



# HYMOTION - UNLOCKING LOW CARBON TRANSPORT OPPORTUNITIES IN THE NORTH WEST

DAVID JONES

SUSTAINABLE TRANSPORT STRATEGY MANAGER, CADENT

#h2nw



DELIVERING THE  
**HYDROGEN**  
ECONOMY

North West



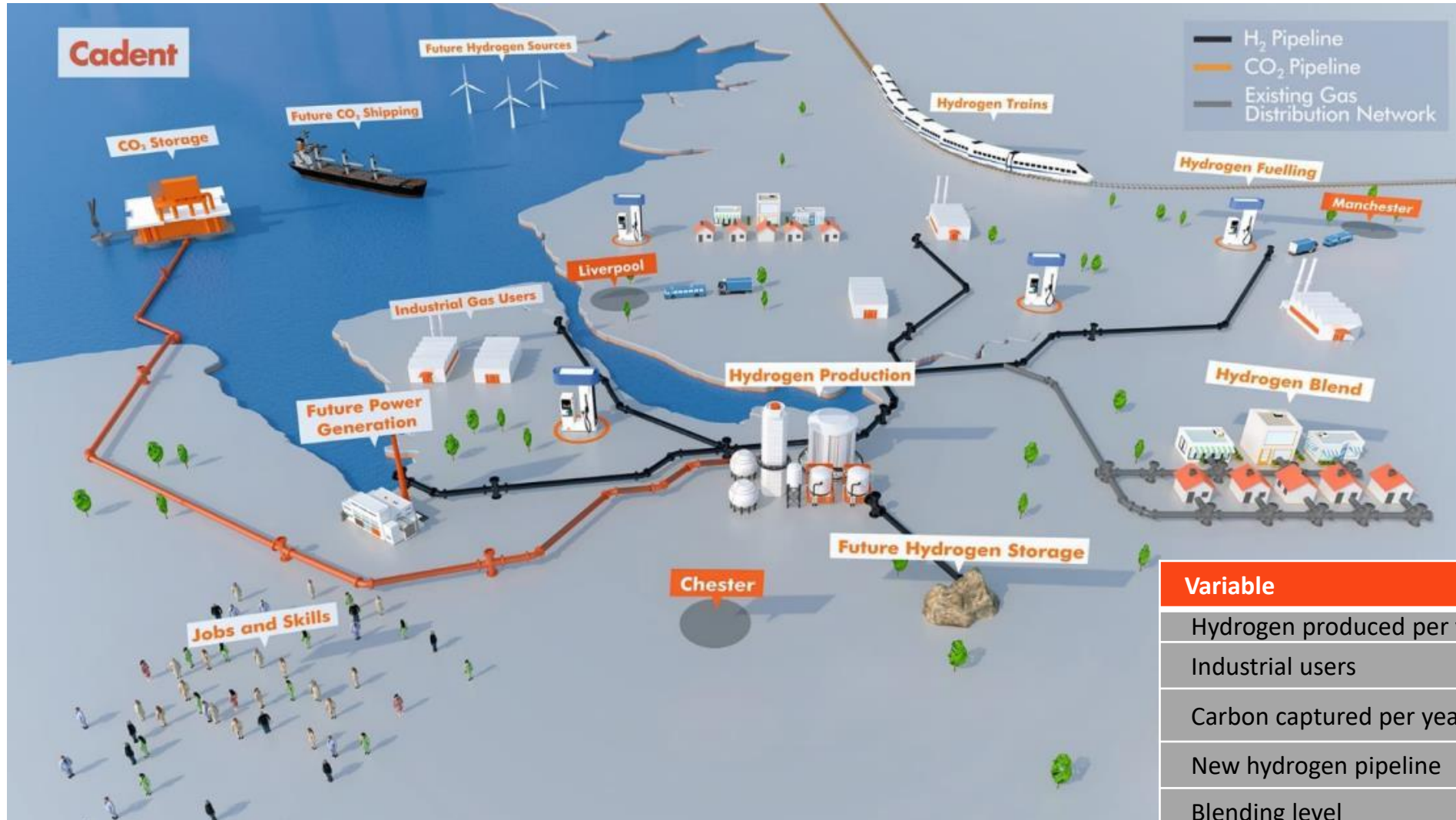
David Jones  
Sustainable Transport Strategy Manager

**HyMotion**

**Unlocking low carbon transport opportunities  
in the North West**

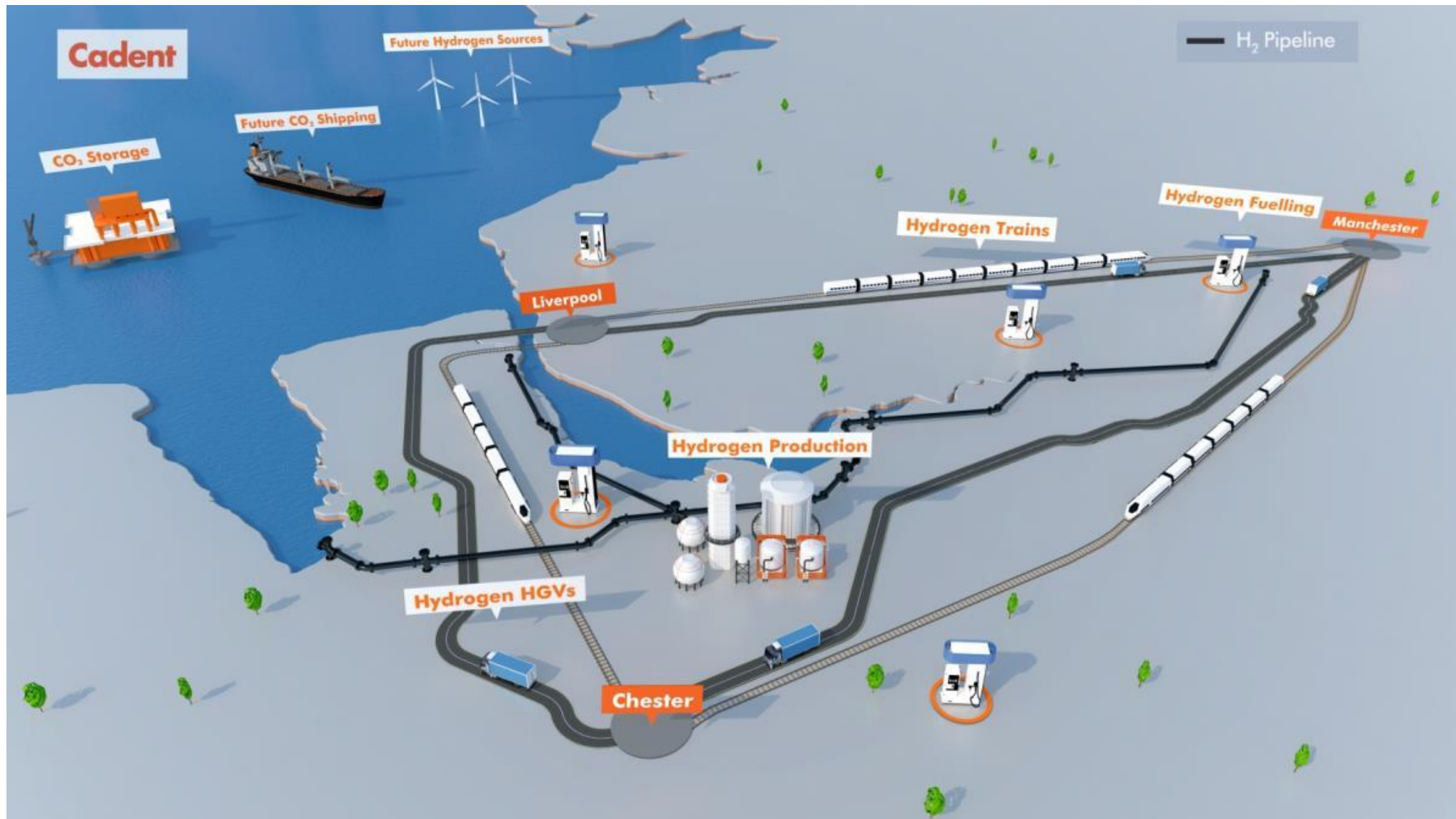
05/06/2019

# HyNet Project Summary



Variable	Value
Hydrogen produced per year	7.0 TWh (180m kg)
Industrial users	10
Carbon captured per year	1.5m tonnes
New hydrogen pipeline	109km
Blending level	15-20%
Blend customers	c.2m

# HyMotion Summary



# Goals of HyMotion

Goals



Outcomes



# Key report findings 1

- Hydrogen supplied by HyNet network delivers mobility-grade hydrogen at **40-70% lower cost than electrolysis**
- Hydrogen supplied by HyNet network can be **6 times cheaper than hydrogen delivered by tube trailer**
- **Both BEVs and FCEVs needed to meet CO2 targets:** different strengths: long range / short range



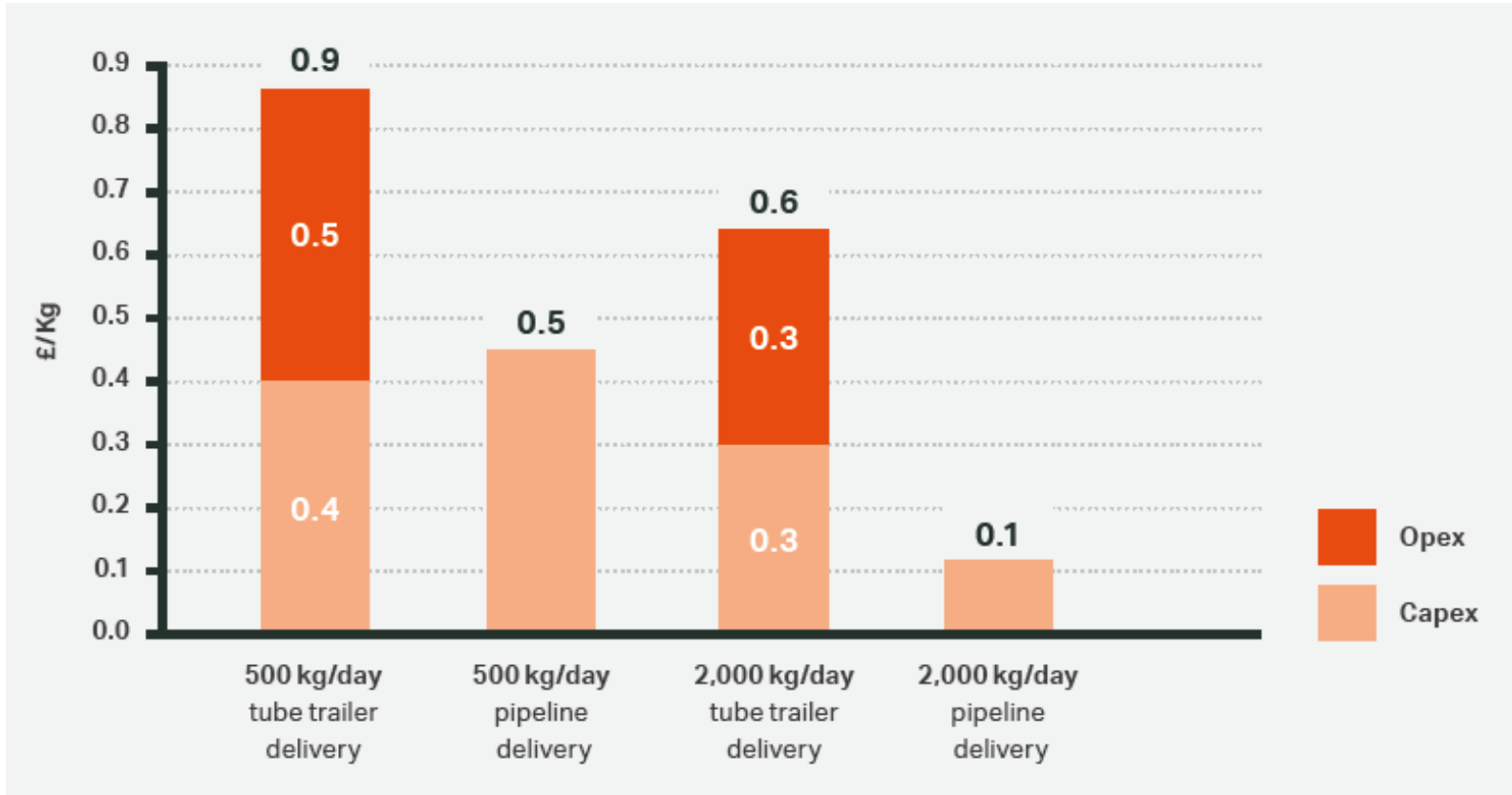
# Key report findings 2

- **Hydrogen cars, buses, trains and ships are ready for deployment.** Challenge to bring Hydrogen HGVs to UK
- **Cost of FCEVs will be similar to BEVs** when production volumes reach parity
- Under our medium scenario, **FCEVs could reduce mobility-related CO<sub>2</sub> emissions by around 350 ktpa** in the North West by 2030
- Networked-hydrogen delivers mobility energy **more easily, and with lower environmental impacts and costs than electricity on its own**



# Hydrogen Distribution Costs

Hydrogen distribution cost comparison (in £/kg) for different delivery options



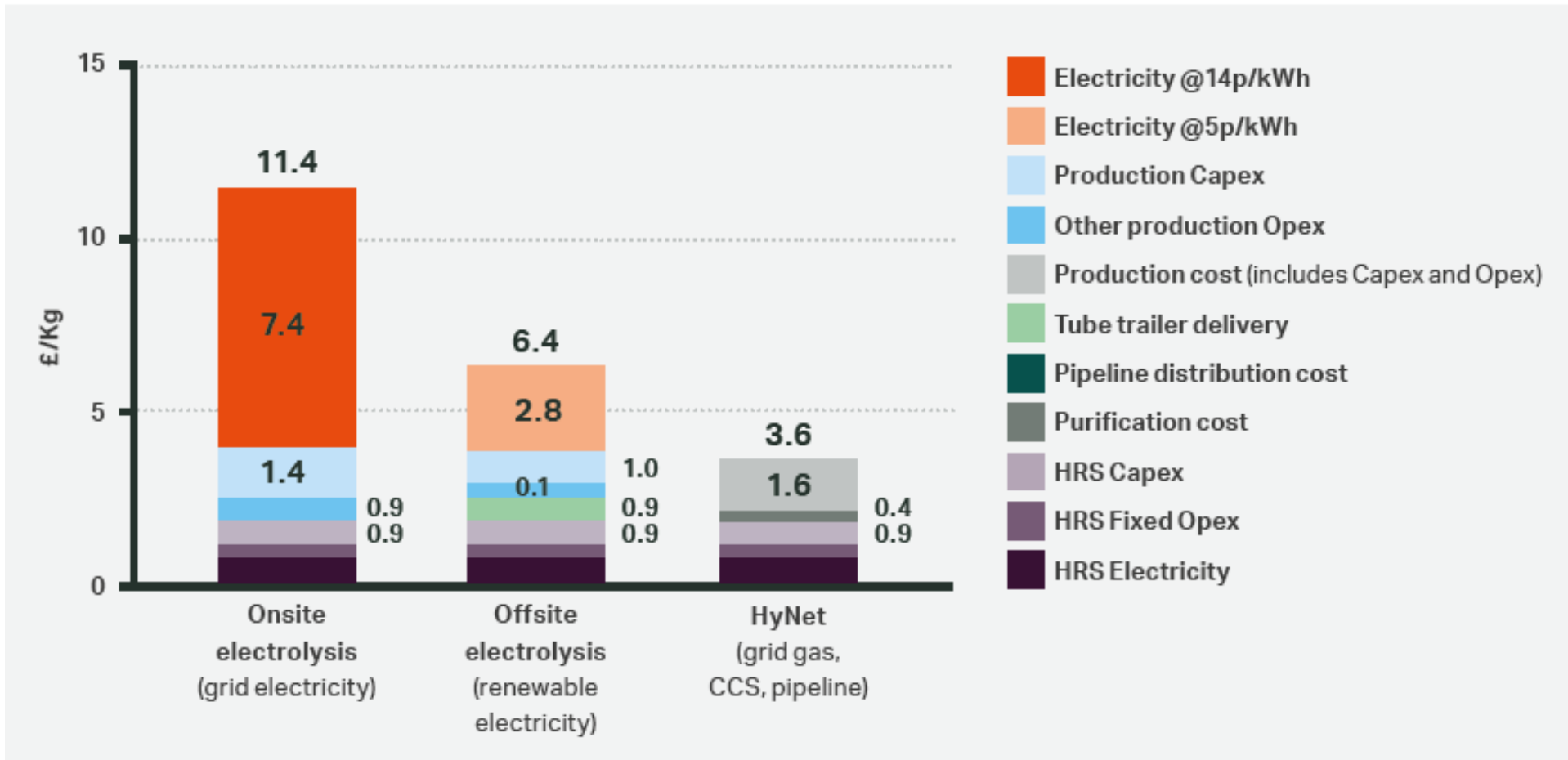
## Key Assumptions:

- HRS is 100 km from point of production (200 km round trip for tube trailers)
- Each tube trailer delivers **750 kg H<sub>2</sub>**
- 1km dedicated pipeline required for network delivery (as a 'spur' to planned HyNet pipeline)

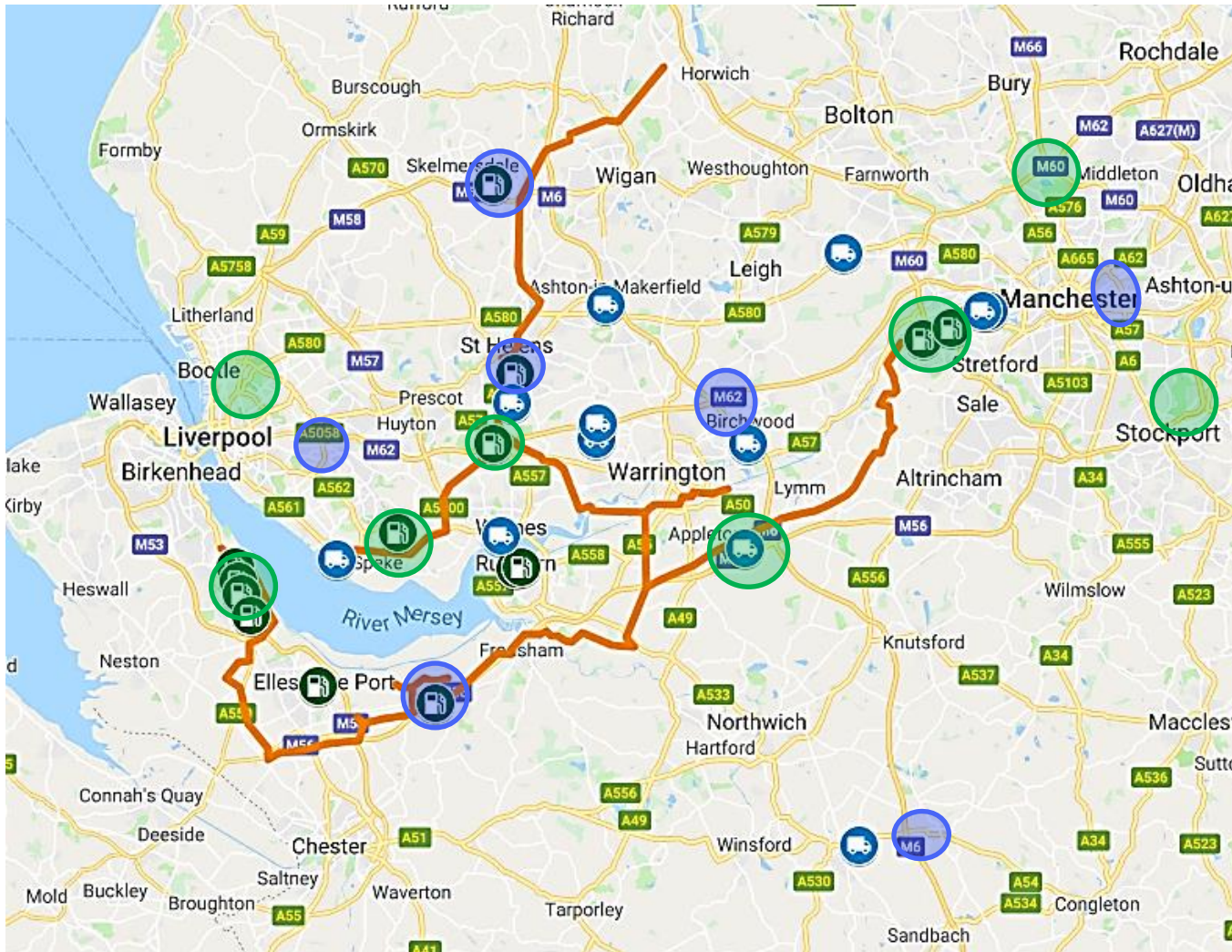


# Hydrogen Production and Distribution Costs






Effective current costs of production (sales margin not included) to meet a demand of 2,000 kg/day



# Potential Refuelling Network in 2030



**Legend**

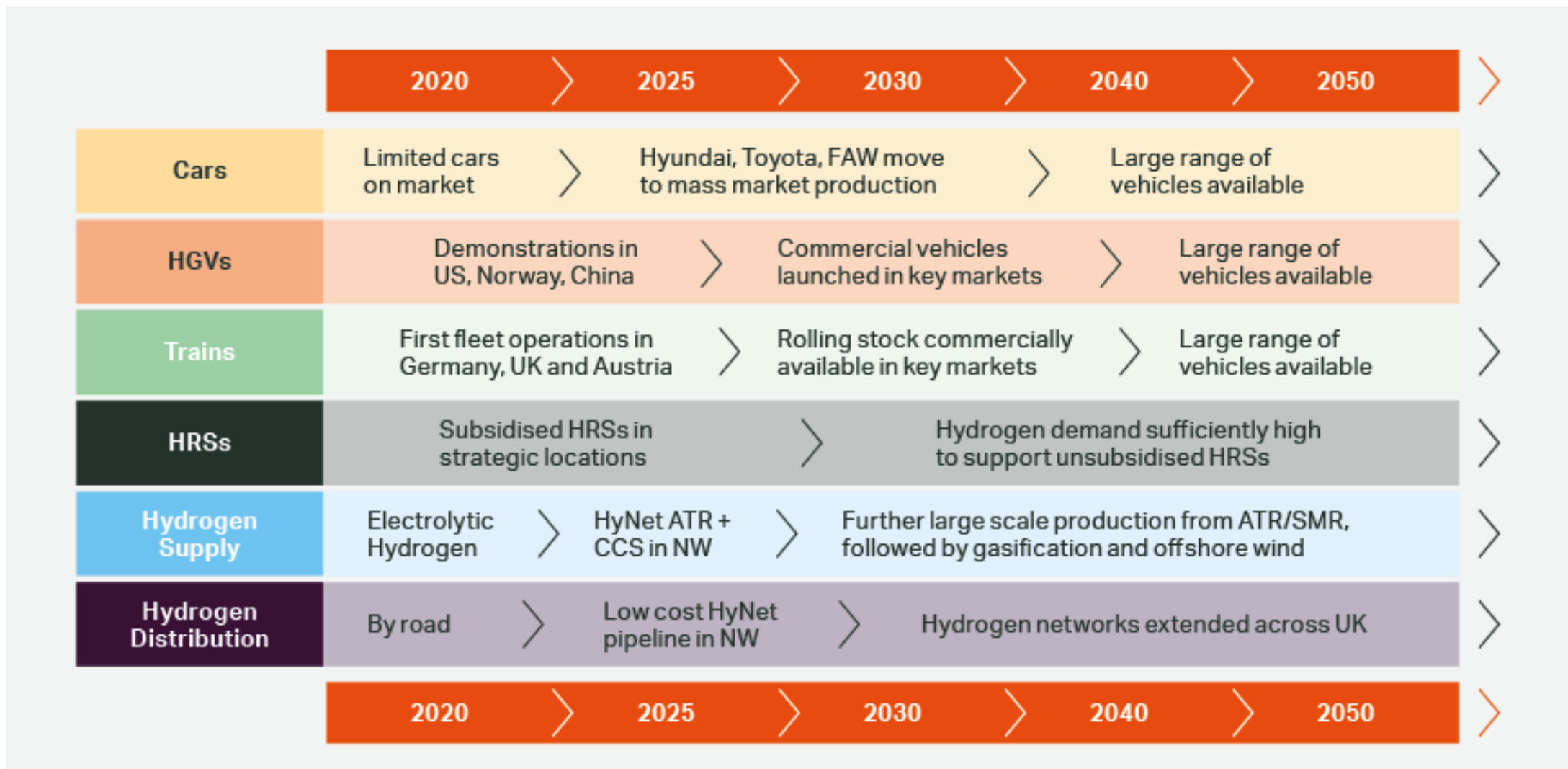
-  Truck Depots
-  Existing petrol station
-  HyNet pipeline schematic
-  Proposed HRS locations – low uptake scenario
-  Additional proposed HRS locations – high uptake scenario

- 8-15 filling stations in North West can provide good coverage of region.
- Focus on strategic locations close to major roads for cars and at return to base depots for HGVs
- Hydrogen distribution costs optimised by locating stations close to HyNet dedicated hydrogen pipeline

Source: Google My Maps



# Resulting Sector Roadmaps





**Download the full report**

**[www.hynet.co.uk/transport](http://www.hynet.co.uk/transport)**

