



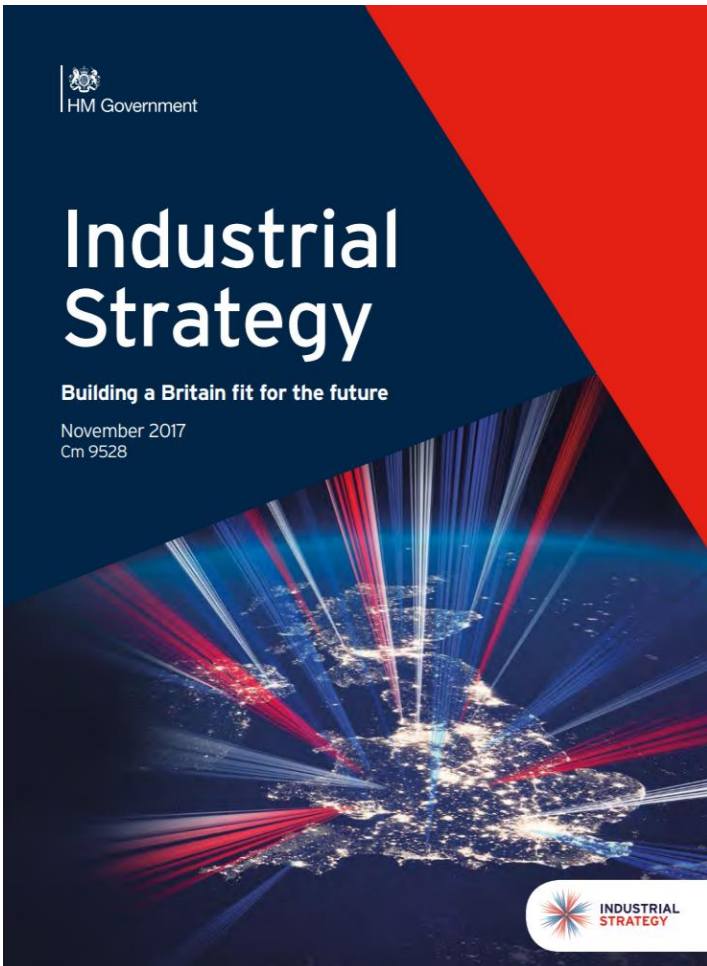
# Decarbonising engineering construction

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**“We will establish the world’s first net-zero carbon industrial cluster by 2040 and at least one low-carbon cluster by 2030”**

**- UK Industrial Strategy**



**“Developing carbon capture and storage technology and low-carbon hydrogen is a necessity, not an option”**

**- CCC Net-zero Report Press Release**



**“My Ten Point Plan will create, support and protect hundreds of thousands of green jobs, whilst making strides towards net zero by 2050.”**

**- HMG 10-point Plan Press Release**



**Carbon Capture and Storage (CCS)**

- Potential onshore CCS cluster
- Potential offshore CCS site

Decarbonization funding has focused on carbon capture clusters, but both methane and renewables-based hydrogen projects have won modest support.

**Transmission**

- Potential meshed interconnection
- Offshore connections
- Onshore hub

UK cross-border capacity is forecast to increase sharply by 2025, with new links to France, Norway and Denmark. A first meshed wind/interconnector project to the Netherlands is expected in 2029.

**Offshore Wind Development**

- Potential offshore wind site
- Offshore wind lesse

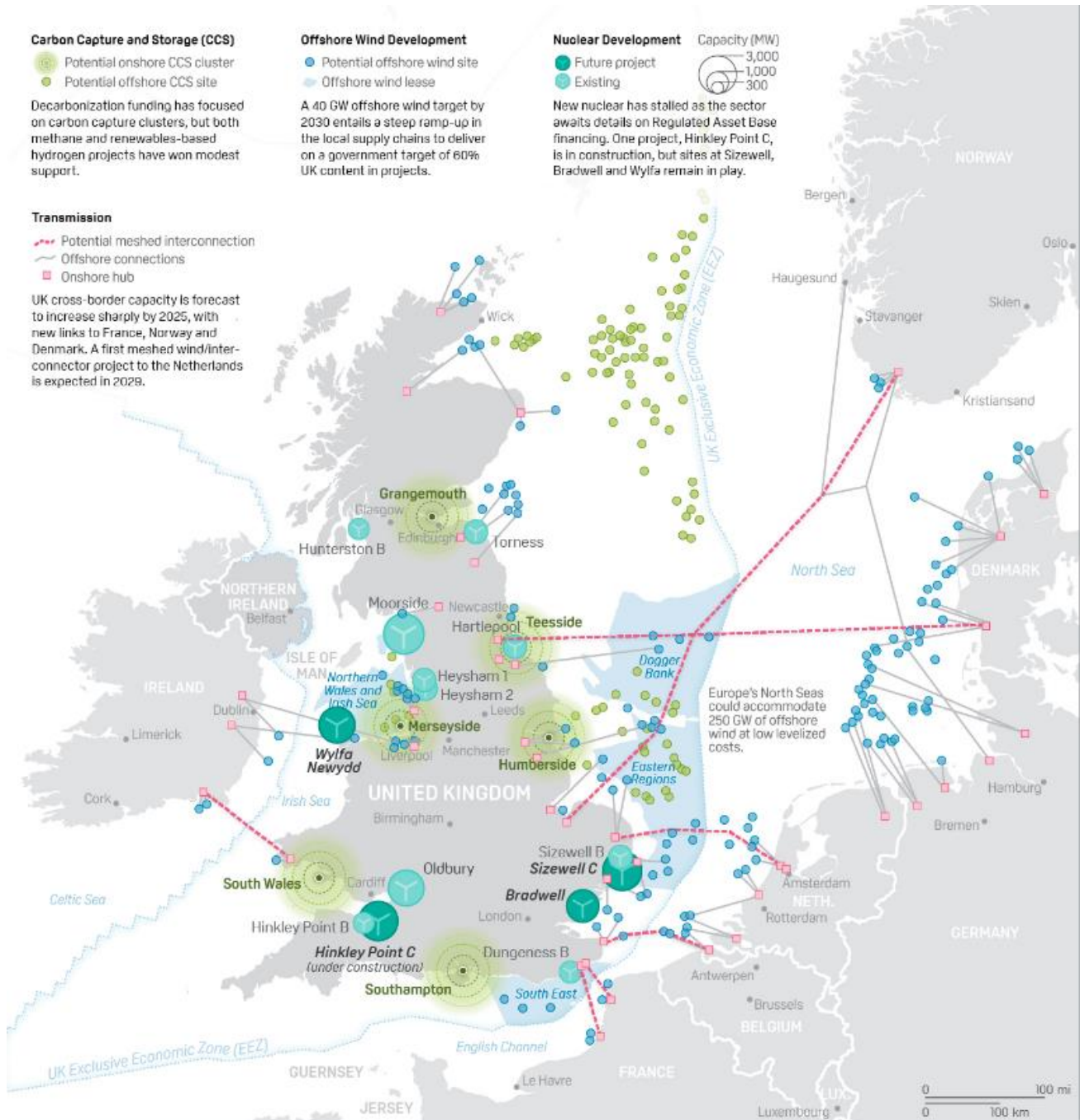
A 40 GW offshore wind target by 2030 entails a steep ramp-up in the local supply chains to deliver on a government target of 60% UK content in projects.

**Nuclear Development**

- Future project
- Existing

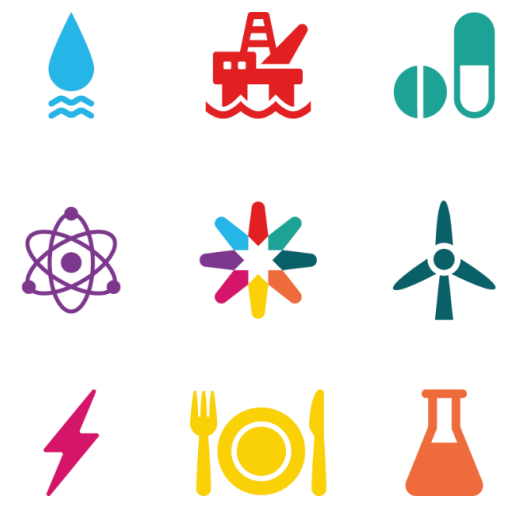


New nuclear has stalled as the sector awaits details on Regulated Asset Base financing. One project, Hinkley Point C, is in construction, but sites at Sizewell, Bradwell and Wylfa remain in play.



**Industrial clusters are areas with a number of industrial sites**

For instance those producing:

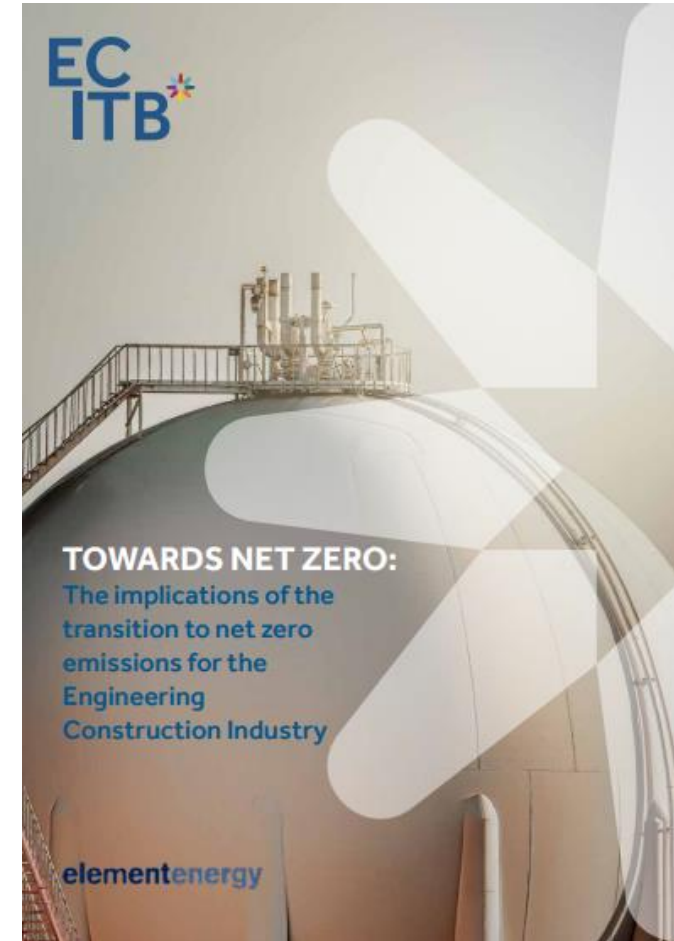


Source: S&P Global Platts, The Crown Estate Oil & Gas Authority, CCUS Cost Challenge Taskforce Report, European Environment Agency, Navigant ECOFYS, BEIS; Nov 2020



# Energy transition context


- [ECITB Net zero skills report](#) published March 2020
- Considered technologies aligned to CCC scenarios
  - CC(U)S
  - Hydrogen
  - Oil & Gas related
  - Water & waste related
  - Power technologies
- ECI Implications - technical
  - Emission reduction
  - Repurposing assets
  - Fuel switching
  - Baseload generation
  - Carbon capture for zero or negative emissions

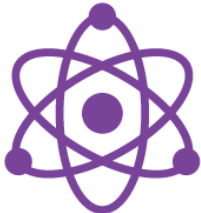



# The Engineering Construction Industry will be instrumental in delivering the technology and infrastructure required for Net-Zero





## Current technologies used in the net zero context

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Reducing emissions from water waste treatment
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Nuclear for baseload power generation
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Repurposing some platforms as renewable energy wind farms, repurposing pipelines to CCS, methane abatement technologies
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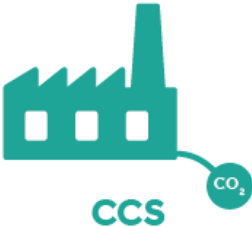
Re-purposing of coal power stations to biomass
- 

Renewable power used in green hydrogen generation through water electrolysis

## Key enabling decarbonisation technologies




**H<sub>2</sub>**  
Hydrogen




**CCS**


Hydrogen provides multi-sector decarbonisation




Hydrogen production (ATR, SMR, Electrolysis)




Hydrogen storage (Centralised, decentralised)




**NH<sub>3</sub>**  
Ammonia production, cracking and storage




Hydrogen transport and blend in gas grid




Industrial appliances switching



Hydrogen gas turbines or blending  
Power Generation





Low-carbon transport (FCEV)  
Transport





Decarbonising domestic and commercial heat  
Heat



Wide-scale decarbonisation



Carbon Capture from hydrogen production, power and industry

CO<sub>2</sub> Transport

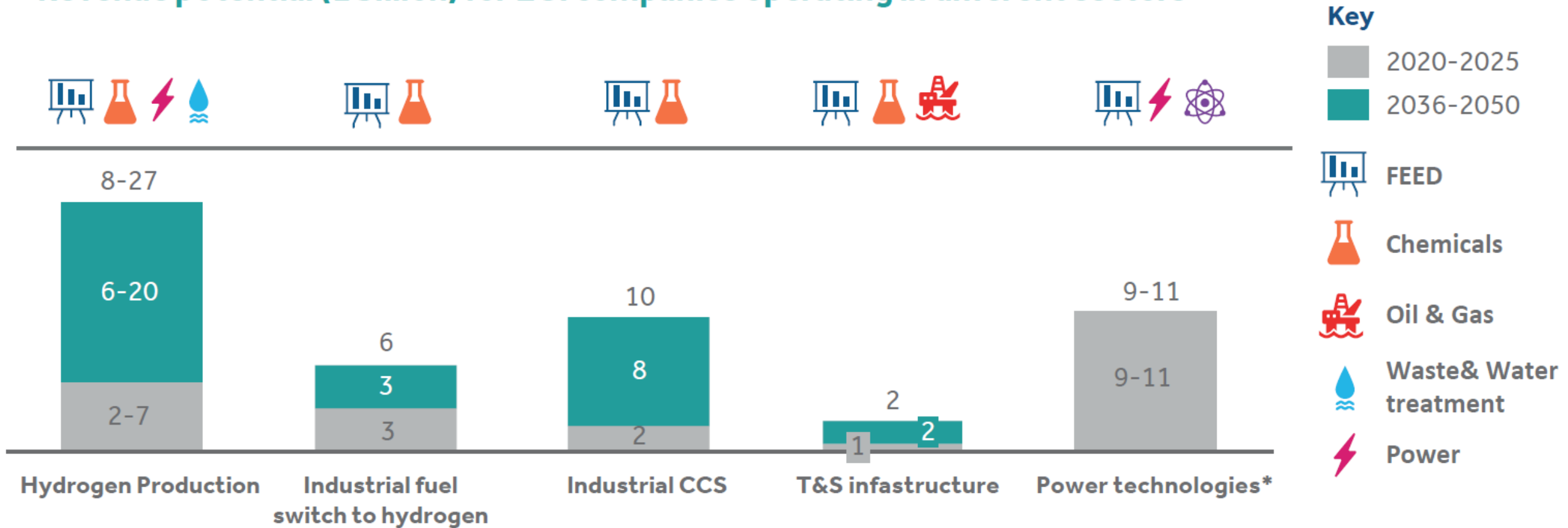
CO<sub>2</sub> utilisation to produce synthetic fuels

CO<sub>2</sub> Storage

# Estimated value of energy transition activities for ECI

## Revenue potential (£ billion) for ECI companies operating in different sectors



# Recommendations and skills implications

## Identify and close skills gap



Supplement skills gaps with transferable skills through accelerated programs



Attract new workforce by making ECI sector a more attractive and competitive employment environment

## Minimise skills shortages



Develop a proactive attitude towards collaboration and the management skills required for cross-sector work



Harness the transformative impact of digitalisation to improve workforce efficiency, productivity and utilisation

## Leverage policy and innovation



Work closely with government to ensure comprehensive new skills development in the UK, with potential for skills export in the future



Drive and influence a strong link between industrial clusters and local education institutions to accelerate workforce inflow

- Technical skills
  - Many existing skills relevant
  - Some niche technical gaps
- System/behavioural skills
  - System integration
  - Collaboration
  - Cost efficiency
  - Circular economy/industrial symbiosis
- Largest challenge is numbers and rate of mobilisation

# What is ECITB doing?

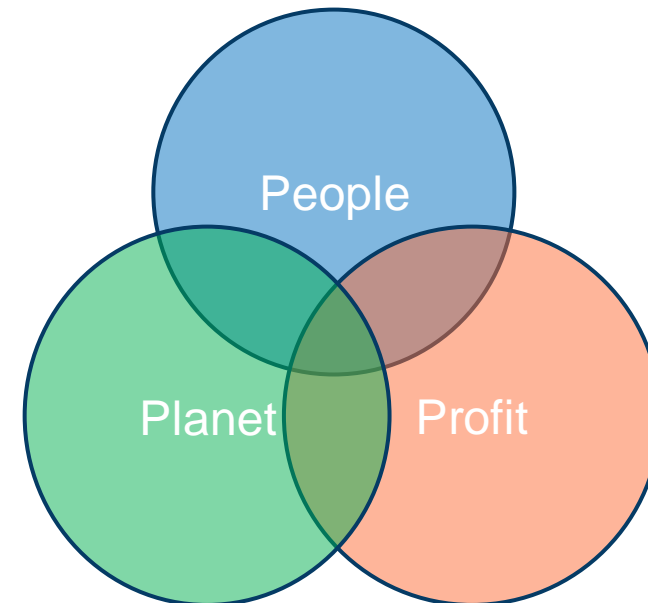


- Supporting industry preparation
- Collaboration
- Considering our own net zero strategy



# Challenges and opportunities

- Early action to capitalise on first mover advantage
- Integration and collaboration
- Sustainable recovery (triple bottom line)
- Regulation and policy clarity
- Project certainty to provide confidence/investment
- Mobilisation capacity
- Cost competitiveness
- Maintaining skills pipeline





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