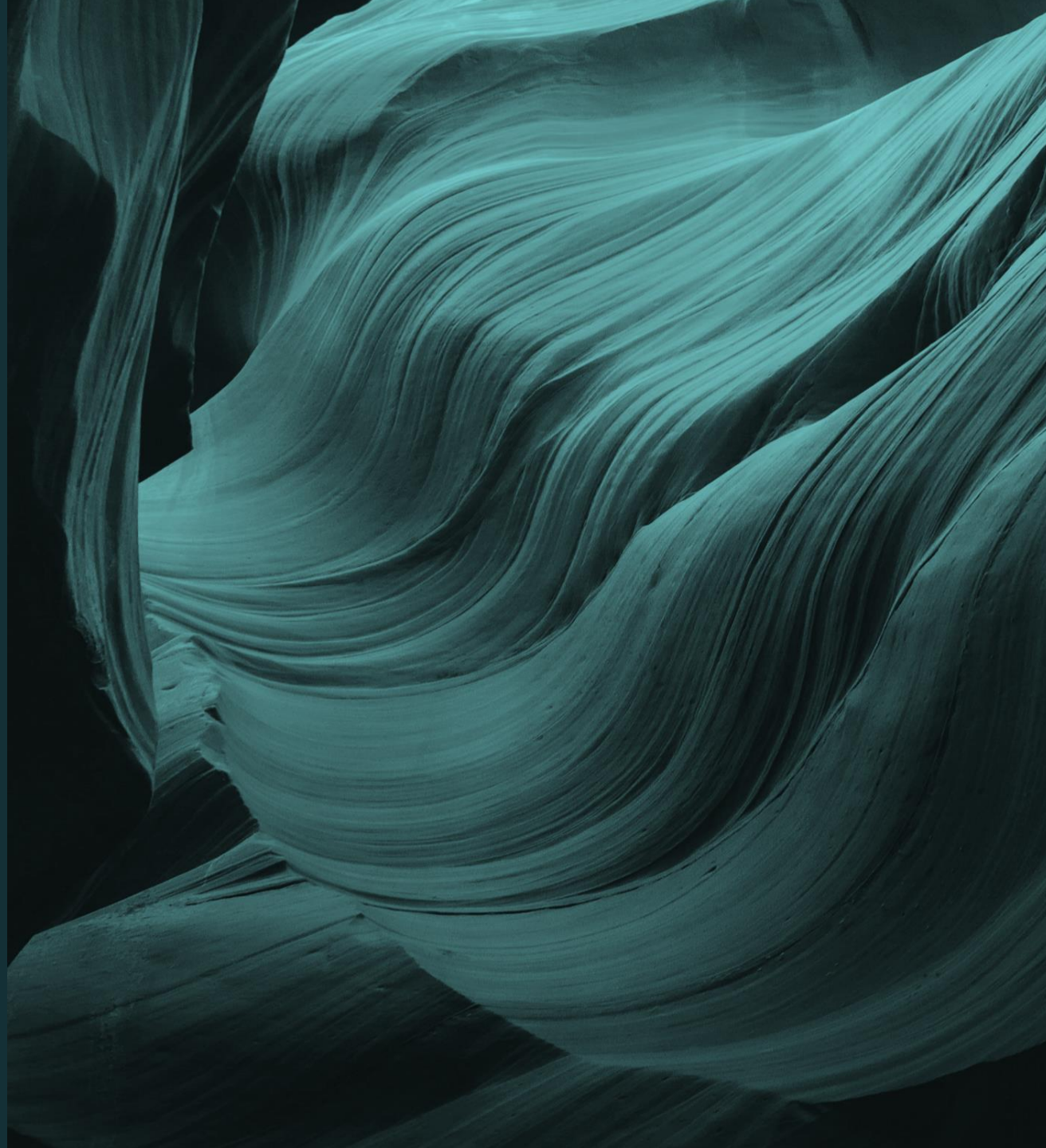


Spotlight on CCUS in the UK

All Energy and Dcarbonise
Glasgow

11 June 2023

Ruth Herbert, CEO
Carbon Capture and Storage Association



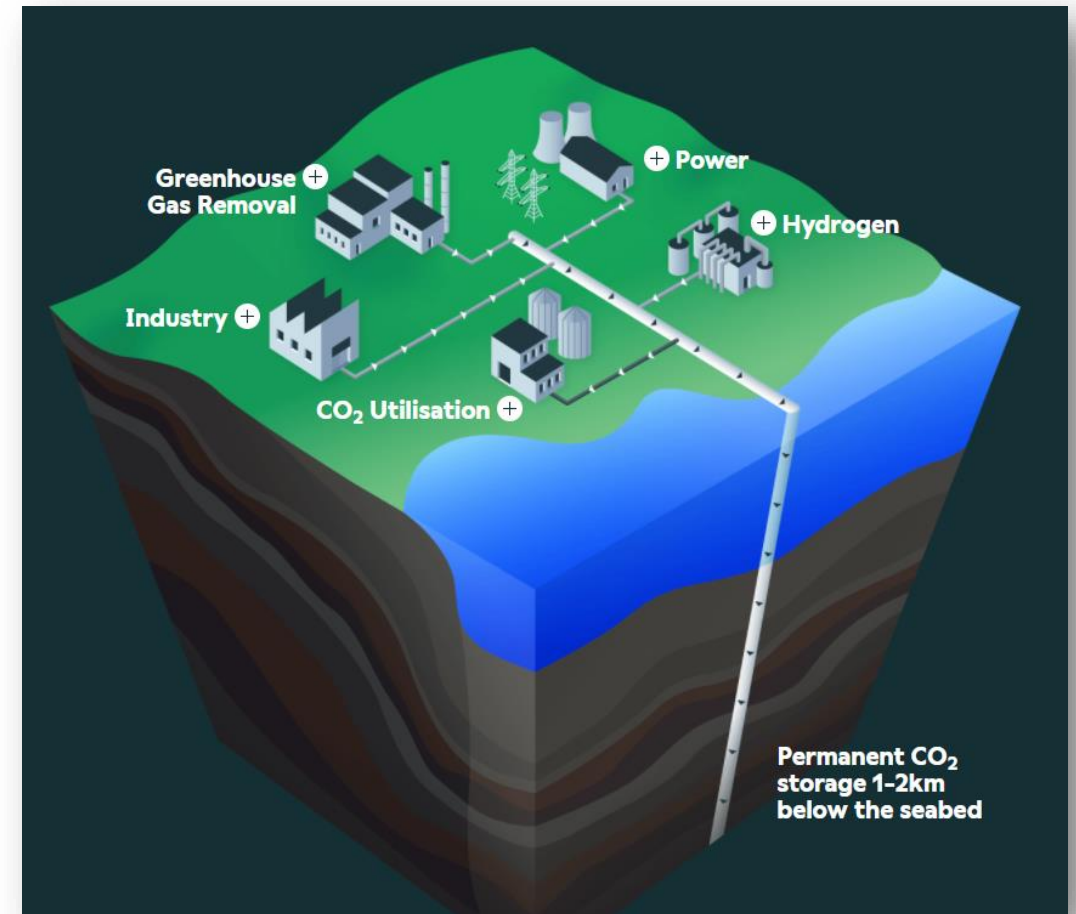
Contents:

1. About the CCSA
2. UK Cluster Programme
3. Beyond “Track-2”: UK industry developments
4. Further reflections

**The CCSA is the trade association
accelerating the commercial deployment of
Carbon Capture, Utilisation and Storage (CCUS)
through advocacy and collaboration**

The CCUS Value Chain

- **Capture CO₂** from:
 - Power generation
 - Industrial activity (cement, refinery, steel etc)
 - Hydrogen production
 - Bioenergy sources (BECCS) and the air (DACCS)
- **Transport CO₂** via pipeline or ship
- **Store CO₂** in geological formations, e.g. depleted oil & gas fields or deep saline formations.
- **Use CO₂** in products, some of which can keep CO₂ from the atmosphere for long periods of time, and others that simply recycle the CO₂, with less climate benefit.



Different applications of CCUS technology can be deployed at sites located close together to take advantage of the economies of scale in the CO₂ transport and storage network – referred to as “clusters”

Contents:

1. About the CCSA

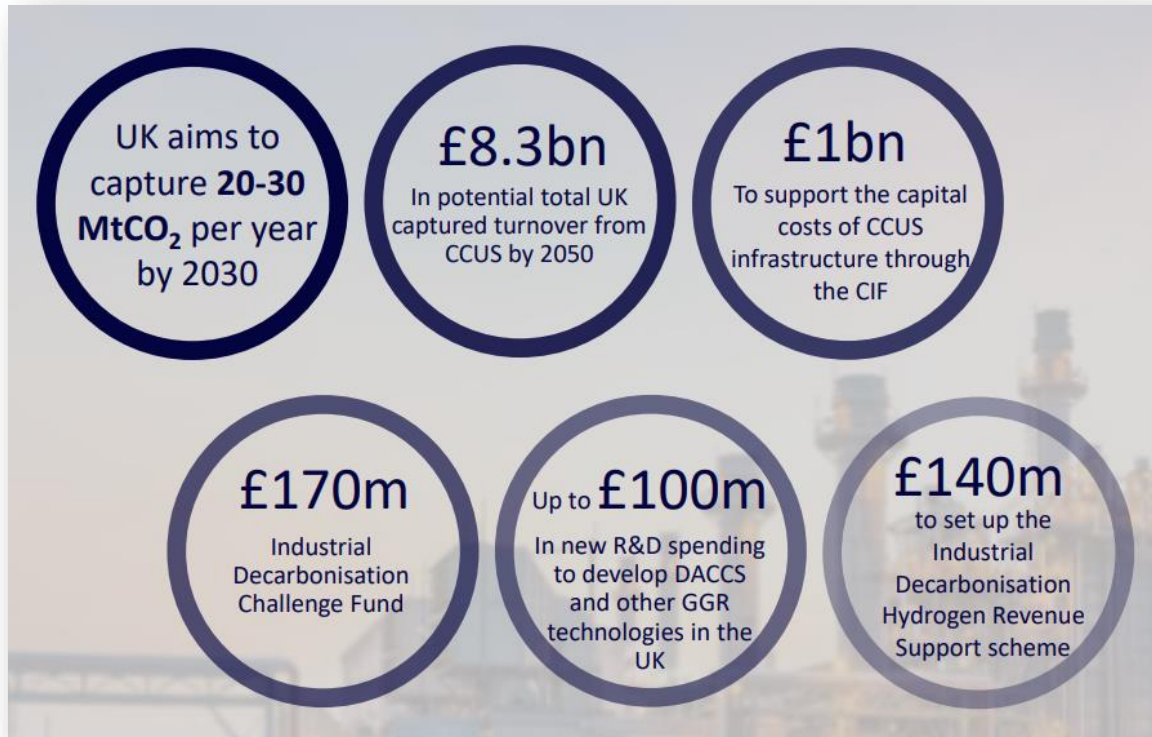
2. UK Cluster Programme

3. Beyond “Track-2”?

4. Conclusions

UK Government CCUS Strategy launched in October 2021

- Ambition to capture 20-30 MtCO₂ a year by 2030, rising to over 50Mtpa by 2035
- Committed to **four CCUS clusters** with at least two operating by the mid-2020s and at least another two by 2030



UK Government “CCUS Investor Roadmap”



Status of UK CCUS Cluster Sequencing Programme

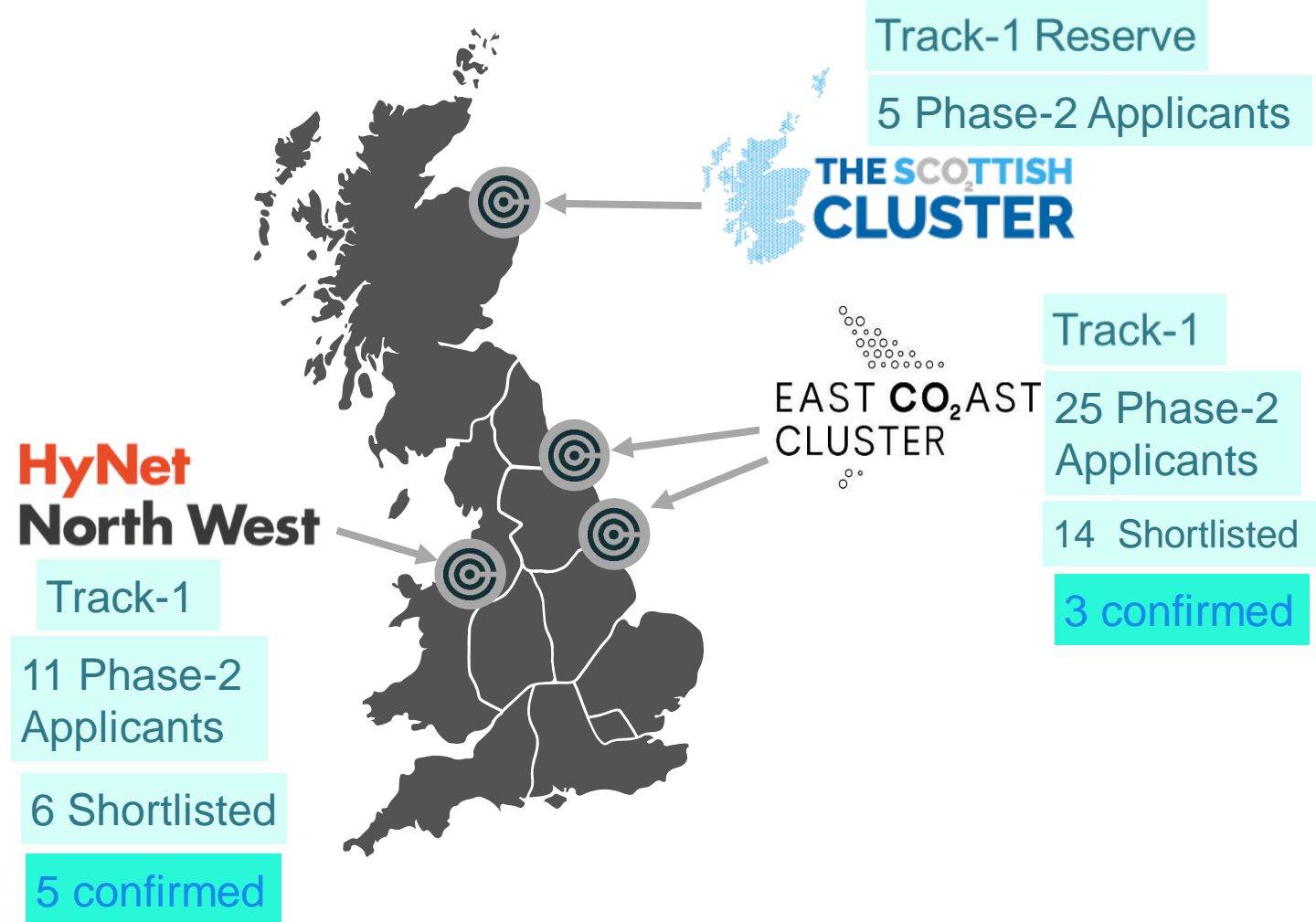


Track-1 Clusters

- Govt selected two 'Track-1' CO₂ Transport and Storage clusters in November 2021 to be operational in "mid-2020s" plus one "reserve" cluster

Phase-2 competition:

- 41 eligible capture projects applied for Government support to access Track-1 Cluster CO₂ infrastructure in Jan '22.
- 20 projects shortlisted in August 2022
- 8 projects confirmed to enter bilateral negotiations in March 2023
- Aim "to be operational by end of 2027"



Spring Budget 2023

- The Chancellor of the Exchequer confirmed the government will provide **up to £20 billion funding for early deployment of CCUS**

“This unprecedented level of funding in the UK will unlock private investment and job creation across the UK, particularly on the East Coast and in the Northwest of England and North Wales, delivering up to 50,000 highly skilled jobs”.

Budget 2023: Jeremy Hunt to announce £20bn over 20 years for carbon capture and clean energy

Jeremy Hunt will also reclassify nuclear energy as ‘environmentally sustainable and keep bi

sky
news Sky News

Hunt: ‘Time for clean energy reset’ to tackle high bills with billions for nuclear and carbon capture

Story by Faye Brown, political reporter • 10 Mar

UK budget set to back carbon capture and nuclear power

The govern
technology
released in
bills in the

Plan aims to support the country’s transition to net zero economy.



Beyond Track-2: Recent UK industry developments



Cluster Development

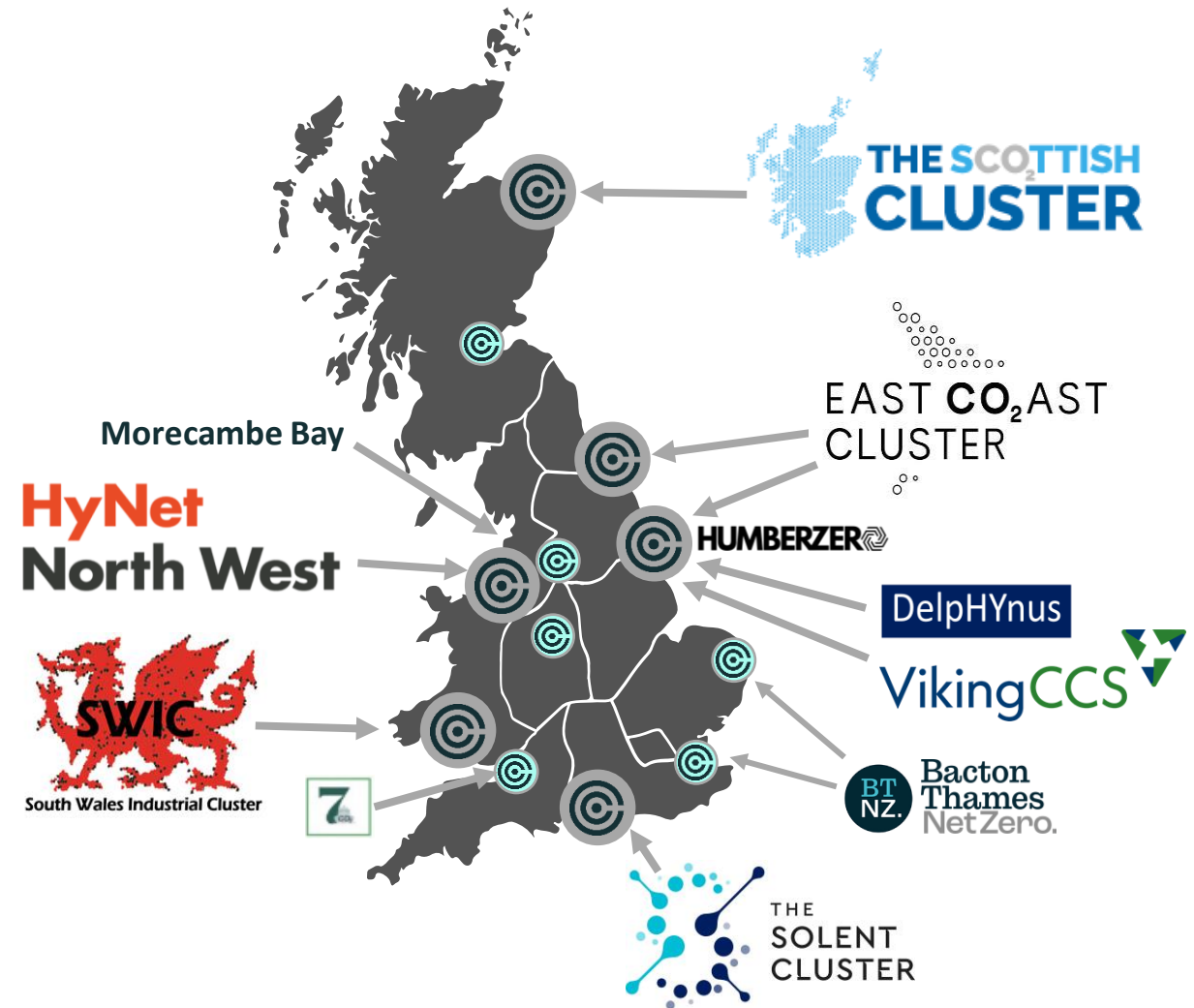
Over the last 12 months we have seen:

- Launch of the **Solent Cluster**, **Bacton Thames Hub** and plans for a **Morecambe Bay CO2 Cluster**
- Hubs of emitters emerging that will rely on CO2 shipping, such as **Net Zero Industry Wales** and **7CO2 capture and transport hub** in Avonmouth.

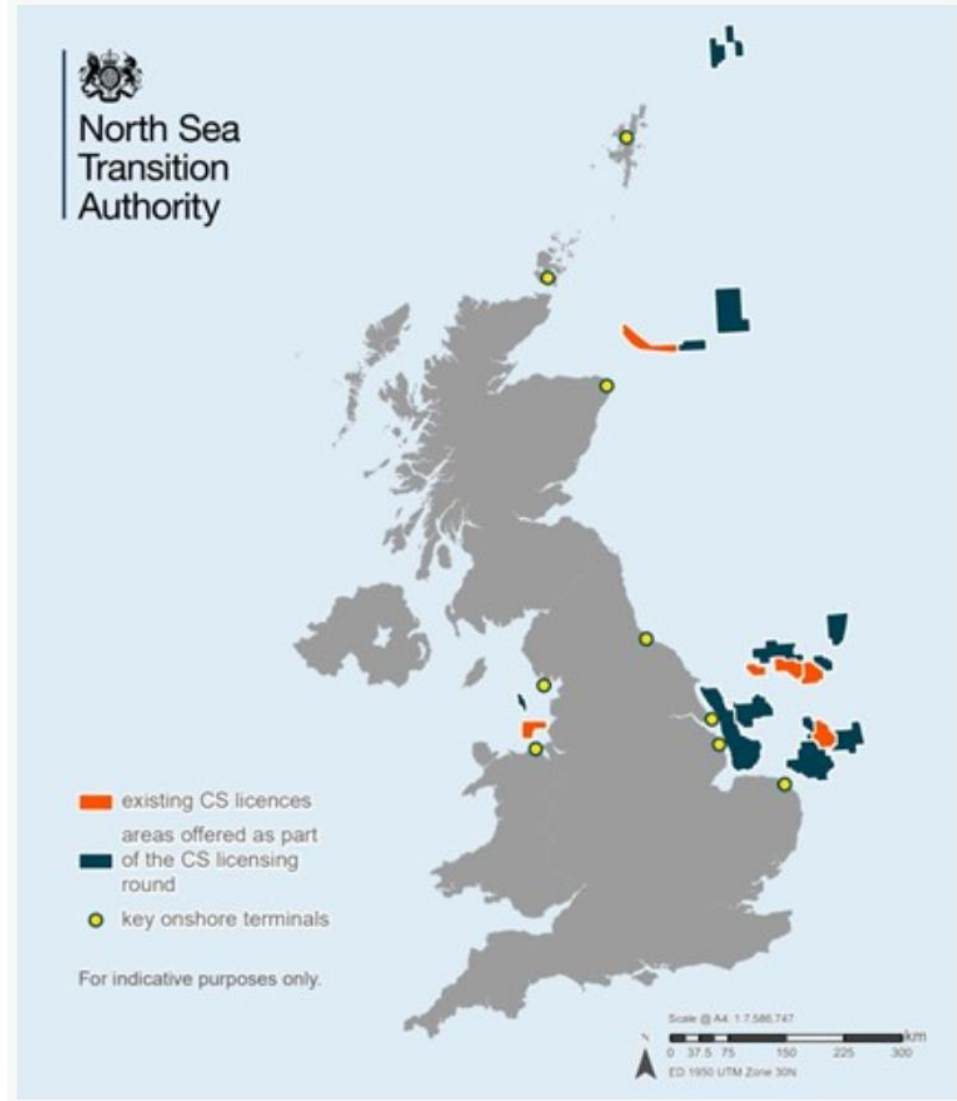
Commercial Capture projects

Commercial CCU or CCUS projects emerging in cluster regions, e.g.

- **Tata Chemicals** – UK's first industrial-scale CCU plant, capturing 40,000 tonnes of carbon dioxide each year
- **Alfanar Lighthouse Green Fuels Project** (Teeside) - to produce 180 million litres of Sustainable Aviation Fuel (SAF)



Storage: will the UK's plentiful assets be ready in time?



- The UK and Norway combined have around 85% of Europe's CO₂ storage capacity.
- UK theoretical CO₂ storage capacity is 78Gt – equivalent to 1,000 years of UK industrial emissions
- UK has 6 licensed stores progressing towards CO₂ storage permits
- The NSTA's recent storage licensing round will allocate a further 13 licenses for potential CO₂ storage sites.
- Lead in times from licence award to operation of stores vary according to type of store (~7 years)

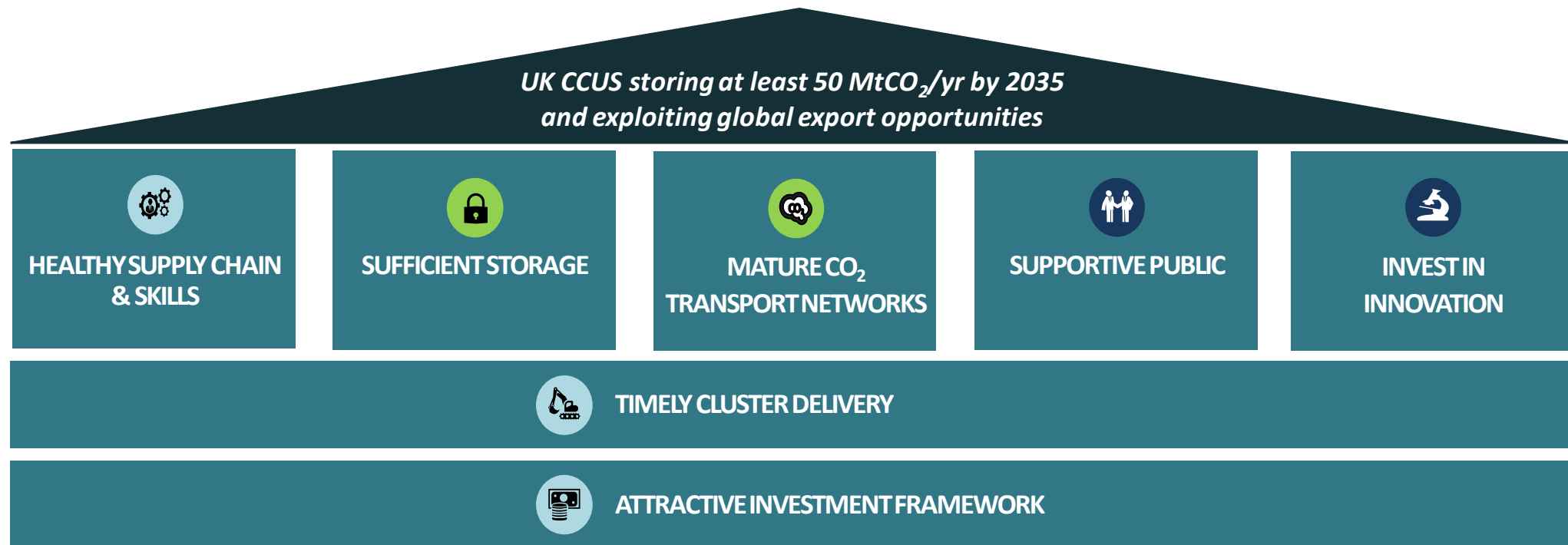
Key challenge:

How to incentivise early investment in development of stores (£10ms for test injection wells).

CCSA's CCUS Delivery Plan 2035 – building blocks of a successful CCUS industry


























































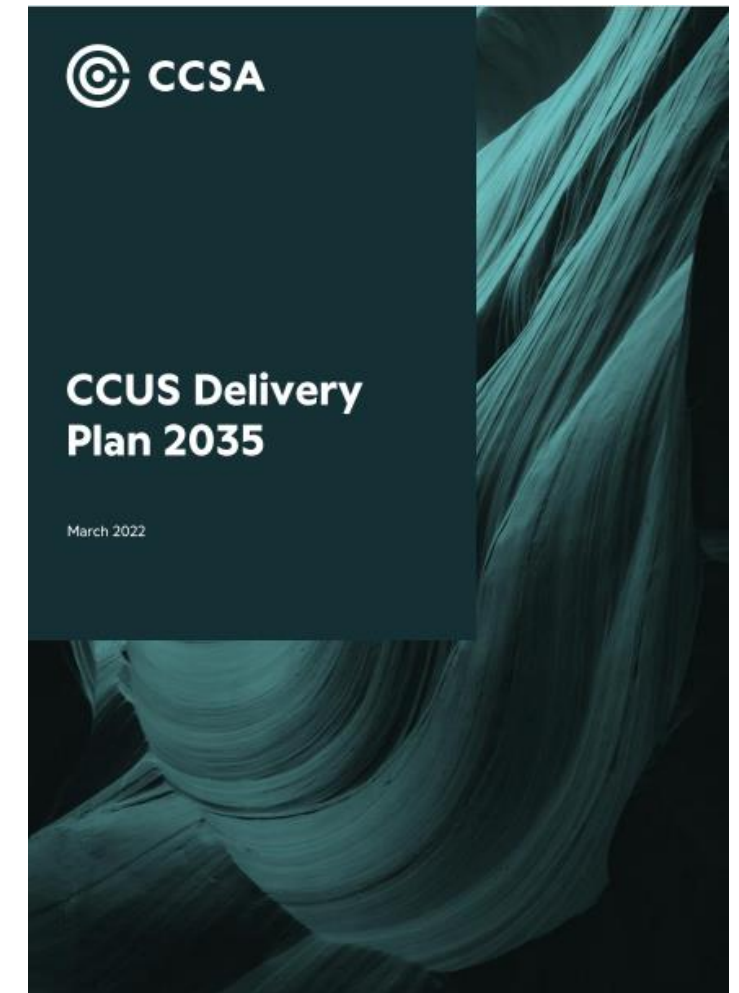
- Enablers for achieving UK Government's 2035 CCUS ambition, to remain on track for Net Zero by 2050
- CCSA's working groups have been focused on delivering actions under each pillar since April 2022
- One year on, we are preparing an update of the project pipeline and also the actions



The report has a full set of 29 actions and 37 key stakeholders

Each action has a recommended owner and deadline for completion

						
Attractive Investment Framework	Timely Cluster Delivery	Healthy Supply Chain & Skills	Mature CO ₂ Transport Networks	Sufficient Storage	Supportive Public	Investing in Innovation
 Department for Business, Energy & Industrial Strategy  HM Treasury  Carbon Capture & Storage Association	 Department for Business, Energy & Industrial Strategy  HM Treasury  Planning Inspectorate  ofgem  Environment Agency  Department for Environment Food & Rural Affairs  Department for Levelling Up, Housing & Communities North Sea Transition Authority (NSTA)  INFRASTRUCTURE BANK	 Department for Business, Energy & Industrial Strategy  Department for International Trade  Carbon Capture & Storage Association  NUCLEAR AMRC Project Developers  EC ITB  OPITO  CATCH  oeuk  UK Export Finance	 Department for Business, Energy & Industrial Strategy  Planning Inspectorate  Llywodraeth Cymru Welsh Government  Department for Transport  European Commission  Department for Environment Food & Rural Affairs  Marine Management Organisation  Crown Estate Scotland  Scottish Government North Sea Transition Authority (NSTA)  THE CROWN ESTATE	 Department for Business, Energy & Industrial Strategy North Sea Transition Authority (NSTA)  Carbon Capture & Storage Association  marine.scotland  renewableUK  Crown Estate Scotland  THE CROWN ESTATE	 Department for Business, Energy & Industrial Strategy  Carbon Capture & Storage Association  ALIGN CCUS  UK Research and Innovation  Climate Change Committee	 Department for Business, Energy & Industrial Strategy  IDRIC  Carbon Capture & Storage Association  UK CCS Research Centre  UK Research and Innovation  SCCS  HSE Health & Safety Executive  Net Zero Technology Centre Technology Driving Transition



Further reflections...

- Deployment of CCUS is beginning to accelerate around the world
- There is now *a global race to corner the low carbon products market* and related supply chain which includes CCUS
- US and EU incentives are drawing investment and expertise from the UK
- UK ETS reduction of free allowances and similar developments under the EU ETS likely to push up demand (70Mt from UK alone) for the UK's plentiful CO₂ storage towards the end of this decade, *assuming it is developed in time*
- CCUS in industrial heartlands will utilise UK's world leading oil and gas infrastructure, creating 70,000 new green jobs and retaining 77,000 jobs in steel, cement, refining, chemicals, ceramics and glass
- UK must plan to *swiftly move beyond current constrained roll-out* to maintain its supply chain security and maximise inward investment and export opportunities and achieve its 2035 trajectory
- A fully funded multi-year allocation programme is needed to give investors in the project pipeline sufficient certainty to continue to provide at risk devex
- Drivers of wider deployment need to be progressed in parallel, such as an extended ETS, Carbon Border Adjustment Mechanism with certified CO₂ storage, low carbon product standards and mandates

Questions

or email info@ccsassociation.org

