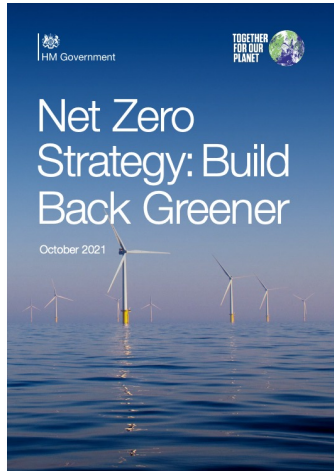
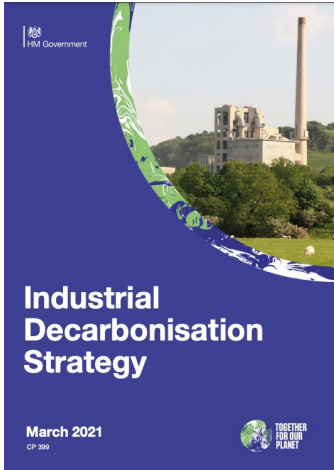
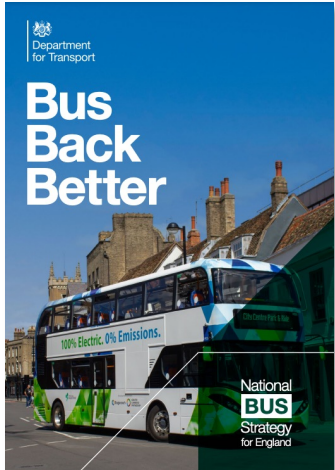
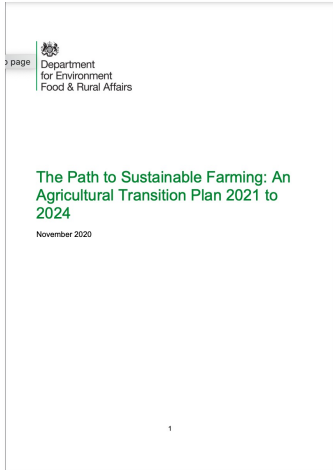


Net Zero Policy Update: Delivering CCUS and Hydrogen

Westminster Energy Forum

Enrique Cornejo, Head of CCUS Supply Chains

The Net Zero Strategy builds on the foundations of sectoral and climate strategies to provide a comprehensive set of measures to support the UK's transition to net zero



Why invest in UK CCUS

UK aims to capture **20-30 MtCO₂** per year by 2030

£8.3bn

In potential total UK captured turnover from CCUS by 2050

£1bn

To support the capital costs of CCUS infrastructure through the CIF

£170m

Industrial Decarbonisation Challenge Fund

Up to **£100m**

In new R&D spending to develop DACCS and other GGR technologies in the UK

£140m

to set up the Industrial Decarbonisation Hydrogen Revenue Support scheme

Opportunities in an advanced & growing sector:

- **Global player:** UK is in the top 5 countries globally for CCUS readiness. The UK has one of the largest potential CO₂ storage capacities in Europe
- **Project pipeline:** Funding for industrial carbon capture and hydrogen production projects will be announced later this year and allocated through the Cluster Sequencing process and hydrogen funding schemes
- **Regulatory environment:** Bespoke business models
- **Boost jobs:** CCUS-enabled clusters could support up to 50,000 jobs in the UK by 2030

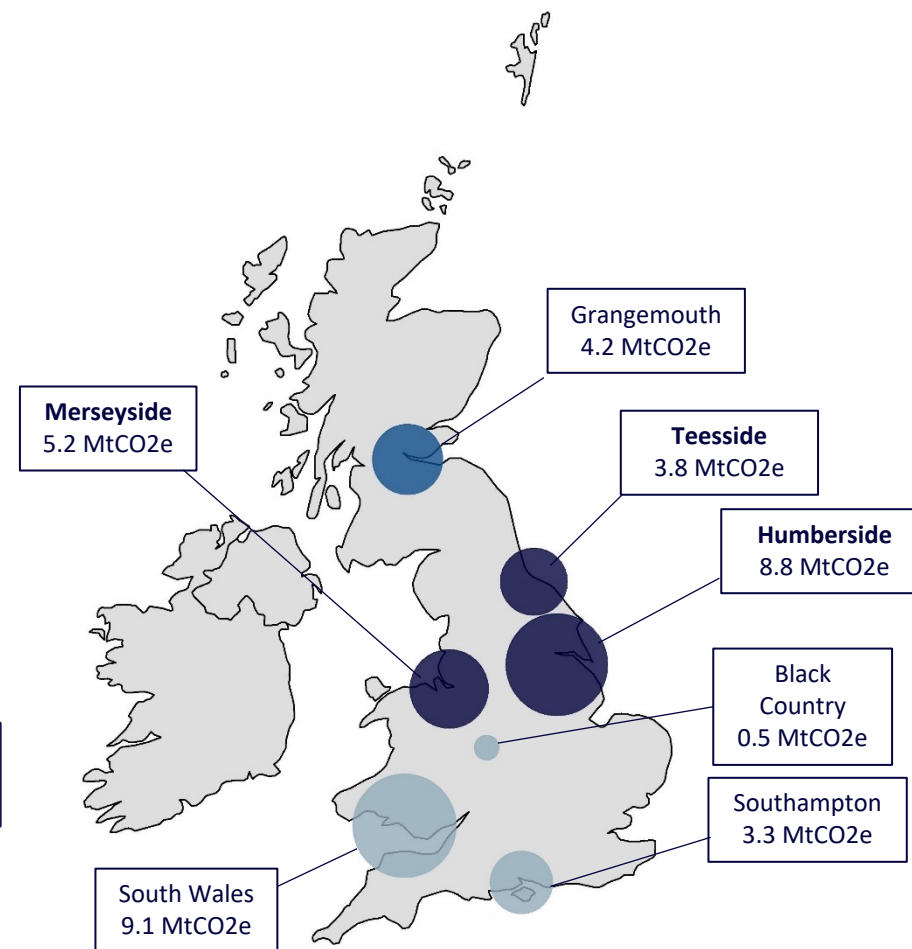
The opportunity for deployment of CCUS in the UK

- Our **2050 Net Zero Strategy** emphasised the importance of decarbonising industry using renewable technologies
- The UK has potential to store more than **78 billion tonnes of carbon dioxide (CO₂)** in its continental shelf which is one of the largest potential storage capacities in Europe
- Industrial CCUS clusters* can be the starting point for a new **carbon capture industry** with a **sizeable export potential**, helping to create industrial 'SuperPlaces' in the UK
- First Track-1 clusters announced as **HyNet** and **East Coast Cluster** (Teesside and Humberside)

**At least two CO₂ capture projects with access to a transport and storage network*

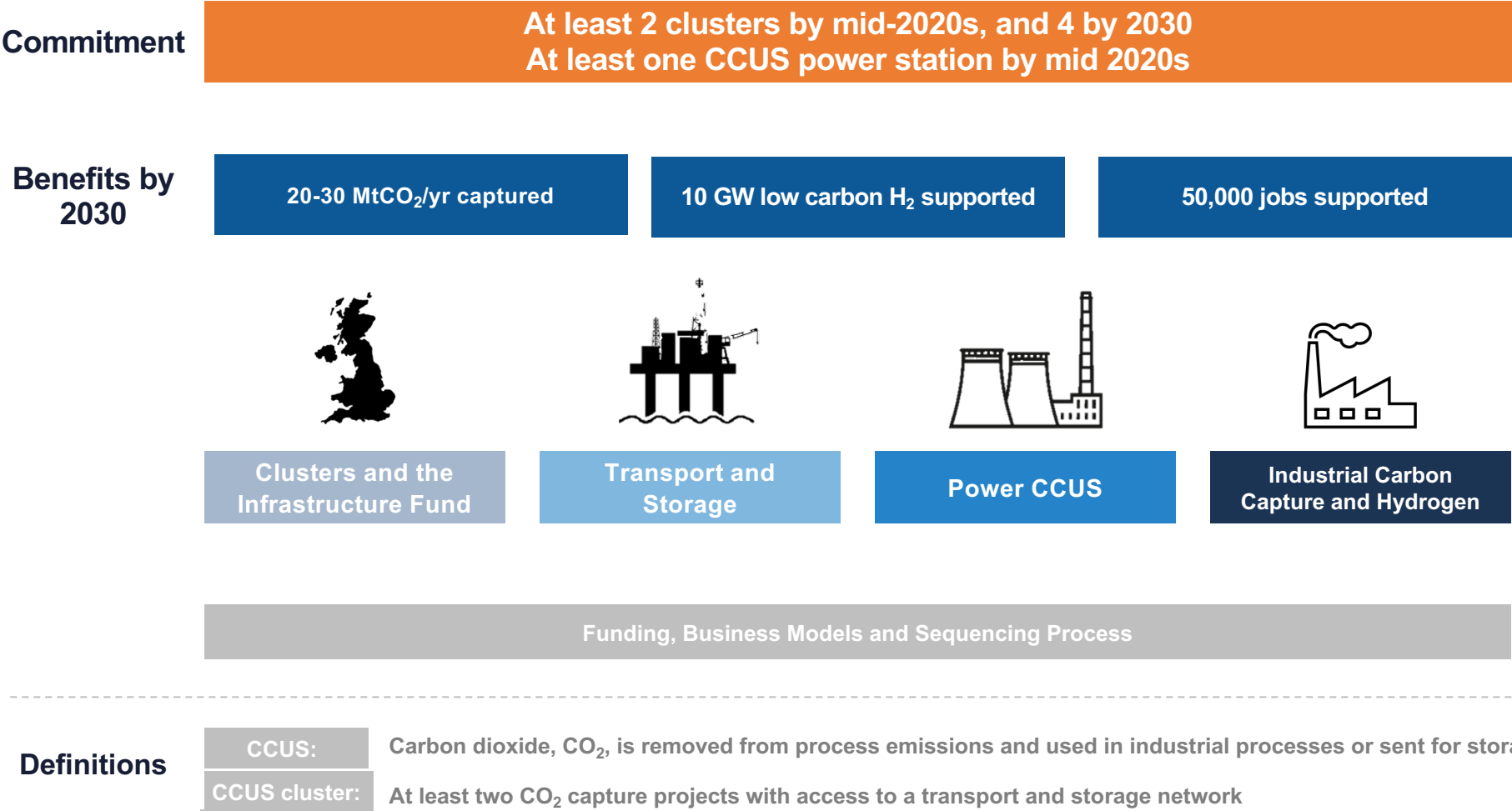
- Track-1 clusters
- Reserve Track-1 cluster
- Other industrial clusters

There are other areas of industrial activity across the UK with an interest in developing CCUS



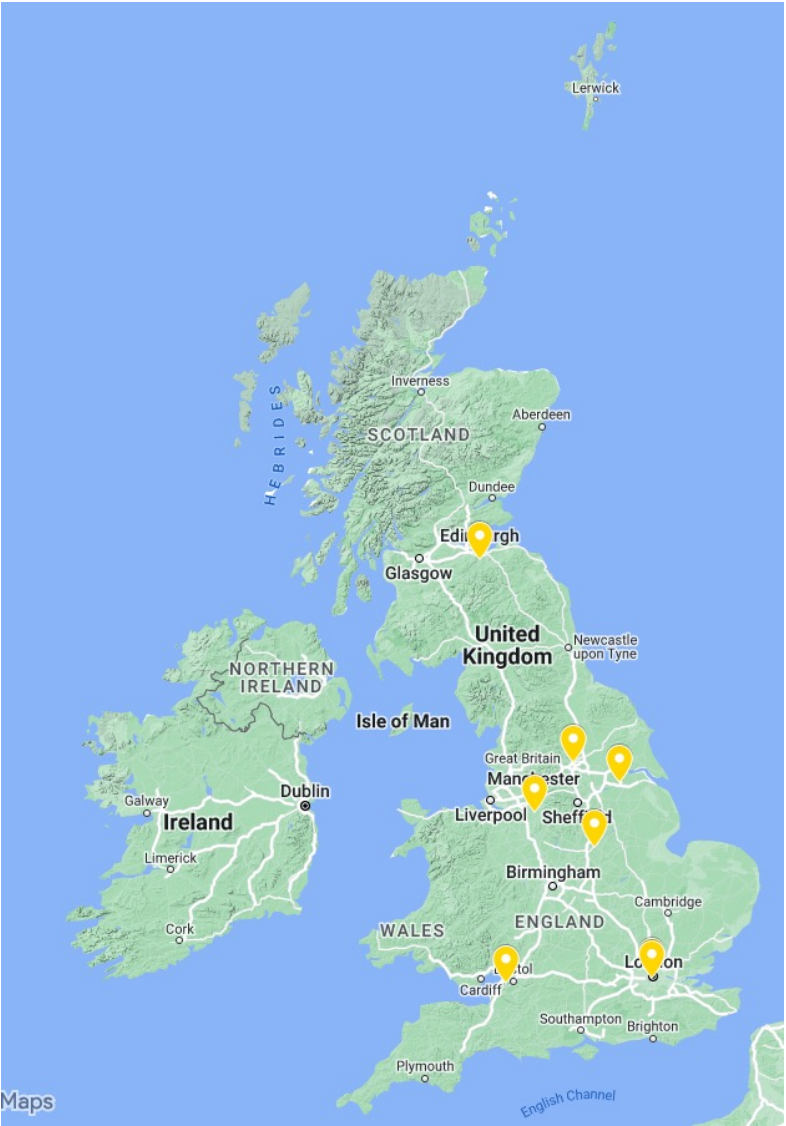
Map of major UK industrial cluster emissions from large point sources (2019).
Source: NAEI 2019 data. Does not capture non-ETS emissions in a cluster.

The UK's Domestic Carbon Capture Usage and Storage (CCUS) programme

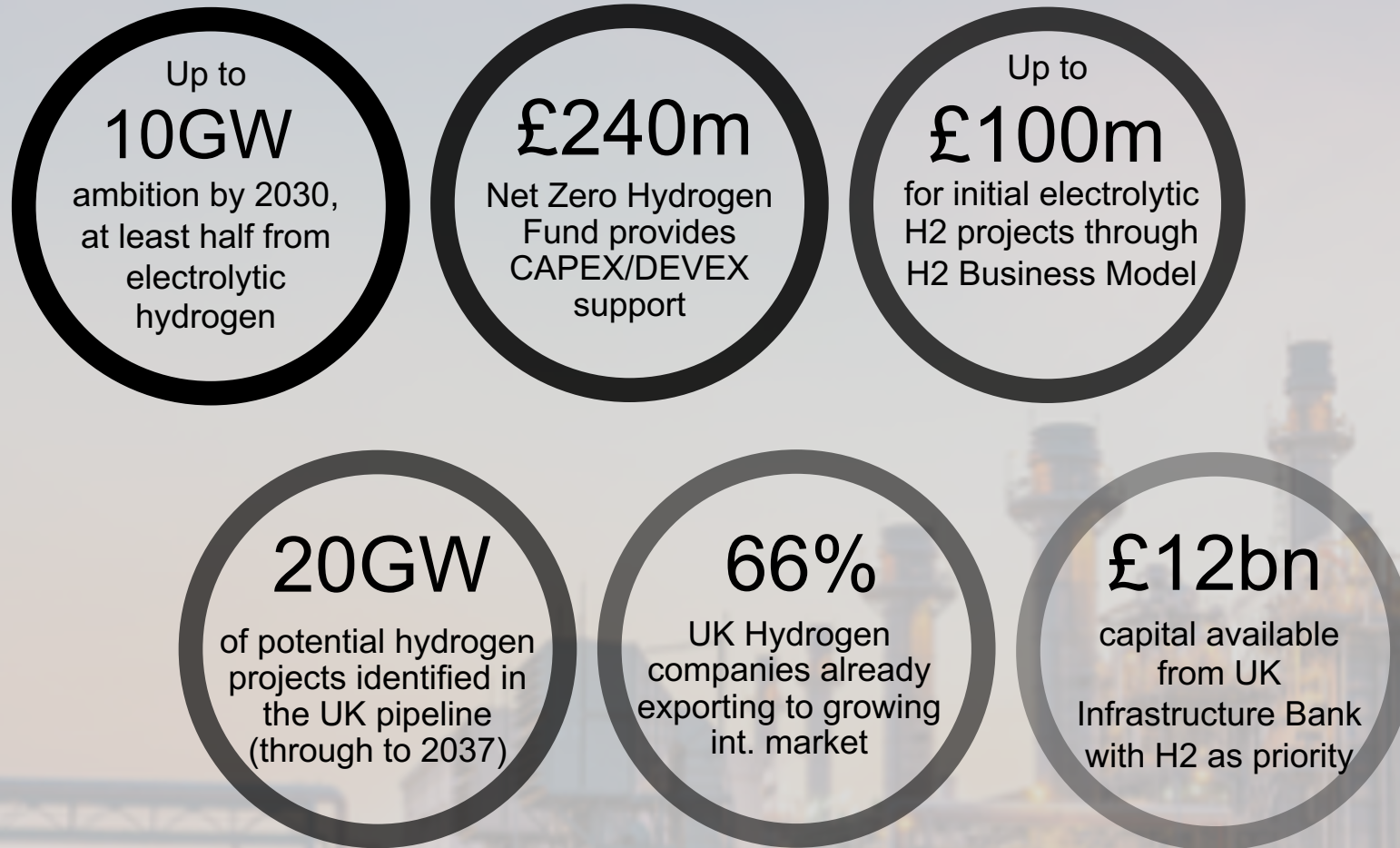


CCUS Innovation 2.0: Call 1 Selected Projects

Lead Project Partner	Project Title	Grant Value	Category
Lot 1: Ingenza	BioReact Carbon Formate - Continuous Capture of Industrial CO2 and its Utilisation as a Platform Chemical Feedstock	£443,632.88	Usage
Lot 1: Keadby Generation	FOCUSS - Flexibly-Operated Capture using Solvent Storage	£515,878.00	Capture
Lot 1: Carbon Clean Solutions	Parametric testing of Novel Non-Aqueous Solvent technology with Rotating Packed Beds.	£607,126.57	Capture
Lot 1: Imperial College	StrataTrapper: Commercialising breakthrough research on accurate reservoir simulation for subsurface CO2 storage	£959,662.00	Storage
Lot 1: Econic Technologies	Turning waste carbon dioxide into value for the surfactants industry	£1,000,000.00	Usage
Lot 2: C-Capture	XLR8 CCS Accelerating the deployment of a low cost carbon capture solution for hard to abate industries	£1,723,101.02	Capture
Lot 2: Baker Hughes	Electrified Subsea System for offshore CO2 storage	£2,122,698.59	Storage
Lot 2: Deep Branch Biotechnology	Deep Blue C	£4,827,394.93	Usage



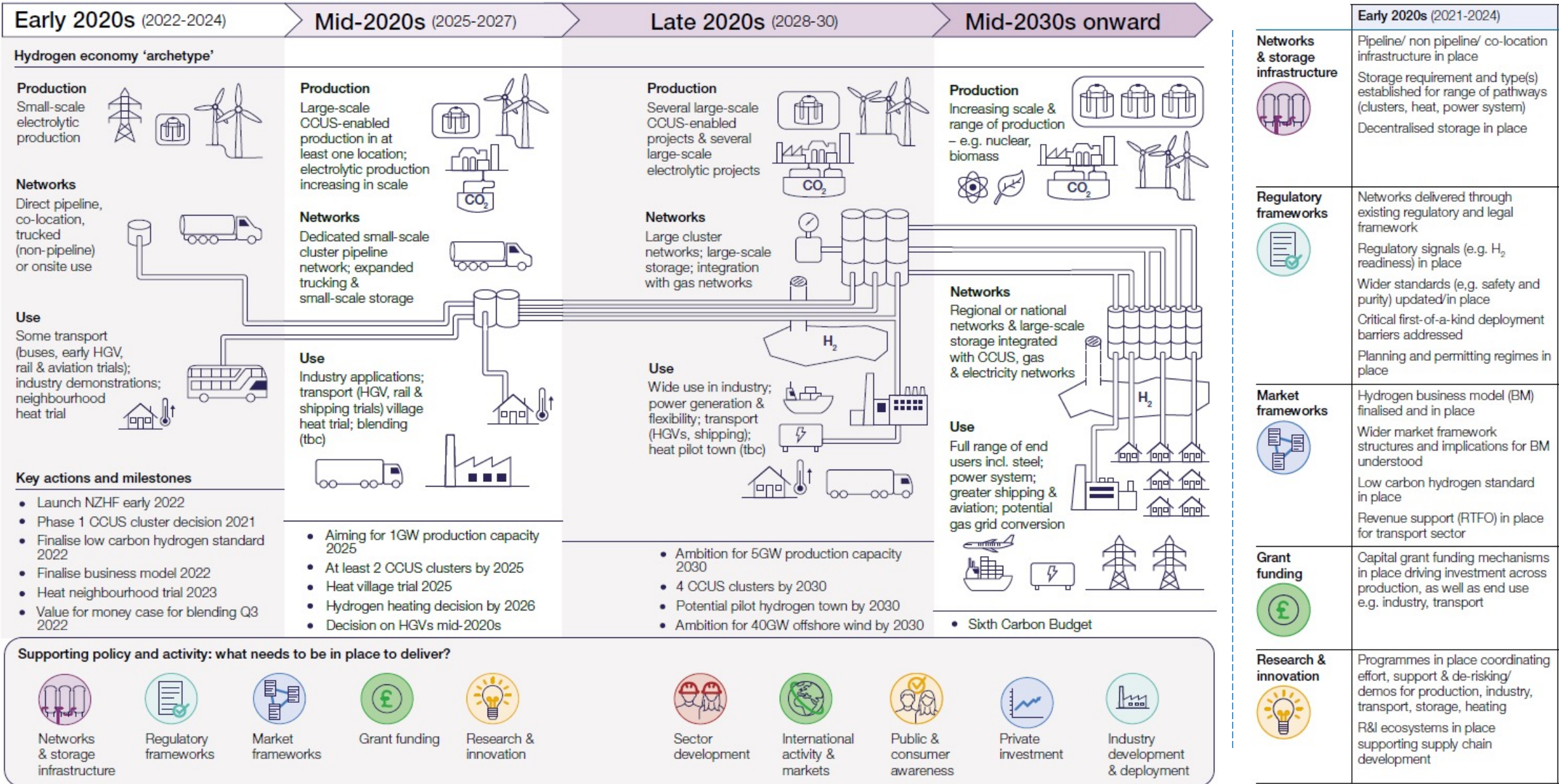
Why invest in UK hydrogen?



Opportunities in an advanced & growing sector:

- **Revenue support:** Hydrogen Business Model focusing initially on electrolytic & CCUS-enabled hydrogen production
- **Allocation rounds:** commitment to allocate business model support in 2023 and 2024. Ambition to subsequently run yearly electrolytic allocation rounds
- **Regulatory environment:** a new Low Carbon Hydrogen Standard
- **Existing natural assets and expertise:** salt caverns, depleted oil & gas fields and gas pipeline infrastructure can be redeployed
- **Projects under development:** Over a dozen large-scale hydrogen projects ongoing or pending (e.g. Acorn, Gigastack, H21), two CCUS clusters under development
- **Leading UK companies:** 196 companies working on hydrogen fuel cell technologies in the UK
- **Global player:** UK consistently in top ten countries globally for hydrogen technology patent rates

UK hydrogen economy roadmap: government & industry taking a whole-system approach



There is a strong pipeline of projects across the UK

Scotland

1. Fife Hydrogen Hub
2. Acorn Hydrogen
3. BEIS & Ofgem: H100 Heat Trial
4. CNES
5. EMEC
6. ERM (Dolphyn)
7. ERM (Salamander)
8. H2 Green
9. Hy2GO
10. Cromarty Firth Green Hydrogen
11. Repsol Sinopec
12. Scottish Power (Whitelee)
13. Shetlands Island Council
14. Octopus Hydrogen
15. Kittybrewster HRS
16. Aberdeen Hydrogen Hub
17. BayoTech

North West England

18. Hynet: HPP
19. Trafford Green /Carlton Power
20. Hynet: Phase 2 & 3 pipeline (Cadent)
21. Hynet: Salt Cavern Storage (INOVYN)
22. Octopus Hydrogen

Northern Ireland

23. Skuunaq
24. GenComm/Belfast Met
25. NI Water

Wales

26. RWE Pembroke
27. Mentor Mon
28. Octopus Hydrogen
29. Protium Magor



North East England

30. BP: CCUS enabled hydrogen and green hydrogen
31. Uniper Humber Hub
32. H2NorthEast
33. H2 to Humber Saltend
34. Aldbrough storage (SSE)
35. Protium
36. EDF Tees Green
37. ECC pipeline (Nat Grid Ventures)
38. Project Union (Nat Grid Gas)
39. East Coast Hydrogen (NGN)
40. Tees Valley Transport Hub
41. Octopus Hydrogen
42. Anonymized
43. Project Mayflower

East England

50. Sizewell
51. Octopus Hydrogen
52. Lowestoft Port

South East England

53. Ryze
54. Shoreham Port Green Hydrogen Production
55. Viridor
56. Cavendish

South West England

57. Bristol Airport
58. Canford Renewable Energy
59. Octopus Hydrogen

Yorkshire & Humber

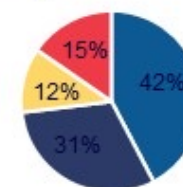
44. Yorkshire Energy Park
45. Oyster Project
46. Gigastack

East & West Midlands

47. Tyseley Energy Park
48. Shropshire Council
49. Octopus Hydrogen /MIRA Technology Park

- CCUS enabled projects
- Electrolytic projects
- Storage & Distribution

Electrolytic end use (indicative)



- Mobility (Road, NRMM, Aviation, Maritime)
- Industry
- Power
- Heat

Our 2035 Delivery Plan

