



North Sea  
Transition  
Authority

# Developing regulation for an effective North Sea transition

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Westminster Energy Forum

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# NSTA – Who we are and what we do



We regulate and influence the oil, gas, offshore hydrogen and carbon storage industries.

We help **drive North Sea energy transition**, realising the significant potential of the UK Continental Shelf as a critical energy and carbon abatement resource. We hold industry to account on their commitment to **reducing upstream emissions by a minimum of 50% by 2030**.

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## ENERGY SECURITY



Helping meet UK energy demand

Oil and gas licensing and stewardship

## EMISSIONS REDUCTION



Regulating for emissions reductions

Driving electrification and ensuring zero routine flaring

## ACCELERATING THE TRANSITION



Carbon storage licensing and stewardship

Promoting energy integration  
Providing open data access

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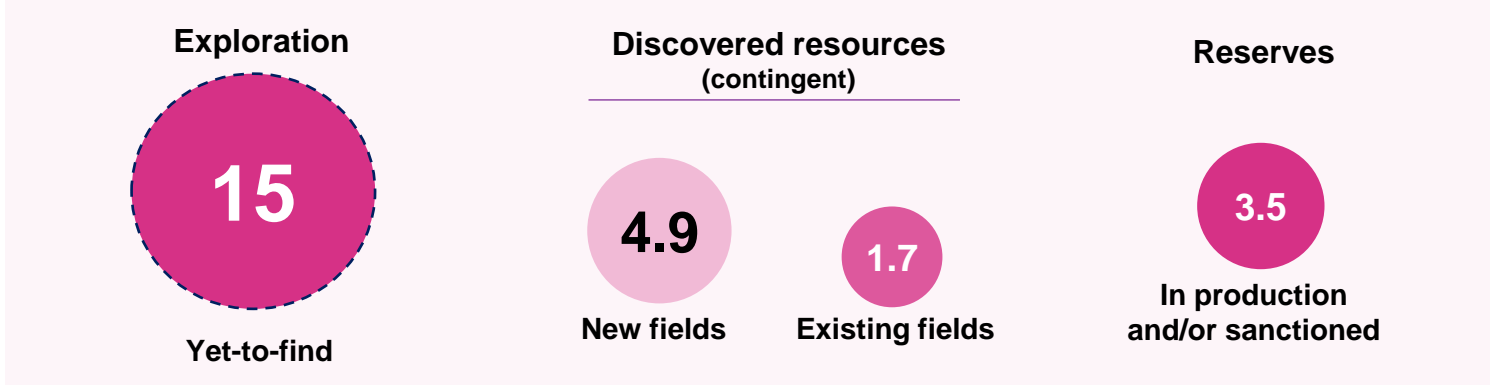
We aim to be an **integrating force in the UKCS**, helping realise its **full economic potential**.

We champion **the supply chain** and **job creation** across the UK.

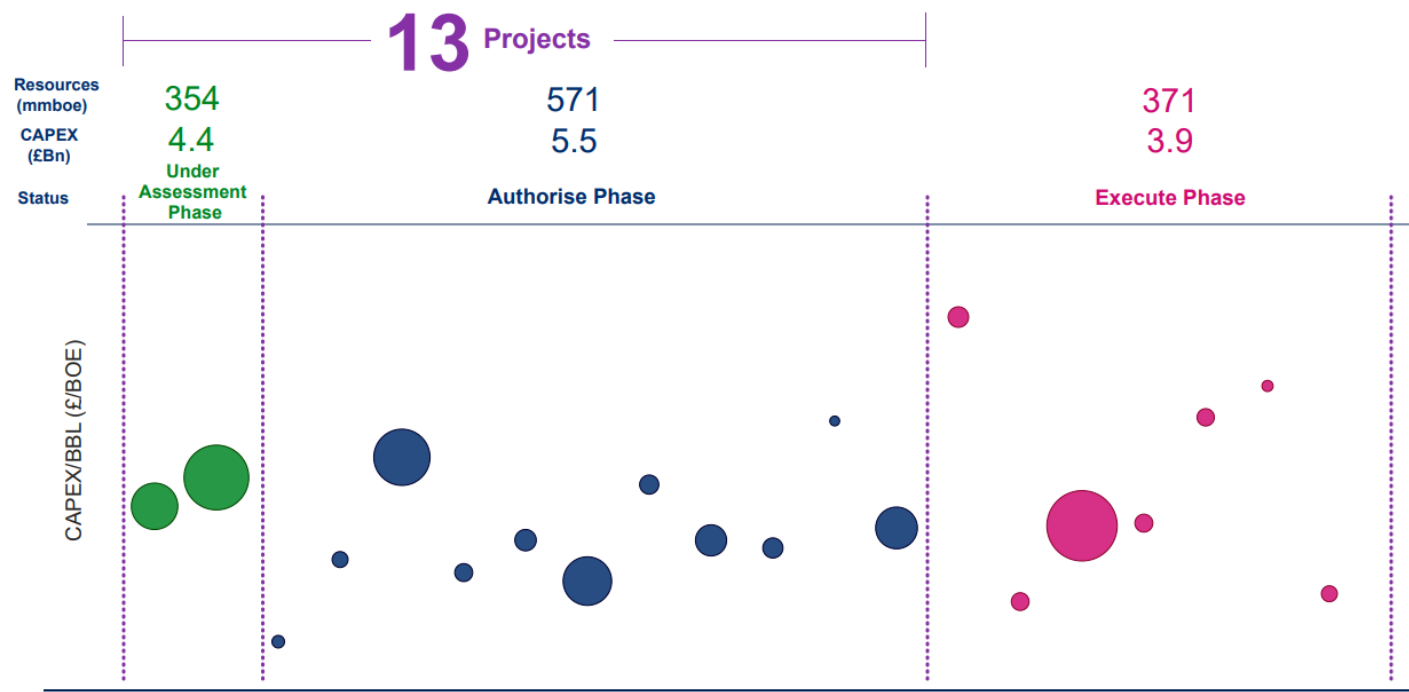
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# Energy Security – Hydrocarbon opportunities

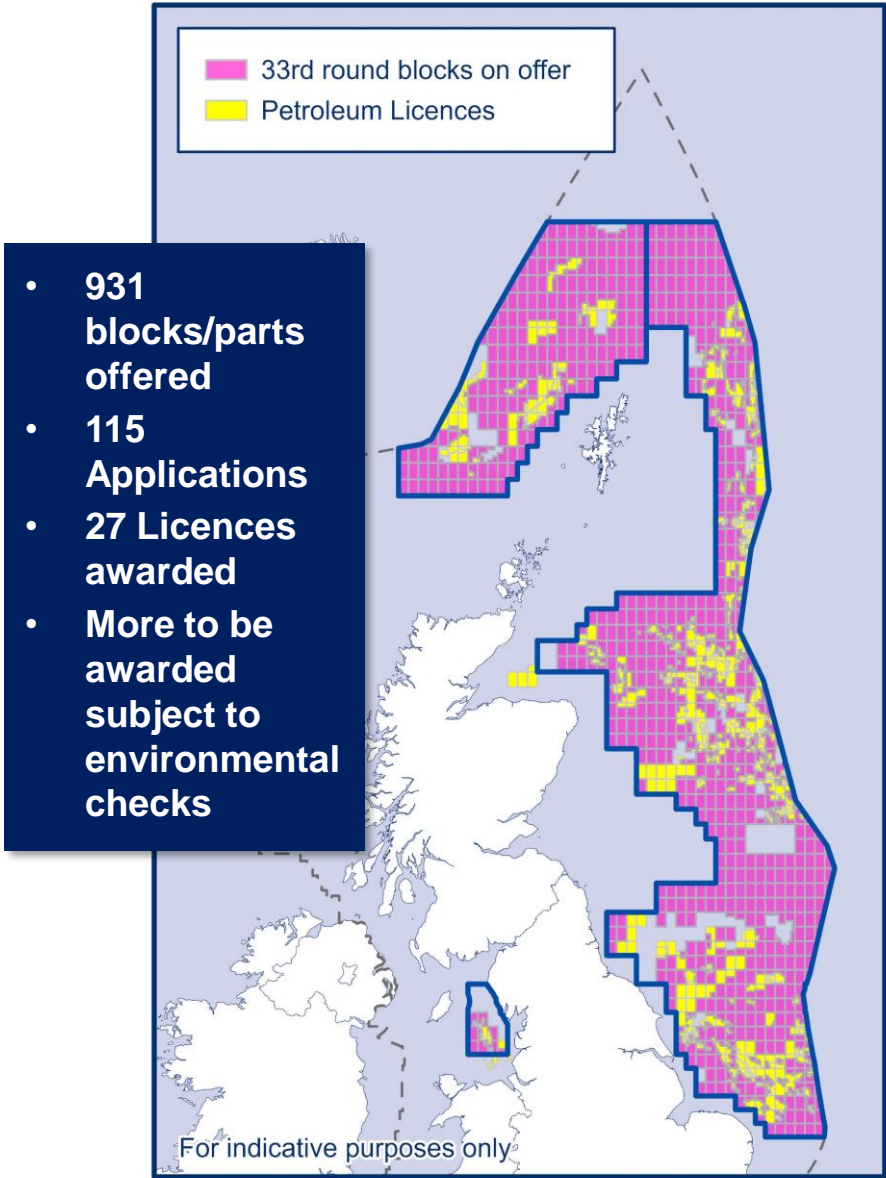
## Resource & Reserves (P50, bnboe)



## Field development projects

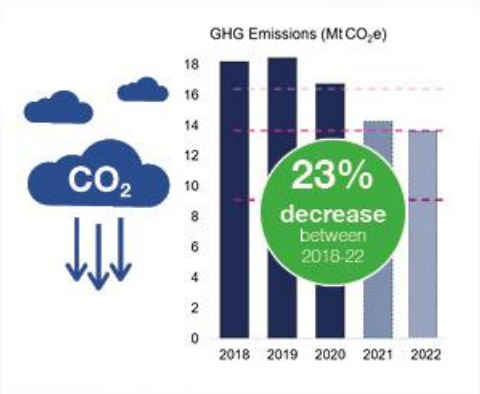


## 33<sup>rd</sup> Offshore Petroleum Round

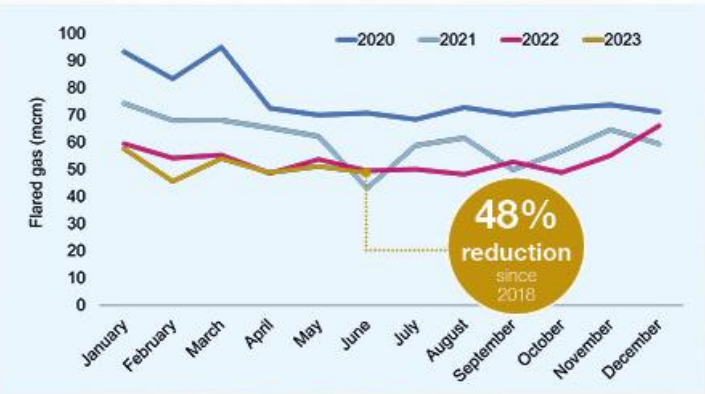


# UK upstream oil and gas GHG emissions

GHG emissions reduction



Declining gas flaring



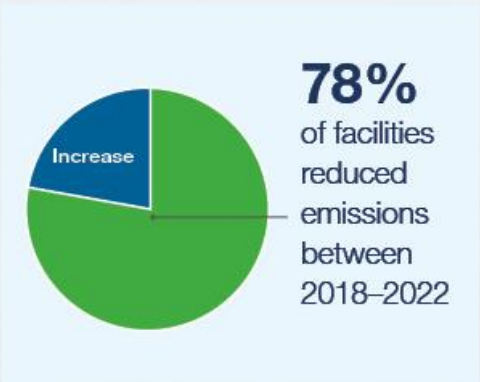
Offshore carbon intensity



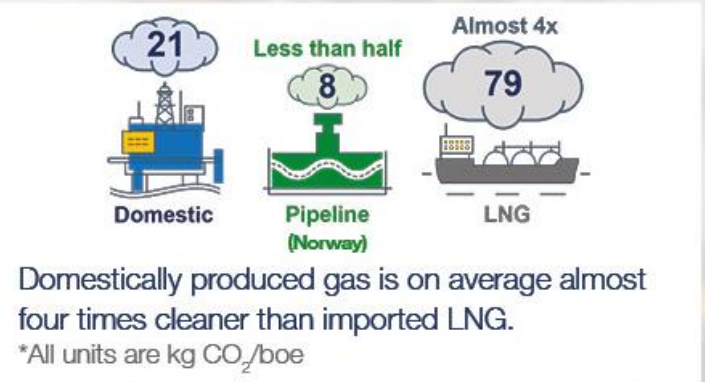
Upstream GHG footprint



Offshore facilities emissions change



UK/international gas comparison\*



Methane



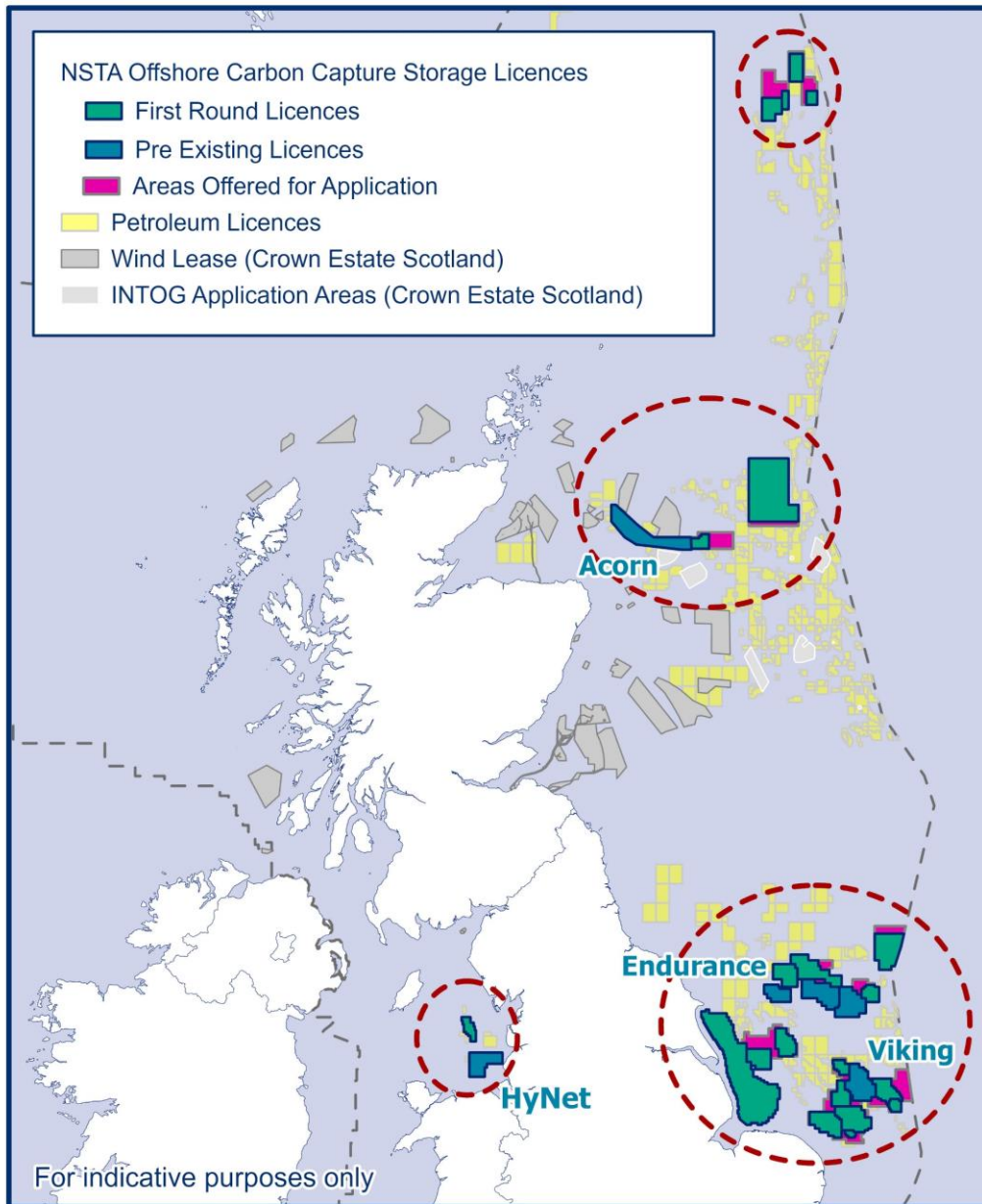
Reduction achieved in 2022 despite increase in production

Emissions reduction initiatives support net zero and UK energy security

Halving emissions by 2030 is minimum NSTA expects from industry



# CCS - UK 1<sup>st</sup> Carbon Storage Round



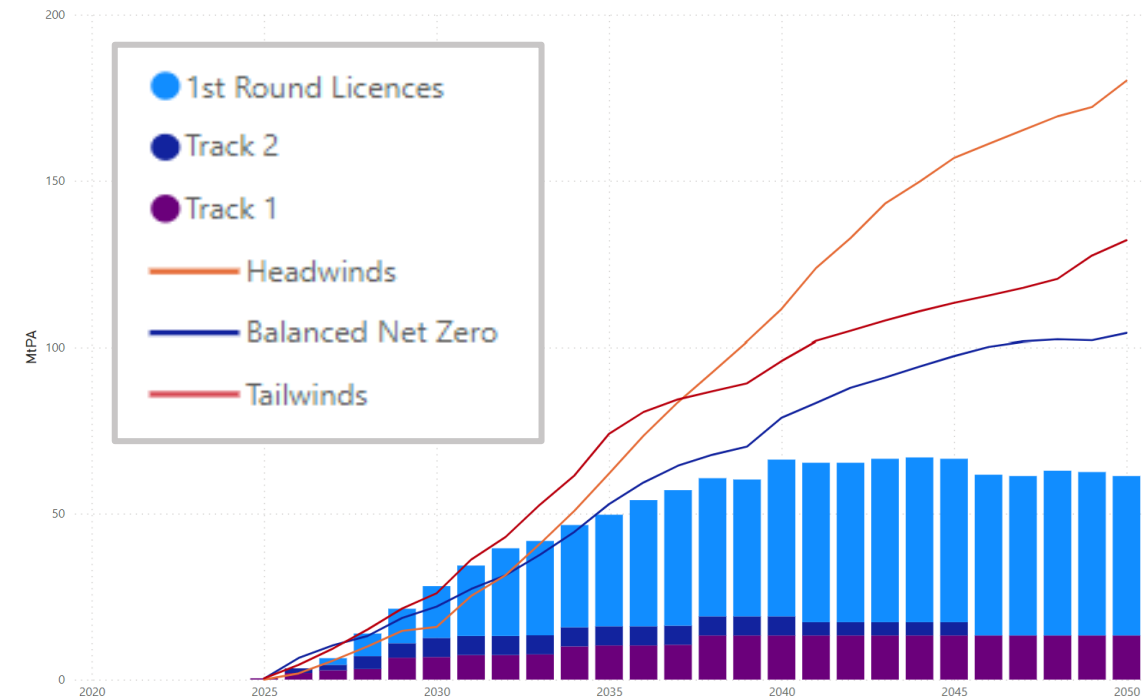
21 Licences offered for award – September 2023  
Diversified Portfolio (Aquifers & Depleted Fields).

## Key Success Metrics if all licences accepted:

- **5 Firm Wells/Tests (9 Contingent)**
- **4 Firm Seismic Shoots (6 Contingent)**
- Additional reprocessing and studies commitments

Expectation that licensees will work collaboratively with each other, and with marine users from other sectors.

## Estimated annual injection rate (discounted)



# North Sea opportunity – energy, growth, net zero



North Sea Transition Authority



**£200bn+**  
expenditure to 2030



Oil and Gas:  
£97bn<sup>1</sup>

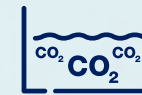
CCS:  
£10bn<sup>2</sup>

Hydrogen:  
£10bn<sup>2</sup>

Offshore  
wind: £92bn<sup>2</sup>



**50GW** fixed &  
floating offshore wind<sup>3</sup>



Up to **78Gt** CO<sub>2</sub> storage<sup>4</sup>  
& major repurposing



New hydrogen  
economy



**60%**  
of UK's abatement<sup>1</sup>



**200,000+**  
good, skilled jobs<sup>2</sup>



**5.25bn** barrels<sup>1</sup>

Sources:

1 NSTA

2 OEUK – 2023 Business Outlook

3 UK Government target

4 ETI, BGS, et al. UK Storage Appraisal Project (2011)



# Realising an integrated basin

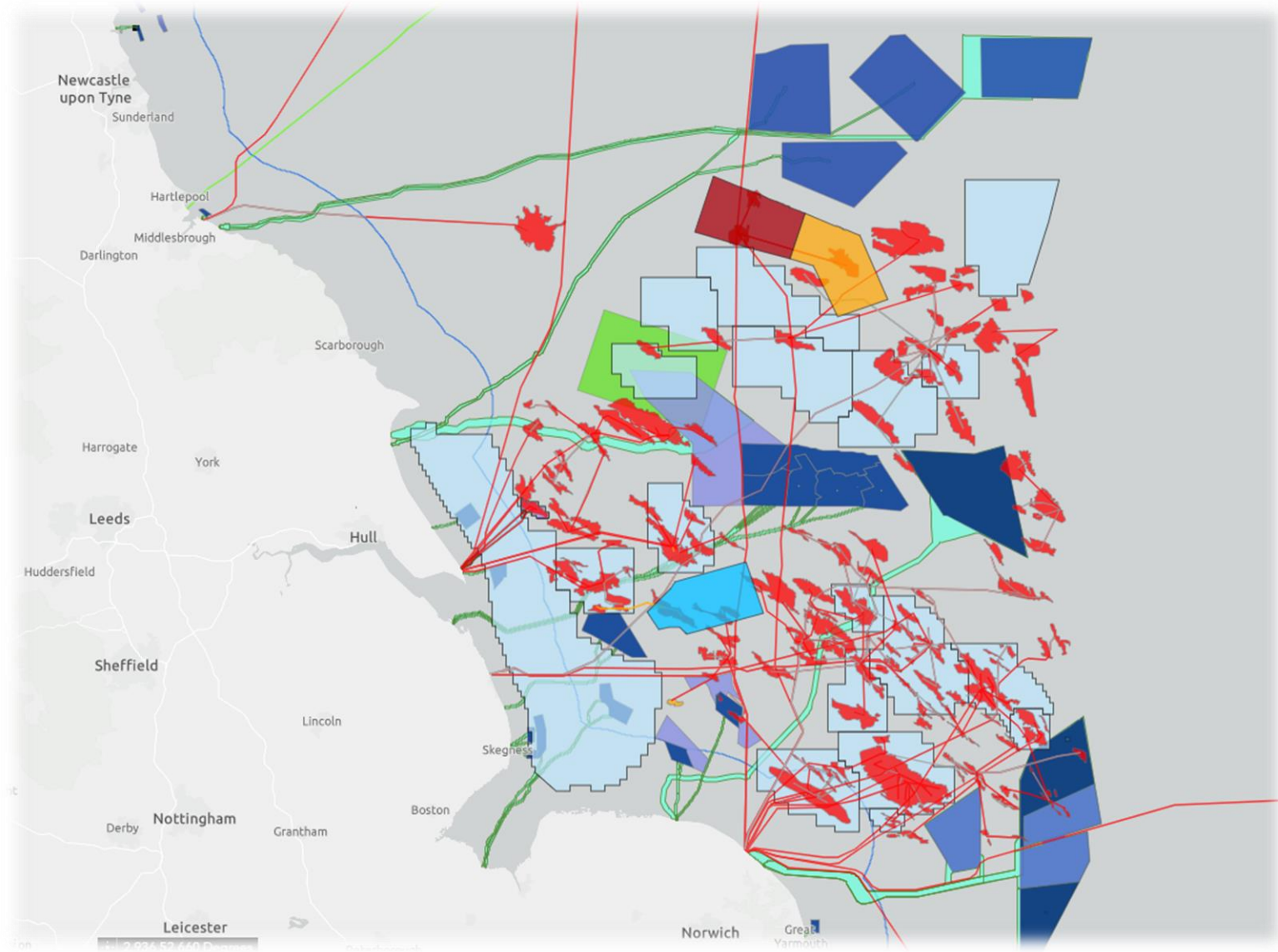
**Co-location** of different technologies – spatial and temporal

**Regulatory approvals** needed from a variety of organisations



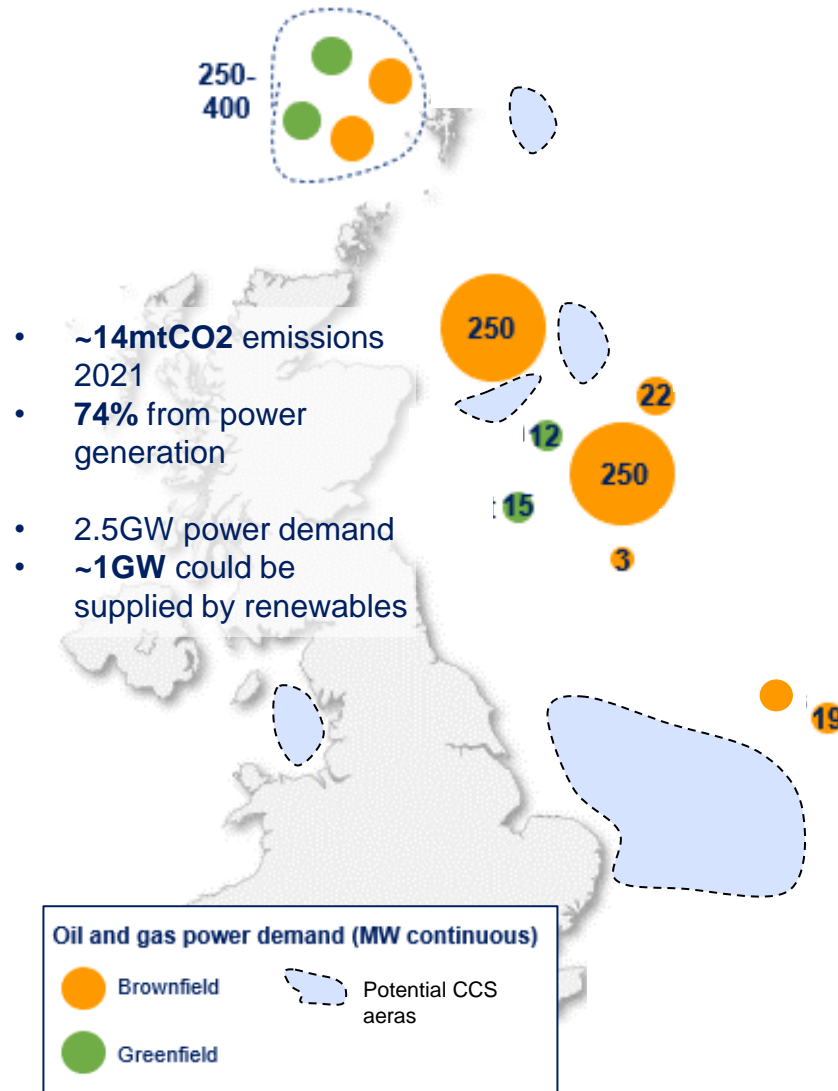
Lessons learnt through implementation and good engagement

**Repurposing** existing infrastructure can be an asset to **accelerate transition**

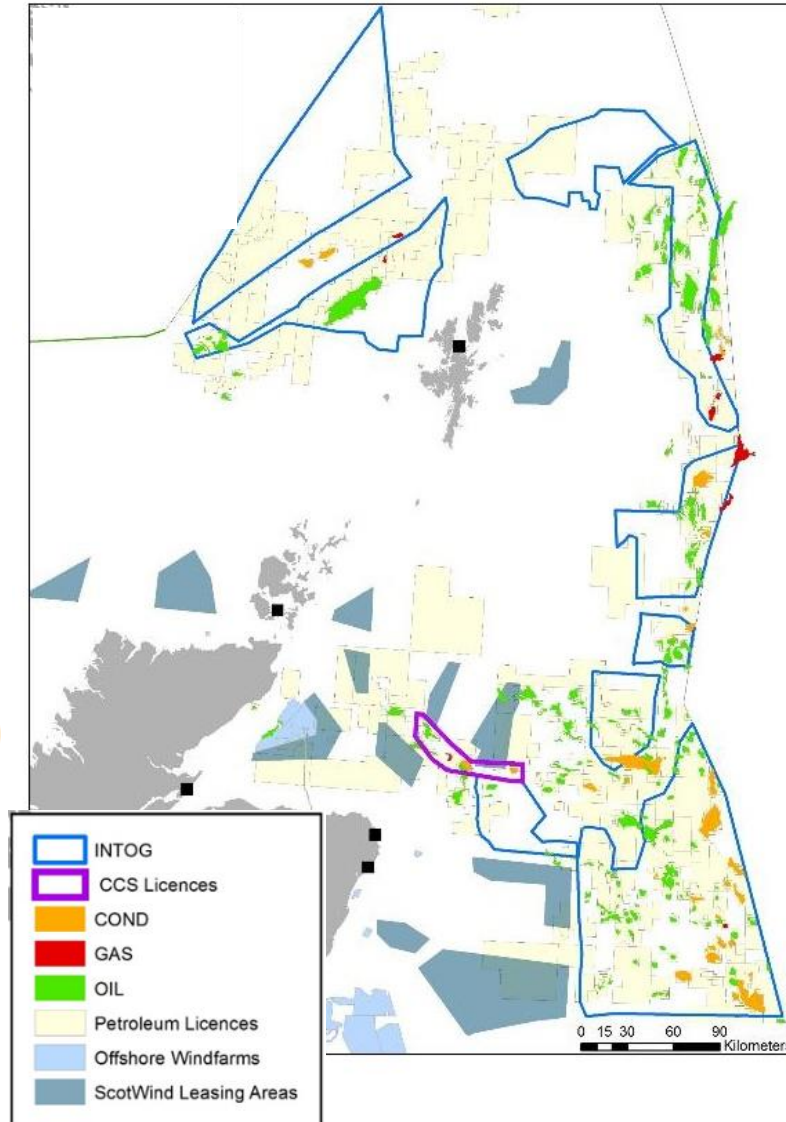


# Windpower synergies – INTOG

## Electrification opportunity (MW)



## INTOG Lease Round



## INTOG results (March 2023)

- Innovation and Targeted Oil & Gas decarbonisation (INTOG)
- Scottish Government, Marine Directorate, Crown Estate Scotland
- March 2023: 13 exclusivity awards offered (5 “IN”, and 8 “TOG”)
- 5.4GW capacity
- August-October 2023: Exclusivity Agreements signed and fees committed

### Next steps:

- Commence work for “IN” projects
- Developers and O&G operators negotiate “TOG” supply contracts
- Finalise INTOG Sectoral Marine Plan



# Hydrogen

## New NSTA powers – Sep 2023

- Consenting authority for **Offshore** hydrogen **Transport and Storage**

## UKCS – Hydrogen potential

### Production

- Low carbon – hydrogen hubs, offshore carbon storage and natural gas feedstock
- Electrolytic – coastal location, offshore wind capacity

### Infrastructure

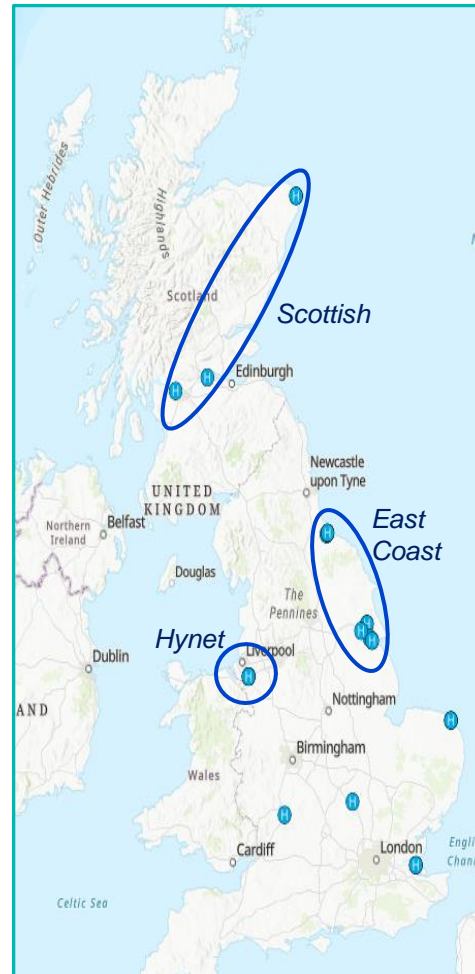
- Existing pipelines, terminals and skills base can be repurposed

### Storage

- Short, medium and long duration will be required, including in offshore reservoirs

## Blue-H<sub>2</sub> projects

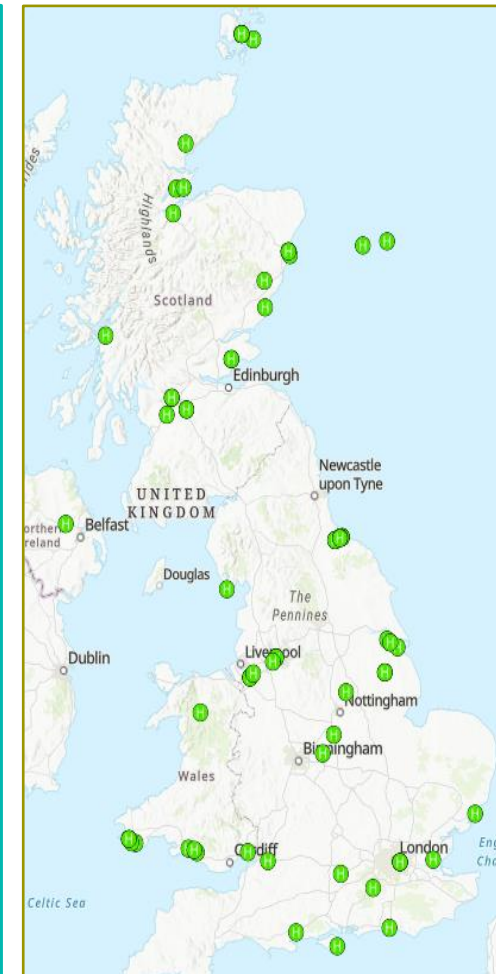
~30 projects, ~12GW



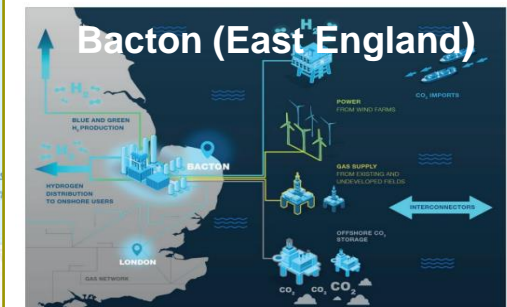
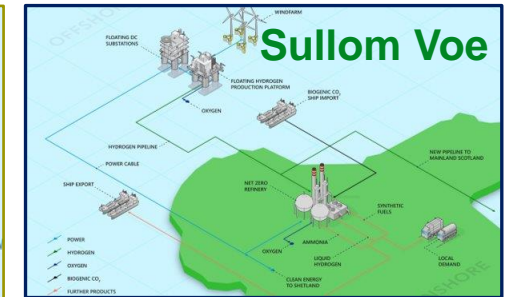
 Decarbonisation clusters

## Green-H<sub>2</sub> projects

~90 projects, ~5GW



## H<sub>2</sub> Hub concepts



# Case Study: Bacton Energy Hub

Bacton Catchment Area can play significant role in UK energy future through a combination of blue and green hydrogen, offshore wind power, nuclear and carbon storage

Strategic gas processing hub in East of England, up to **2 trillion cubic feet** incremental gas production

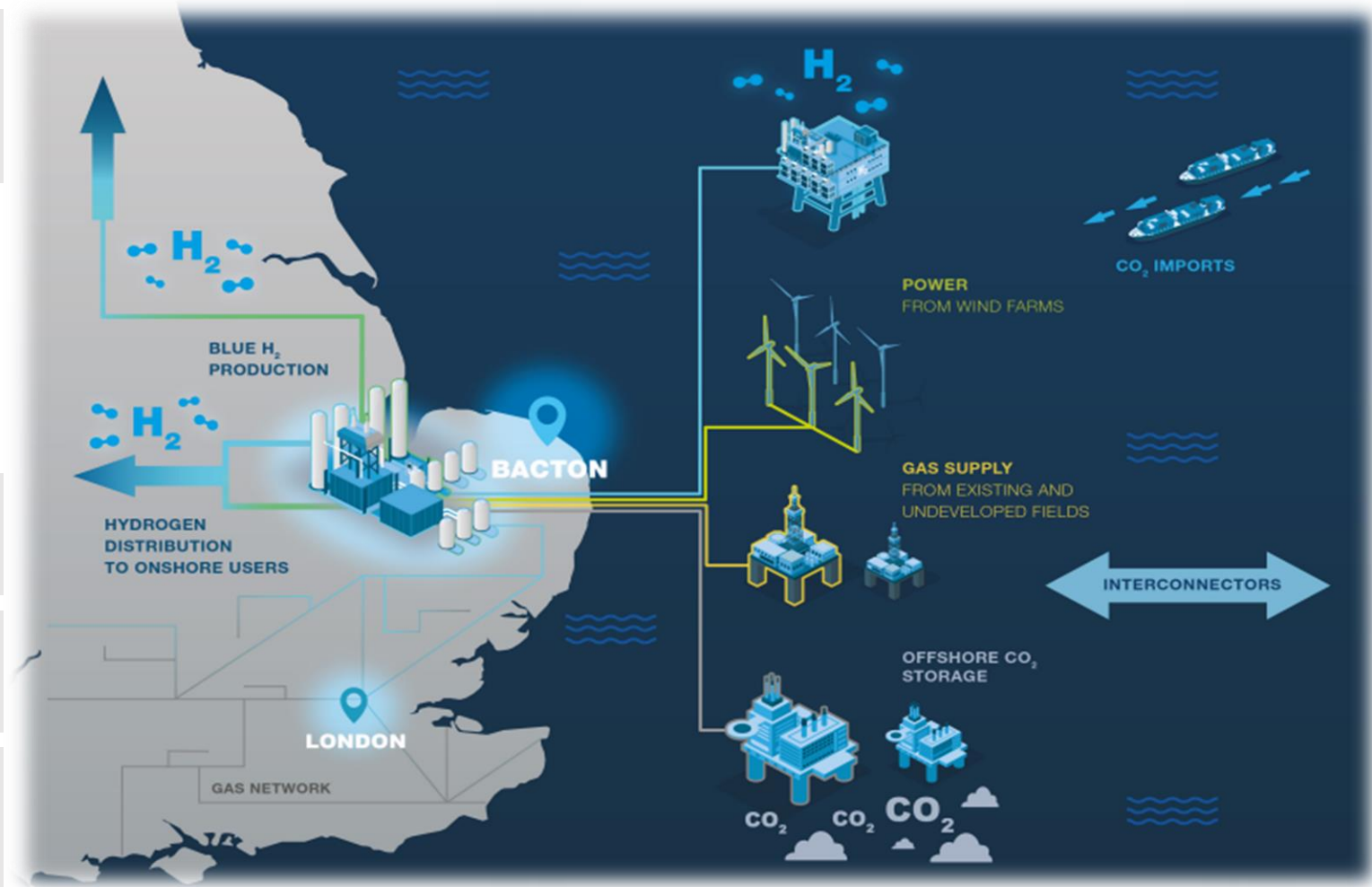
Potential for **18Mt CO<sub>2</sub> carbon abatement** by 2050, enabling low-carbon hydrogen

**Offshore wind integration** - green hydrogen potential, power for CCS

Potential **hydrogen demand** from **7TWh (2030) to 90TWh (2050)**

**Repurposing** existing onshore gas pipelines providing access to London

**Attracting private capital** – Sumitomo Corporation backed development agreement for low carbon hydrogen production



Further progress wanted in 2024 – Potential for a Shetland Energy Hub (Orion) and St Fergus hydrogen and CCS hub

**End**