



**Climate change** is happening and urgent action is needed. HyNet will help decarbonise the North West England and North Wales by providing low carbon hydrogen to replace fossil fuels and locking up industrial CO<sub>2</sub> emissions. HyNet will contribute to the UK's race to net zero carbon emissions by 2050 by decarbonising industry, transport and how we heat our homes, paving the way for a more sustainable future.

## WHY DO WE NEED HYNET?

We must act now to decarbonise our economy and combat emissions which are leading to a climate emergency. National and international experts have demonstrated that we need to go harder and faster in our response to keep global temperatures below 1.5°C above the pre-industrial average. The UK has committed to have net zero greenhouse gas emissions by 2050. This means all greenhouse gases emitted must equal the amount of greenhouse gas emissions we are removing from the atmosphere.

The Intergovernmental Panel on Climate Change's (IPCC) report stated that in order to reduce the challenge climate change will have on human life, we must not see an increase in global temperature of over 1.5 C. CO<sub>2</sub> emissions must decline by 45% by 2030 from levels seen in 2010 and we must reach net zero by 2050. Currently 70% of local authorities in England and Wales have declared a climate emergency with many councils setting net zero goals earlier than the national 2050.

Carbon Capture and Storage (CCS), a technology that will be used by HyNet, is essential to move the country towards net zero. CCS can capture up to 95% of CO<sub>2</sub> emissions.

**A proven well established technology, CCS has been capturing and storing CO<sub>2</sub> from industrial processes in Europe since 1996. Globally, large-scale CCS projects are in operation, capturing emissions from multiple sectors including power generation, cement manufacturing and gas processing.**

HyNet partners will design, develop and construct the infrastructure to support regional decarbonisation. The initial phases will include an underground pipeline to carry captured CO<sub>2</sub>, the UK's first low carbon hydrogen production plant and the development of the UK's first hydrogen network. HyNet will capture and lock up CO<sub>2</sub> from regional industrial sectors such as cement making and chemical production. It will also produce low carbon hydrogen which will replace fossil fuels to fuel industry, transport and to heat our homes. By doing this, HyNet will contribute to the reduction of CO<sub>2</sub> emitted in to our atmosphere and make a significant contribution to the international, national and local effort against climate change. Local air quality will improve and make the region a safer and healthier place for future generations to thrive.

Without the deployment of hydrogen and CCS at scale, not only will the UK struggle to meet net zero in 2050, but the operating costs of industry in the region could increase, which could threaten thousands of jobs.

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HyNet has the potential to capture 10 million tonnes of CO<sub>2</sub> per year by 2030, the equivalent of taking 4 million cars off the road.

**The North West of England and North Wales are perfectly set up to lead the delivery and utilisation of low cost hydrogen production:**

- The North West of the UK is an industrial hub located close to ideal natural geological structures, reducing the cost of moving and storing both hydrogen and CO<sub>2</sub>.
- The Cheshire salt basin is already used extensively for natural gas storage and is suitable, and available, for hydrogen storage.
- The gas reservoirs in Liverpool Bay will be depleted in time for CO<sub>2</sub> storage to begin in the mid 2020s. Further areas of potential for CO<sub>2</sub> storage are also in the nearby Morecambe Bay gas fields, which could be repurposed for CO<sub>2</sub> storage in future. Both these areas are ideally located to reduce CO<sub>2</sub> transport and storage costs.

HyNet will reuse existing natural gas infrastructure to transport and store the captured CO<sub>2</sub>. This will not only allow HyNet to start sooner, but will also minimise cost. The high cost of decommissioning an oil or gas structure falls upon government and the operators. However, by repurposing the depleted gas reservoirs, HyNet removes the need to decommission them, significantly reducing the burden on UK taxpayers.

**OTHER BENEFITS HYNET WILL DELIVER ARE:**

**ECONOMIC**

- Directly create 6,000 permanent local jobs;
- Support up to 75,000 jobs across the UK by 2035
- Generate up to £17 billion for the region by 2050
- Generate up to £31 billion for the UK by 2050.

**ENVIRONMENTAL**

- HyNet could provide enough hydrogen to replace nearly 50% of natural gas use across the region
- Deliver 80% of the UK's clean power target for transport, industry and homes by 2030.

**SOCIAL**

- Create thousands of new jobs during construction to support the local, regional and national economy, and will help to safeguard many more jobs for the future
- Generate opportunities for local people, tapping into the area's blend of industrial experience and scientific expertise, which together will create a hotspot for innovation and growth
- Improve local air quality by reducing CO<sub>2</sub> emissions, making the region a safer and healthier place for future generations to thrive.