

Technology & innovation pathways for delivering the UK's upstream transition

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**Net Zero
Technology
Centre**

Technology Driving Transition



**Oil &
Gas**



**Offshore
Wind**



Hydrogen



CCS



Supply Chain



33

Commercialised
technologies

26,500

Industry guests and
visitors to the centre

45

Start-ups
accelerated

1,450+

Technologies
screened

306

Approved
projects

120+

Field trials complete, planned or
underway



64

Partnerships



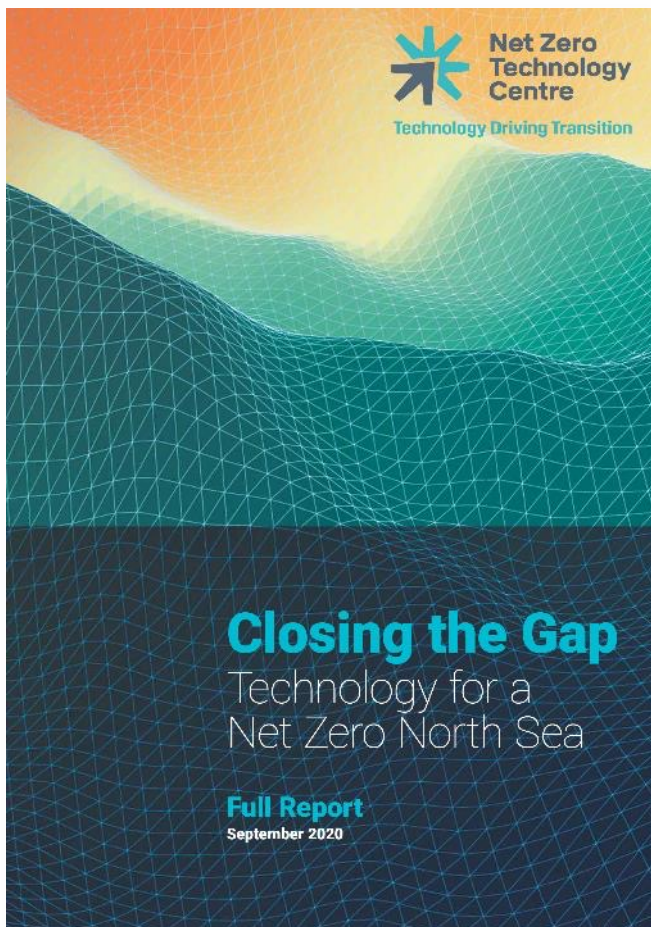
£192Mn

Invested with industry

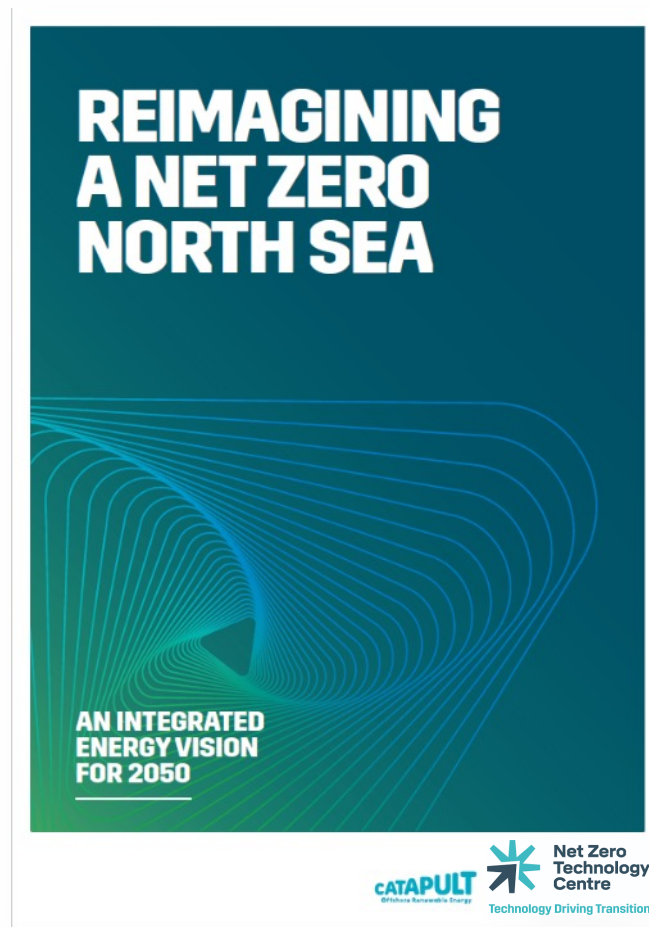


£121Mn

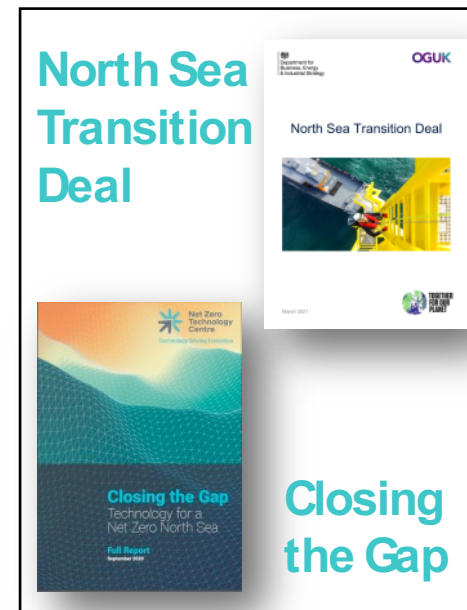
Leveraged from industry partners



<https://www.netzerotc.com/news-events/newsroom/news/2020/closing-the-gap-realising-a-net-zero-north-sea/>



<https://www.netzerotc.com/reports-publications/reimagining-a-net-zero-north-sea/>

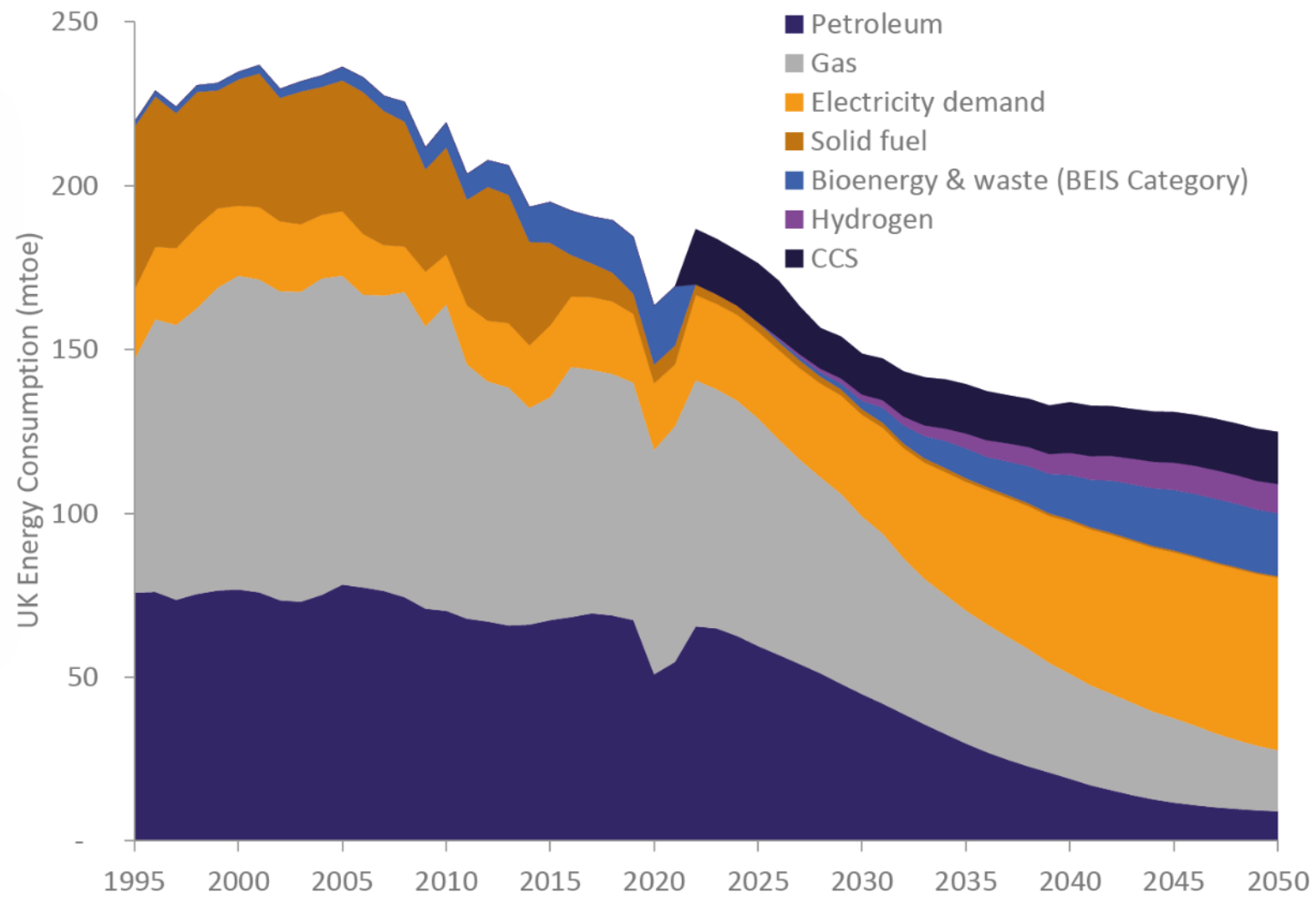


In depth UK wide mapping of key technologies and innovation gaps required to deliver NSTD and NZ ambitions.





'CCC Net Zero Balanced Pathway'

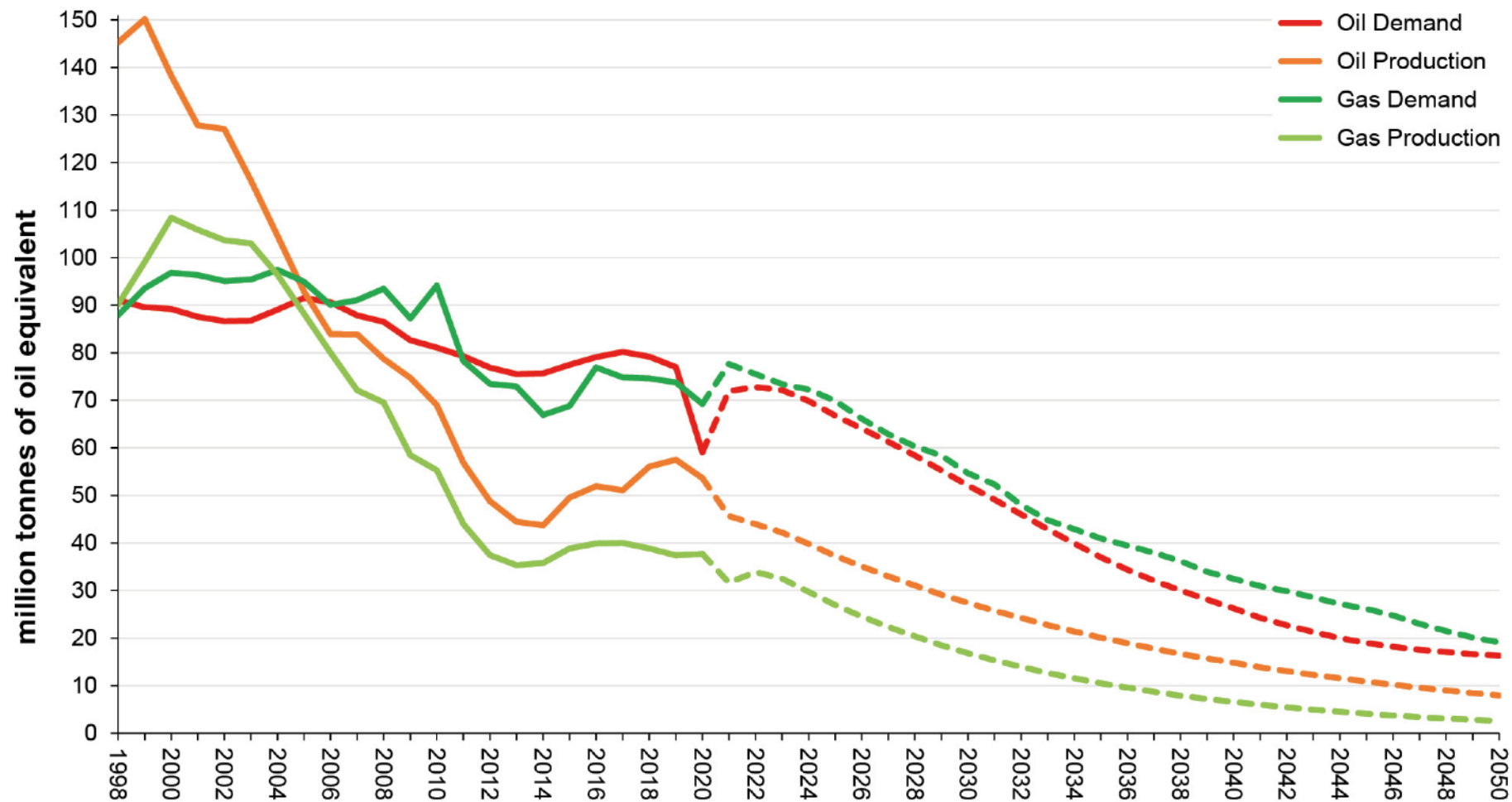




Helping meet demand

Oil and gas meet 75% of UK energy requirements and all forecasts point to them being needed for heat, power and transportation in future. The UK is expected to be a net importer of both out to 2050.

CCC Balanced Net Zero Pathway demand and our production projections





Oil & Gas

Off. Wind

Hydrogen

CCS



Annual
Revenue

2020

£15Bn

2

£17Bn

2030

£16Bn

£5Bn

2

2

£25Bn

2040

£12Bn

£7Bn

£12Bn

2

£33Bn

2050

£9Bn

£11Bn

£14Bn

£4Bn

£38Bn



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Closing the Gap

Technology for a
Net Zero North Sea

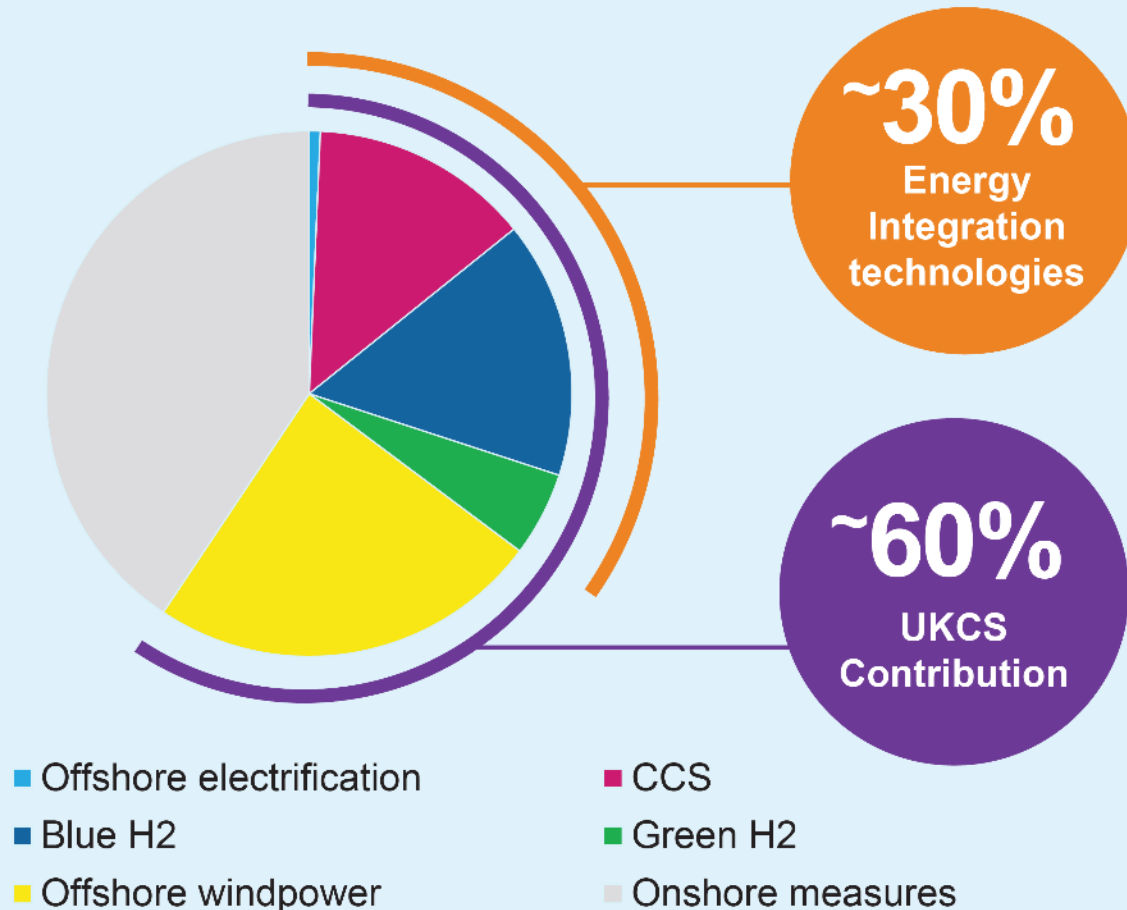
Full Report
September 2020

Offshore contribution to UK net zero



Our Energy Integration Report found that the UKCS could support around 60% of the UK's decarbonisation requirements, through a mix of platform electrification, CCS, offshore wind and hydrogen.

2050 net zero emission abatement from 2018 baseline



North Sea
Transition
Authority



Department for
Business, Energy
& Industrial Strategy



Crown Estate
Scotland
Oighreachd a' Chrùin Alba

ofgem

THE CROWN
ESTATE

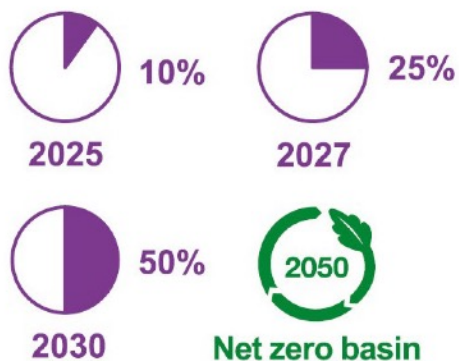


North Sea Transition Deal

Agreed in March 2021, the North Sea Transition Deal provides investment to help us move from fossil-fuel dependency to a low-carbon economy in a managed, orderly way.

- Government and industry **commitment to transition**
- **First of a kind** for G7 country
- Future licensing **climate checkpoint**
- **Quid pro quo**

Industry commitment to reducing upstream GHG emissions



NSTD: £16bn investment committed



£10bn for hydrogen

£3bn for electrification



£3bn for CCS

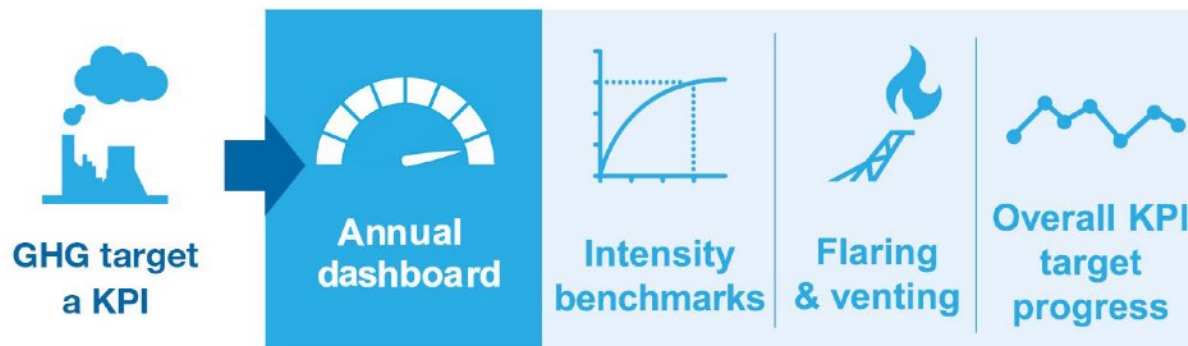


50% local content



Supply Chain Champion

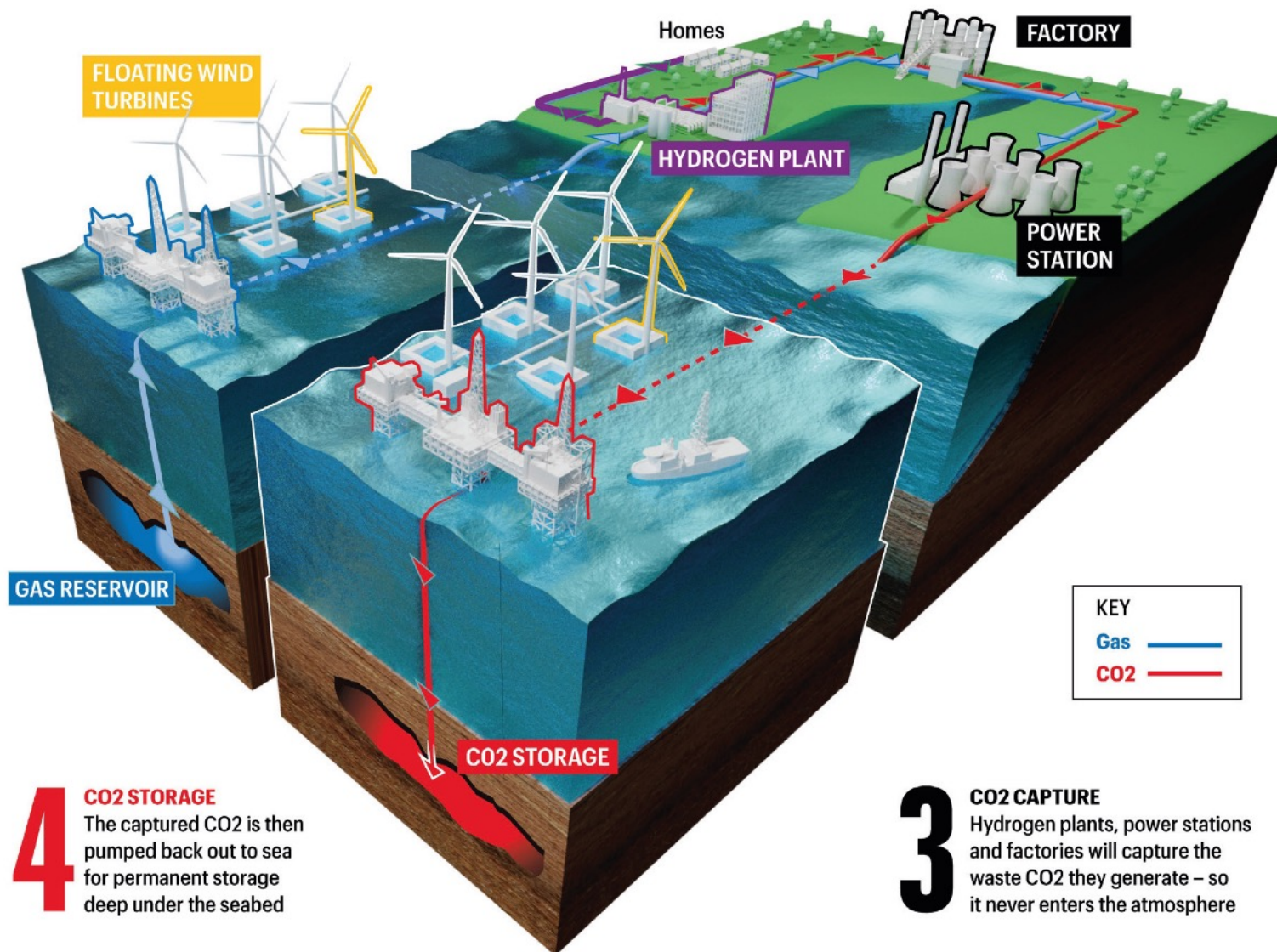
We track and monitor progress





1 ELECTRIFICATION
Floating windfarms will power the rigs used to extract oil and gas and bury CO2

2 HYDROGEN PRODUCTION
Natural gas is pumped ashore and broken down into hydrogen, for heating homes or powering vehicles, plus waste CO2



4 CO2 STORAGE
The captured CO2 is then pumped back out to sea for permanent storage deep under the seabed

3 CO2 CAPTURE
Hydrogen plants, power stations and factories will capture the waste CO2 they generate – so it never enters the atmosphere

BUSINESS
OUTLOOK
2022

œuk OFFSHORE
ENERGIES UK

The comprehensive outlook for
the UK's offshore energy resources



Department for
Business, Energy
& Industrial Strateg

Notice

Floating Offshore Wind Demonstration Programme: details of successful projects

Published 25 January 2022



Department for
Business, Energy
& Industrial Strategy

UK Innovation Strategy

Leading the future by creating it

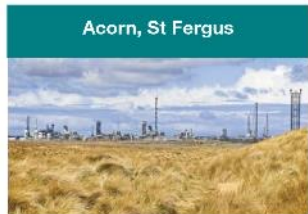
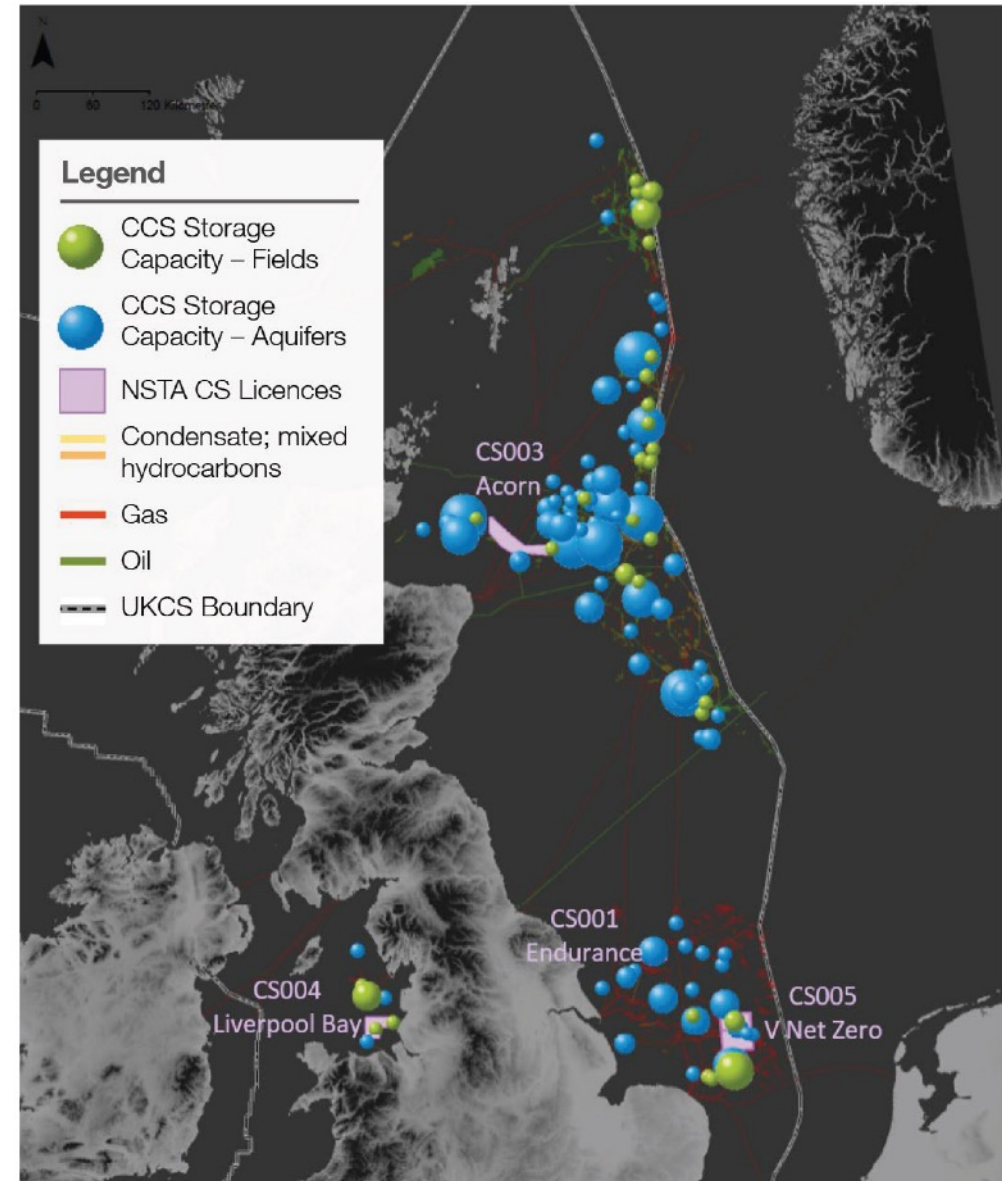
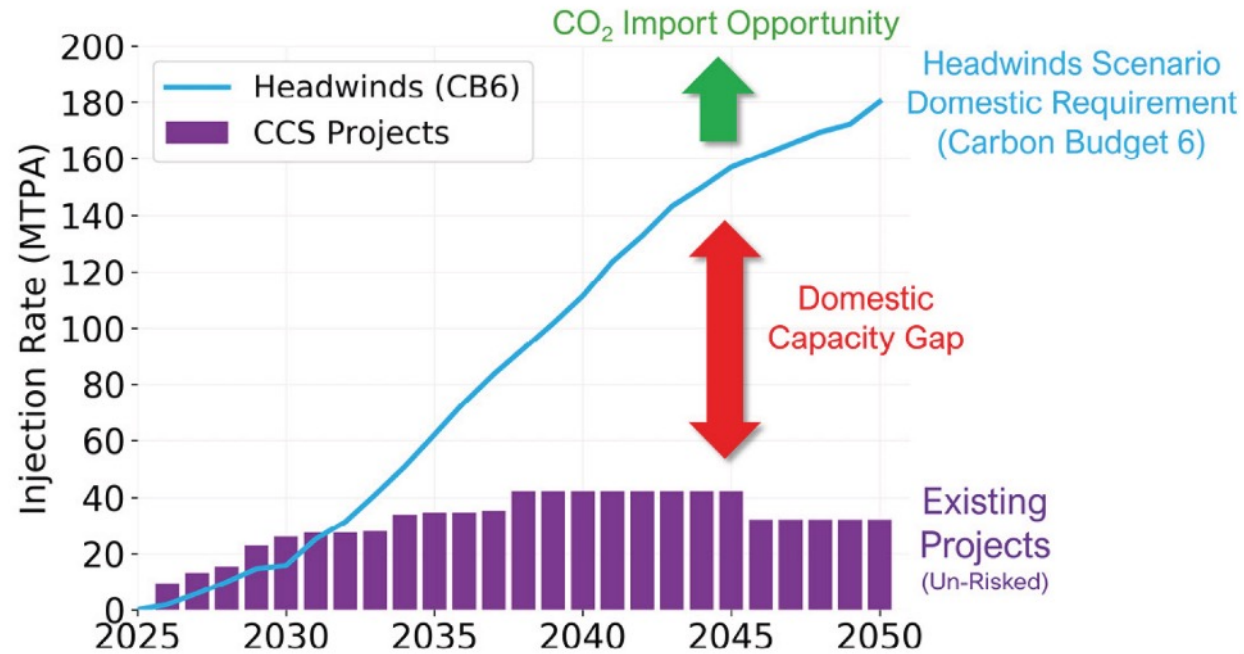
**Case Studies: Achieving Net Zero
and the Axis Energy Projects and
Future Offshore Wind**

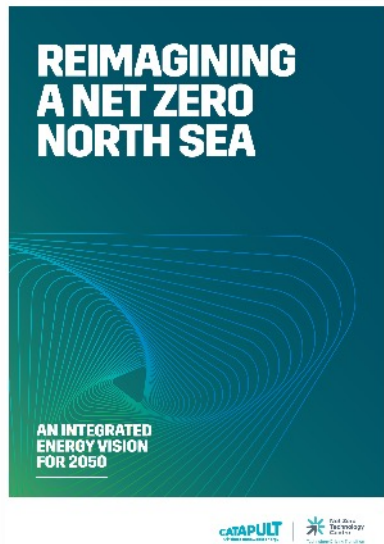


Floating Offshore Wind Test and Demonstration



CCS – the time is now





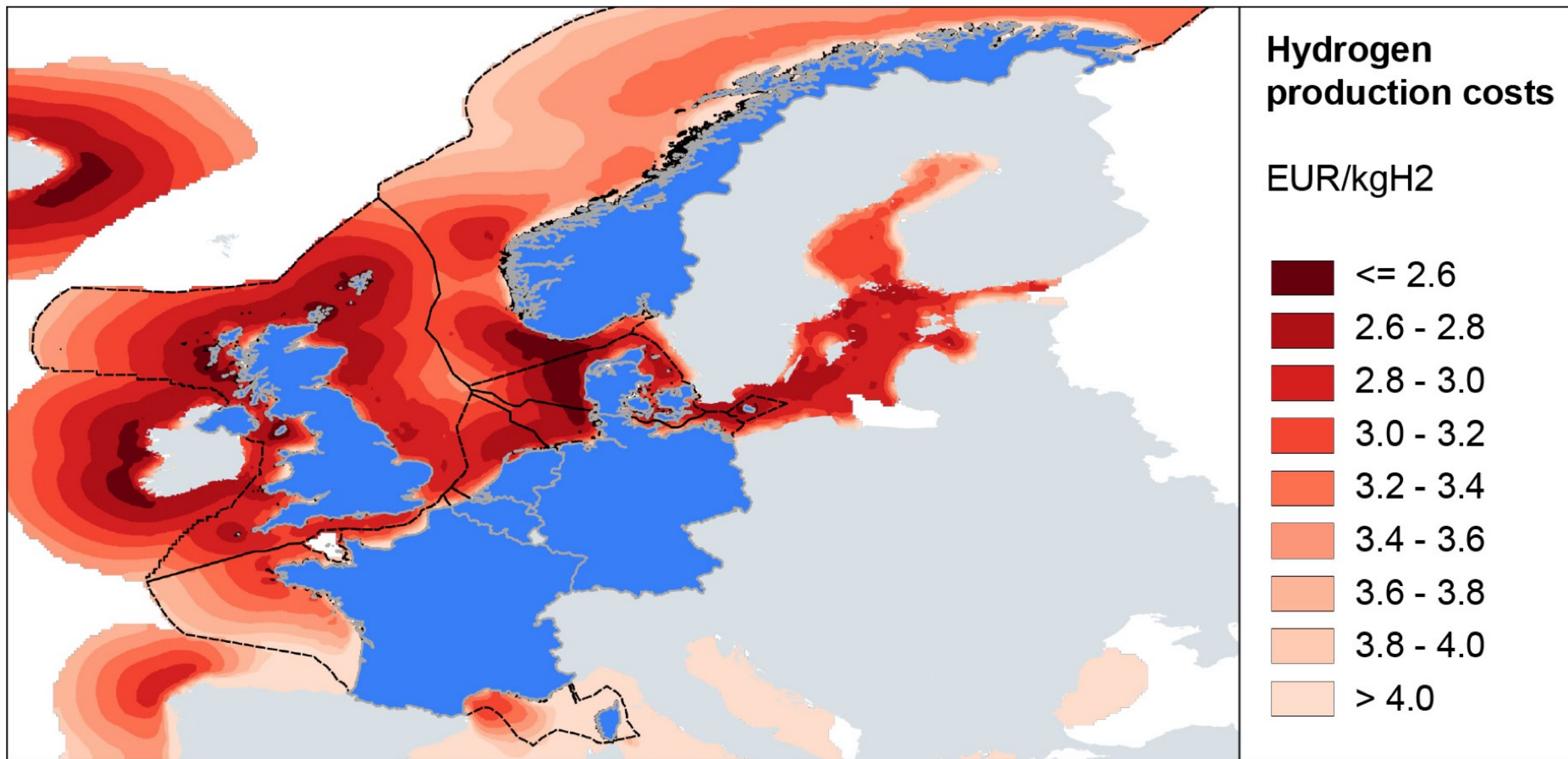
Reimagining a Net Zero North Sea

An Integrated Energy Vision for 2050

	TODAY 2020	EMERGING 2050	PROGRESSIVE 2050	TRANSFORMATIONAL 2050
Economy	£40Bn Total Economic Impact	£80Bn Total Economic Impact	£100Bn Total Economic Impact	£125Bn Total Economic Impact
Jobs	140,000	113,000	158,000	232,000
Offshore wind	32_{TWh}	289_{TWh}	481_{TWh}	720_{TWh}
Hydrogen	27_{TWh} 0_{TWh}	270_{TWh} 0_{TWh}	195_{TWh} 75_{TWh}	17_{TWh} 253_{TWh}



Hydrogen production costs from offshore wind in the Accelerated scenario, 2030



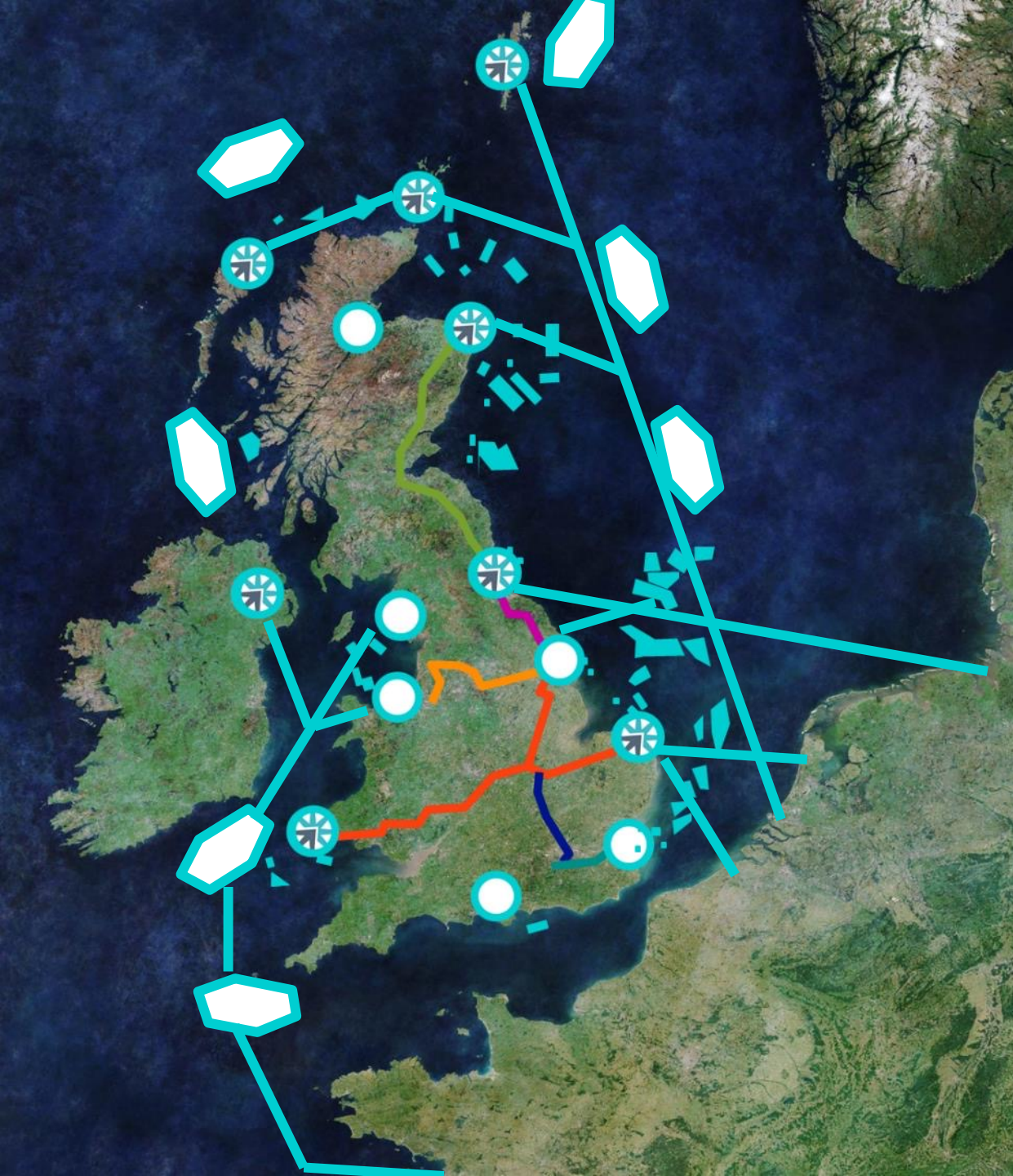
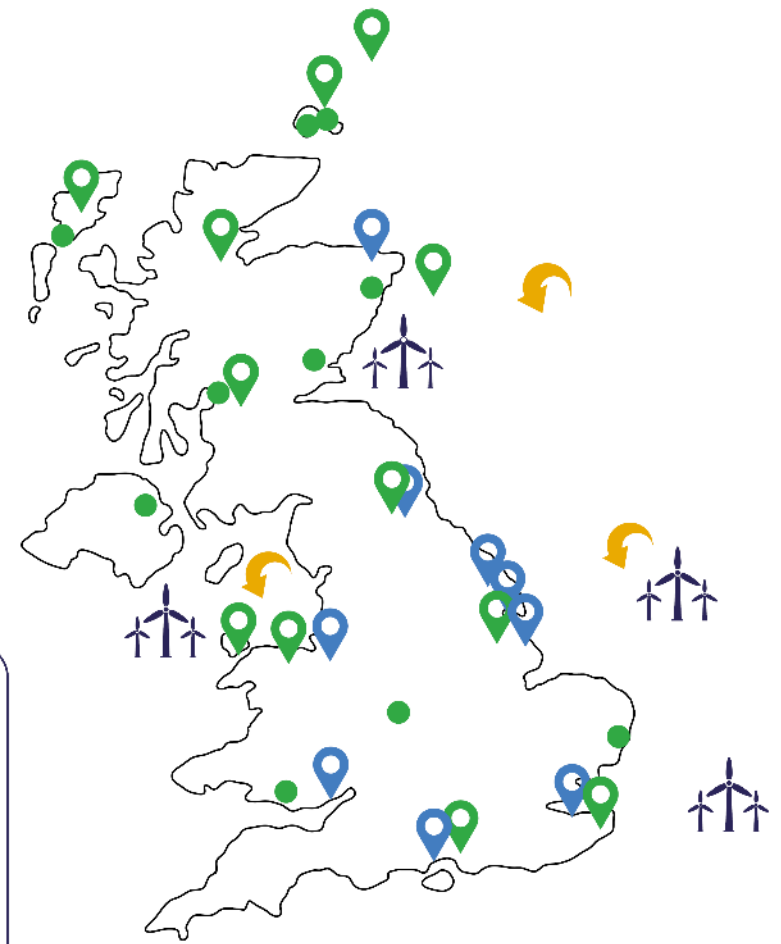


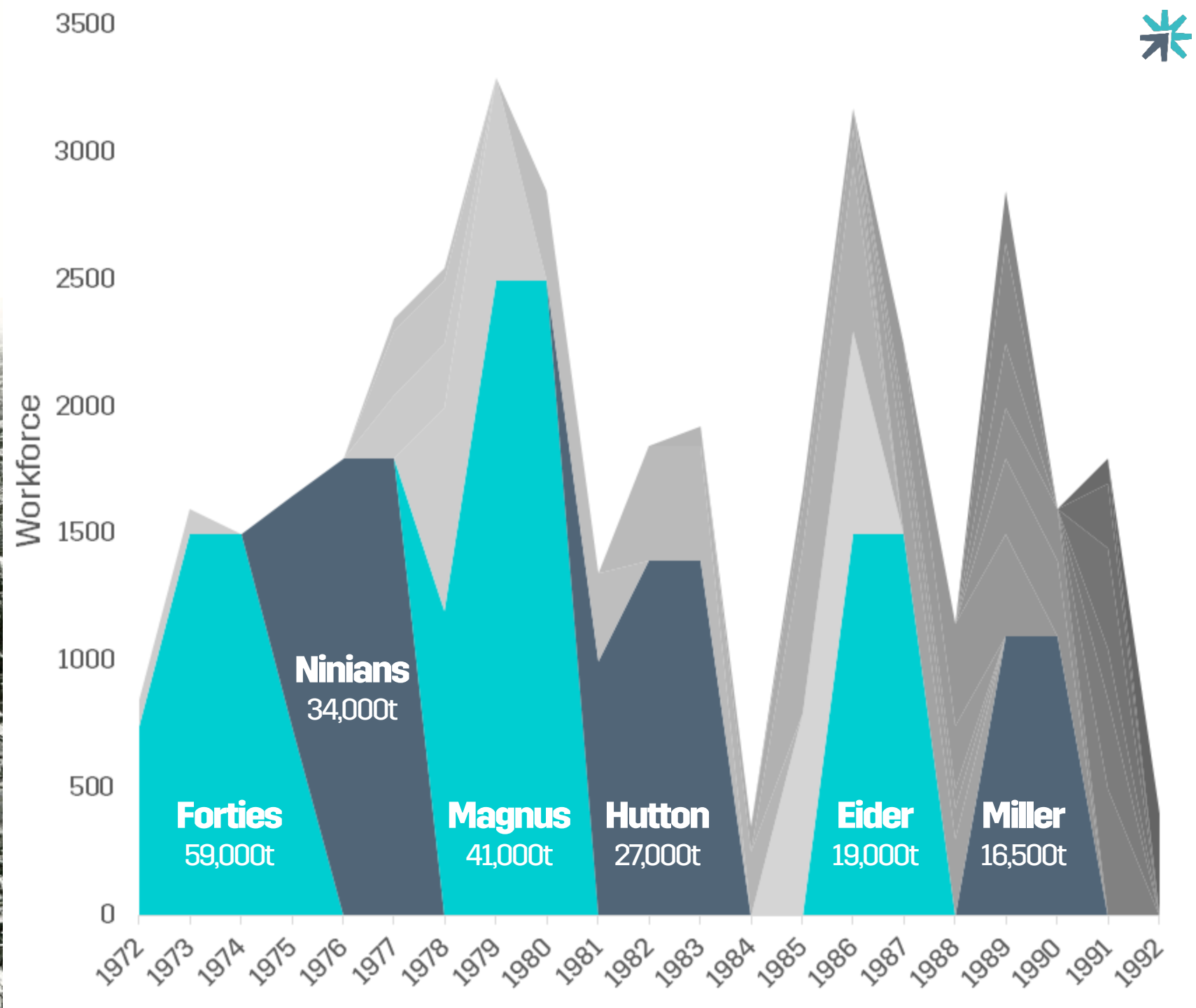
Figure 1.3: Proposed UK electrolytic and CCUS-enabled hydrogen production projects

Key

- Electrolytic production project (under 5MW)
- 📍 Electrolytic production project (over 5MW)
- 📍 CCUS enabled production project (100 MW+)
- ↪ CO₂ storage potential
- ⚙️ Offshore wind

Note: Includes plans and proposals for known projects that are in the public domain. Many more projects are under development in all parts of the UK. BEIS are continuing to gather intelligence on new projects as they emerge.







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