

ENVIRONMENTAL STATEMENT (VOLUME II)

Chapter 2 – The Project

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 –
Regulations 5(2)(a)

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2. OVERVIEW OF HYNET NORTH WEST (THE PROJECT)

2.1. INTRODUCTION TO THE PROJECT

- 2.1.1. The DCO Proposed Development will form part of HyNet North West ('the Project')¹ which is a hydrogen supply and Carbon Capture and Storage (CCS) project. The goal of the Project is to reduce carbon dioxide (CO₂) emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. The Project is based on the production of low carbon hydrogen. It includes the development of a new hydrogen production plant, hydrogen distribution pipelines, hydrogen storage, and the creation of CCS infrastructure. CCS prevents CO₂ entering the atmosphere by capturing it, compressing it, and transporting it for safe, permanent storage.
- 2.1.2. The Government's Draft Overarching National Policy Statement (NPS) for Energy EN-1 (**Ref. 2.1**) references the need to adapt existing networks or build new ones to integrate low carbon hydrogen into the system and enable the transport and storage of CO₂, and stipulates that the Secretary of State (SoS) for the Department for Business, Energy, and Industrial Strategy (BEIS) should give substantial weight to the urgent need established for this infrastructure.
- 2.1.3. There are almost no abundant natural sources of pure hydrogen, which means that it must be manufactured. The most common production route is steam methane reformation, where natural gas is reacted with steam to form hydrogen. This is a carbon-intensive process, but one which can be made low carbon through the addition of carbon capture, usage and storage to produce a gas often called 'blue hydrogen'. Electrolytic Hydrogen can also be produced through electrolysis, where electricity is used to split water into hydrogen and oxygen. Gas from this process is often referred to as 'green hydrogen' or zero carbon hydrogen when the electricity comes from renewable sources. Where the source is from fossil resources, no carbon benefit is conferred unless the carbon is captured such that CO₂ is not released to the atmosphere.
- 2.1.4. The Project will distribute hydrogen via a new pipeline network for use at a range of industrial sites, for injection to form a blend in the existing natural gas network and for use as a transport fuel or for flexible power generation. CO₂ resulting from the production of 'blue hydrogen' will be captured and, together with existing CO₂ emissions from local industry transported by pipeline or

¹ The Project is not a single project within the meaning of the Environmental Impact Assessment Regulations. The Project is being developed by the Consortium. The goal of the Project is to reduce carbon dioxide emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. This includes but is not limited to the Carbon Dioxide Pipeline and associated Above Ground Installations (AGIs), Block Valve Stations (BVSs), Carbon Capture, Carbon Dioxide Storage, the Existing Pipeline Works, Hydrogen Plant, Hydrogen Pipeline and associated AGIs, and the Hydrogen Storage.

shipping, sent by underground pipeline for secure storage offshore in the depleted Liverpool Bay oil and gas fields. A schematic representation of the Project is shown in **Figure 2-1**.

Figure 2-1: Indicative Representation of the Project



KEY COMPONENTS OF THE PROJECT

2.1.5. Delivery of the Project will be implemented in phases. The key components of the Project are briefly described as follows:

- **Hydrogen Production Plants:** The development and deployment of hydrogen production and supply facilities across the North West region. A number of hydrogen production plants are envisaged by 2030 to provide 30TWh/yr of low carbon Hydrogen supply for the region.
- **Hydrogen Network:** The development and deployment of hydrogen distribution infrastructure, in the form of underground pipelines, to transport hydrogen from the hydrogen production plants to the point of use across the North West region and North Wales.
- **Hydrogen Storage:** The development and deployment of hydrogen storage facilities, in the form of bulk underground storage in caverns to accommodate diurnal and seasonal demand fluctuations for heat and flexible power generation.
- **Carbon Capture:** The development and deployment of CCS infrastructure to capture CO₂ from a range of existing and newbuild industrial sources and from the hydrogen production plants.
- **Compressor Plant:** The existing natural gas treatment plant at the Point of Ayr (PoA) Terminal will be modified to function as part of the CO₂ transport and storage system. This includes the installation of onshore compressors to compress the CO₂ to sufficient pressure to allow transport to the offshore storage facility.
- **Newbuild and repurposed onshore/offshore pipelines to transport CO₂ (between Cheshire, Flintshire, and offshore):** A proposed network of underground onshore and buried subsea pipelines will transport CO₂ produced and captured by future hydrogen producing facilities and existing industrial premises in North West England and North Wales for permanent offshore storage.
- **Offshore Carbon Dioxide Storage:** Captured CO₂ will be stored permanently in depleted oil and gas fields located within the Liverpool Bay area of the East Irish Sea. The CO₂ is primarily transported via pipelines but the Project intends to enable ships to transport CO₂ in the future from places not located in the pipeline network vicinity.

2.2. CARBON CAPTURE AND STORAGE INFRASTRUCTURE

2.2.1. CO₂ will be captured from existing industrial sources, including the Stanlow Manufacturing Complex and other industrial sources, before being compressed, transported via an underground onshore pipeline network, further compressed

at the PoA Terminal, transported via offshore pipelines, before being stored in existing depleted oil and gas fields in Liverpool Bay.

THE DCO PROPOSED DEVELOPMENT

2.2.2.

The Application for the DCO Proposed Development will seek consent for the construction and operation of the following components which form part of the CCS infrastructure:

- **Ince Above Ground Installation (AGI) to Stanlow AGI Pipeline** – an approximate 4km section of underground onshore pipeline (20” in diameter with capacity of up to 2.5 MtCO₂/yr at a pressure of approximately 38 barg) to transport CO₂.
- **Stanlow AGI to Flint AGI Pipeline** – an approximate 32km section of underground onshore pipeline (36” in diameter with a capacity of up to 10 MtCO₂/yr at a pressure of approximately 35 barg) to transport CO₂.
- **Flint AGI to Flint Connection Pipeline** – an approximate 400m section of underground onshore tie-in pipe (24” in diameter with a capacity of up to 4.5 MtCO₂/yr at a pressure of approximately 33 barg) to transport CO₂.
- **Flint Connection to PoA Terminal Pipeline** – an approximate 24km section of existing Connah’s Quay to PoA Terminal underground onshore pipeline (24” in diameter) which currently transports natural gas but will be repurposed and reused to transport CO₂ as part of the DCO Proposed Development.
- **Four AGIs** - Ince AGI, Stanlow AGI, Northop Hall AGI, and Flint AGI.
- **Six Block Valve Stations (BVSs)** located along:
 - The proposed Stanlow AGI to Flint AGI Pipeline (three in total).
 - The existing Flint Connection to PoA Terminal Pipeline (three in total) (also covered under the TCPA Proposed Development – refer to **paragraph 2.2.6** below for additional detail).
- **Other above ground infrastructure**, including Cathodic Protection (CP) transformer rectifier cabinets and pipeline marker posts.
- **Utility Connection infrastructure**, including power utilities and Fibre Optic Cable (FOC); and
- **Temporary ancillary works** integral to the construction of the Carbon Dioxide Pipeline, including Construction Compounds and temporary access tracks.

2.2.3.

The DCO Proposed Development is described in greater detail in **Chapter 3 - Description of the DCO Proposed Development (Volume II)** and represented on **Figure 3.2 (Volume IV)**.

OTHER APPLICATIONS

2.2.4.

The following scope components also form part of the wider onshore CCS infrastructure but will be delivered under separate consenting routes, where required, and are therefore not subject to assessment as part of this Environmental Statement (ES):

- Modifications to the Stanlow Manufacturing Complex and other industrial sources to enable captured CO₂ to enter the new Carbon Dioxide Pipeline.
- CO₂ gathering network comprising connecting pipelines between existing plants and the Stanlow AGI, Ince AGI, and future connections at the Northop Hall AGI.
- Power supply upgrades to the PoA Terminal.
- Installation of electricity and fibre optic cables (Foreshore Cables) from the Mean Low Water Spring (MLWS) point to the Douglas Complex offshore platforms (including any associated power cables and fibre optic cables required for the Hamilton, Hamilton North and Lennox satellite platforms).
- Repurposing of the existing offshore Douglas Complex and associated facilities for the transport and storage of CO₂ into three depleted oil and gas reservoirs (Hamilton Main, Hamilton North, and Lennox) located within the Liverpool Bay area of the East Irish Sea.
- Works associated with the existing PoA Terminal (the Town and Country Planning Act (TCPA) Proposed Development – refer to **paragraph 2.2.6** below for additional detail), which briefly comprise:
 - Works to the existing PoA Terminal including demolition and/or removal of redundant natural gas infrastructure and installation of new assets to enable the compression of CO₂.
 - Removal of an existing Shut Down Valve (SDV) which is installed in the Foreshore Area, west of the PoA Terminal, upon the pipeline which runs from the PoA Terminal to the offshore Douglas platform in Liverpool Bay (the Foreshore Pipeline).
 - Installation of electricity and fibre optic cables (Foreshore Cables) from the PoA Terminal to the Mean Low Water Spring point (MLWS) to the north-west of the PoA Terminal.

2.2.5.

The DCO Proposed Development Environmental Impact Assessment (EIA) will ensure that the potential for cumulative effects between the DCO Proposed Development and the other applicable parts of the Project including, where relevant, aspects to be delivered under separate consents, are fully considered. This is further discussed in **Chapter 19 - Combined and Cumulative Effects (Volume II)**.

DCO and TCPA Proposed Development Consenting Strategy

- 2.2.6. The DCO regime in Wales does not allow for items to be classed as Associated Development and be included in a pipeline DCO. Therefore, the BVSs located in Wales on the existing Flint Connection to PoA Terminal Pipeline have needed careful consideration as how to include them in the DCO Application. The Applicant considers that the BVSs do form part of the NSIP; however, the Welsh Government has advised that they do not agree with that view. Accordingly, and as the decision as to the status of the BVSs will not be determined until a DCO decision is made, to prevent delay and ensure all decision makers have the requisite information before them, the BVSs are included in both the DCO and TCPA Applications and their respective ESs in order that the assessment for each process is robust.
- 2.2.7. The Applicant is therefore proposing to ‘twin-track’ the BVSs on the Flint Connection to PoA Terminal Pipeline in both the DCO Application and Planning Applications (i.e., include them in both applications). This approach has been discussed with both Flintshire County Council and the Welsh Government. The Applicant’s approach is to ensure that the BVSs are included in both applications for transparency reasons and to reduce the risk of construction being delayed. The twin-track approach means the decision as to whether the BVSs are part of the NSIP will be made by the SoS in the DCO process, who will confirm the correct consenting route at the point at which they decide the DCO Application. This approach will help mitigate programme risk as whichever the SoS decides is the correct consenting route, the Applicant will have included the BVSs in both applications.
- 2.2.8. It should be noted that two separate Planning Applications will be submitted to Flintshire County Council under the Town and Country Planning Act 1990 (**Ref. 2.2**): one for the PoA Terminal and Foreshore Works and another for the three (BVSs).
- 2.2.9. The DCO Application will also be seeking to obtain compulsory powers relating to the acquisition of land/rights and other powers connected to the use of the existing Flint Connection to PoA Terminal Pipeline for the transport of CO₂ and the construction of the new BVSs.

2.3. REFERENCES

- **Ref 2-1** – Draft Overarching National Policy Statement for Energy (EN-1), Department for Business, Energy, and Industrial Strategy (September 2021). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015233/en-1-draft-for-consultation.pdf
- **Ref. 2-2** – The Town and Country Planning Act 1990. Available at: <https://www.legislation.gov.uk/ukpga/1990/8/contents>