



Delivering opportunity and green growth in our industrial communities

A manifesto for the
United Kingdom from
the Carbon Capture and
Storage Association

September 2023



The 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, CO₂ transportation by pipeline, ship and rail, utilisation, geological storage, and other permanent storage solutions, both for end-users of the technology and those in the supply chain, as well as members from management, legal and financial consulting sectors.



Delivering opportunity and green growth in our industrial communities



This is an incredibly positive time for the CCUS industry. We welcomed the Government's £20bn commitment earlier in the year to delivering CCUS clusters across the UK. We've seen great cluster progress this year, with four regions selected to move forward by the Government.

As the *CCUS Delivery Plan Update* shows, our project pipeline is up from 55 projects to over 90, with enough projects in the pipeline to capture around 94 million tonnes of CO₂ per year, up from 73 million tonnes per year (an increase of 29%). To put that in context, that's equivalent to 28% of overall UK emissions last year.

The plan also makes clear our industry is ready to help the Government meet the nation's net zero goals, and nearer term 2030 capture targets. Indeed, this is a pipeline to deliver substantially above the UK's ambition for industrial decarbonisation. At the same time, we can create and protect high quality jobs in every part of our country.

As an industry we have also recently led on committing to an ambition of achieving 50% UK content in the manufacturing, goods and services underpinning CCUS; publishing a Workforce & Skills Position Paper; and setting out the approach needed to address shortages in the availability of skills for CCUS.

There is an immense opportunity here for the UK that we must seize. Industry is ready to deliver and Government must act. We commit to:

- **Investing in the UK**, helping the economy grow stronger by investing around £40bn to develop British industrial regions by 2030.
- **Creating high quality jobs & protecting our industries**, delivering up to 70,000 new highly skilled jobs and retain approximately 77,000 existing jobs in critical industries like cement, steel and chemicals across the UK.
- **Delivering energy security**, by providing flexible, low-carbon power generation – an important contribution to a resilient electricity mix, enabling more renewables on the system, reducing reliance on imported fossil fuels.
- **Exporting our expertise in low carbon products and services**. Using our offshore geological advantages to store CO₂ and building on our historical industrial strengths and innovation, to export CO₂ storage.

But to achieve this, we need policy action. We are inviting politicians on all sides to champion the UK CCUS industry to:

1. Enable timely cluster delivery, including allocation of the £20 billion support.
2. Publish a clear deployment plan for CCUS and commit to regular allocation rounds.
3. Accelerate permitting and consenting.
4. Deliver a healthy supply chain and skilled workforce.
5. Build public support.

Without further clarity on the allocation of the government's pledged revenue support for projects, the UK stands to miss out on thousands of additional, direct jobs and risks losing even more due to potential site closures.

We look forward to working with policy makers and manifesto teams in all major parties in the run up to the General Election to raise the policy ambition on CCUS.

Ruth Herbert
CEO, CCSA



Our pledges to the country

As an industry we commit to:

1

Investing in the UK

helping the economy grow stronger by investing around £40bn to develop British industrial regions.

2

Creating high-quality jobs & protecting our industries

CCUS will deliver up to 70,000 new highly skilled jobs and retain approximately 77,000 existing jobs in industries like cement, steel and other manufacturing across the UK.

3

Delivering energy security

by providing flexible, low-carbon power generation – an important contribution to a resilient electricity mix, enabling more renewables on the system and reduce reliance on imported fossil fuels.

4

Exporting our expertise in low carbon products and services

using our offshore geological advantages to export CO₂ storage services and building on our industrial strengths and innovation, to provide low carbon products, and engineering skills and services to a global supply chain.



CCUS Delivery Plan

UK Achievements

Up to **£20 billion** revenue support committed by UK Government

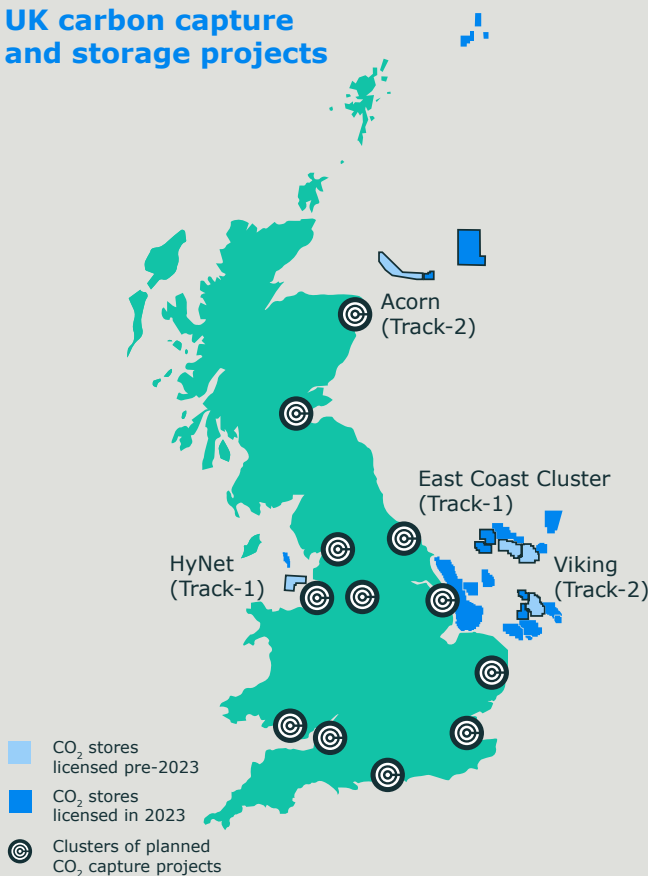
50% industry's ambition for local content

8 CO₂ capture projects in negotiation with government

21 new storage licenses, bringing the total up to **27**

4 clusters in negotiation with government

UK carbon capture and storage projects



Global Developments

85 \$/tonne subsidy for CO₂ storage

Target for **50 million tonnes** per year of CO₂ injection capacity by 2030

The CCSA has identified...

CO₂ capture project pipeline has grown from **73** to **94** MtCO₂/yr in 2022 to MtCO₂/yr in 2023

12 clusters in development

Over **90** CO₂ capture projects in development

Over **£1 billion** estimated investment to date by CO₂ capture project and cluster developers

CCUS will **create** over **70,000** new jobs and help **protect** up to **77,000** existing jobs

Policy makers must take action...

1/3 of projects surveyed are **considering relocating their developments overseas** if they cannot access CO₂ infrastructure and are unsuccessful in obtaining CCUS support

1/3 of emitters currently planning to use carbon capture may need **non-pipeline transport** to access CO₂ storage



PLEDGE 1

Investing in the UK

Helping the economy grow stronger by investing around £40bn to develop British industrial regions by 2030.

Industry plays a critical part in a strong and successful economy. We know that growing our economy is the only way out of the cost-of-living crisis, ensuring all regions and communities benefit.

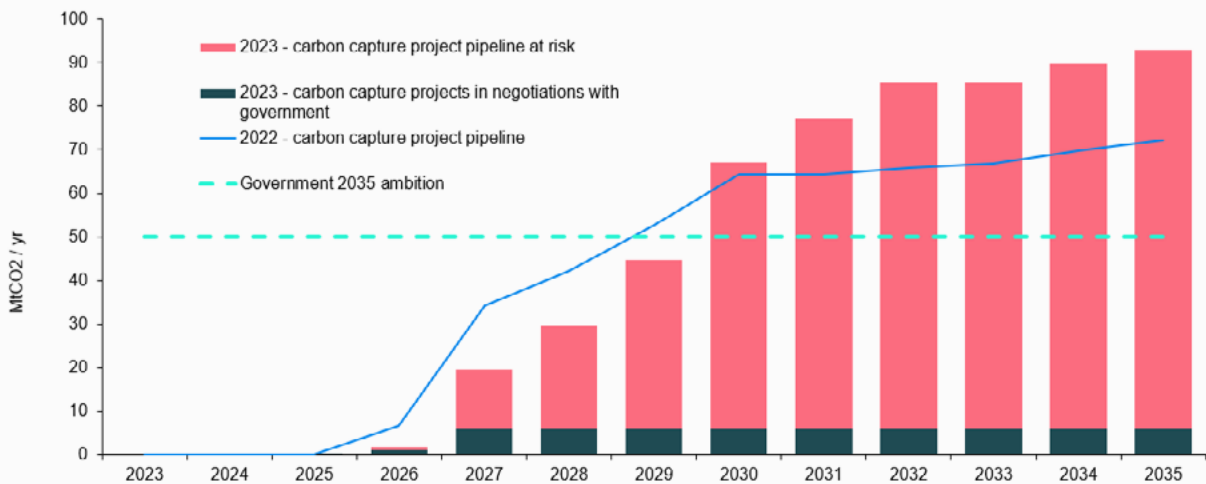
The government has already committed £20bn of revenue support to help deliver CCUS projects. This will unlock similar levels of industry investment, front-loaded over the next few years, once contracts are signed. We are ready to back this up with more funds. Industry investment into CCUS so far is just the tip of the iceberg – if the government can stimulate the industry to achieve its ambitions, total industry investment could reach around £40bn by 2030, boosting communities that need it the most.

The number of UK industries and projects looking to use carbon capture has grown by 29% since March 2022, demonstrating the investment that is being made by UK industry to meet the government’s decarbonisation ambitions, as shown by our *CCUS Delivery Plan Update*.

However, progress and clarity on allocation of government revenue support for projects has been too slow. The industry faces significant uncertainty over knowing which projects will be supported by the government and whether industries that have not been successful in previous competitions will have further opportunities to bid. This leaves the vast majority of the project pipeline at risk.

The next 12 months will be critical if the UK is to seize the opportunities at its disposal. Countries around the world are competing with the UK for investment, and with many multi-national companies choosing where to invest in projects globally, rapid and targeted action from policy makers will be necessary for the UK to ensure its projects are at the front of the queue and it can realise its full potential.

Figure 1:
CCSA’s *CCUS Delivery Plan Update* – Carbon Capture Project Pipeline (2022-2023)
Projects in negotiation and Projects at risk against Government 2035 ambition



PLEDGE 2

Creating high-quality jobs and protecting our industries

CCUS will deliver up to 70,000 new highly skilled jobs and retain approximately 77,000 existing jobs in industries like cement, steel and manufacturing across the UK.

Protecting industries and future proofing jobs is at the heart of CCUS. Everyone needs to benefit from the energy transition and CCUS puts money back into communities that need it most.

CCUS will create 70,000 new jobs across the UK's industrial clusters and their supply chains. It will also help protect approximately 77,000 jobs in existing industries – with the majority of these jobs being in regions such as Yorkshire & Humber (21%), Wales (17%), and the North West of England (15%).

With CCUS, we can futureproof the success and survival of key British industries such as cement, steel and other manufacturing sectors which are critical to the UK's clean industrial growth. As these industries decarbonise, they will supply the market with low carbon products and export these to countries that will not be able to produce their own.

However, as our *CCUS Delivery Plan Update* shows, only one cement project and none of the refinery projects were successful in progressing to negotiations with government. We need all these projects to be successful in deploying CCUS if we are to build a successful low carbon industry.

Jobs will be lost and industrial regions will be destroyed if these industries are forced to move overseas to access the infrastructure required to decarbonise.



CREATE

70,000 new jobs

PROTECT

77,000 existing jobs



PLEDGE 3

Delivering energy security

Providing flexible, low-carbon power generation – an important contribution to a resilient electricity mix, enabling more renewables on the system, reducing reliance on imported fossil fuels.

The government has set an ambitious target for a decarbonised power system by 2035 and as industry we have answered with a clear pipeline of projects to help meet this. The government has estimated that around 10GW of power with CCUS will be needed by 2035, however only one 860MW project is currently under negotiation.

Hydrogen production is critical in decarbonising manufacturing as well as in ensuring aviation, shipping and heavy transport can switch to low carbon fuel. Without rapid action from government though, the projects industry is currently investing in are at risk.

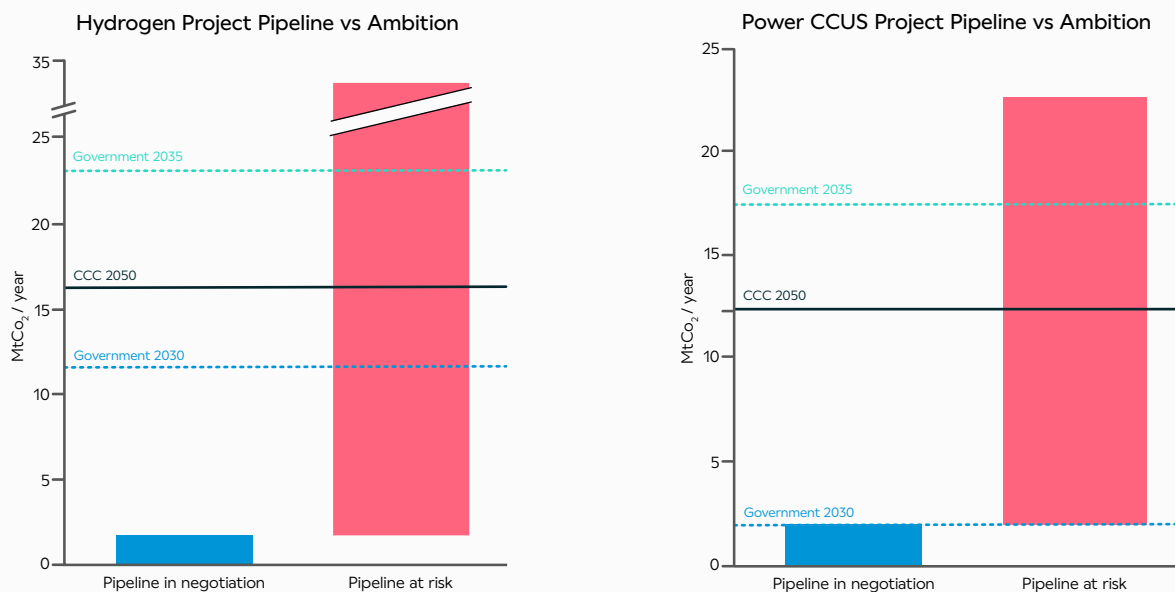
The projects in negotiation for government funding only correspond to 17% of the government’s 2030 ambition of up to 5GW of CCUS-enabled low carbon hydrogen production. This means that a large proportion of the projects in development will need to be successful in subsequent cluster project selection rounds if the UK is to meet its goal.

Our *CCUS Delivery Plan Update* shows the majority of the low carbon hydrogen project pipeline is also currently at risk. Collectively these projects could support an estimated 2,000 additional, direct jobs, and provide a boost to the UK economy with £21bn in investment.

Additionally, sustainable aviation fuels produced with carbon capture and storage and greenhouse gas removal technologies such as direct air capture and storage (DACCS) and bioenergy with carbon capture and storage (BECCS), are in increasing demand from the aviation industry, but need clarity on how they can connect to the first four CO₂ cluster networks. Some projects, originally planned for the UK, are now under construction elsewhere.

Figure 3:
CCSA’s CCUS Delivery Plan Update – Energy Security

Government ambition and CCC Balanced Net Zero estimated requirement



PLEDGE 4

Exporting our expertise in low carbon products and services

Using our offshore geological advantages to export CO₂ storage services and building on our industrial strengths and innovation, to provide low carbon products, and engineering skills and services to a global supply chain.

The UK has almost one-third of Europe's geological storage, more than the EU member states combined, and is already a hub of expertise for offshore developments and engineering services – all critical for delivery of CCUS.

Investment in multiple UK clusters and enabling of CO₂ shipping could result in a UK CO₂ storage sector collectively worth £30bn in a year in taxable revenues by 2050, with exports of carbon storage potentially worth £2bn a year in 2030.

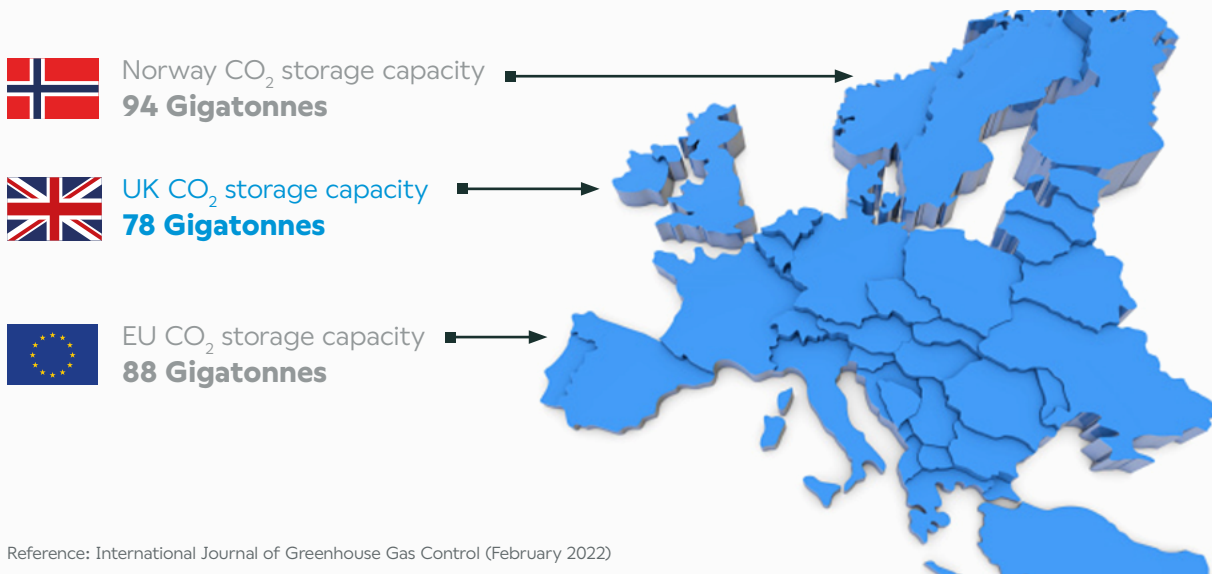
The CCSA's *Delivery Plan* recommended that the government and industry rapidly bring additional storage capacity to a commercial stage of readiness. Over the past year, significant progress has been made by industry to achieve this, with the North Sea Transition Authority (NSTA) recently awarding 21 new licences for CO₂ storage. While industry action and investment has progressed, the detail from government around how these CO₂ stores will operate remains unclear.

With high lead times for these projects to reach operations, up to 5-7 years, government needs to provide urgent clarity on how CCUS will be deployed beyond 2030. This is to allow for sufficient time for developers to develop the CO₂ stores such that they can be used to help the UK fulfil its full potential.

Each CCUS cluster can deliver emissions reductions across power, industrial, waste processing, construction and aviation sectors. This will enable low carbon manufacturing expertise and the development of low carbon products that can be sold around the world, rather than importing products made in other countries that have deployed CCUS.

As these industries decarbonise, they will supply the market with low carbon products and export these to countries that will not be able to produce their own.

Figure 4:
UK and Europe CO₂ storage capacity



Reference: International Journal of Greenhouse Gas Control (February 2022)



Industry and Government working together

To realise our pledges, we need long-term policy certainty from government. Building on policies outlined in the *CCUS Delivery Plan Update*, our five urgent actions for government and industry to deliver CCUS in a way that maximises the benefits to the UK and enables us to achieve net zero, are:



1. Enable timely cluster delivery

Now that the first four CCUS clusters have been selected, a clear focus must be on delivering them in a timely fashion: this must include allocating the £20bn from the 2023 Spring budget and committing to regular funding allocation rounds. Government should set out clear processes and adhere to timelines to ensure all Final Investment Decisions (FIDs) must be taken in the next two years. Government and industry must work together to complete key actions, as any further delays or revised timelines will have a detrimental impact on delivery by 2030.



2. Publish a clear deployment plan for CCUS

The first four clusters will establish the CCUS industry in the UK and their networks will continue to expand, so the regulatory framework will need to enable investment now in expansion required from 2030. However, there are many other regions that will need to deploy CCUS if they are to decarbonise. In order to maintain investor confidence, prevent the loss of manufacturing jobs and meet net zero targets, government, working closely with industry, must publish a clear deployment plan for CCUS to 2035, with a vision to 2050 and beyond. This would incentivise investment now in the development of CO₂ stores that will be required post-2030, as well as in the capture project pipeline.



3. Accelerate permitting and consenting

Industry is still encountering challenges in permitting and consenting for CCUS deployment, both in terms of the time it takes, and the number of agencies involved. Government must take the lead in understanding, resourcing and streamlining the permitting and consenting pathway for projects and ensure that this is communicated to stakeholders. This includes engaging, funding and building capacity in regulators to implement CCUS legislation, as well as working with relevant agencies, regulators, devolved and local governments to provide a consistent approach to planning and permitting and improved coordination.





4. Deliver a healthy supply chain and skilled workforce

Industry and government have undertaken work as set out in the *CCSA’s CCUS Delivery Plan 2035* (March 2022) to identify the UK’s strengths in products and skills and has identified areas to be prioritised for government intervention to increase UK supply chain participation. Industry now needs to implement annual benchmarking of local content delivery in line with CCSA’s Good Practice Guidance. Increased engagement of the UK supply chain by CCUS developers will only be successful in driving up UK content if government also now provides some targeted support and intervention to supply chain companies in the high value opportunity areas identified, to increase capacity in areas where UK has comparative strengths. A cross-sector coordinating body for skills and training across the net zero transition needs to drive investment and ensure quality of jobs over the longer-term.



5. Build public support

The CCSA and its members have developed a strategic approach to communications, including an industry communications toolkit and a coordinated approach to build wider public understanding of CCUS. The priority now is for government and industry to urgently work more closely together with academia and civil society to educate the public about CCUS. This includes local and national engagement to increase understanding and awareness, communicating the benefits of CCUS and addressing any areas of public concern.

