



Department for
Energy Security
& Net Zero

Technical assurance of a capture project participating in the UK CCUS programme

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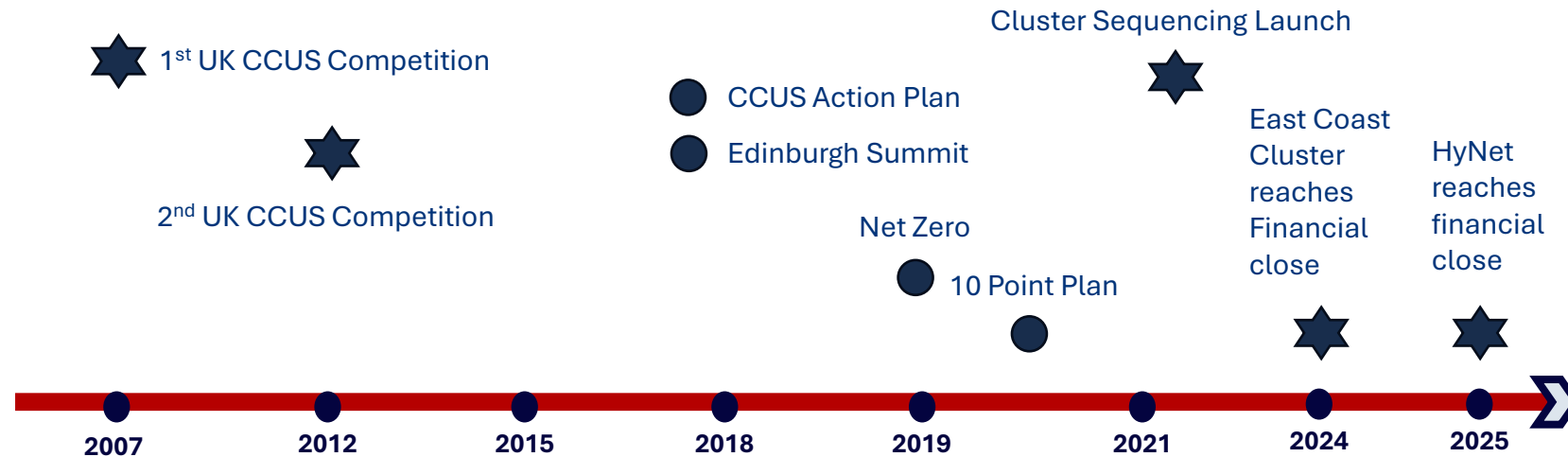
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UK cluster sequencing update



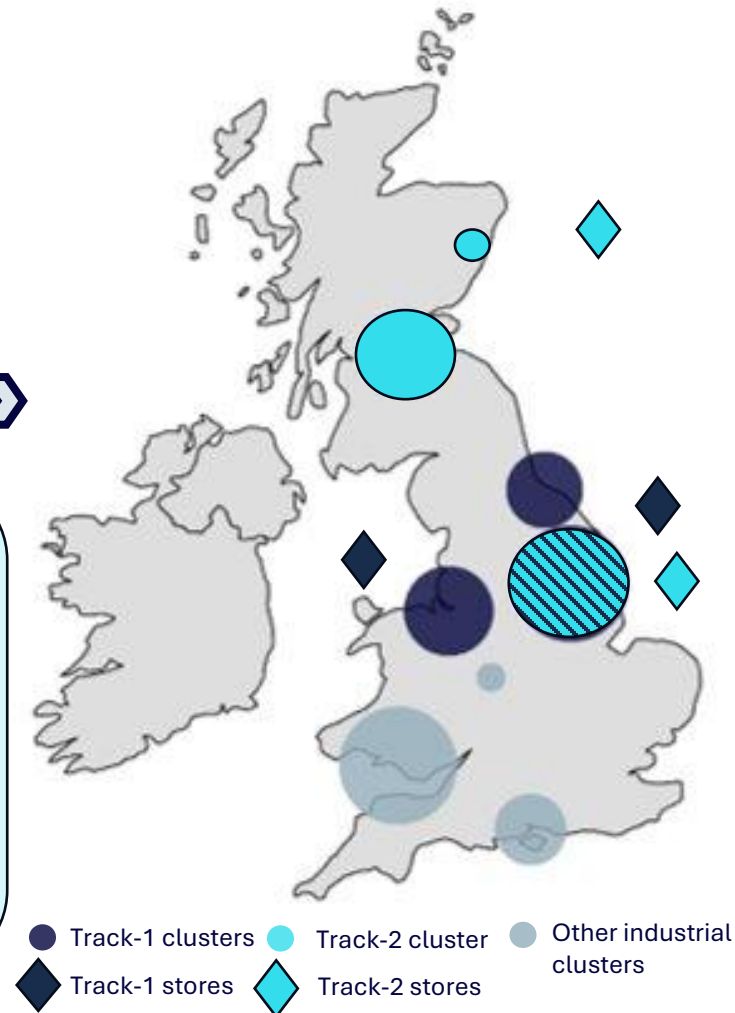
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UK cluster model – two decades of learning



Cluster sequencing

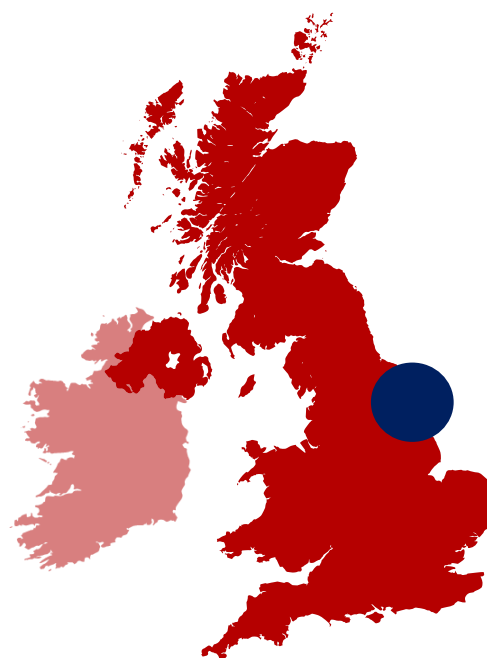
- Focus CCUS competition around **existing industrial clusters**
- One **transport and storage (T&S)** network and multiple **capture projects**
- Tailored **business models** for each sector to **divide the value chain**
- **Reduce risk for each individual project**
- Government takes on **cross-chain risk** and **matches projects with capacity**



East Coast Cluster reached FID in Dec 2024 with two projects

East Coast Cluster

*Northern Endurance Partnership (NEP) T&S operator
(FC Dec 2024)*



● Net Zero Teesside Power (FC Dec 2024)

● bpH2Teesside

Sectors

● Power

● Waste Industrial
Carbon Capture

● Industrial
Carbon Capture

● Hydrogen

● Greenhouse
Gas Removal



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HyNet cluster reached FID in Apr 2025; we have added expansion projects to the negotiations list

HyNet

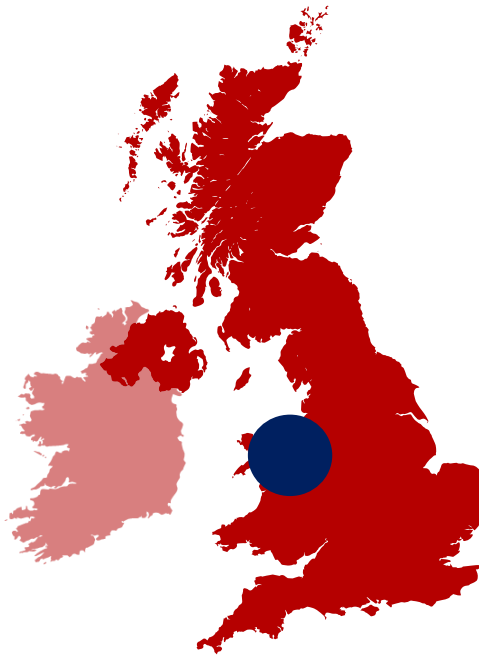
Liverpool Bay CCS T&S operator (FC Apr 2025)

Priority

- Connah's Quay Low Carbon Power, Uniper
- Hanson Padeswood Cement Works Carbon Capture and Storage Project, Heidelberg Materials
- Hydrogen Production Plant 1 (HPP1), EET Hydrogen
- Ince Bioenergy with Carbon Capture and Storage (InBECCS), Evero Energy
- Protos Energy Recovery Facility, Encyclis

Standby

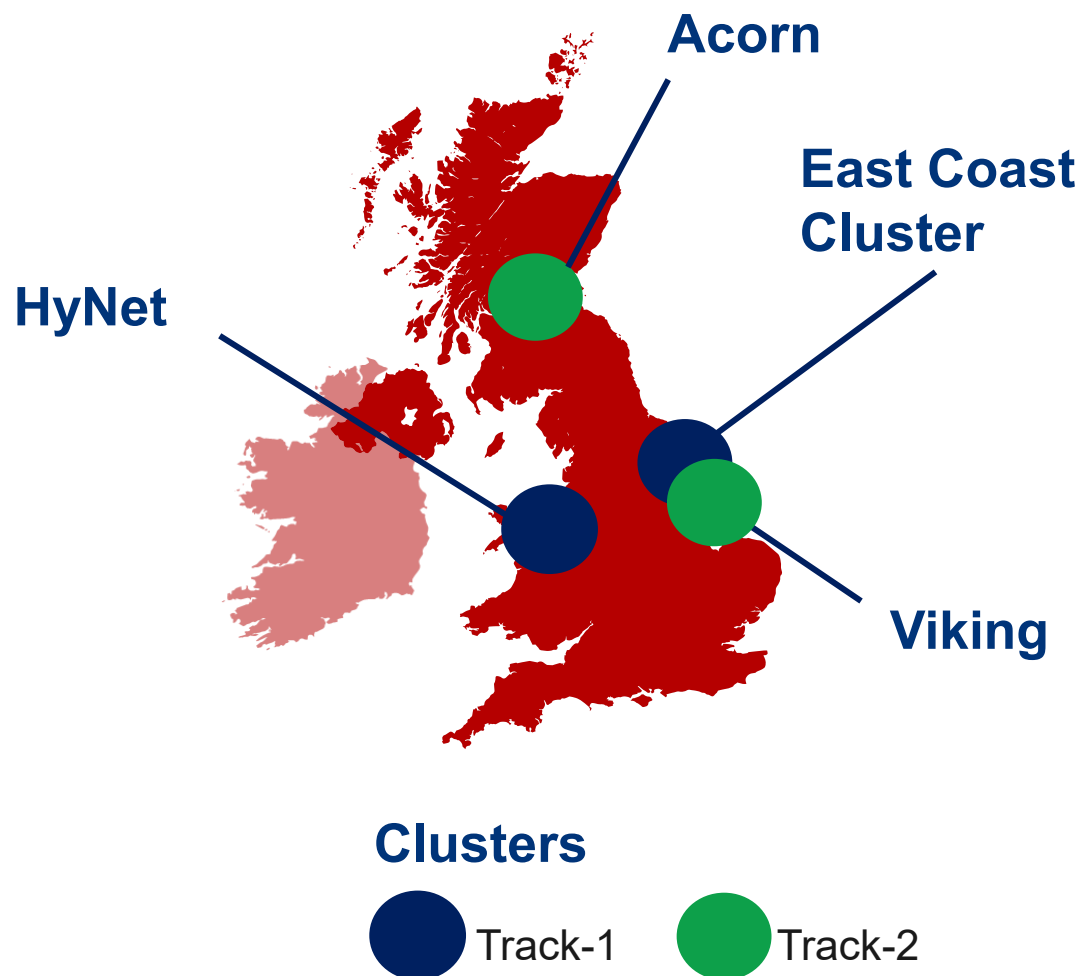
- Essar Energy Transition Industrial Carbon Capture (EET ICC), EET Fuels
- Hydrogen Production Plant 2 (HPP2), EET Hydrogen / Progressive Energy
- Parc Adfer Energy from Waste Industrial Carbon Capture Project, Enfinium Group Ltd
- Runcorn Carbon Capture Project, Viridor
- Silver Birch, Climeworks UK Ltd



Sectors

- Power
- Waste Industrial Carbon Capture
- Industrial Carbon Capture
- Hydrogen
- Greenhouse Gas Removal

Track 2: Acorn and Viking



In 2023, we set out our approach for Track-2, which aims to establish two further CCUS Clusters.

The government has announced its support for the Acorn and Viking clusters and is providing the development funding to advance their delivery, through the Spending Review from earlier this summer.

A final investment decision will be taken later this Parliament, subject to project readiness and affordability.

Project assessment process

Multi-stage assessment phase

STAGE 1: Project applications in each cluster

Assessing projects against eligibility criteria

Assessing projects against key evaluation criteria

Producing a shortlist for Stage 2

STAGE 2: Due diligence

‘Requests for information’ (RFIs) to projects for technical, cost and financial information

Monitoring continued adherence to eligibility criteria

Cluster integration check

STAGES 3&4: Negotiations and assurance

Bilateral discussions on commercial terms

Progressive technical and cost assurance through defined checkpoints

Agreement of technical and commercial terms in business model

Focus areas for technical assurance

Determining the continuing deliverability of projects through assessing (amongst others):



Schedule



Cost



Procurement



Planning & consenting



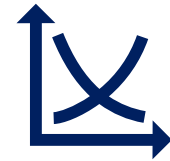
Engineering



Technology



Emissions reduction



Supply chain

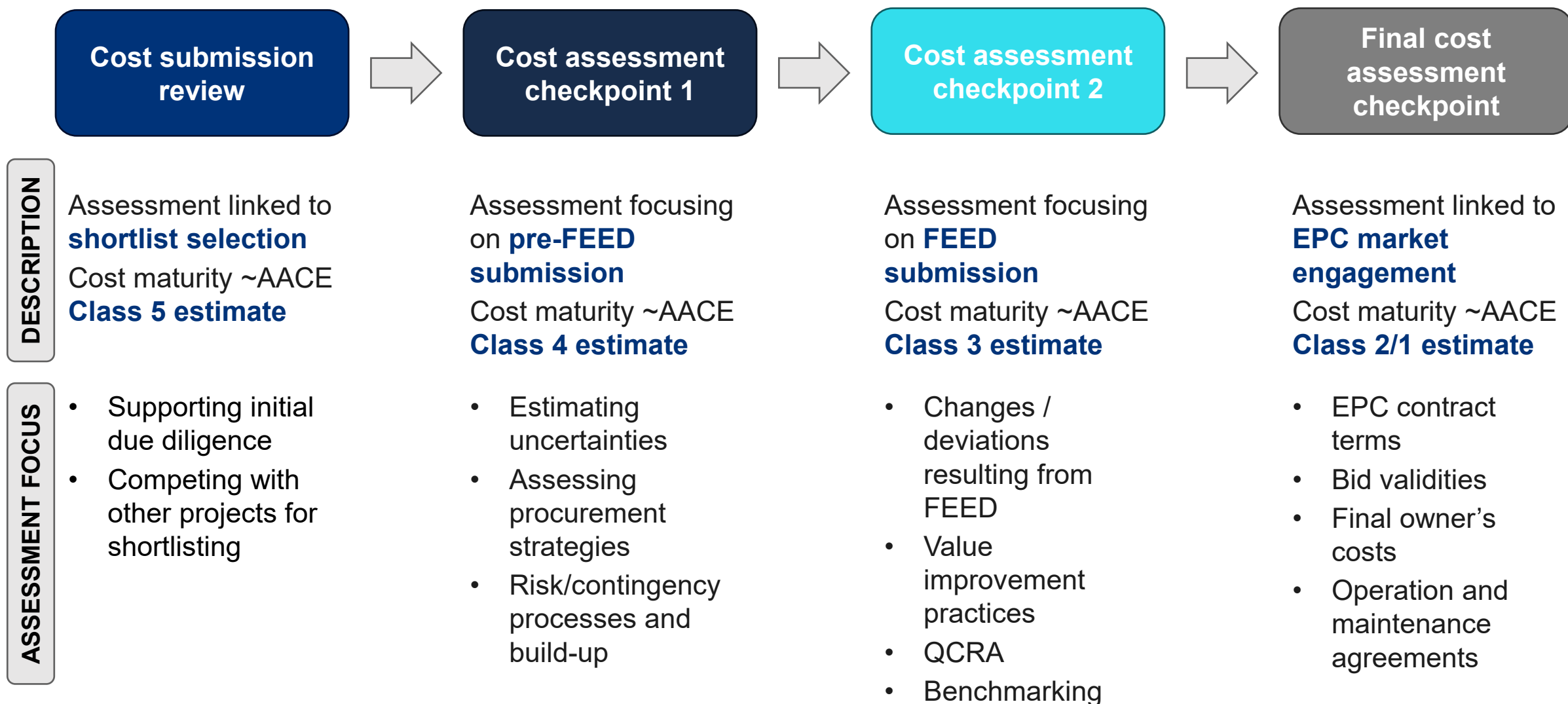


Offtakers



Risk management

Clearly defined checkpoints for assurance



Observations and learnings

Key emerging themes and learnings from Track 1 assurance activities:



Schedule

- Pre-FID: FEED alterations, finance, approvals
- Post-FID: QSRA quality



Technology

- Initial reticence in information sharing
- Some conservatism in performance guarantees



Cost

- Cost estimating uncertainty/large contingencies
- AACE estimates not always accurate
- Wider market uncertainty



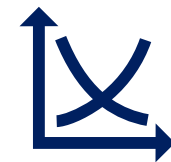
Engineering

- Diversity in design approaches
- Some design decisions locked in early
- Front-loading pre-FID vs more detailed later



Procurement

- Leveraging existing relationships
- Higher devex costs can lead to potential capex/opex savings



Supply chain

- Constraints/inflation apparent given clusters approach
- Pre-investment often required given timelines



Planning & consenting

- Underestimating timelines
- Early and continued engagement is key



Risk management

- EPC premia to manage risk
- Detailed cross-chain risk discussions with T&S



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Thank you