

Maximising the role of green gas



Wales & West Utilities Introduction



We are the Gas Distribution Network owner and System Operator for Wales & south west England

We have 20 biomethane plants and 54 power stations connected

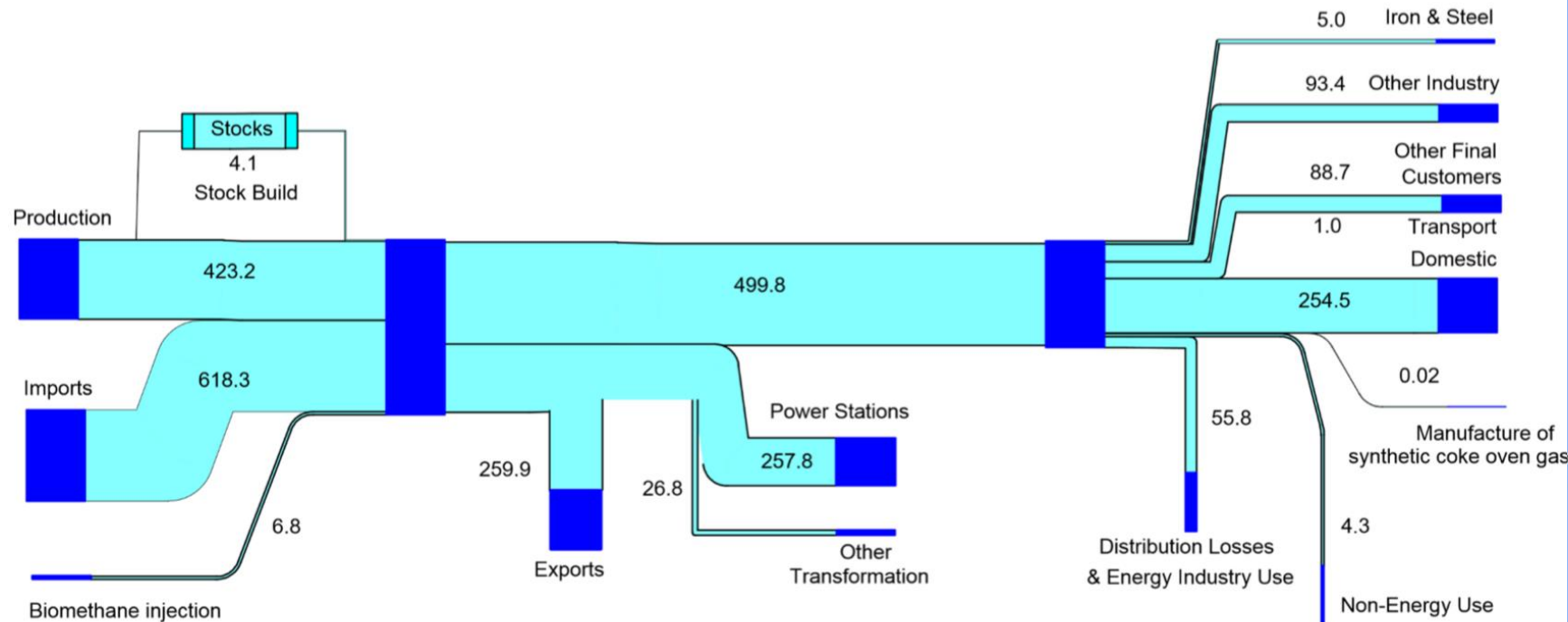
We have 1.75 TWh green gas capacity connected to our network

We flexibly deploy 58 GWh of storage each day (UK 210 TWh seasonally)

From 2021-2026, we will invest £400m towards making our network net zero ready

The gas grid and green gasses

Natural Gas Flow Chart 2022 (TWh)



Sources: UK Government, Digest of UK Energy Statistics; Anaerobic Digestion & Bioresources Association



A hydrogen vision

ENA A hydrogen vision for the UK

Mapping out the potential

2050

ENERGY TARGETS

UK to achieve Net Zero
Additional targets likely to emerge through future Governments

HOW WILL THE CONSUMER BENEFIT?

At the end of our mapping scenario, the use of hydrogen by consumers is widespread, providing low carbon energy across the economy, providing choice to consumers and keeping businesses viable

TECHNICAL DETAIL

Between 60-70% of connections to our network have converted to hydrogen, with the remainder largely using alternative forms of low carbon energy

Throughout the transition networks are focused on repurposing assets where it makes sense, reducing overall costs

There will be a need for new pipelines in some areas – for example to support hydrogen transmission at national and regional level alongside the movement of natural gas

In some areas of high hydrogen demand, new pipelines will be built

Lower overall demand for gas will mean that by 2050 some areas of the distribution network will no longer be required. Parts of the pipeline network could be partially decommissioned in order to preserve network safety and reduce ongoing costs



Demand volumes are predicted and pipelines are a visual representation of potential geographic locations.

Pipeline developments
New and repurposed National Transmission System pipes
New third party pipes

New and repurposed Local Transmission System pipes
New third party pipes

Percentage of consumers using the hydrogen network
0-10 11-20 21-30
31-40 41-50 51-60
61-70 71-80

DEMAND

Nearly 16m homes and business and around half of all industrial consumers are now connected to the hydrogen network

CARBON CAPTURE & STORAGE

Nearly all carbon from industry, remaining gas power plants and blue hydrogen production is being captured and stored – as much as 75-175 MtCO₂ annually

GREEN AND BLUE HYDROGEN PRODUCTION

We now have nearly 400 TWh of hydrogen per year produced from both blue and green combined

STORAGE

We now have between 40-50 TWh of hydrogen storage capacity across the UK, providing energy security for hydrogen consumers and flexibility for the wider energy system

HYDROGEN FOR TRANSPORT

Various forms of transport are now demanding over 100 TWh of hydrogen per year



Carbon Capture and Storage

Blue hydrogen production

Green hydrogen production

Pink hydrogen production

Hydrogen storage

Hydrogen refuelling station

Trains running on hydrogen

Airports using hydrogen as aviation fuel

Hydrogen exports

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Gas Goes Green: Maximising the role of green gas

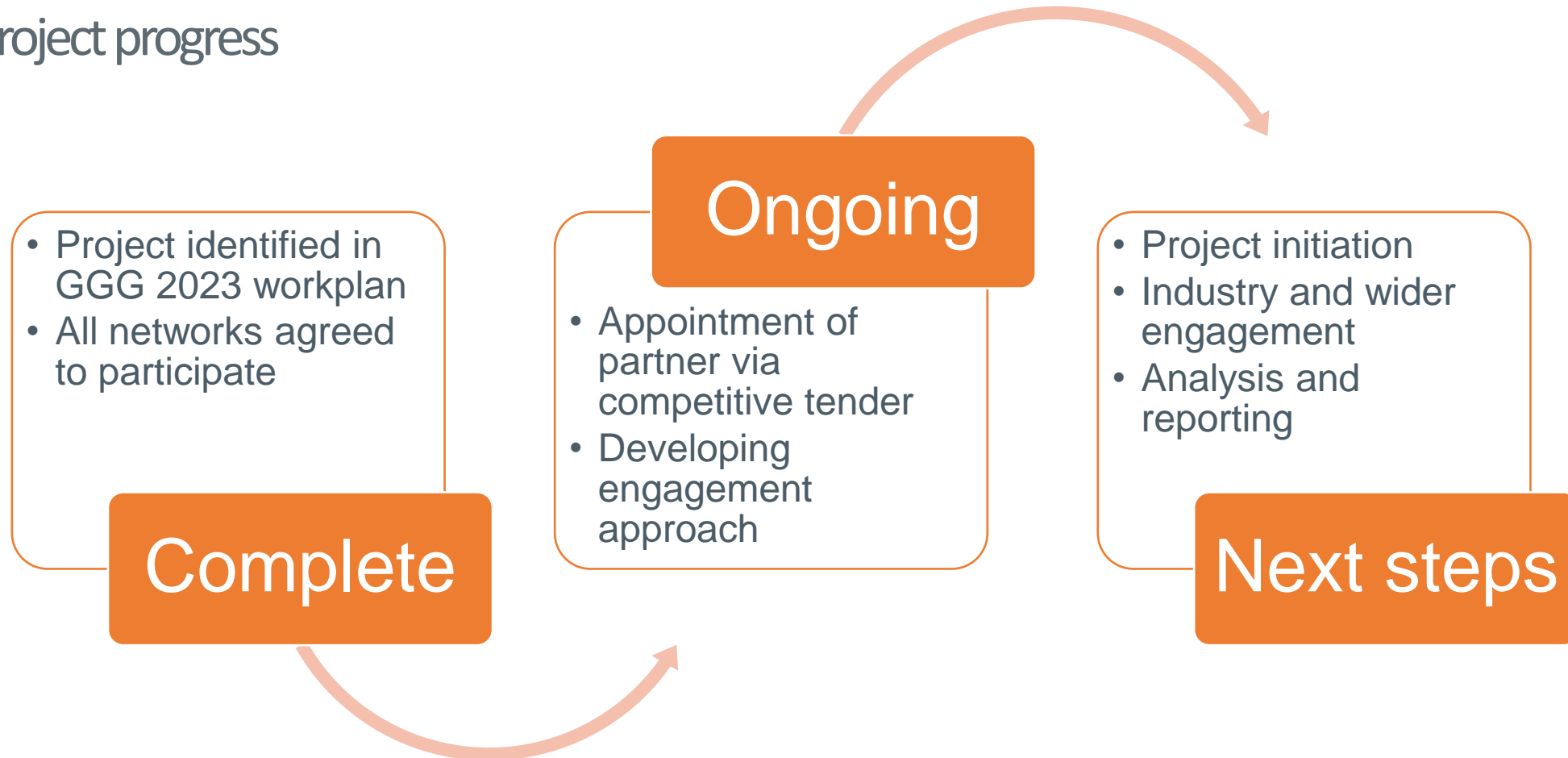
A collaborative project to understand how biomethane and hydrogen can work together

- How big can the role of biomethane in the future system be?
- How can biomethane be best used in areas of the gas network which convert to hydrogen?
- What technologies can we use, and where should we focus further research and development effort?



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Project progress



Outputs expected Spring 2024

Find out more

- Interested in this project?
 - Sign up for Gas Goes Green updates - <https://www.energynetworks.org/creating-tomorrows-networks/gas-goes-green>
 - Get in touch via matthew.hindle@wwutilities.co.uk
- Contact us with other ideas – innovation@wwutilities.co.uk
- Register for our [mailing list](#) to hear about calls for ideas, receive our annual reports, news and updates
- Use routes into all networks such as ENA's [Smarter Networks Portal](#), where you can see details on current projects, find partners and propose ideas for all network companies to review and consider



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