Northern Gas Networks

Hydrogen Farm of the Future

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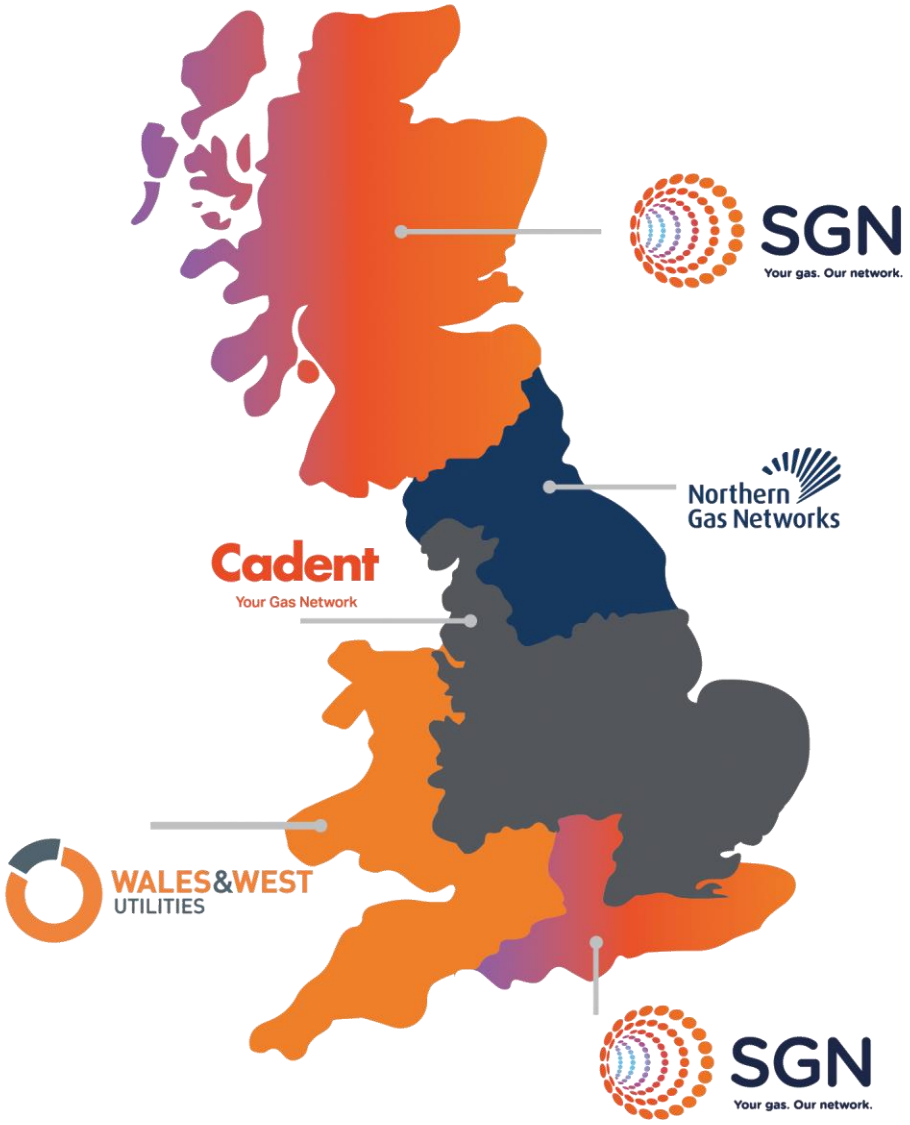
RASE

EIC
cenex Together we innovate

we are the network

Who we are



We provide energy to 6.8 million people and businesses

Our region spans 25,000km² from the Scottish borders to The Humber and to Northern Cumbria.

37,000km is the length of pipe that we own – the equivalent distance from Leeds to Australia and back again

East Coast Hydrogen overview

Connect hydrogen supply with hydrogen demand across multiple customers commencing with industrials fuel switching to hydrogen

Transport hydrogen through repurposed and new build pipelines to industrial users first, with further potential to supply domestic users through town pilot

Build resilience with the interconnectivity of the Humber and Teesside industrial clusters and storage facilities across the East Coast Hydrogen region

Support efficient market growth by balancing supply and demand and enabling connections across the East Coast Hydrogen region

Note: Network configuration includes new build and repurposed pipelines and is indicative and subject to change

Rural Heating

Heat pumps - Air / ground / water source heat pumps to supply heating (and potentially cooling) for housing, plus farm buildings, polytunnels or processing.

Farm Vehicles

Pre 2030 - replace red diesel with clean fuels for non-road vehicles – zero emissions ICE power for cultivation / harvest operations.

Diesel Replacement

HGV's & large farm vehicles need low/zero carbon fuels, inc. farm produced (off-grid) biomethane or biofuels and in time - hydrogen.

Nutrient Recycling

Digestates and composts used to recycle carbon and nutrients from farm and other bio-residues back to land.

Energy Storage

On-site power storage for excess renewables / cheap electricity in batteries (inc. vehicle batteries - V2G), - also heat storage batteries.

Rural Heating

Solar thermal - to supplement housing & farm (space/process) heat requirements, plus thermal storage.

Biomass Heat

Biomass energy (inc. straw / wood) for space heating/cooling or requirements like grain drying or primary processing.

Anaerobic Digestion

Farm residues, crops & local food waste to supply natural fertiliser and biogas or biomethane (upgraded on or off grid), for heat and vehicle fuel.

Hydrogen Supply

Potential for on-site hydrogen production from excess renewables (wind / solar) for vehicle or other rural uses.

Novel Systems

vertical and advanced protected cropping systems combined with zero carbon energy - also suited to urban farming.

RASE

For more information and access to the Farm of the Future Report – visit www.rase.org.uk/reports

Hydrogen on Farms

Focus on Yorkshire, to help understand farmers needs and be representative to the UK, to shape national policy.

Will H2 be part of farming's transition to gas fuels?

Project assesses potential for H2 demand fuel on farms for activities such as:

- Space heating (inc. glasshouses), on-farm process heat (or cooling) and hot water
- Crop production, drying and processing
- Fuel for farm vehicles and farm transport

Detailing the logistics for supply of gas fuels (inc. H2) in rural areas not connected to the gas grid

Events & Engagement Activities

Online future fuels workshops, determining fuel demands for different archetypes:
-Pig & Poultry
-Dairy
-Horticulture
-Arable & Potatoes

Face to face events:
-Great Yorkshire Show
-Driffield Show
-Cenex Innovation Showcase
-Farm visits
-Large farmer engagement day (31st October)

Learnings so far

Alternatives to Diesel

Farmers requirement to adjust to removal of red diesel support and finding clean fuel options

Farmers Viewpoints

Engaging with the Yorkshire agriculture to model their demands and overall needs

Pathway to Gas Fuels

If gas fuels are part of the future - how do farmers access supplies of BioCNG (and in future H_2) on their farms

Northern Gas Networks

Thank you

Contacts

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