



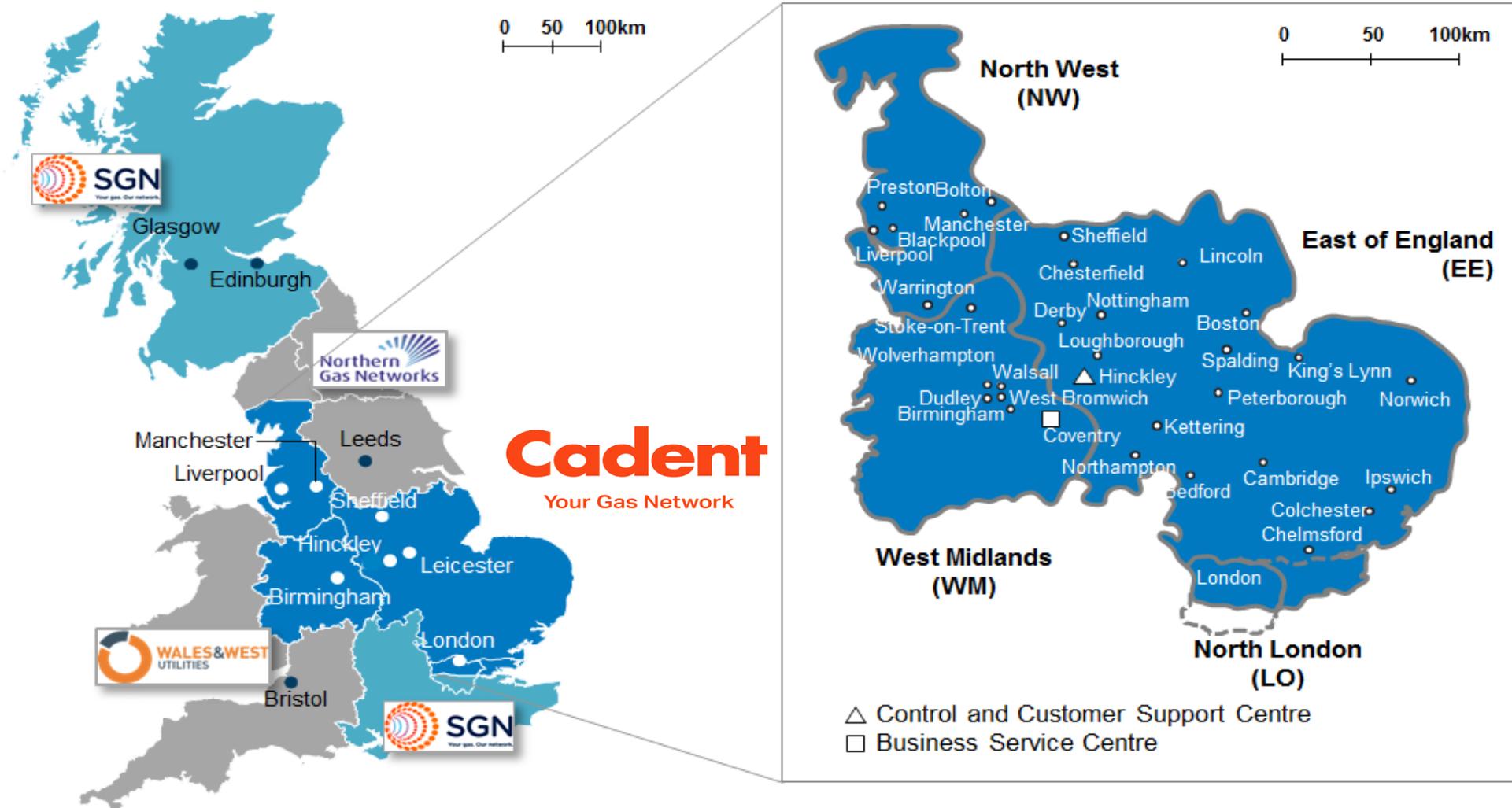
# JRC Future Role of the Gas Network

## (Decarbonisation of Heat & Transport)

Dave Tilley  
Head of Gas Supply

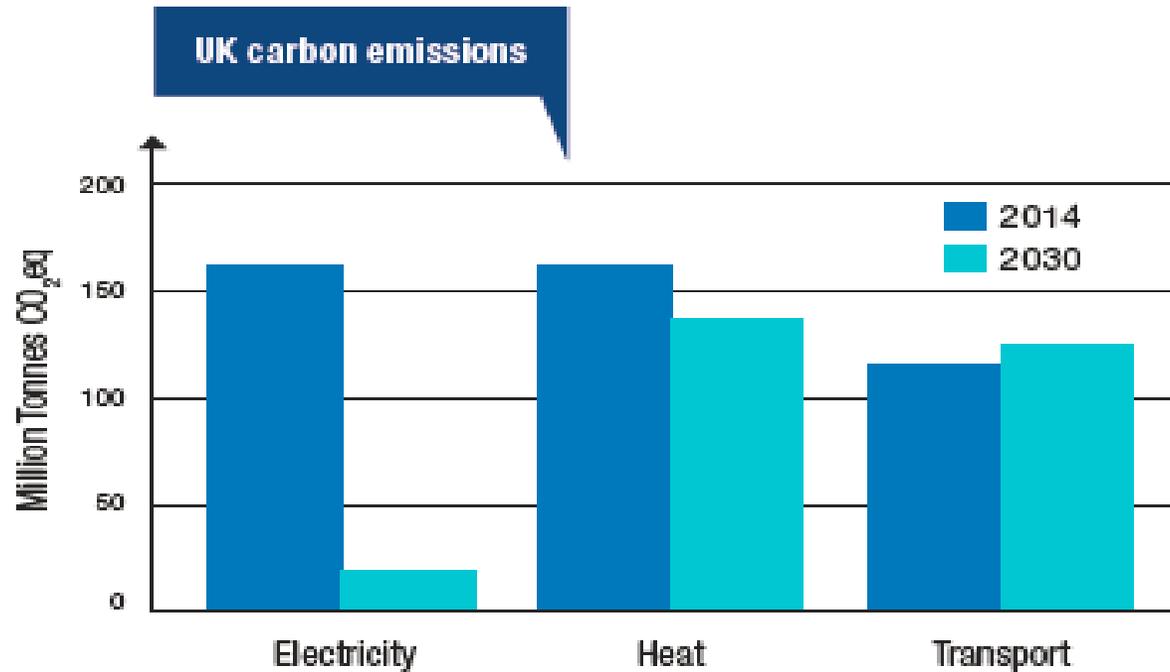
**Cadent**  
Your Gas Network

# Cadent - a Gas Distribution Network Operator



# The Gas Network is evolving – decarbonisation and the evolution of electricity networks are key drivers

Forecast emissions reductions by sector 2014-2030 (CCC)



New Customers for Powergen and Gas Fueled Vehicles are changing the demands on networks

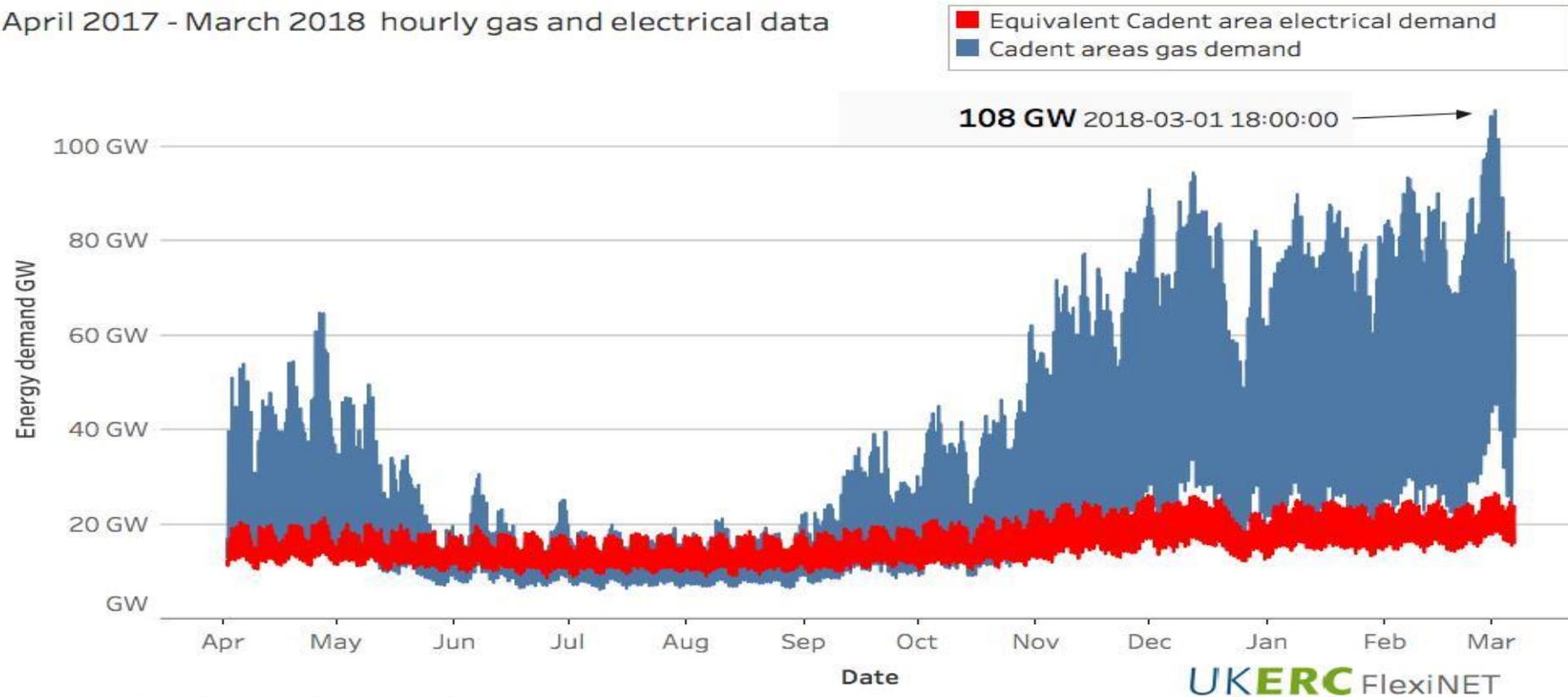
	Power Gen Connection Requests	Accepted Jobs	% Acceptance
EA	100	9	9.00%
EM	260	19	7.31%
NL	62	6	9.68%
NW	461	40	8.68%
WM	152	8	5.26%

**‘VIRTUALLY NO PRGRESS IN DECARBONISATION OF HEAT AND TRANSPORT’ – COMMITTEE ON CLIMATE CHANGE**

# Capacity & Flexibility is required to deliver heat

- Peaks in heat demand are extreme
- Beast from the East created 100%+ demand on 1<sup>st</sup> March

April 2017 - March 2018 hourly gas and electrical data



Cadent Networks

UKERC FlexiNET

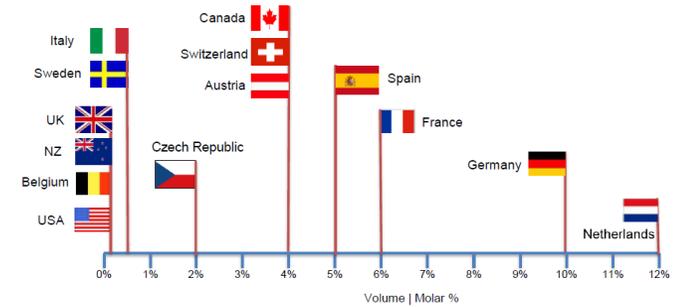
# A strategy for decarbonising UK gas supply

## Reduce Carbon Intensity of Gas Network

Bio-methane



Bio-SNG



## Progressively supply 100% hydrogen to selected consumers

Industry



transport fuels



Power



New developments



# Biomethane today... ahead of our target

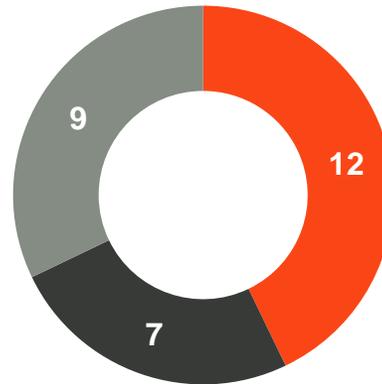


**28 Sites Connected**

**Capacity – 1.79 TWh /pa**  
**Homes Heated – 110,000**

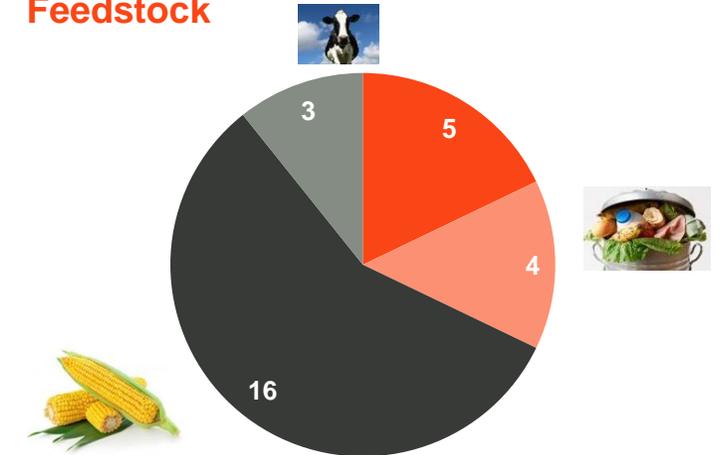
RIIO Plan	2013/1	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	TWh
No of Projects Connected (target)	3	8	15	24	35	48	63	80	4
No of Projects Connected (actual)	1	10	22	28	37				1.79

## Pressure Tier Distribution



■ MP ■ IP ■ LTS > 7 barg

## Feedstock



■ Sewage ■ Food  
■ Energy Breakcrop ■ Crop / Manure Mix

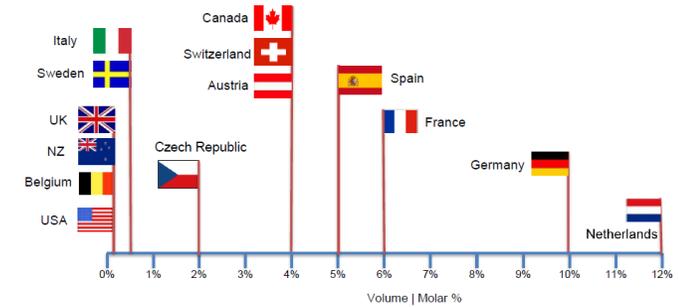
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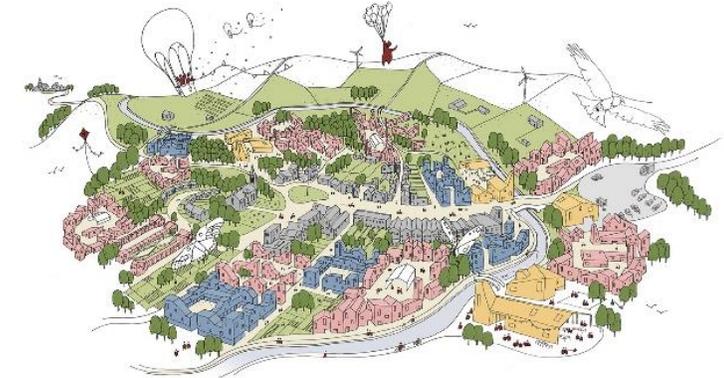
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Power



New developments

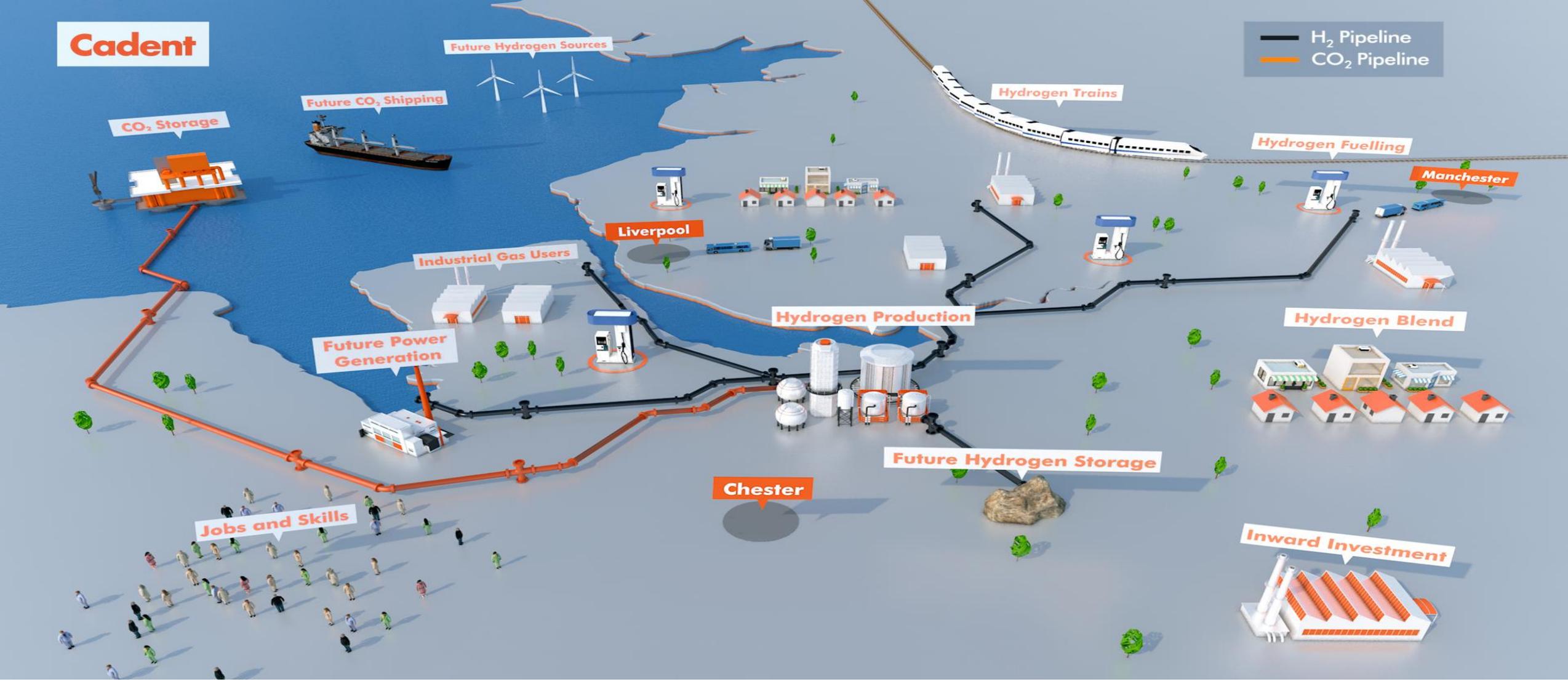


**Cadent**

— H<sub>2</sub> Pipeline  
— CO<sub>2</sub> Pipeline



Liverpool - Manchester Hydrogen Clusters  
A Low Cost Deliverable Project



Hydrogen production at central plant between Runcorn and Ellesmere Port.  
New hydrogen pipeline to supply industrial gas users & enable network injection for blend  
Hydrogen 'blended' into distribution network to supply households.  
Use of existing pipeline and offshore rig infrastructure for CO2 storage, creating extendable CCS infrastructure.  
Pipeline spurs from hydrogen pipeline to gas network, power generation and vehicle refuelling hubs.

**Network complexity is growing**

**How will this impact the way in which communication networks support the management of the gas network**



# Richer data and deeper communication.....



Greater supply side diversity



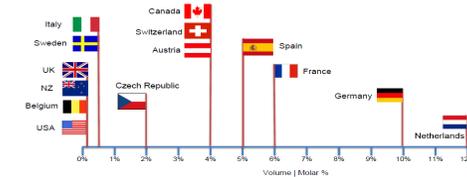
Demand side management opportunities



## Different gases and energy content



- Meeting conflicting customer demands on the same pipe
- Demand smoothing and investment
- Capacity creation/storage
- Leakage and “lost gas” reduction
- Smaller charging zones
- Local consumption information and control
- Integration with local industry – hydrogen production and use
- ...and providing electricity storage option



Even greater demand side peaks



Increased control and monitoring of pressure, flow and energy control  
 Integrated energy demand forecasting and network operation ?

**Thank you**

**Any Questions**

