

The Future of Gas Transitioning to Net Zero

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Agenda

- **Introduction to Cadent and our Net Zero Ambitions**
- **The Many Colours of Hydrogen**
- **Stages of the Transition – Overview of our Regional Programmes**
- **Capital Hydrogen**
- **Hydrogen Valley**
- **Lessons Learned**
- **Call to Action & Next Steps**
- **Questions?**

Cadent

Your Gas Network



Cadent Footprint

- **Cadent - the UK's largest gas distribution network.**
- **Bringing gas to 11 million homes and businesses.**
- **Manage a network of more than 82,000 miles of pipes.**
- **Transport gas throughout the North West, West Midlands, East Midlands, South Yorkshire, East of England and North London.**

**Support the UK Governments
Net Zero ambition by 2050**

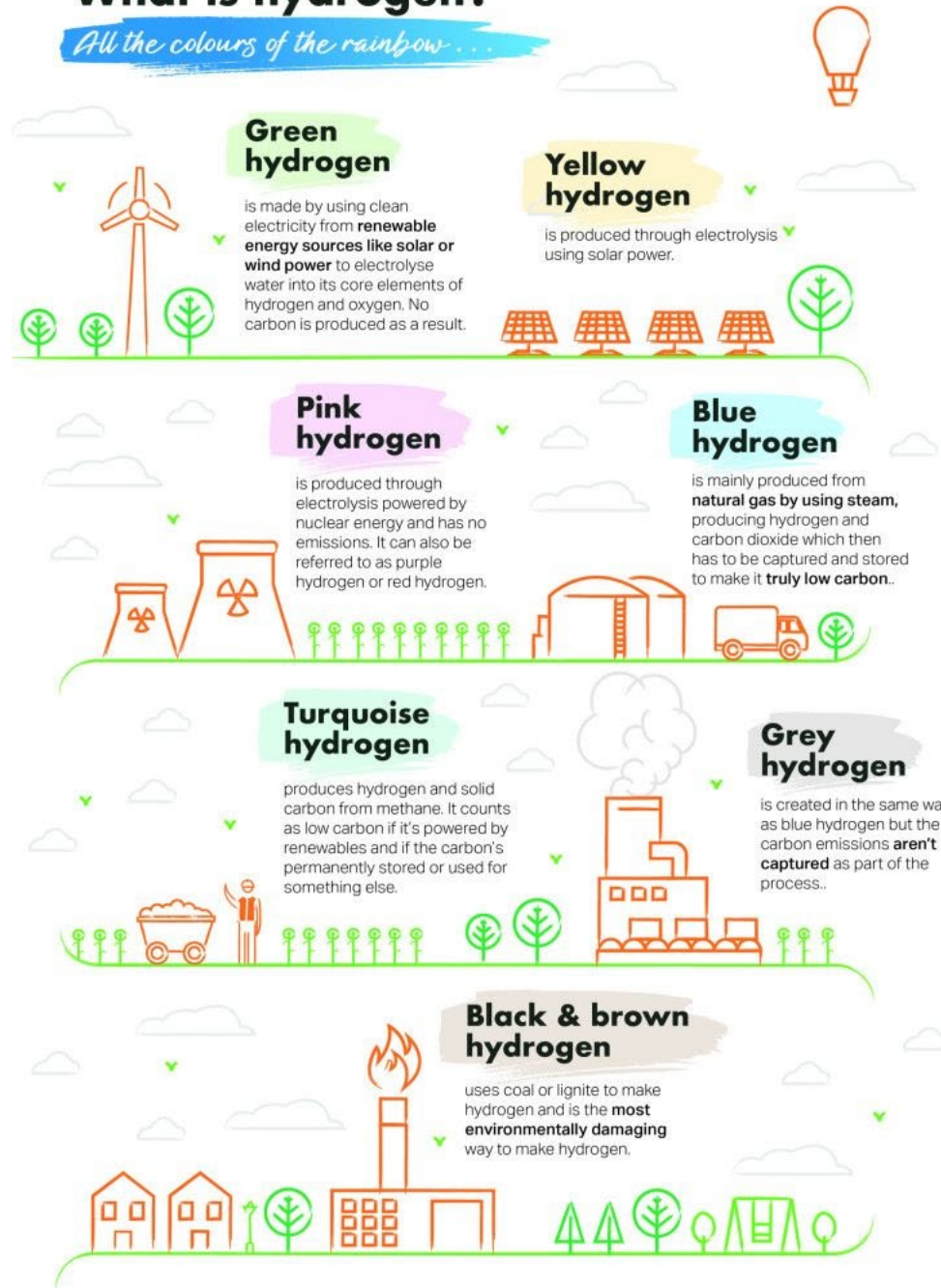
**Transition the current UK
natural gas network over to
hydrogen**

**Decarbonisation of heavy
industry, power generation
and transport**



What is hydrogen?

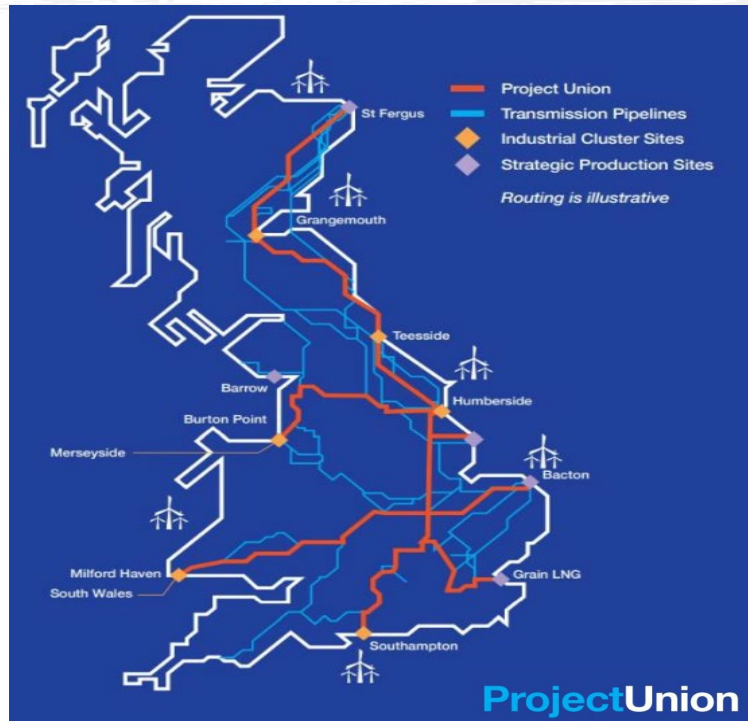
All the colours of the rainbow...



The Many Colours of Hydrogen

- UK Low Carbon Hydrogen Standard
- Blue or Green (electrolytic)
- Whilst blue hydrogen is not 'zero' carbon, it is very low carbon.
- Lower carbon intensity than grid electricity until 2030, when grid carbon intensity will dip towards zero by 2035.
- Blue hydrogen - made from natural gas, sequestering the CO₂ into disused oil and gas fields, locking it away from the atmosphere.

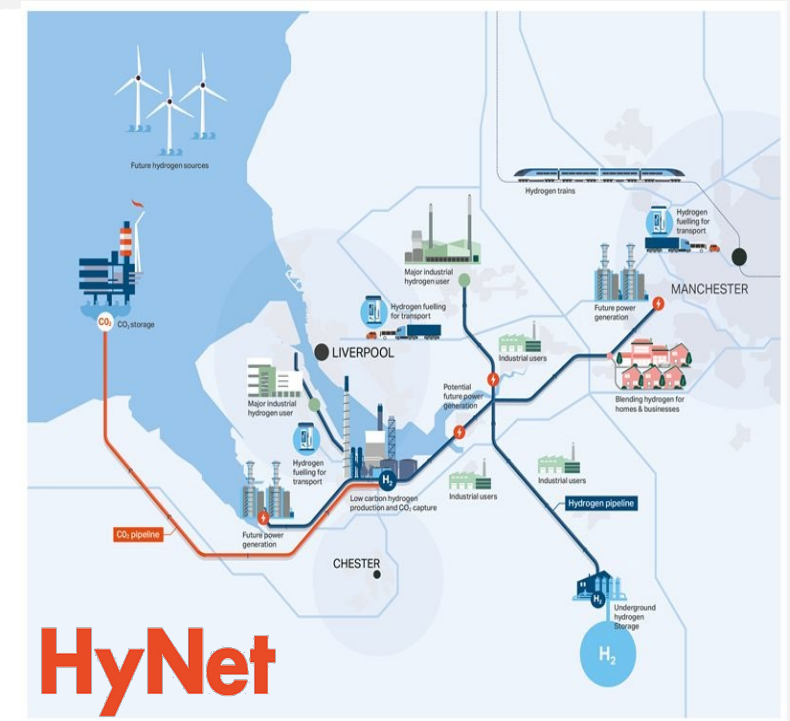
Transitioning the UK to Hydrogen – towards net zero



Project Union

- National Grid plan for a hydrogen transmission network.

- **Connecting hydrogen production, storage and demand to enable net zero and empower a UK hydrogen economy**
- **Repurposing the existing transmission pipelines to create a low carbon hydrogen backbone by early 2030's**
- **Building new 100% hydrogen pipelines**
- **Deliver energy security and independence whilst delivering net zero solutions**

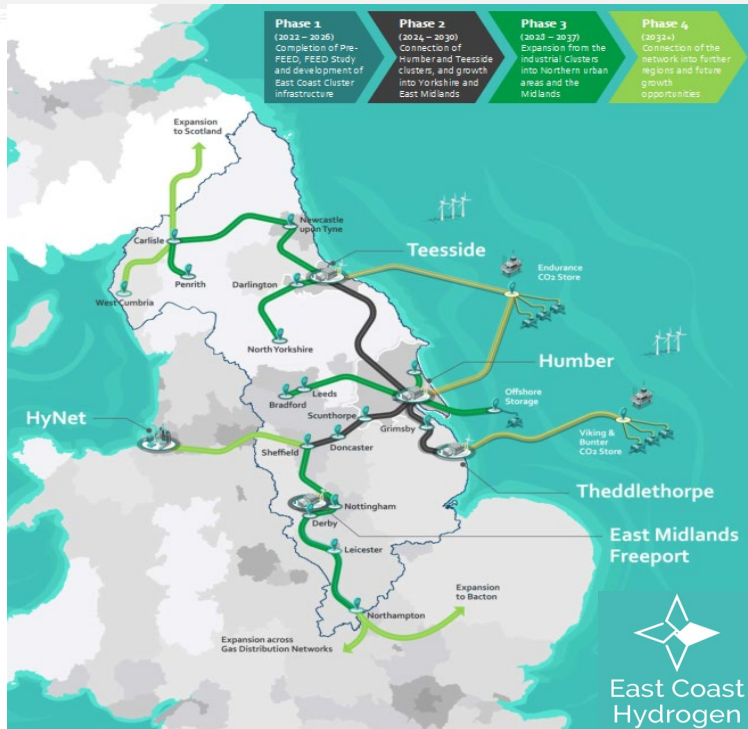


HyNet

- Enabling a low carbon economy in the North West including hydrogen production as well as hydrogen and CO₂ pipelines.

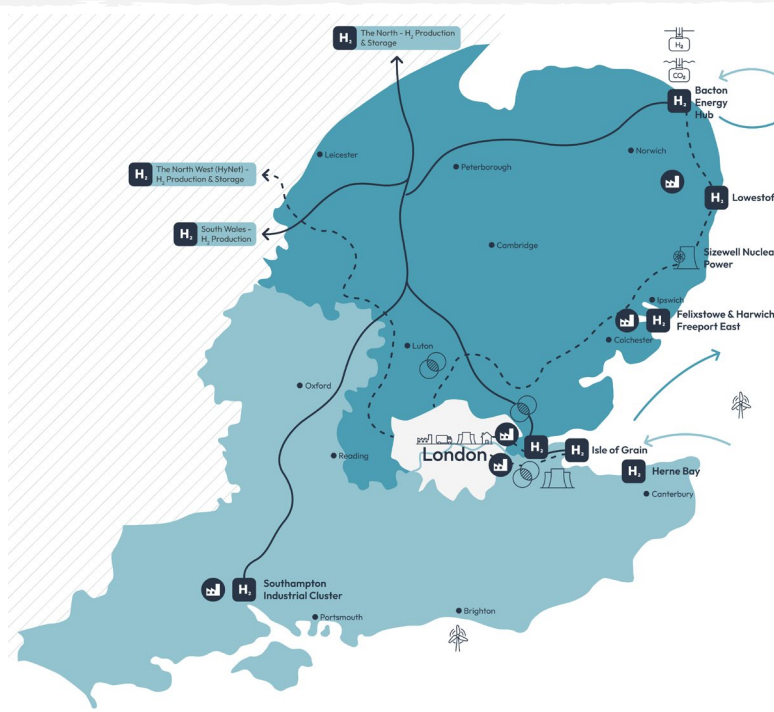
Regional Hydrogen Programmes

Connecting production to industrial demand centres



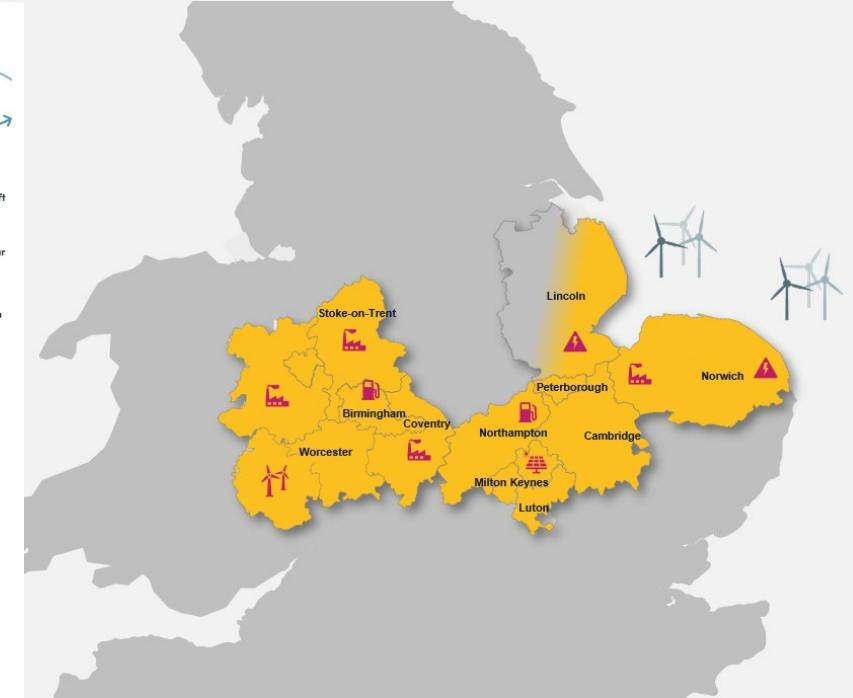
East Coast Hydrogen

- Aims to connect over 7GW of hydrogen production to the East Coast region



Capital Hydrogen

- Transitioning the gas network for London, the East and South East of England



Hydrogen Valley

- Connecting the supply of hydrogen from the East of England to demand centres in the West Midlands

Capital Hydrogen



Working in partnership to deliver hydrogen for London, the East of England and the South East

Cadent
Your Gas Network

nationalgrid

SGN

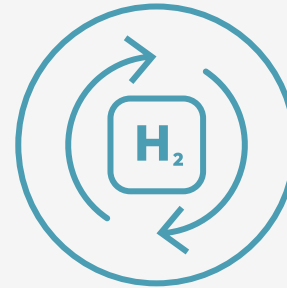
What is the Capital Hydrogen Programme?

Capital Hydrogen is a 15-20 year programme that will allow a transition from a natural gas network to a hydrogen network in London, the East of England and the South East.

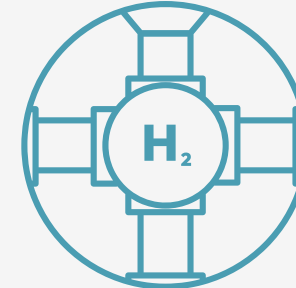
The Feasibility Study Identified:



How much hydrogen
may be needed by the
whole region over the
next 30 years



Where the
hydrogen will be
produced and
stored



How it will be
transported to
where it is needed



The economic
benefits of the
programme

www.capitalhydrogen.co.uk

Cadent
Your Gas Network

nationalgrid

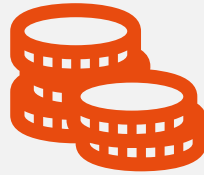
 **SGN**

capital 

Hydrogen Valley – assessing the feasibility of the transition to hydrogen



Job creation



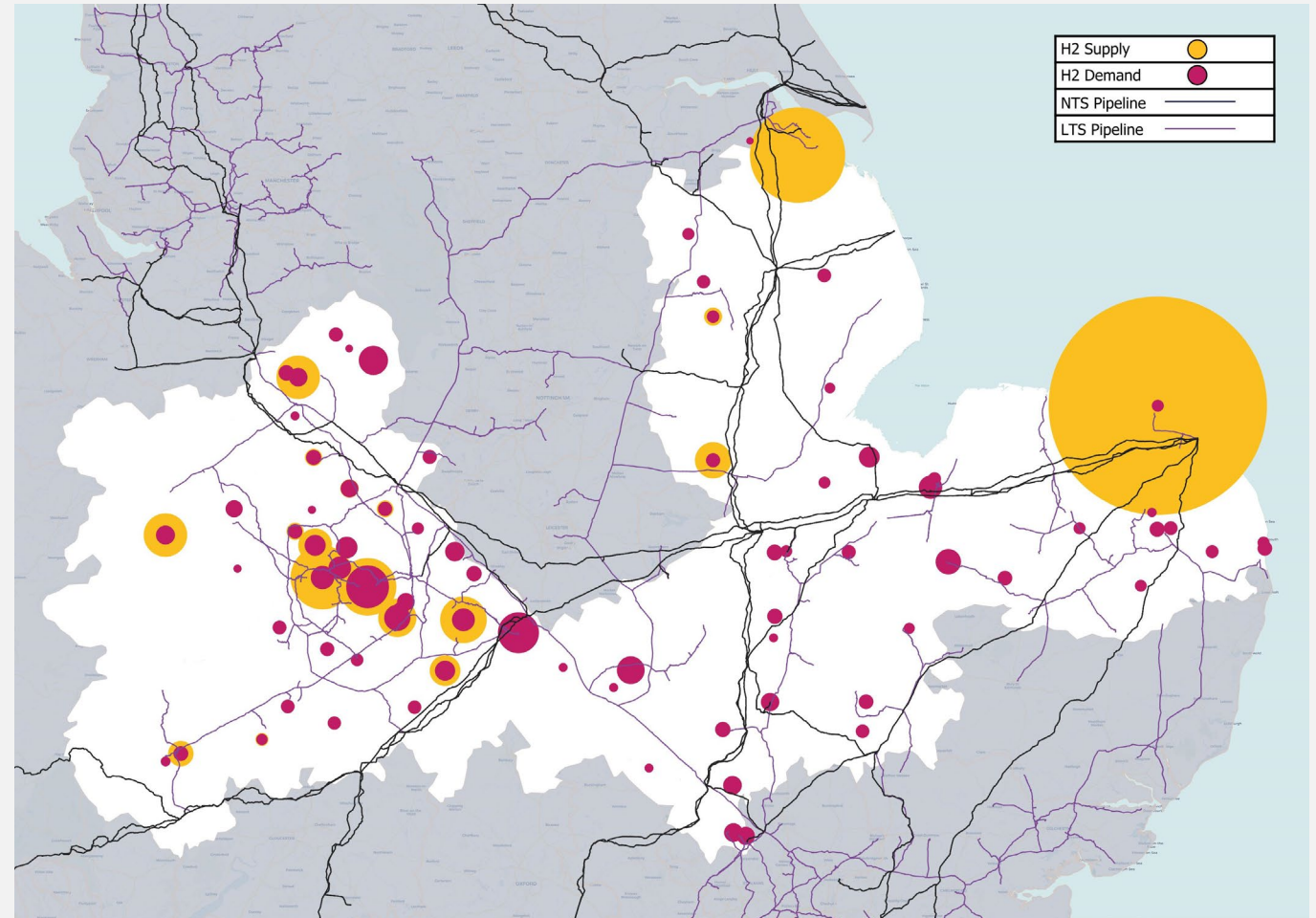
Investment in the region



Rapid decarbonisation



Increased energy security



The Hydrogen Valley is an evidence-based vision that reflects the needs of organisations in the region

Upstream Hydrogen production



Downstream Hydrogen demand



Hill & Smith Holdings PLC

Midstream Transportation



Public and third sector Regional non-for profit organisation



West Midlands Combined Authority

Lessons learned from stakeholder engagement



Chicken and egg situation with demand, production, and cost: who needs to make the first move?



In a net-zero context, **hydrogen is key** to the survival of industries that are **not able to electrify**



Despite challenges, there are already ongoing regional initiatives and ample **opportunity for collaboration** and further development

Next Steps:

Open invitation - join our Regional Consortia

Our ask of you

- Engage with our regional consortium groups and champion the hydrogen transition
- Regularly attend consortium meetings

Benefits to you

- Opportunity to connect with other key stakeholders
- Membership in the consortia helps foster collaboration and build strong cases for investment in the regions

Expectations

- We acknowledge varying levels of participation and involvement
- We encourage members to leverage the benefits of membership through cooperation and collaboration



Any Questions?

Thank you

Dr Kelly Manders

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Cadent

Your Gas Network

cadentgas.com

East of England

- 1.6M homes and business supplied
- 21,021 km of pipes replaced
- Equivalent to distance of Norwich to Sydney and 1/3 of the way back
- 70% replaced with hydrogen ready PE pipe

