

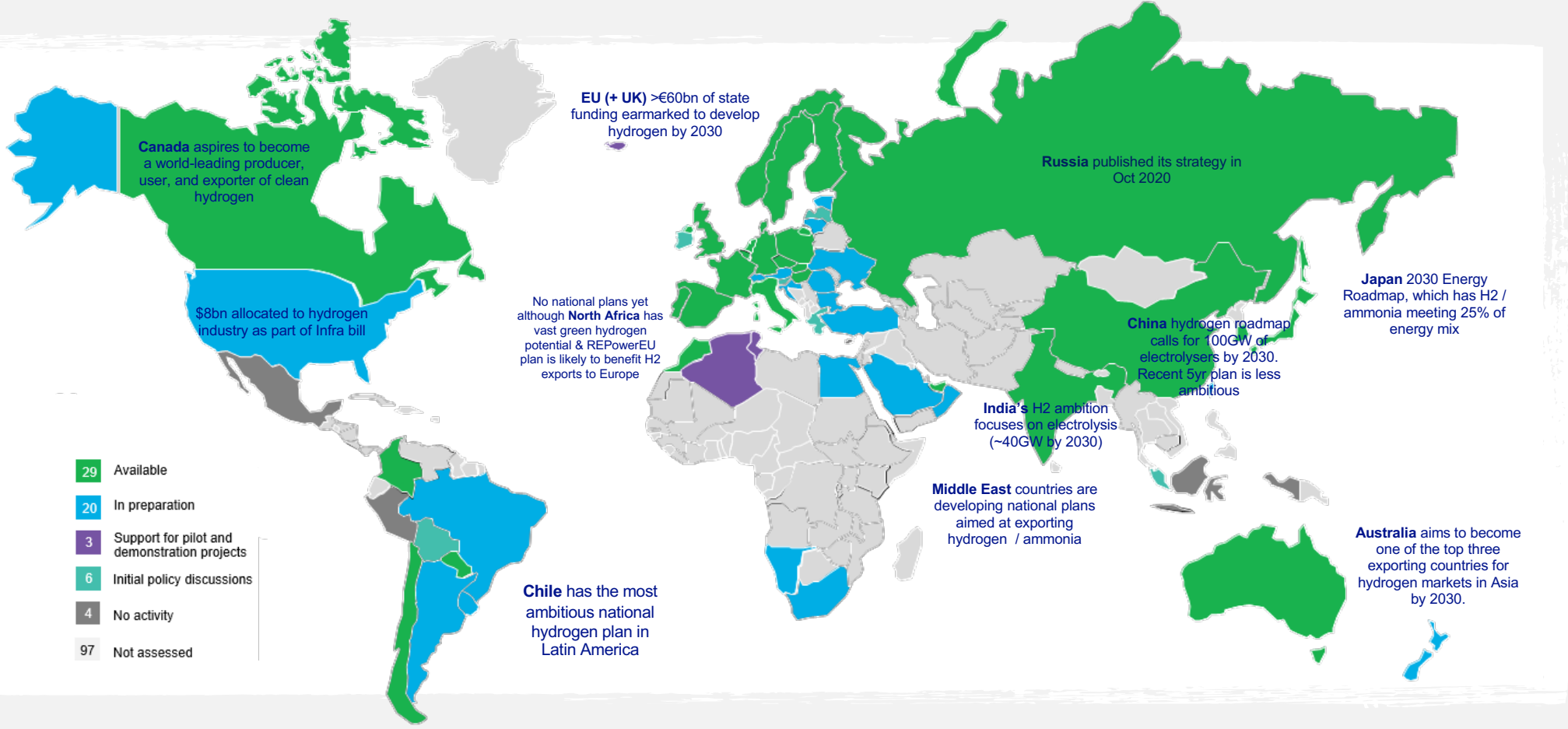
**Cadent**  
Your Gas Network

# Hydrogen for Heat

**Sally Brewis**  
June 2023



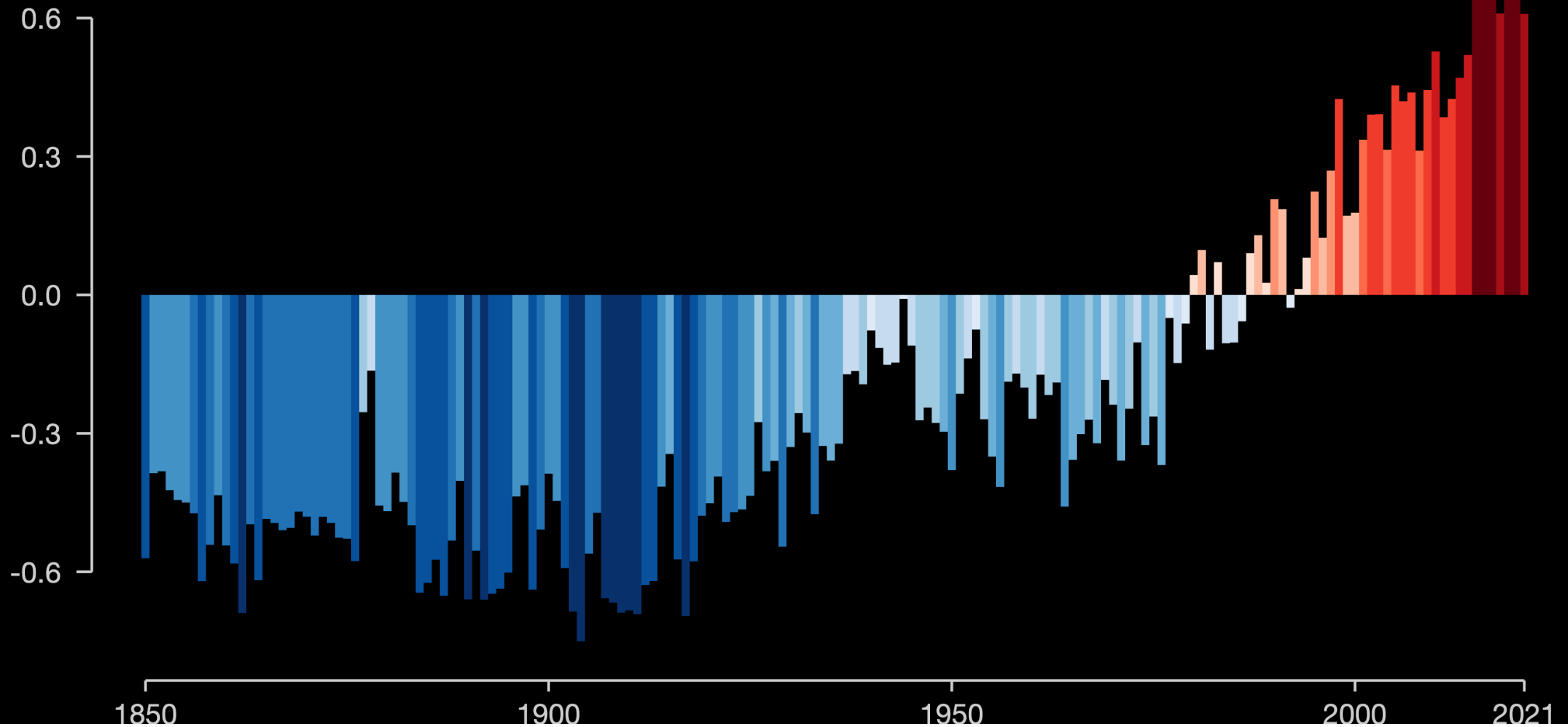
# The world is starting a hydrogen revolution estimated to be worth \$2.5tn by 2050



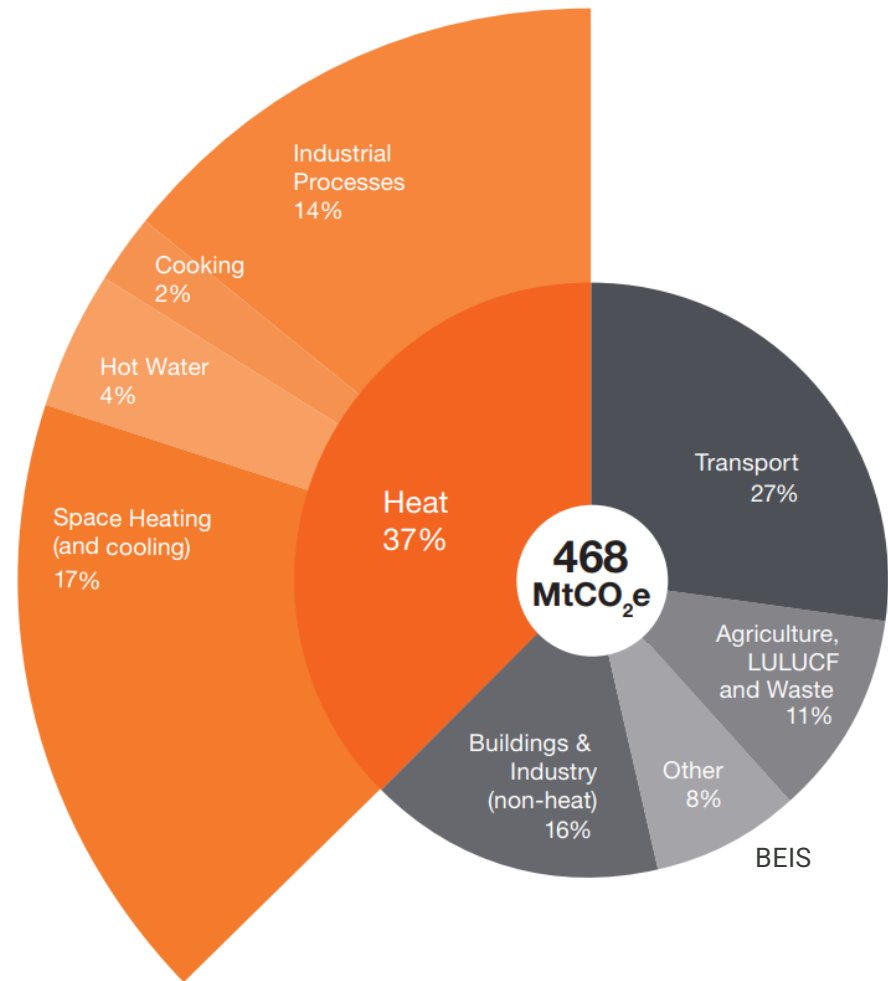
Source: UK Market Fundamentals, World Energy Council, BNEF

# Global temperature change

Relative to average of 1971-2000 [°C]



**UK's emissions  
are 468 MtCO<sub>2</sub>e  
with 37% from  
heating**



# 10% of the UK's emissions come through our network



## We have the following targets aligned with net zero



Zero carbon emissions from Cadent business activities by 2026

36,750 t CO<sub>2</sub>e /yr



Minimizing leakage of methane from our network through best practice

1,171,760 t CO<sub>2</sub>e /yr



Delivering a transition away from natural gas to hydrogen aligned with the UK Hydrogen Strategy

48,848,772 t CO<sub>2</sub>e/yr\*

# A policy framework has developed to start the hydrogen economy

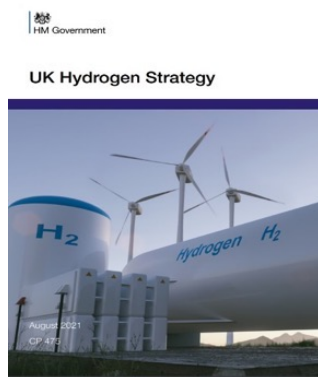
## Ten Point Plan



Nov 20

Committed to delivering a hydrogen strategy, and for the first time set out plans for village and town trials to inform a policy decision on hydrogen for heat

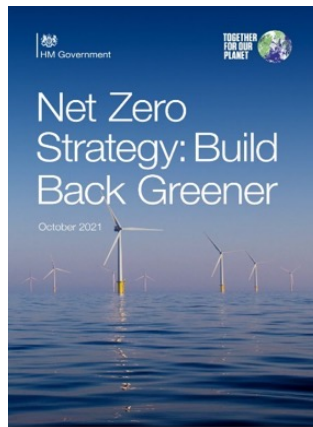
## Hydrogen Strategy



Aug 21

Affirmed a key role for hydrogen in the delivery of net zero and set up several new bodies to help deliver it – plus plans for new standards that define low carbon hydrogen

## Net Zero Strategy



Oct 21

Maintained that hydrogen for heat was an option and committed to a decision in 2026. Provided ~£350m in funding for various hydrogen support schemes

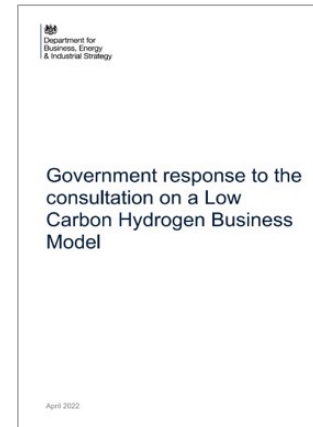
## Heat & Buildings Strategy



Oct 21

Whilst focused in short to medium term on electrification of heat, maintained position of optionality of hydrogen for heat and confirmed village and town trials to inform Heat Policy decision in 2026

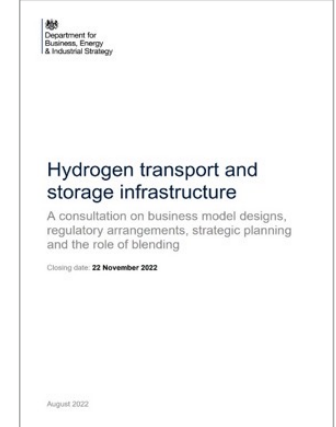
## Production Business Models



Apr 22

Govt responds to industry requests for hydrogen production support scheme based on the successful CfD mechanisms implemented for wind and solar

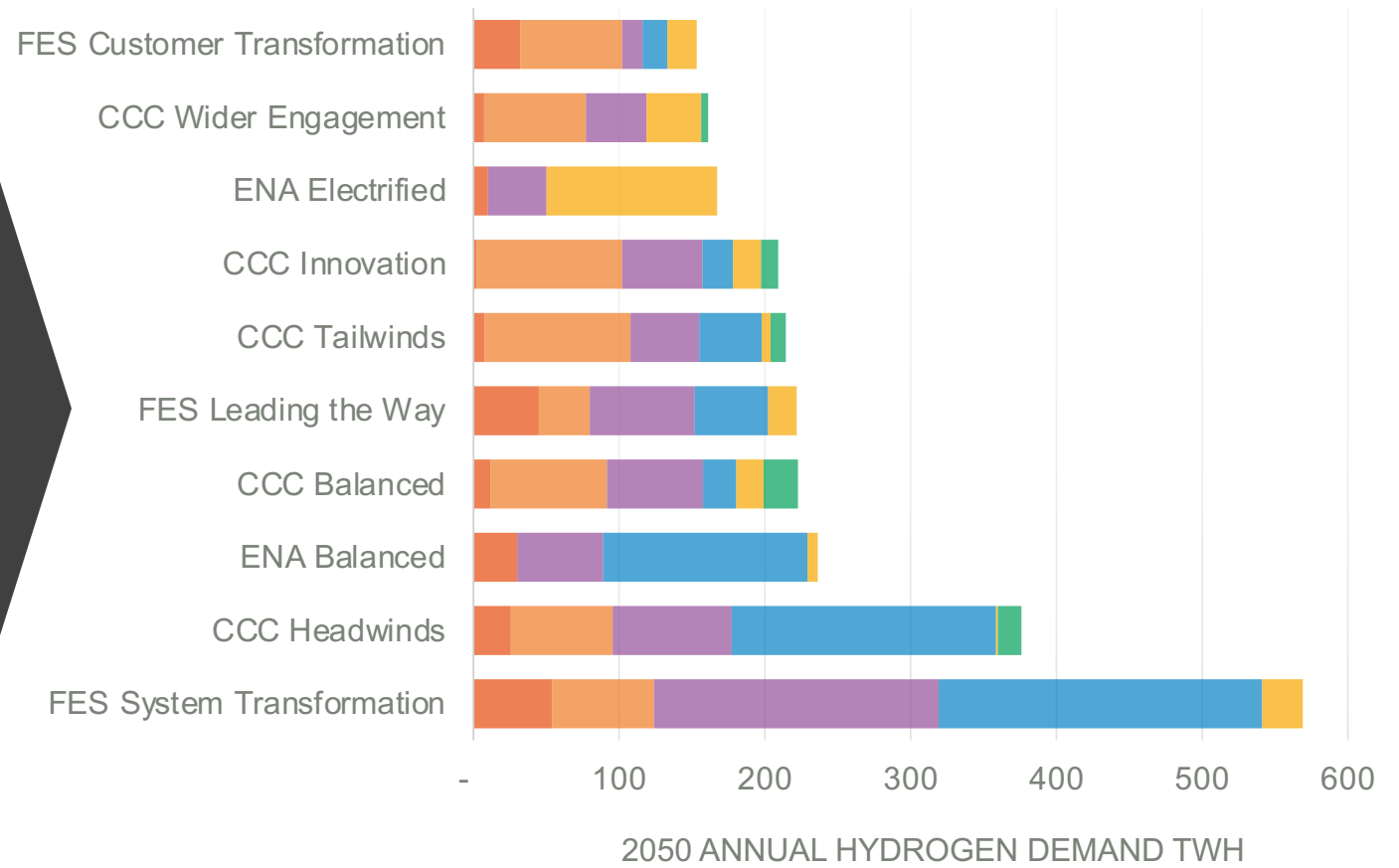
## Transportation Business Models



August 2023

In response to industry calls, Govt bring forward proposals to provide revenue certainty to hydrogen transport and storage operators, incl Cadent

# How much hydrogen is needed?



■ Transport 
 ■ Shipping & Aviation 
 ■ Industry 
 ■ Heat 
 ■ Power 
 ■ Other



## We building the safety and technical evidence

- Blending gas up to 20%
- Minimum disruption to customers
- No appliance changes
- Keele – Winlaton – Commercial
- HSE evaluation underway
- Government decision in 2023



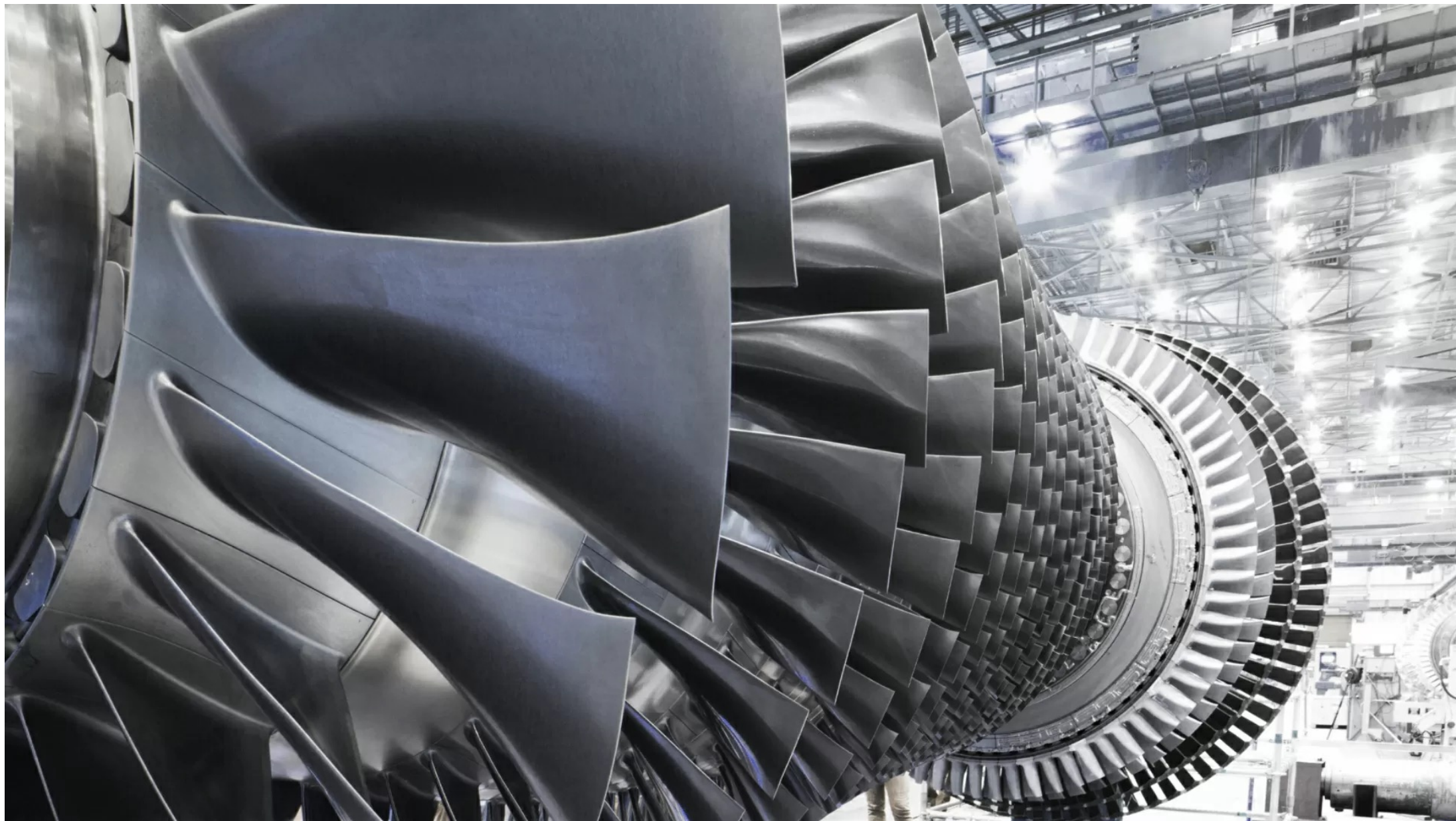















# Five regional programmes exploring the first hydrogen infrastructure - starting with industrial demand

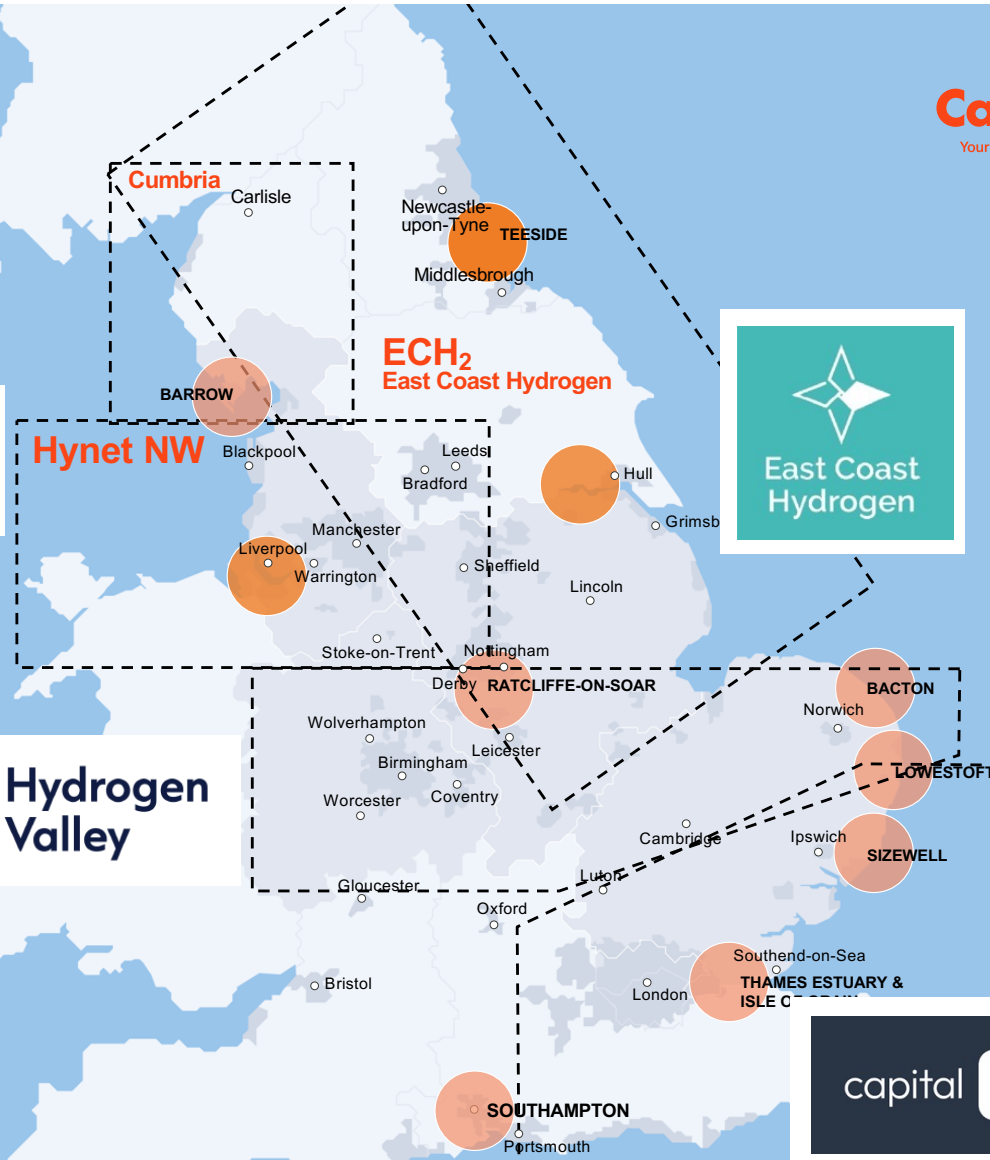
**HyNet**

**Hydrogen Valley**

**East Coast Hydrogen**

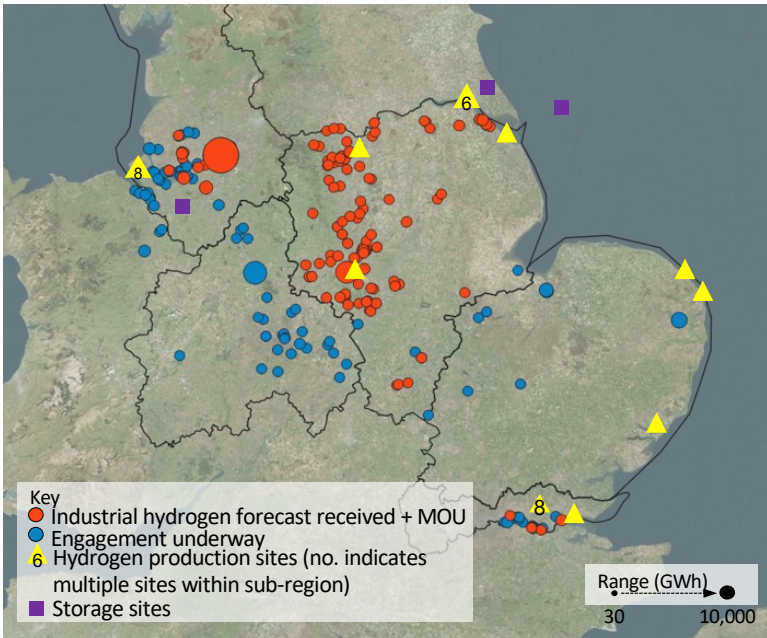
**capital H<sub>2</sub>**

-  IDC Funded Hydrogen Production Projects
-  Future Hydrogen Production Clusters
-  Current Clusters



# We are building relationships with industry across our regions and have received hydrogen forecasts totalling 45TWh+

Engagement with industries in the Cadent region



Identifying industrial hydrogen demand through regional projects

Regional Project	Collaborators and location	Project Stage	Description
<b>HyNet North West</b>	Cadent, Progressive Energy, Inovyn, Vertex and ENI <i>North West</i>	<b>Ph1B &amp; Ph2 FEED</b> – Plan to move to FID in 2023	<b>Scale:</b> 400km+ new transmission pipeline <b>Industrial MOUs:</b> 15 <b>Secured industrial demand:</b> 24TWh <b>Production:</b> 9TWh (2027) 33TWh (2032) <b>Storage:</b> 1TWh
<b>East Coast Hydrogen</b>	Cadent, NGN, NGT <i>East Midlands</i>	<b>Pre-FEED</b> – To be completed in 2023, with Ofgem re-opener required to fund FEED	<b>Scale:</b> 300km+ new transmission pipeline <b>Industrial MOUs:</b> 29 companies <b>Secured industrial demand:</b> 18TWh <b>Production:</b> 35TWh <b>Storage:</b> Up to 10TWh
<b>capital hydrogen</b>	Cadent, SGN, NGT <i>London and East of England</i>	<b>Technical feasibility</b> now in progress. <b>Pre-FEED</b> to progress in 2024	<b>Scale:</b> Re-purposed NTS plus new Cadent distribution pipeline for hotspots <b>Production:</b> 100-170TWh (Bacton, Grain, Felixstowe etc) <b>East London Hydrogen Pipeline:</b> forecast industrial demand 2.8TWh
<b>Hydrogen Valley</b>	Cadent, NGT <i>West Midlands &amp; Peterborough and Cambridge</i>	<b>Post-feasibility</b> – (hotspot development) Feasibility study completed in 2023.	Potential hydrogen demand for the West Midlands, Peterborough and Cambridge. <b>Production:</b> 90TWh at Bacton
<b>Cumbria</b>	Cadent	<b>Feasibility</b> – completed in 2021.	Involved in an initiative to develop green hydrogen production project in Cumbria

Note: 'secured industrial demand' is based on forecasts from industry. 'Forecast industrial demand' are based on internal estimates.







# Hydrogen is needed by industry to decarbonise

East Coast Hydrogen Consortium Members include:

Cross-value chain Hydrogen value chain participants	Upstream Hydrogen production	Downstream Sector-specific utilisation
<b>Midstream</b> Transportation and storage		
<b>Local stakeholders</b> Regional and local partners		

# Thank you

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Your Gas Network

[cadentgas.com](http://cadentgas.com)

