CARBON DIOXIDE SPUR PIPELINES SAFETY STANDARDS

INTRODUCTION

The Protos, Runcorn and Padeswood Carbon Dioxide Spur Pipeline Proposed Developments form part of the wider HyNet Project and are focused on carbon capture and storage (CCS). The objectives of HyNet are to reduce carbon dioxide emissions from industry and support economic growth in north Wales and the north west of England.

The Proposed Developments will connect to the HyNet Carbon Dioxide Pipeline, a Nationally Significant Infrastructure Project which was granted a Development Consent Order by the Secretary of State for Energy Security and Net Zero in March 2024.

PROJECT OVERVIEW

As part of the HyNet project delivery of a carbon capture and storage (CCS) system to decarbonise the north west of England and north Wales, the Spur Pipeline Proposed Developments will provide three routes for CO_2 to be safely transported between approved industrial sites and the CO_2 storage facilities in Liverpool Bay.

- The Protos Spur Pipeline will be approximately 1.1km in length. The pipeline would carry carbon dioxide and connect the Protos AGI to the similar AGI at Ince.
- The Runcorn Spur Pipeline will be approximately 10km in length, connecting the Viridor Energy from Waste Facility with the HyNet Carbon Dioxide Pipeline at the Ince Above Ground Installation (AGI) in Runcorn.
- The Padeswood Spur Pipeline will be approximately 10km in length, connecting the Heidelberg Materials (formerly known as Hanson) cement works in Padeswood (Flintshire) with the HyNet Carbon Dioxide Pipeline at the Northop Hall Above Ground Installation (AGI) in Flintshire.
- CO_2 is transported from capture plants, through spur pipelines to the HyNet Carbon Dioxide Pipeline until it reaches the Point of Ayr Terminal in Talacre (see image 1).

Eni UK has extensive experience in designing, building and operating safe and effective high-pressure gas pipelines and will use this expertise to develop the CO_2 pipeline

Eni UK will incorporate principles of safe design based on Eni design standards, relevant industry codes of practice, and the requirements of the Pipelines Safety Regulations 1996.

CARBON CAPTURE AND STORAGE

Eni UK ensure the highest safety standards in their operations. Any CCS project, its infrastructure and operation is regulated by the UK Government.

Eni UK will carefully monitor the Carbon Dioxide and Spur Pipelines, throughout all the operation phases, CO_2 transportation, injection and safe containment within the reservoir, using state of the art techniques (including but not limited to geophysical surveys, pressure sensors, seabed surveys and dedicated monitoring wells).

Gas has remained safely trapped in geological structures such as sandstone reservoirs, like the ones in Liverpool Bay, for millions of years. These reservoirs are deep below the surface of the seabed (see Diagram 1). The Liverpool Bay CO_2 store will be up to 1km below the seabed and approximately 20 miles offshore. Hundreds of metres of shale lie over the top of these sandstone reservoirs, making an impermeable layer which traps the gas in place. The CO_2 will be stored in the same way as the original natural gas, and will remain safely contained in the sandstone reservoirs.

SAFETY STANDARDS

The design, operation and maintenance of the pipeline system will comply with well-established codes and standards, the applicable UK Regulations (including the Pipelines Safety Regulations 1996) and industry best practices. Together with detailed safety assessments, operational and integrity management systems, these will ensure the potential for any leakage of CO_2 is minimised and risks are acceptable.

The pipeline network will be fitted with leak detection systems and in the event of any leakage the pipeline can be safely managed.

Eni UK Ltd is actively engaging with the UK Health and Safety Executive (the UK Safety Regulator, including for pipelines) ensuring that pipeline development and its operation are compliant with all relevant regulations and associated guidance. For more information about the HyNet Carbon Dioxide spur pipeline project please visit our website **www.hynethub.co.uk** or email our team at **hello@hynethub.co.uk**

Diagram 1: Undersea storage path

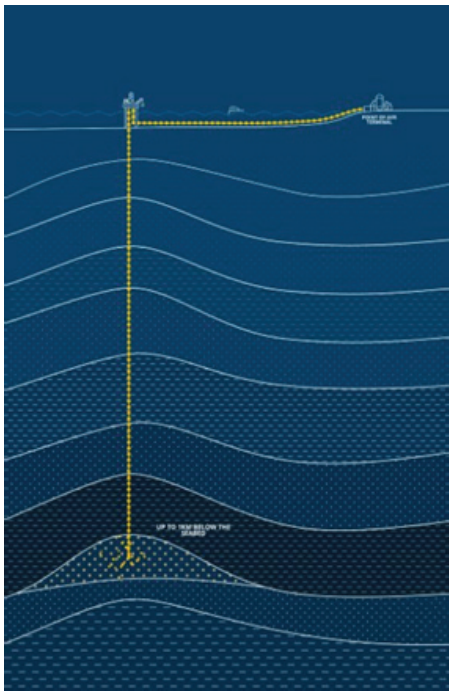

Image 1: Point of Ayr Gas Terminal in Talacre.

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