering Clean Power 2030 and beyond. It is now essential that GB Energy translates this commitment into tangible investment in CCUS supply chain companies, strengthening capabilities and driving sector growth.

Role of the National Wealth Fund

In parallel, we recognise the investments already made through the National Wealth Fund, including £28.6 million secured for Peak Cluster for the development of the pipeline between Peak and Morecambe Net Zero. Such investment support the creation of further routes to market, with Peak Cluster also aiming for financial close within this Parliament. This role should continue to be expanded with further development investment (Devex) in other clusters that are yet to receive support from government and lack a route to market. In many cases Devex is harder to secure than Capex funding at FID. NWF can play a critical role in pushing forward merchant model projects that provide direct returns to the UK government and consumers, if it can take more of the earlier Devex role as it has done with the Peak Cluster.

In order to facilitate this, we note two recommendations for Government that would help make the NWF role more impactful:

- Enable a wider range of projects to access NWF support. The current £25m minimum ticket size for NWF investment is substantial, exceeding the scale of many individual capture or transport and storage projects. With NWF capped at a 50% share, the policy excludes all projects with pre-FID Devex needs less than £50m. As a result, the majority of emitter projects are excluded from NWF investment at the crucial Devex stage where capital is hardest to source. Removing the minimum criteria on a project-by-project basis, and applying an aggregated, cluster wide investment potential, would expedite the development of CCS clusters and merchant models.
- To ensure the success of NWF investments in CCUS clusters, a transparent pathway to securing an economic licence must be established. Unlike projects progressing through the government's track sequencing process, the project supported by NWF thus far sits outside the economic licensing framework. Establishing a clear application route will provide NWF- or GB Energy-backed projects - with the confidence to proceed, while maximising UK industrial benefits. These provisions should be embedded within a future allocation framework, as outlined in part 2.

a. UK CCUS Supply Chain Primed for Growth – But Project Certainty Needed from Spending Review, https://www.ccsassociation.org/all-news/ccsa-news/uk-ccus-supply-chain-primed-for-growth-but-project-certainty-needed-from-spending-review/

PART 2. Develop a clear route to market

At the Spending Review, following the commitment of £9.4 billion this Parliament, Government signalled a shift away from the previous cluster sequencing 'track process' towards a broader portfolio approach. The UK continues to have a strong pipeline of industrial cluster and capture projects ready for delivery.

However, it is recognised that the development of clusters beyond the first four clusters will need to be considered as part of SR27.

2a. Work with industry to design a future allocation framework, including an allocation timetable and application process for economic licenses, to move the sector beyond the previous cluster sequencing approach.

To provide confidence in a future route to market, it is essential that Government works with industry **to define a clear allocation framework ahead of SR27.** Carbon storage licences held with the NSTA expire in 2027; this effectively creates a hard deadline for projects to secure a viable route to market, highlighting the importance of timely government support to unlock investment and safeguard storage capacity.

Bidding for future projects should open in advance, ideally in 2026. to avoid loss of momentum, offer a transparent path to market, and unlock private investment. Early bidding would also expand the scope of CCUS deployment and provide DESNZ with robust bids and cost data to inform decisions at the next Review.

As part of the design of a future pathway, considerations will need to be made across policy, regulation, cluster coordination, funding and allocation of support contracts for CCUS projects. Clear ambitions, a defined funding envelope, and an effective institutional framework are essential. Critically, a well-designed allocation framework will not only underpin delivery but also support the sector's transition towards a self-sustaining market, while driving down costs.

There remains a significant pipeline of further cluster projects that these measures would unlock, including **Bacton CCS project, Peak | MNZ, 7CO2, SWIC, Poseidon, Solent, Veri and Medway.**

2b. Clear guidance is needed on the pathways for Standby projects to secure a viable future connection to HyNet, along with future expansion of the ECC.

The five standby projects listed in the HyNet Expansion Project Negotiation List require timely information to assess the prospects of connection, approach the application process with confidence, and make informed decisions about further DEVEX investment.

Equally, clarity is needed for the expansion of capture projects within the East Coast Cluster to connect to the network. The Northern Endurance Partnership (NEP) is targeting a fast-paced Expansion FID during this Parliament, transferring learnings from its Teesside experience and building out the East Coast Cluster to the Humber. To enable this, continued positive engagement and focus from Government will be essential - including timely approvals of development work programmes and the launch of a Humber emitter selection process.

Guidance should set out the criteria and process for determining new connections across both clusters, enabling developers to plan effectively, make informed investment decisions, and streamline the application process. Greater transparency will also benefit end-users seeking to decarbonise. The ambitions of both HyNet and East Coast Cluster have always been to support a broad range of strategic projects and their intended end-users, such as industrial hydrogen off-takers, local authorities pursuing low-carbon waste management solutions, and potential GGR consumers.

Establishing a clear pathway for additional connections will maintain confidence among end-users and developers alike, ensuring continued progress towards wider decarbonisation objectives while reinforcing that viable routes to market exist in the UK. This clarity and foresight will also enable Government to achieve its industrial decarbonisation goals and "maximise deployment to fill storage capacity," as set out in SR25.

2c. Prioritise delivery of a shipping, road and rail Market Framework to enable confidence for ongoing private development investment in non-pipeline transport (NPT) projects critical to the further establishment of the sector.

The Government, through the CCUS Vision, has recognised the vital role of NPT in expanding UK CCUS. Transport by road, rail, and ship will be essential for capture projects outside clusters or without direct offshore pipeline access, as well as for developing a Cross-Border CO_2 storage market.

NPT's modular nature improves cost-effectiveness and flexibility by enabling CO_2 redirection, supporting merchant stores, facilitating storage exports, and attracting private investment from regional emitters. This will expand the user base for UK storage networks, mitigate utilisation risk, and maximise revenues, including supporting Cross Border CO2 storage (Part 3a below).

However, despite clear intent, the slow pace of NPT development is a growing concern. With the consultation delayed until late 2025, a decision on the market framework unlikely before mid-2026, a decision on the market framework unlikely before mid-2026, and any additional support dependent on the outcome of SR27, there is significant levels of uncertainty. This also represents a significant delay from the Government's CCUS Vision, which envisaged NPT projects being eligible for capture project selection from 2025. Financial close on most UK NPT projects now appears unlikely before 2028, with operations not expected until 2032. By comparison European competitors, particularly in Norway, are already advancing. We therefore set out four recommendations to restore confidence in NPT development, recognising both government funding constraints, and SR27 significance:

- **Commit to finalising the NPT consultation and response by mid-2026. It** is essential that Government set out final decisions on the NPT market framework in the first half of 2026 to give investors early clarity on the business models they are financing against.
- **Invite bids for NPT projects in the next CCUS Allocation Round ahead of SR27.** Opening for bids in 2026 would prevent a loss of momentum, provide a clear route to market, and stimulate private investment. Early bidding would also expand the scope of CCUS and give DESNZ robust bids and cost data to strengthen the case to Treasury in the Spending Review. Projects could be invited to bid NPT solutions to both Track and non-RAB stores, giving the Government a clear view of their alternative balance sheet treatments.
- **Provide clear market signals on the progression of NPT within the Acorn and Viking clusters.** With development funding committed and both clusters having NPT objectives, demonstrating to the market how these projects are progressing and what they mean for NPT market creation will help to build market confidence. Furthermore, while the policy work is completed, ensure a critical path for the progress of several credible emitter projects that are aligned with these clusters, as part of the NPT rollout. This will ensure that the full value chain (not just pipe to store) is represented.

- **Use Industrial Strategy Zones (ISZ), Freeport funding, GB Energy and/or National Wealth Fund to support regional NPT developments.** These Government Schemes are committed to delivering growth and decarbonisation in key industrial hubs. Targeted NPT projects can play a critical role in achieving these objectives. These could also provide an opportunity to explore the use of regulatory sandpits to build both industry and government confidence in NPT value chains.

2d. Work with industry to deliver cost reductions and transition to a self-sustaining sector

The CCSA's 2025 report, Driving Cost Reductions and Value for Money in CCUS, concludes that to deliver a mature and established CCUS sector, Government must set out its approach to future funding allocation. This will be essential as the industry transitions from the current market-creation phase to becoming a self-sustaining sector. The report highlights the potential for Capex and Opex reductions of 5–30% in projects reaching FID in 2030 and 2035, provided both Track 1 and Track 2 cluster projects are delivered in advance. These reductions are expected to come from a range of levers, including supply chain evolution, improved contract structures, and learning by doing (see Figure 1 for the full list). A future allocation framework should focus on enabling these cost-reduction levers, while also providing long-term confidence in the route to market — ensuring a gradual transition away from reliance on government support.

In addition, it will be critical to establish supportive markets that create new revenue streams for projects and reduce dependency on public funding. The next section of this response sets out recommendations for how this can be achieved ahead of the 2027 Spending Review, with a focus on:

- Cross-border CO_2 storage in the North Sea
- Enabling non-pipeline transport
- Creating demand for greenhouse gas removals
- Developing markets for low-carbon products

Cost reduction estimates against current costs across the CCUS value chain for projects achieving FID in 2030 and 2035[e]

Value chain segment: Industrial capture; Gas power CCS; Removals; Hydrogen

Cost area	Opportunities for cost reduction	2030 FID	2035 FID
CAPEX	• Collaborative contracting • Cross-value chain collaboration • Technology improvements and innovation • Learning by doing • Equipment specifications	~10-25%	~15-30%
OPEX	• Technology improvements and innovation • Cross-value chain collaboration	~5-10%	~5-25%
Financing costs	• Sector maturity and delivery at scale • Improved risk allocation frameworks • Collaboration with insurers	Aim is to bring down the cost of finance to that of core-plus infrastructure rates[f]	

Value chain segment: Transport & storage

Cost area	Opportunities for cost reduction	2030 reduction (%)	2035 reduction (%)
CAPEX	• Collaborative contracting • Cross-value chain collaboration	~5-20%	~10-25%
OPEX	• Learning by doing • Cross-value chain collaboration	~5-10%	~5-10%
WACC	• Sector maturity, delivery at scale, and increased utilisation • Improved risk allocation frameworks • Collaboration with insurers	Aim is to bring down WACC to that of core-plus infrastructure rates[f]. This will be determined by the Regulator for each regulatory period	

Figure 1: Driving Cost reductions and value for Money in CCUS (CCSA, 2025).

PART 3. Developing markets to deliver a self-sustaining sector

The UK is well-positioned to become a low carbon product superpower by enabling the development of emerging low carbon sectors and supporting foundational industries to produce these products.

The UK also has existing strength and capabilities in several emerging sectors including GGRs, low carbon fuels, CCS-enabled hydrogen production, carbon capture and utilisation (CCU), CO_2 storage, and supply chain expertise.

If we are to unlock significant their economic benefit and export opportunities for the UK economy, policy measures must be expedited now. These will in turn support future fiscal asks for SR 27 by laying groundwork for a self-sustaining market.

3a. Facilitate cross border CO2 storage worth £30bn per year by 2050

The UK's significant geological CO_2 storage potential and expertise in related supply chain services could contribute to over **£12bn in direct and indirect GVA per year[15]**. The UK storage sector alone could grow to be worth **£30bn per year by 2050** through the creation of multiple CCUS clusters and enabling CO_2 shipping[4].

The UK Government's CCUS Vision document (published under the previous government)[18] recognises the opportunities and benefits of enabling cross-border storage services and supports exploring bilateral agreements/arrangements with other countries. Economic modelling undertaken by Xodus on behalf of the CCSA shows that **UK offshore storage sites would be the most economic storage location for 44 Mtpa of the EU's captured CO_2[19]**. This translates into just over a quarter of the EU's captured CO_2 destined for offshore storage and could **enable a 28% (€16/t) cost reduction** for EU emitters.

For the UK, a study produced for Treasury by the CCSA and Xodus[15], demonstrates that stores with economic licences and the ability to export storage capacity have the potential to deliver substantial economic advantages to the UK. This includes:

- £4bn per year in CO_2 export revenues by 2040.
- £7bn in total capital investment by 2040.
- Stores with economic licences would see government Revenue Support Agreement (RSA) liabilities reduced by over 40%, even in adverse markets.
- UK CCUS projects currently not in a cluster or tracked will be able to access lower cost storage developed to meet EU-demand.

Accessing UK CO_2 stores will therefore be highly attractive to EU emitters, positioning the UK strongly to become a storage export hub. Key benefits to the UK of a cross-border storage services include:

- A portion of the fixed storage infrastructure costs will be covered commercially by international importers, meaning a lower cost needing to be covered by UK emitters or government. For instance, enabling cross-border CO_2 movement will extend the impact of a funding envelope committed in SR 27; reducing the required T&S expenditure and allowing more industrial decarbonisation projects across the UK's clusters beyond Track-1.
- The exports service would also allow increased tax receipts for government and safeguard jobs and expertise
- Access to an international market would support the development of CCUS clusters in regions where the concentration of UK emitters is more dispersed by broadening the user base and increase utilisation. This would reduce dependence on government subsidy and improve access to CCUS infrastructure across the UK
- Expanding T&S capacity enhances network resilience, thereby lowering government risk exposure under revenue support agreements.

Advancing key projects while facilitating cross-border CO_2 movement will accelerate the development of storage sites, ports, and terminal infrastructure. This progress, driven in part by foreign direct investment, will create high-skilled operational jobs for the UK.

[18] UK Government, Carbon Capture Utilisation and Storage; A vision to establish a competitive market, 2023
[19] CCSA & Xodus, Accelerating a Europe-wide CO2 storage market, 2024

The CCSA therefore urges Government to continue work to address regulatory barriers to a cross-border carbon market with Europe, enabling the UK to take full advantage of the significant geological CO_2 storage potential to deliver storage exports as part of growing trade opportunities with the EU.

To do so, the UK must either enter into a bilateral agreement under the EU-UK Trade and Cooperation Agreement (TCA) or achieve UK-EU ETS alignment.

Successfully progressing these measures will:

- **Underpin amendments needed to UK law** to reflect material amendments that have been made to the above EU legislation since the UK departure from the EU.
- Enable the UK to **enter into a bilateral agreements with EU Member States**
- Allow for the **amendment the UK Greenhouse Gas Emissions Trading Scheme Order 2020**

3b. Establish low carbon product markets through non-fiscal measures including low carbon standards and green public procurement obligations, to drive demand and private investment

CCUS can enable the UK to become a low carbon product superpower by enabling the development of emerging low carbon sectors and supporting foundational industries to produce these products. This will unlock significant economic benefit and export opportunities for the UK economy.

As presented above, the UK is particularly well positioned to take advantage of the growing global cement demand. Supporting this sector to decarbonise with CCUS also offers significant additional opportunity to boost regional employment and investment.

The delivery of the Morecambe Net Zero (MNZ)-Peak Cluster could create and **safeguard more than 13,000 jobs** across the Peak District and Cumbria among the UK's leading cement and lime producers[3]. This could result in an **£154m** increase in skills uplift and wages, attract **£5bn of investment,** and generate **£1.8bn in GVA by 2050[19]**.

However, cheap cement imports pose an increasing threat to the sector which currently meet 30% of the UK's demand. It is therefore essential that the sector is supported and alternative routes to market are established through low carbon cement to meet domestic demand and access low carbon product export markets.

The cost of low carbon cement is expected to have a very small impact on typical construction costs. Research indicates that the **total cost increase of building a house using low carbon cement is limited to 1%[20]**. However, failure to establish a low carbon supply chain and enable low carbon products could significantly add to the cost on the UK economy. As the UK CBAM is implemented from 2027 and the UK ETS carbon price increases, traditional supply chains will be exposed to increasing costs that will be passed onto customers. With no alternative low carbon supply chain, the key UK sectors will be exposed to ever-increasing carbon prices.

The fact that cost of CCS on cement is not easily passed down the supply chain also demonstrates the importance of providing early support to the sector to avoid continuing the trend of increasing high carbon cement imports. The cement market is highly commoditised, with high global capacity availability. Therefore, the increased cost per tonne of CCS supported cement is not passed down the supply chain by individual producers without regulatory or product standards protections. This is good in ensuring that low carbon cement doesn't impact construction costs, but does mean that support is necessary, for a transitionary period, to ensure that domestic producers remain cost competitive.

While protection from carbon leakage through measures such as CBAM is essential to providing a level playing field, this will need to be supported by the **development of low carbon product standards and green public procurement mandates to drive demand and private investment.** Utilising non fiscal measures, such as these standards and mandates, would allow the supply chain to invest and optimise to meet these emerging opportunities.

3c. Protect UK industries from carbon leakage through continuing to explore UK and EU ETS alignment, alongside delivering a robust CBAM by 2027

CCUS is critical to the survival of the UK's foundational sectors, enabling industrial sectors such as cement, lime, refining, and chemicals to participate in the low carbon products market. Early action in supporting these sectors creates significant opportunity for the UK to be a leader in the production of low carbon materials which can meet domestic demand and be exported around the world.

As an example, low carbon cement offers a particularly significant opportunity for the UK. Both local and global demand for cement is expected to grow significantly due to increasing infrastructure spending, a growing population, and rising urbanisation. The UK Government's 10-year Infrastructure and Industrial Strategies outline the need to grow and improve the UK's housing, transport, energy, digital, waste, and public services infrastructure.

This will require strong supply chains of low carbon cement and other low carbon construction materials to meet this growth sustainably and in line with the UK's decarbonisation targets. This is in line with global trends where **global demand for cement is expected to grow by 12 – 23% by 2050[21]. With the UK's accessible CO_2 storage, high-grade limestone reserves, and a reputation for high-quality cement production, the UK is well positioned to take advantage of this growing demand.**

A further example of a critical role for CCUS in decarbonising foundational industries is within **refineries.** The fuels industry plays a vital role in decarbonising transport and other sectors by enabling the transition to lower-carbon fuels, hydrogen, and carbon capture technologies. The UK's downstream sector supplies 96% of transport fuel, with 55% from domestic production and 45% from imports. Refineries utilising CCUS will be essential for producing lower-carbon products, including sustainable aviation fuel, and components for alternative fuel vehicles such as lightweight plastics, fire retardants, tyres, adhesives, and lubricants. Hydrogen and bio-blended low-carbon fuels will also be key.

[19] MNZ & Peak Cluster, Putting the UK's cement and lime industry on the path to net zero: The MNZ-Peak Cluster Vision, 2025
[20] Rootzén & Johnsson, "Managing the costs of CO2 abatement in the cement industry", 2016

As set out in the CCSA's Spring 2025 CSR submission, **accelerating the delivery of stable and predictable UK ETS price, aligned with the EU and to net zero targets**, will be essential to drive the private investment required to enable these, and other, supply chains to decarbonise and allow the production of low carbon products. However, this must be coupled with a **comprehensive and robust protection from carbon leakage through the CBAM. Additional protection should also be provided to sectors not currently in scope of the CBAM, including refining and chemicals.** This will require clarity on inclusion of sectors currently out of scope of the CBAM (e.g. refining, glass, ceramics). Further clarity is also needed on the interaction of the CBAM with the UK ETS free allocations and implementation of the EU CBAM.

3d. Create demand for engineered GGRs by creating an international GGR buyers' club to harness global demand, led by the UK and other developed economies that are already deploying CCS and GGRs

Government action can be taken now to reduce the cost of negative emissions technologies, such as BECCS, DACCS, and EfW with CCS, while also reducing the sector's reliance on government support for project delivery. The UK needs substantial amounts of negative emissions to achieve net zero targets. The CCC's Carbon Budget 7 advice estimates that **35.8 Mt of engineered removals** will be needed in the Balanced Pathway Scenario by 2050 and that more than half of this should be delivered by 2040[10]. This is in line with the IPCC scenarios that call for more emissions to be removed than are emitted globally.

GGRs can be a driver of export led, economic growth for the UK:

- The UK's plentiful geological storage, estimated to be 78 gigatonnes, enables it to establish itself as an exporter of GGR services, beyond the capacity needed to account for its own residual emissions.
- **Over 28 million tonnes of GGR credits have now been sold globally**, with more than half of that having been contracted in the 12 months since May 2024[17].
- Looking forward, the global market for carbon dioxide removal is forecast to be as large as $1 trillion, according to McKinsey[5]. **The potential share of this market in the UK, given its geological storage advantage, could well exceed $100bn.**
- The UK carbon credit market has the potential to significantly boost the economy, generating up to **£1 billion in tax revenue and 135,000 skilled jobs by 2035**, according to research from BeZero Carbon[22].
- The stronger the GGR market becomes, the more the sector can transition away from government support, as robust global demand will provide the revenue foundation for sustainable business models.

[21] IEA, Transforming Industry through CCUS, 2019
[22] BeZero Carbon, From risk to reward: Making the UK the carbon markets capital of the world, 2025

For these reasons, the UK is uniquely positioned to be a global leader in GGR deployment and capitalise on the associated first mover advantages and growth opportunities. The UK also has the potential to establish itself as the global trading centre of GGRs, taking advantage of this market potential. However, if the UK is to be able to take advantage of this growing market, there are policy and regulatory gaps that need to be filled and the window of opportunity to address them is narrowing.

The CCSA **warmly welcomes the recent publication of the GGR Business Model, and recent decision to integrate GGRs into the UK ETS from 2029**. These are important steps to create the initial GGR market, derisk initial projects and attract private investment.

It is, however, possible to go further while taking a global lead in driving demand for GGRs. international corporate buyers are seeking urgent certainty for the supply of durable, high-quality GGR credits to meet their net zero obligations. There is already clear demand for agreeing contracts now for the delivery of GGRs by 2030; according to cdr.fyi (a public domain leaderboard tracker of global CDR sales), top companies who are investing in GGRs are the following:

- Microsoft (25.5 million tonnes)
- Frontier (1.3 million tonnes)
- JP Morgan Chase (575 thousand tonnes)
- Google (563 thousand tonnes)
- Airbus (400 thousand tonnes)
- Equinor (330 thousand tonnes)
- Amazon (250 thousand tonnes)
- Other potential buyers include aviation, insurance and finance, big tech and data companies, online retailers and consumer services, shipping and even high-profile motorsport entertainment sectors such as Formula1.

While it is encouraging to see growing corporate demand for GGRs, it will take time for this to reach the scale needed for developers to underwrite their projects. Accelerating demand, and taking a leadership role in doing so, will help drive GGR investment, particularly in the UK.

As part of efforts at COP 30 and in the lead-up to SR27, the CCSA urges the UK Government to establish an internationally supported buyers' consortium to harness global demand. The consortium would be led by the UK and other developed economies already deploying CCS and GGRs, such as Canada, Norway, Switzerland, and Denmark. It would act as a coalition to signal confidence for foreign direct investment while also creating a pool of potential international buyers of UK-based GGRs. At the same time, it would help spread risk across participating countries, pooling global support to develop an international credit market that, in turn, would drive down the cost of GGR technologies where the UK is already taking a leading role.

Each participating nation would determine its own approach to involvement in the coalition. For the UK, which already has the GGR Business Model in place and would want to avoid a double subsidy, its contribution could focus on showcasing existing support mechanisms and demonstrating how it is actively encouraging engagement in the purchase of GGR credits. This could take the form of either a public commitment to buy credits, such as equal to the volume of emissions emitted from the public sector, or a policy framework that leverages corporate investment for credits. **To fund such efforts, the UK could allocate a portion of revenues from the UK ETS or other environmental levies, thereby directly supporting further environmental investment and economic growth.**

This will also help promote UK-based GGR technology expertise, workforce and the UK's vast carbon storage potential. This effort could be spearheaded by the UK through its leadership at UNFCCC climate negotiations and global economic fora such as G7.

CCSA

The Carbon Capture and Storage Association (CCSA) is the trade association focused on accelerating the commercial deployment of carbon capture, utilisation and storage (CCUS).

We work with our members, governments and other organisations to ensure CCUS is developed and deployed at the pace and scale necessary to meet net zero goals and deliver sustainable growth across regions and nations.

The CCSA has over 100 member companies who are active in exploring and developing different applications of carbon capture, CO_2 transportation by pipeline, ship and rail, utilisation, geological storage, and other permanent storage solutions, both end-users of the technology and those in the supply chain, as well as members from management, legal and financial consulting sectors.

www.ccsassociation.org