

HyNet North West

Unlocking Net Zero for the UK

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CF **ESSAR**



Hanson
HEIDELBERGCEMENT Group

Cadent
Your Gas Network

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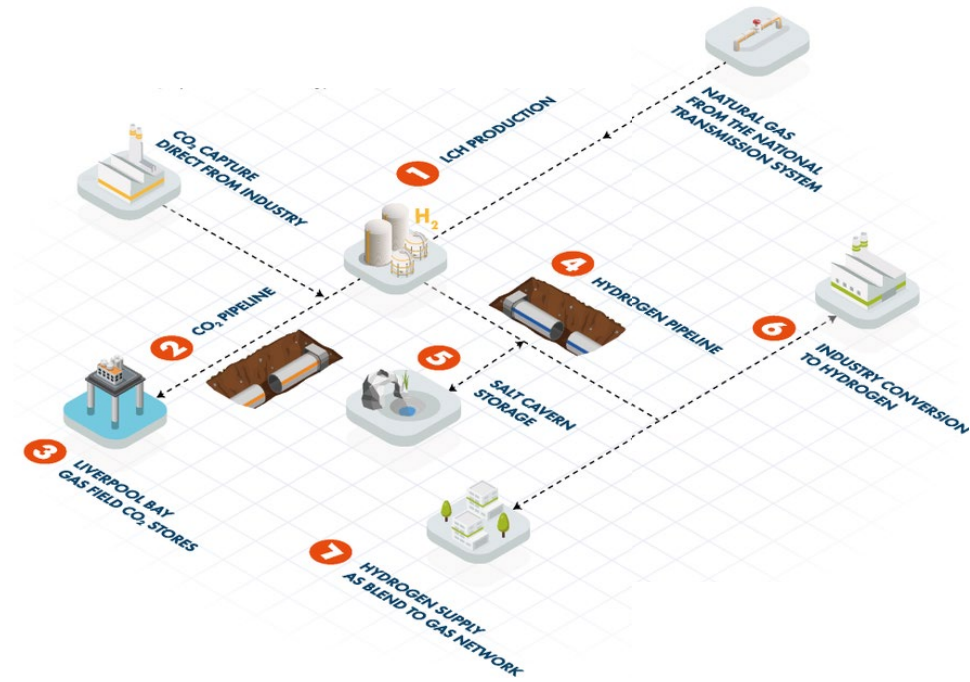


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HyNet will decarbonise the North West of the UK from 2025

From 2025, HyNet will begin removing carbon from:

- Industry
- Heating of buildings
- Transport
- Electricity available on demand



The HyNet low carbon cluster will:

- Produce clean hydrogen from the UK's first low-carbon hydrogen plant
- Capture, transport and store CO₂
- Transport hydrogen to industry and homes
- Provide the technology for industry and homes to switch to hydrogen

HyNet North West can be expanded into Lancashire, Cumbria, Derbyshire, parts of the West Midlands and further into Wales.

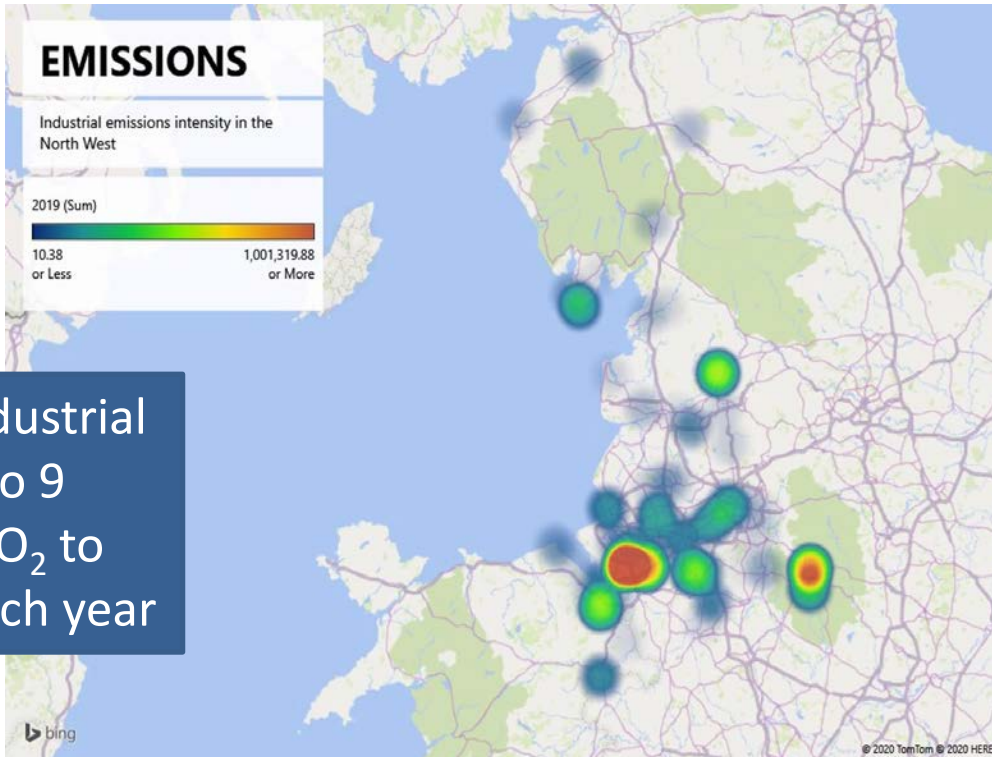
Net Zero is not optional

We understand the problem

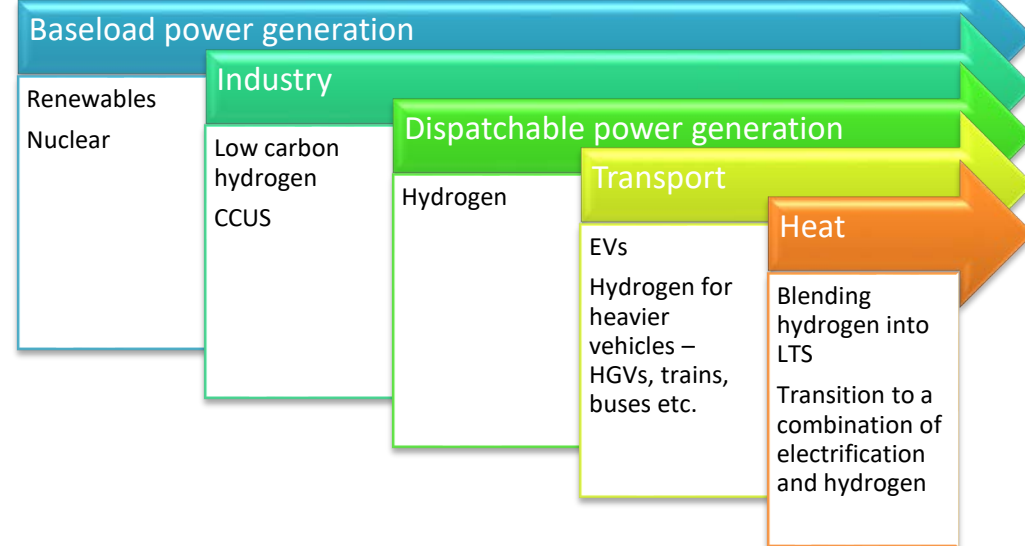
We understand the causes

We have the data

We need to take action now



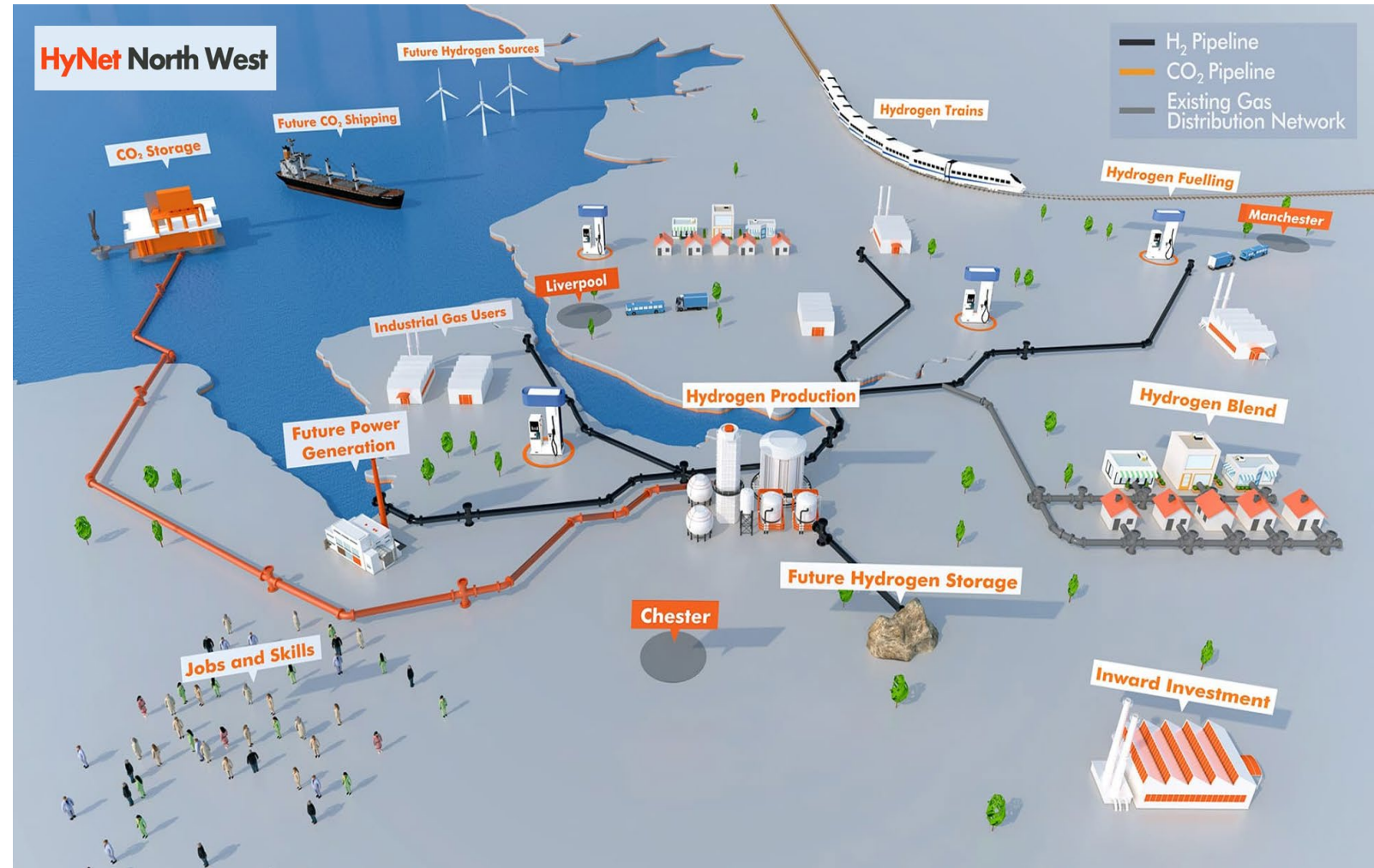
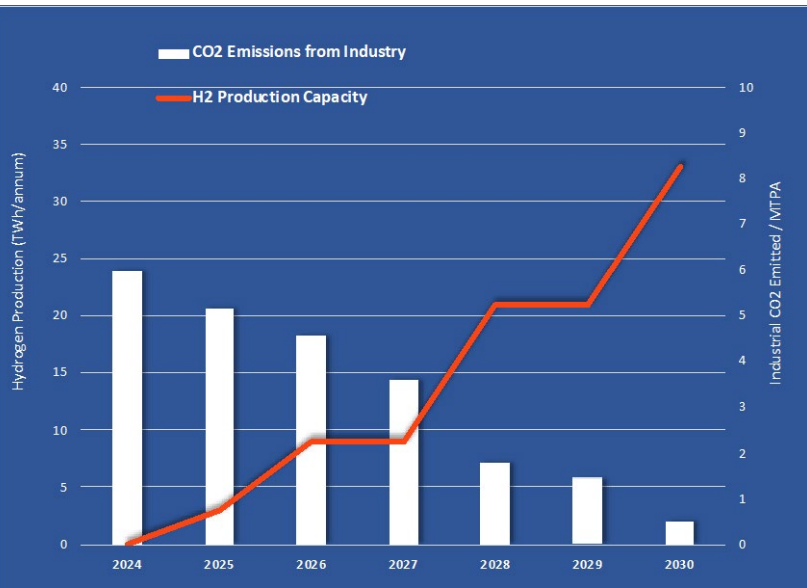
The North West Industrial Cluster releases 8 to 9 million tonnes of CO₂ to the atmosphere each year



HyNet provides a deliverable and affordable pathway to eliminate industrial emissions and start decarbonisation of heat and heavy transport

HyNet offers broad decarbonisation

- Industry
- Heating
- Transport
- Dispatchable Power



HyNet value to North Wales



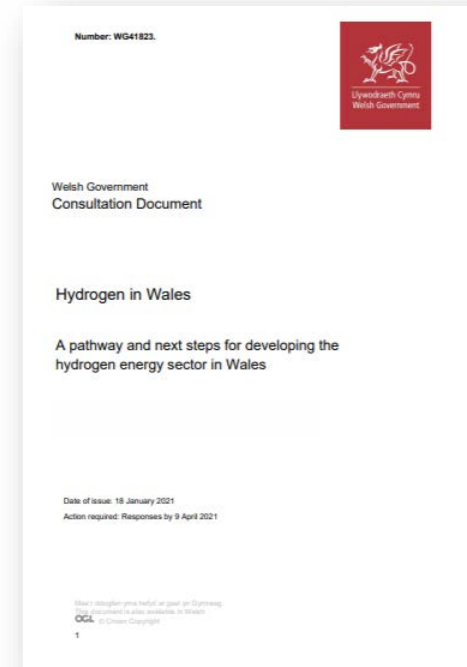
- 1. Repurposes existing Eni gas extraction and transport assets by 2025 for a sustainable future**
- 2. Supports existing industry to decarbonise in a cost effective way as early as this decade – no other projects at this scale**
 - Hanson cement production carbon capture
 - Industry in Deeside Industrial area and more widely in Wrexham and Flintshire
 - Potential for clean flexible power generation and hydrogen production
- 3. Cross border regional investment in hydrogen infrastructure**
 - Supports decarbonisation of domestic heating and transport
 - Makes the region an attractive place to invest in clean manufacturing

UK Governments are committed to hydrogen



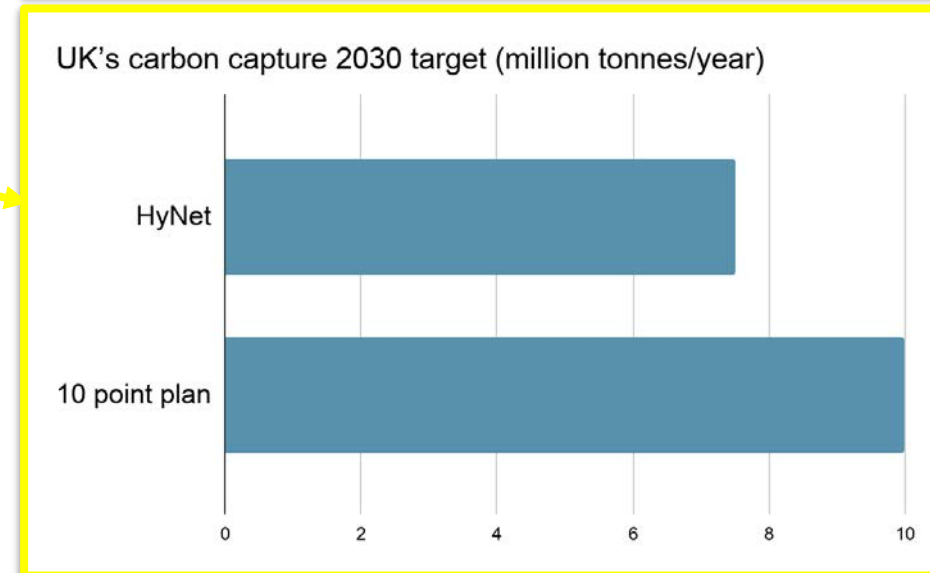
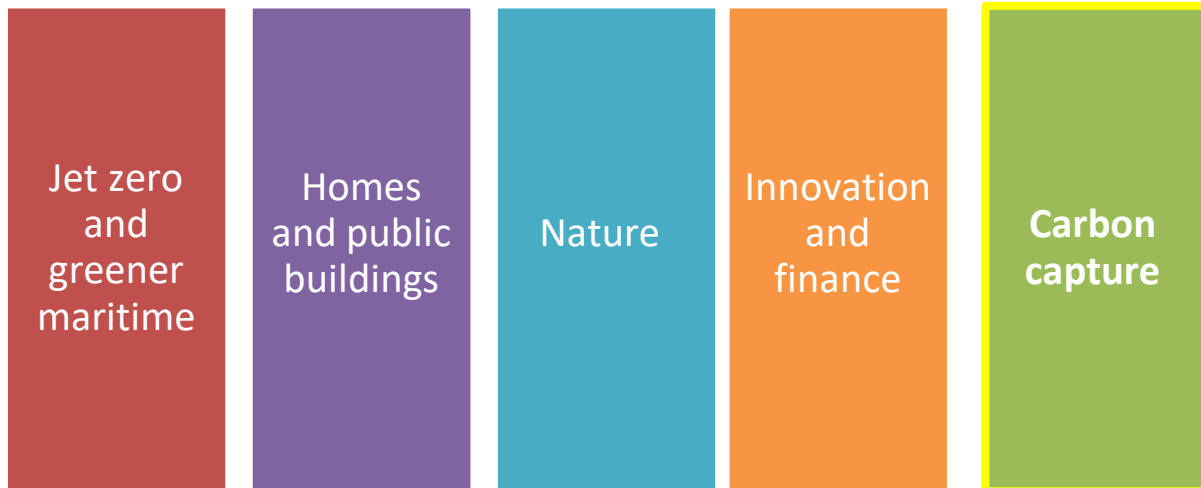
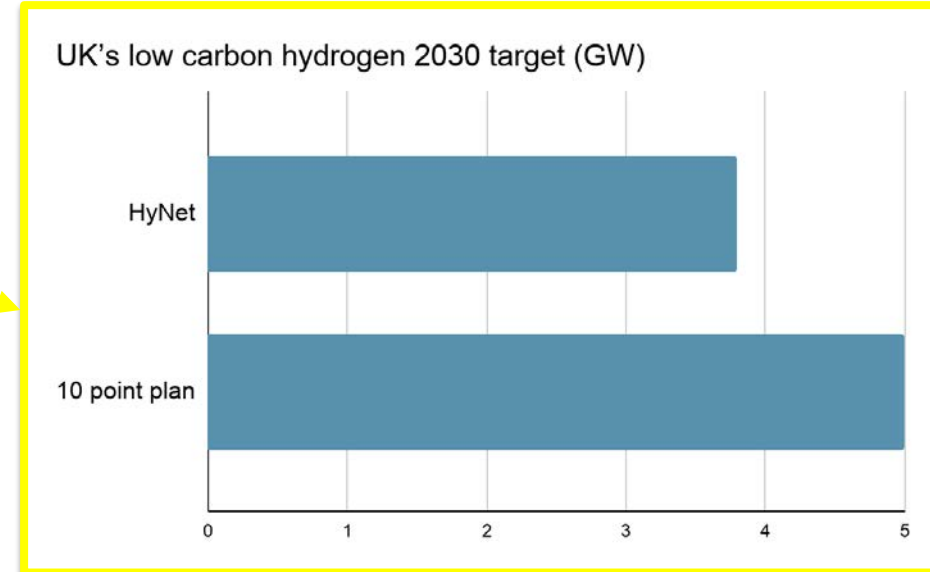
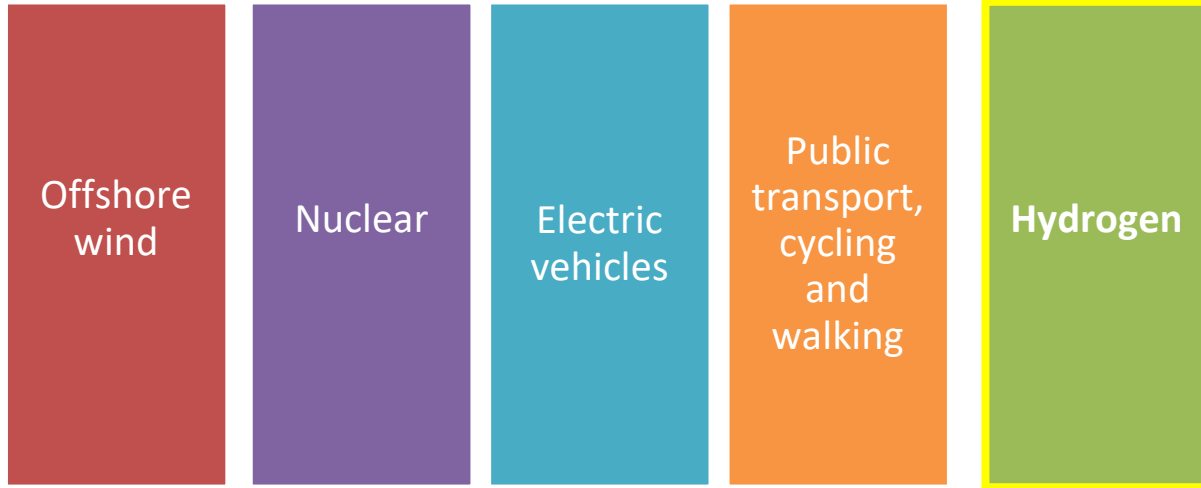
Welsh Government consulting on Hydrogen Pathway

1. UK Hydrogen Strategy due in H1 2021
2. Consultation on low carbon hydrogen business models due in Q2 2021
3. Consultation on £240m Clean Hydrogen Fund and £1bn CCUS Infrastructure fund expected soon



Funding for Holyhead Hydrogen Hub in budget

HyNet: essential for the UK 10 point plan



Delivering HyNet



Essar & PEL
have
announced
plans for first
2 plants

Hydrogen
Production

CO₂ transport
& storage

Carbon
capture

Demonstrations
planned at
Unilever and
NSG
Pilkingtons

Industrial Fuel
Switching

Hydrogen
Storage

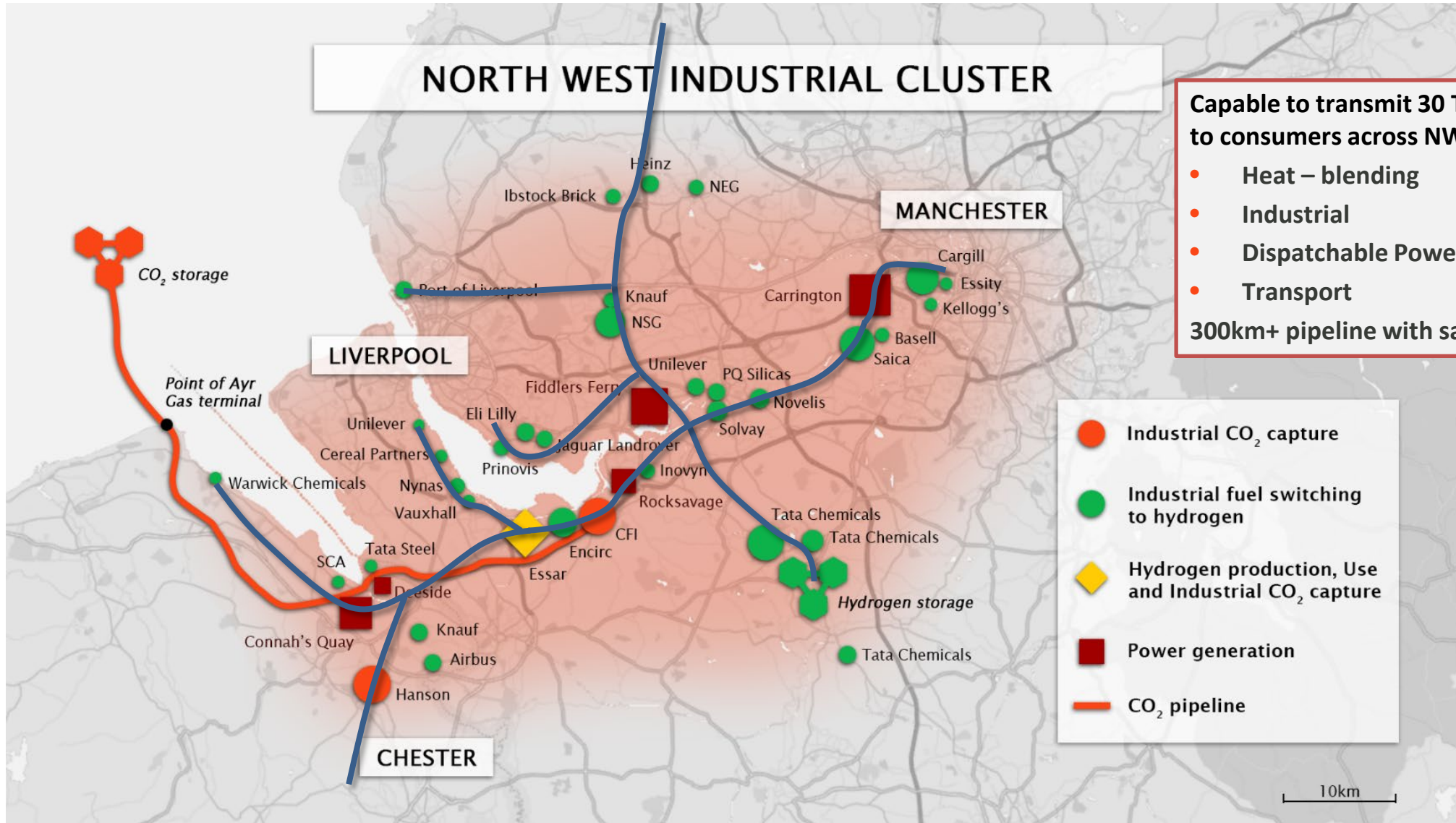
Hydrogen
Network

IDC consortium will spend £72m (£33m from Government, £39m from partners) on Front End Engineering Design and Consenting



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HyNet hydrogen network by 2030



Capable to transmit 30 TWh/y H₂ from Stanlow to consumers across NW England and NE Wales

- Heat – blending
- Industrial
- Dispatchable Power generation
- Transport

300km+ pipeline with salt cavern storage

- Industrial CO₂ capture
- Industrial fuel switching to hydrogen
- ◆ Hydrogen production, Use and Industrial CO₂ capture
- Power generation
- CO₂ pipeline

UK Industrial Clusters Mission

- NW is actually 6-9m tpy depending on how the cluster geography is defined
- Each cluster except Southampton has at least 1 CCUS/hydrogen project, and is developing a roadmap (cluster plan)
- Each has been funded via IDC
- Four CCS clusters with local CO₂ storage can participate in the Cluster Sequencing process

GRAND CHALLENGE

What is the Industrial Clusters mission?

Our aim to create a net-zero carbon industrial cluster by 2040 is a world first. We want to attract innovators, investors and problem solvers to create a low-carbon exemplar that others in the UK and internationally can learn from and replicate.

"We will establish the world's first net-zero carbon industrial cluster by 2040 and at least one low-carbon cluster by 2030"

This will be achieved by:

- ▶ Reducing emissions in one cluster to **net-zero by 2040**.
- ▶ In at least one cluster, by 2030:
 - **The low-carbon infrastructure** needed to support industrial decarbonisation will be in place and operational, attracting new investment and innovation.
 - **Multiple industrial facilities** will already have reduced their emissions, by the greatest possible extent.
- ▶ Positioning UK clusters as top areas for global inward investment and driving demand for low carbon products and technologies by **harnessing the power of markets, the public sector, universities and local communities**.

Largest industrial clusters by emissions

Cluster	Emissions (MtCO ₂)
Grangemouth	4.3
Teesside	3.1
Merseyside	2.6
South Wales	8.2
Southamptton	2.6
Humberside	12.4

The mission is backed by public investment through the **Industrial Strategy Challenge Fund**

Based on high-emissions sites in scope of the EU ETS - may not be exhaustive

Cluster Sequencing – critical 2 phase process

10 Point Plan announced a commitment to deploy 2 carbon capture clusters by the mid-2020s and a total of 4 by 2030



Phase 1 bid by July 9th – decision Oct 25th

- Selecting two Track 1 CCS Clusters to negotiate support regime

Criteria	Weighting
Deliverability	30%
Emissions Reduction Potential	25%
Economic Benefits	20%
Cost Considerations	15%
Learning and Innovation	10%

Phase 2 – outline process

- Carbon capture & hydrogen production projects connected to Track 1 clusters

Essential for industry in the region and that HyNet is selected on Track 1

