HyNet North West

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HyNet North West is an exciting new hydrogen and carbon capture project in North West England and North Wales. It is paving the way for a more sustainable future that will contribute significantly to regional and national 'net zero' targets, while creating and protecting local jobs. Hydrogen production, which is at the heart of HyNet, will be key to delivering clean energy for UK industry.

Hydrogen production

The crucial part it plays in HyNet North West

What is hydrogen?

Hydrogen is one of the most abundant elements on earth. It occurs naturally within other compounds, like water (H_2O) and natural gas (CH_4). To enable use of hydrogen as a single element (for example as a fuel), it must be extracted from these compounds.

Why are we using hydrogen?

Hydrogen can be used to supply energy safely and reliably. It can directly replace natural gas or other hydrocarbon-based fuels. The main benefit of hydrogen is that, when used as a fuel, no CO_2 is produced.

Hydrogen can also be used in multiple sectors – presenting an opportunity to reduce emissions across different industries, in power generation, transport and even to heat our homes.

Hydrogen can also be stored which can help balance supply and demand. For HyNet, we are planning to develop an underground hydrogen storage site in mid-Cheshire.

Where will the hydrogen be used as part of HyNet?

In North West England and North Wales, the local economy is based on a range of world class energy intensive industries that are currently reliant on natural gas. This includes global companies and brands across the chemicals, glass, oil refining, food, paper and automotive sectors.

HyNet brings together many major CO_2 emitters across these sectors in a collective effort to reduce their emissions. By switching fuels, from natural gas to hydrogen, these companies can cut their CO_2 emissions, making these industries consistent with the UK's net zero pathway and therefore helping to protect jobs as well as the environment.

Enabling hydrogen in the North West will allow local industries to thrive while keeping carbon emissions low.

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What are the different types of hydrogen?

Low-carbon hydrogen is generally described as either ‘green’ or ‘blue’. HyNet will initially be based on blue hydrogen due to its far lower cost, but will subsequently accept green hydrogen into the network as costs fall.

Blue hydrogen is produced by ’splitting’ natural gas. CO_2 is produced as a by-product of this process, which is then captured and stored underground, offshore. Blue hydrogen is regarded as ‘low carbon’ because almost all of the CO_2 produced during production never enters the atmosphere.

Green hydrogen is produced via the electrolysis of water . This process might be powered by wind, solar or other renewable electricity so that no CO_2 is emitted in production. To generate green hydrogen on a large-scale would require constructing new renewable electricity generation infrastructure.