

# EAST CO<sub>2</sub>AST CLUSTER

Public webinar, 14 July 2021

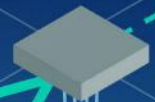


# EAST CO<sub>2</sub>AST CLUSTER



NORTH SEA

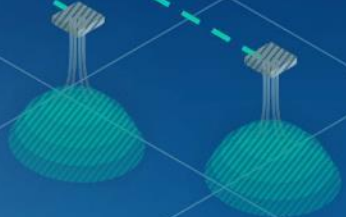
Northern  
Endurance  
Partnership



ENDURANCE

145km

103km



MIDDLESBROUGH ●  
DARLINGTON ●

**PROJECTS IN TEESSIDE INCLUDING**

 **Net Zero Teesside**

 **BOC**

 **bp**

 **CF Industries**

 **kellas**  
MIDSTREAM

 **NXT Power**

 **suez**

TV ERF      8 RIVERS

**UP TO 10 MTCO<sub>2</sub>E CAPTURED**

● YORK  
● LEEDS

HULL ●  
SCUNTHORPE ●

GRIMSBY

● SHEFFIELD

**PROJECTS IN THE HUMBER INCLUDING**

**ZEROCARBON HUMBER**

 **drax**

 **equinor**

 **MITSUBISHI POWER**

 **sse Thermal**

 **TRITON POWER**

 **uniper**

 **VELOCYS**

**17+ MTCO<sub>2</sub>E CAPTURED**



# East Coast Cluster offers unmatched scale and diversity, removing almost half of the UK's industry cluster emissions

## EAST CO<sub>2</sub>AST CLUSTER

Unites the Humber & Teesside to remove almost **50% of industry cluster CO<sub>2</sub> emissions** and deliver **25,000 jobs per year** to 2050



Enables the East Coast Cluster by providing the common infrastructure needed to transport CO<sub>2</sub> from emitters in the Humber & Teesside to secure offshore storage in the North Sea

### **ZEROCARBON HUMBER**

Delivers a net zero industrial cluster in the Humber region



### **Net Zero Teesside**

Delivers a net zero industrial cluster on Teesside

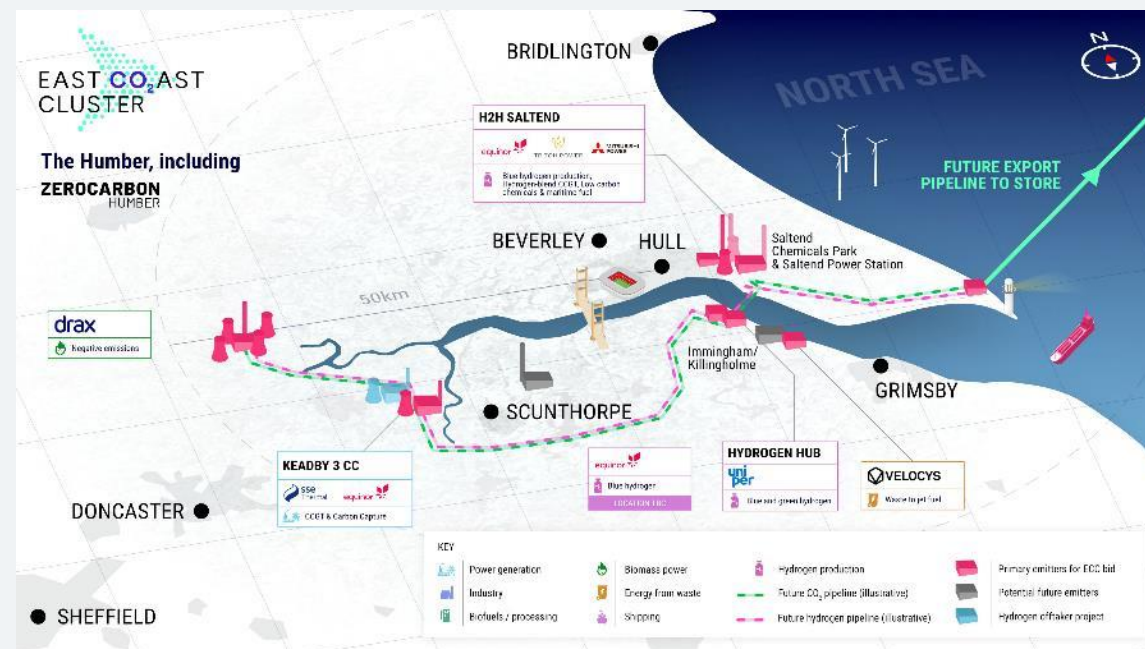
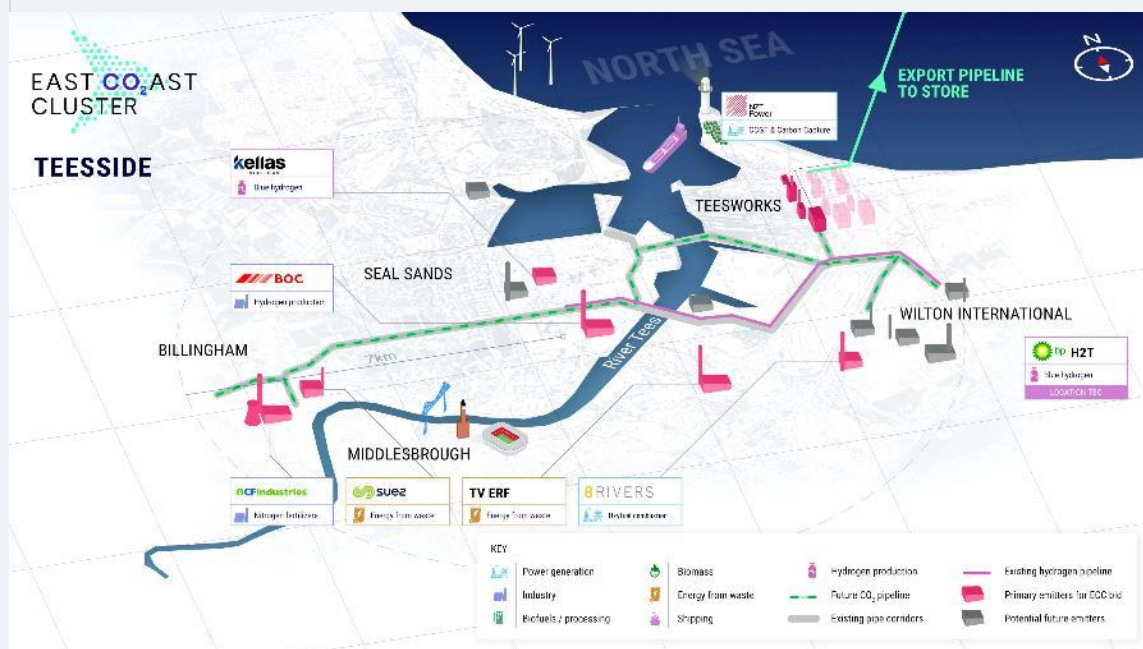


# Diversity is at the heart of the East Coast Cluster

Diversity of geography

Diversity of capture projects

Innovative T&S technology



The East Coast Cluster brings together unrivalled expertise and experience in the delivery and operation of onshore and offshore energy infrastructure

# Economic benefits (1): the headlines

**25,000+**

Jobs up to **2050**  
(average per annum)

**~ 41,000**

Jobs peak in **2026**



**Construction:**  
**9,400** direct jobs/yr  
**12,300** indirect jobs/yr



**Operations:**  
**2,200** direct jobs/yr  
**13,300** indirect jobs/yr

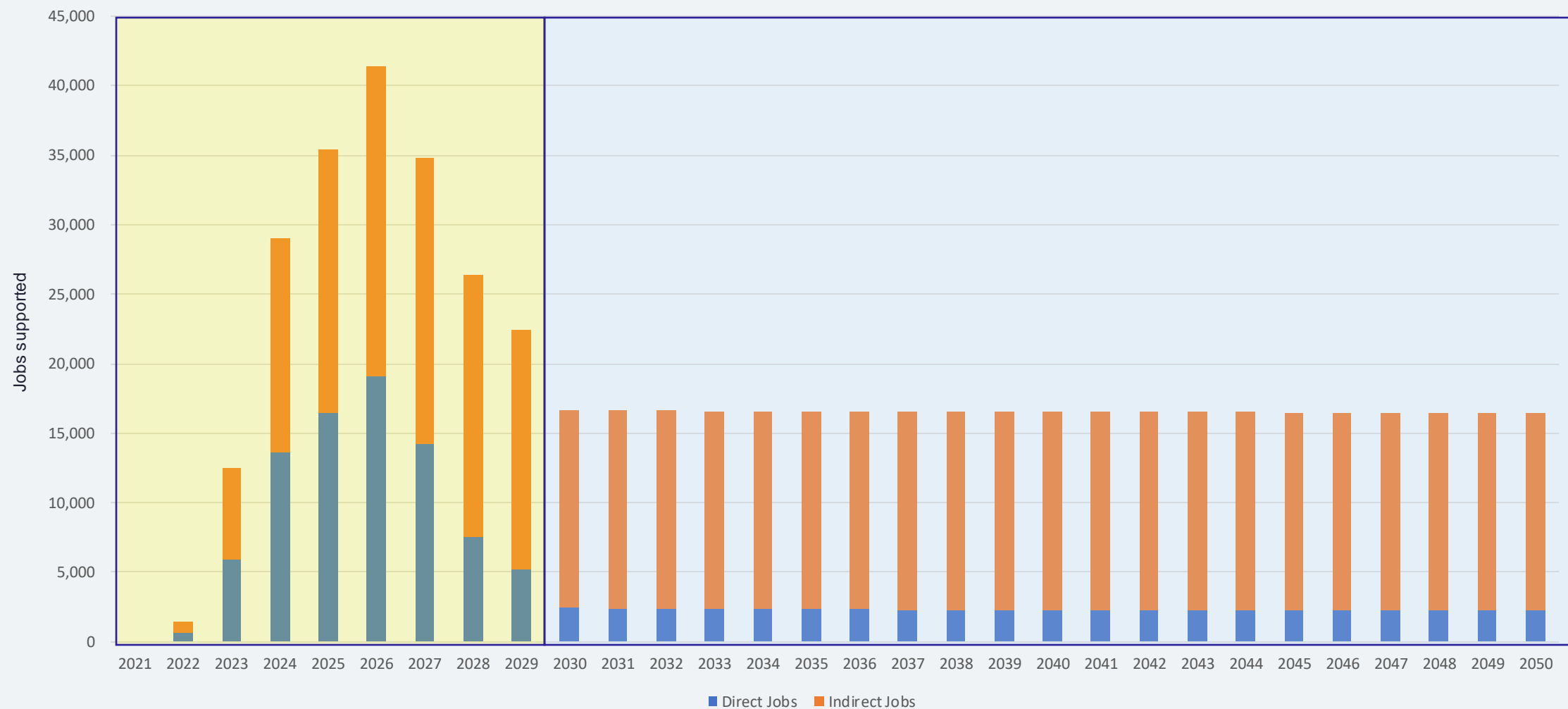


**25,000** additional  
induced jobs/yr

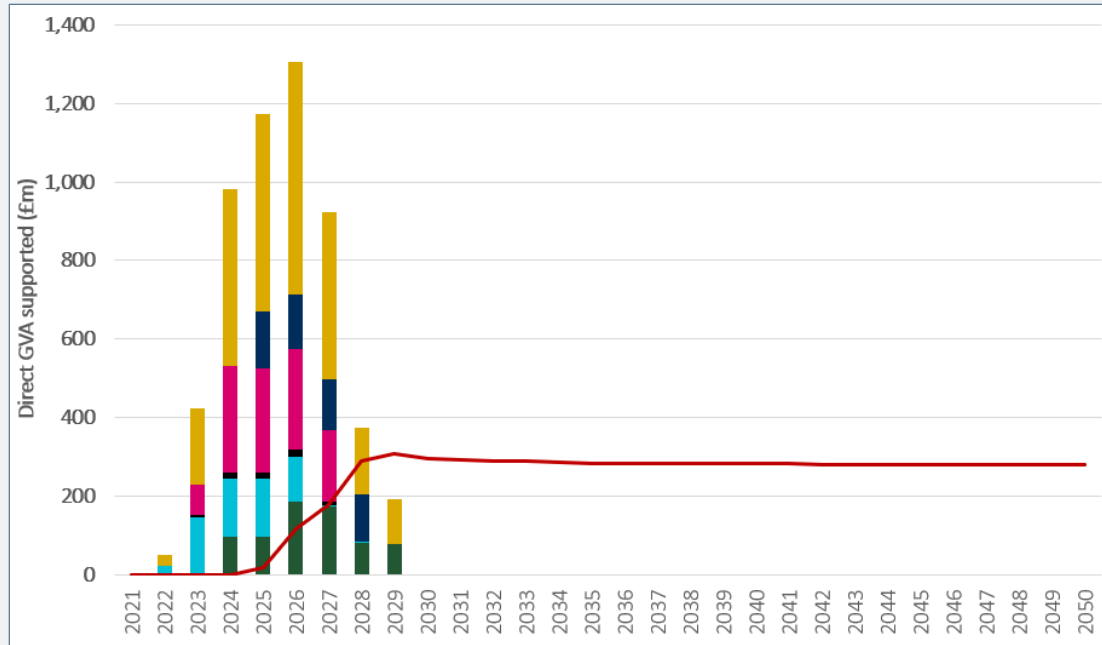
**£2bn +**

Average GVA  
up to **2050**

## Economic benefits (2)

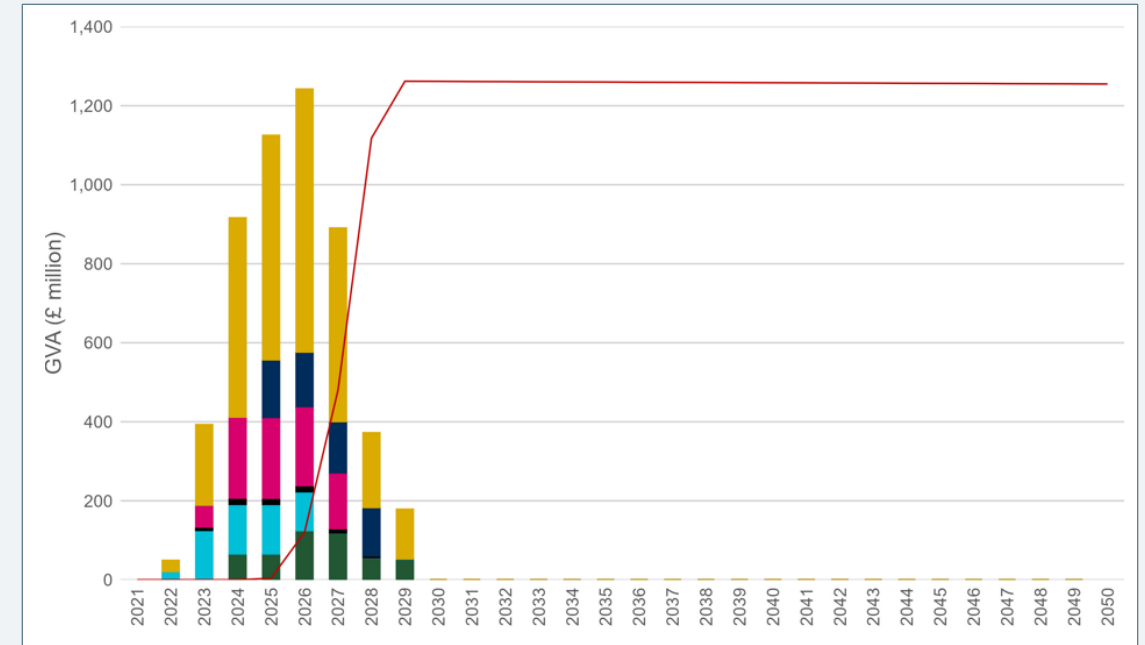


# Economic benefits (3): significant Gross Value Added



## Direct Jobs:

- £770m GVA/year (Construction)
- £270m GVA/year (Operation)

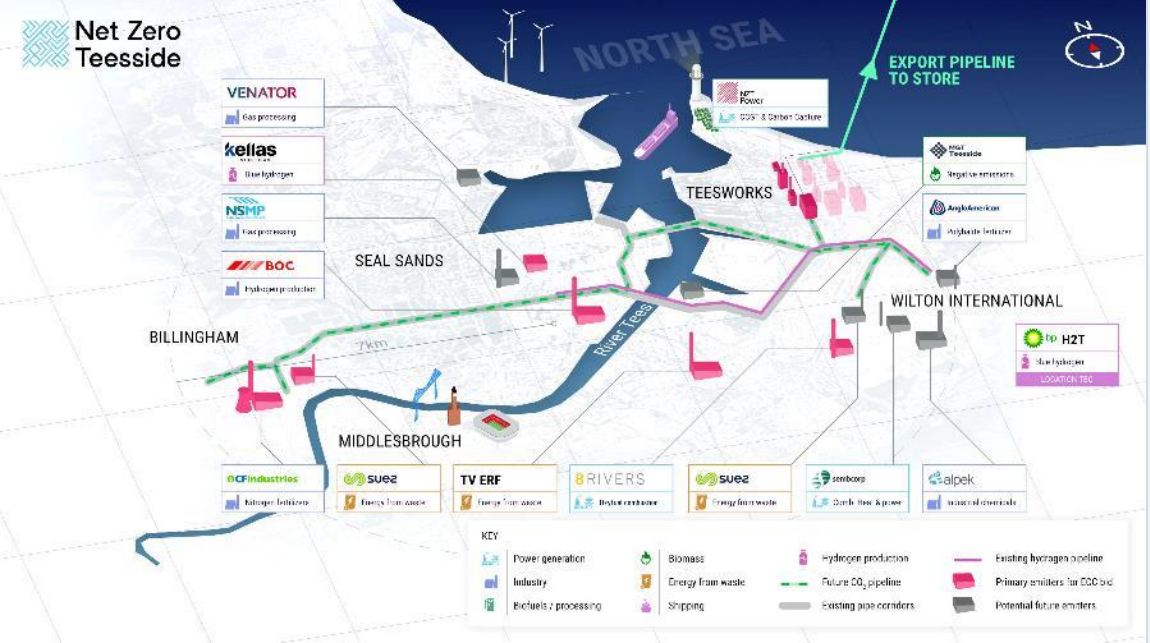
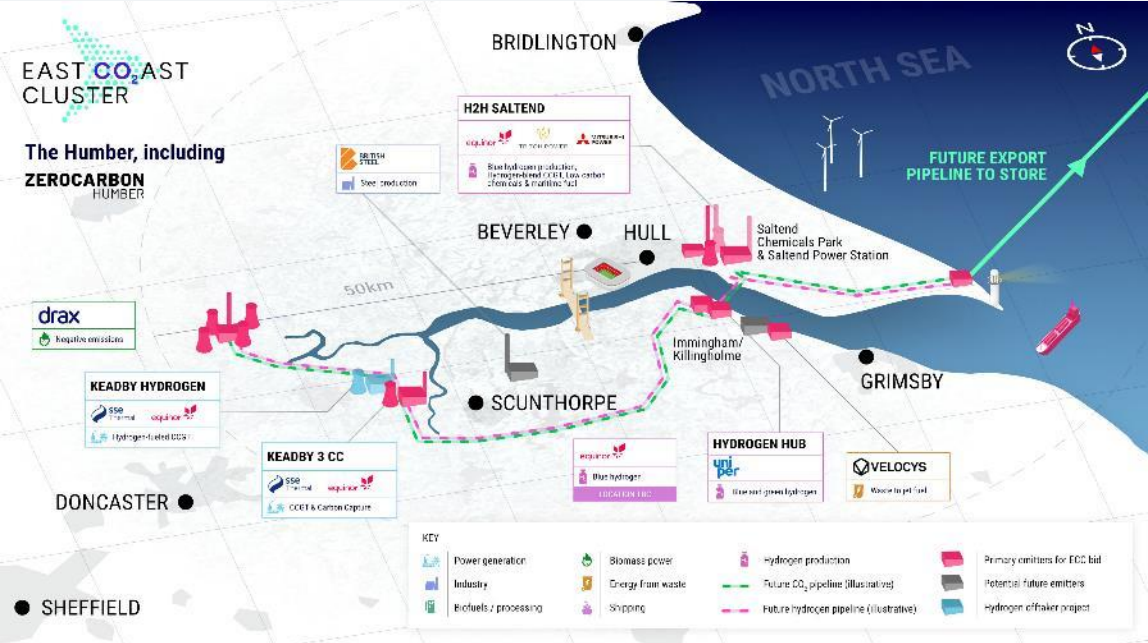


## Indirect Jobs:

- £730m GVA/year (Construction)
- £1,220m GVA/year (Operation)

# East Coast Cluster: a stepping stone to 2050 (1)

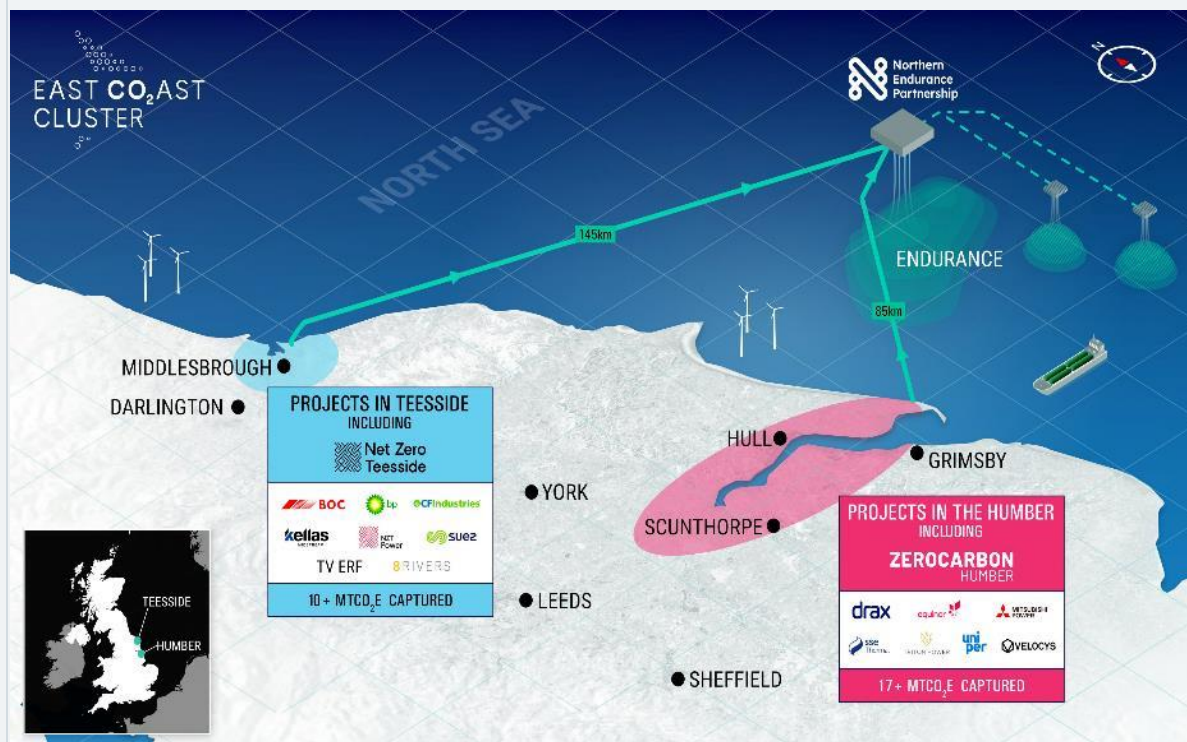
Initial set of Capture Projects plus subsequent projects across both regions will ensure value for money from shared ECC infrastructure





# East Coast Cluster: a stepping stone to 2050 (2)

## ECC (2026 to 2030)

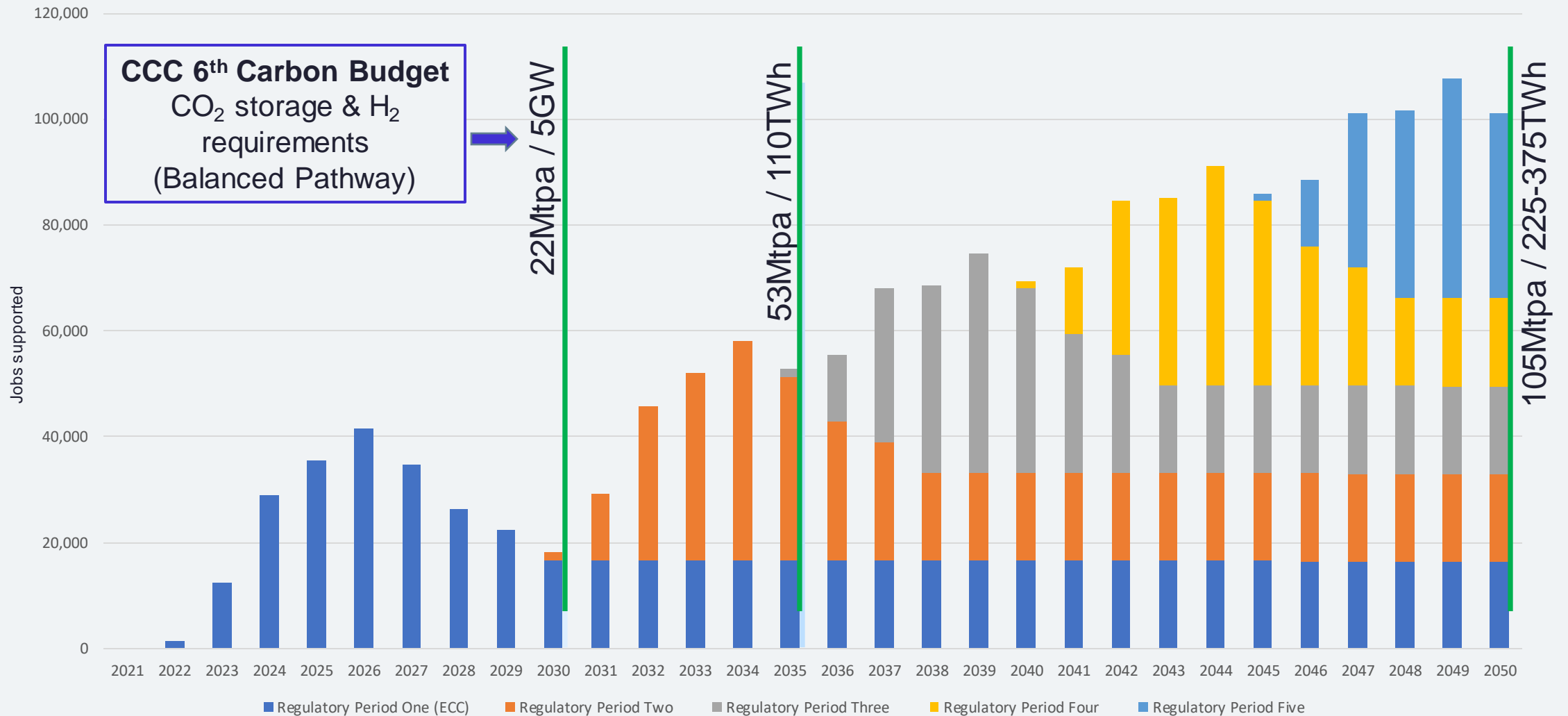


## ECC (beyond 2030)

*Expanding infrastructure, decarbonising the UK*



# Levelling up (illustrative)



# Industrial carbon capture: decarbonising industry & supply chain, while offering access to new low carbon markets



CF sits at the front of the ammonia & nitric acid supply chain on Teesside. Decarbonising CF helps decarbonise our chemical customers too.



In UK, CF supplies 40% of UK fertiliser market, so reducing emissions from our Billingham site, helps to reduce the footprint of UK agriculture.

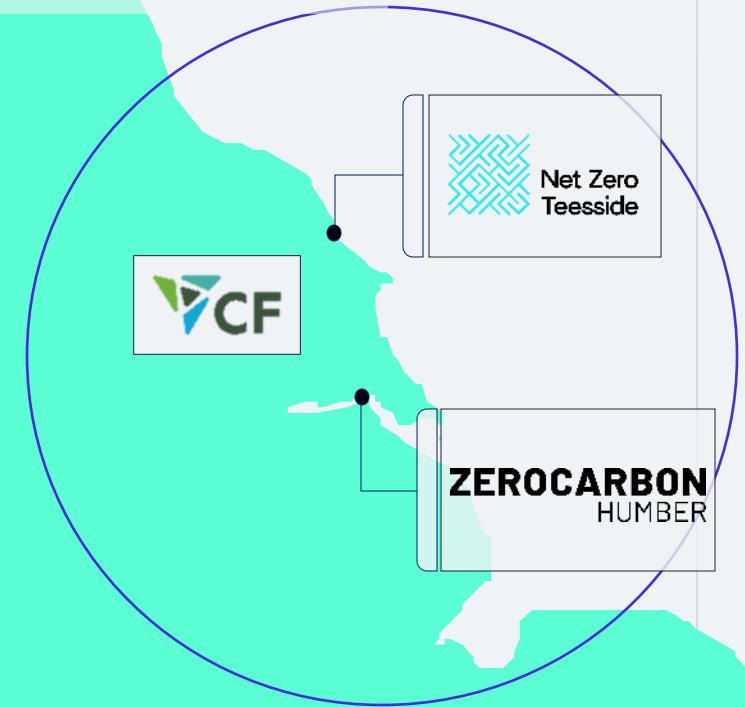


CF is the UK's only primary producer of ammonia. Decarbonising our site enables access to new, low carbon markets for those produces both as a way of moving or storing hydrogen but also as future shipping fuel.



# Industrial carbon capture: what the East Coast Cluster means for industrial emitters like CF Fertilisers

- For CF Fertilisers, this project not just the next step on our Net Zero journey, it is both strategic and transformational
- It is the culmination of more than 10 years of work
- Our case study example is echoed and amplified through other cluster sites



# Power with post-combustion capture: powering the transition to Net Zero with first-of-a kind technology



Net Zero Teesside  
Power  
750MW gas-fired  
power station with  
carbon capture

Keadby 3  
900MW gas-fired  
power station with  
carbon capture



Necessary for  
Net Zero



Supports  
renewables



Safeguards &  
creates jobs



Ready to deploy  
by mid 2020s

# Bioenergy with Carbon Capture & Storage: delivering the negative emissions the UK needs to achieve Net Zero



Drax – the UK’s largest power station – is ready to deliver 4 million tonnes of negative emissions by 2027

### How it works

- By using sustainable biomass and capturing the carbon dioxide emitted during electricity generation, we’re removing CO<sub>2</sub> from the atmosphere.
- Technology already demonstrate at pilot scale on site at Drax Power Station.

### Benefits to the Cluster & UK

- **Levelling up:** Drax supports ~6,000 jobs in North of England today and the BECCS project would support an additional 10,300 jobs at peak
- **Climate change:** The UK will need 53MtCO<sub>2</sub> of negative emissions per year by 2050 – BECCS at Drax would contribute at least 8Mts per year
- **Value for money:** BECCS at Drax would help the UK hit its near-term Carbon Budgets £4.5bn cheaper than alternative measures
- **Global leadership:** Drax is a world leader in BECCS technology and can promote British skills and technology into other countries abroad.

Capture profile

Year	2027	2028	2029	2030+	2035
CO2 captured	4mt	4mt	8mt	8mt	Up to 12mt



# Hydrogen: a platform to kick-start the development of a hydrogen economy in the North of England

## TEESSIDE



Building H2Teesside to deliver 1,000MW blue hydrogen to industrial and grid customers, starting up in 2027



Progressing a 1,000MW hydrogen facility at the CATS terminal - taking advantage of existing plant, feedstock and infrastructure with start-up in 2027

## THE HUMBER



Building 1,800MW blue hydrogen portfolio: 600MW H2H Saltend supplying industry & power by 2026, plus further 1,200MW H2H project mainly to supply Keadby Hydrogen power station (with SSE Thermal)



Plans to develop Humber Hub at Killingholme, with up to 700MW blue hydrogen production and up to 100MW green hydrogen production by the mid 2020's

# EAST CO<sub>2</sub>AST CLUSTER

Closing keynotes



# EAST CO<sub>2</sub>AST CLUSTER

Q&A