

ENVIRONMENTAL STATEMENT (VOLUME II)

Chapter 2 – The Project

Padeswood Carbon Dioxide Spur Pipeline Proposed Development

Town and Country Planning Act 1990

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2. THE PROJECT

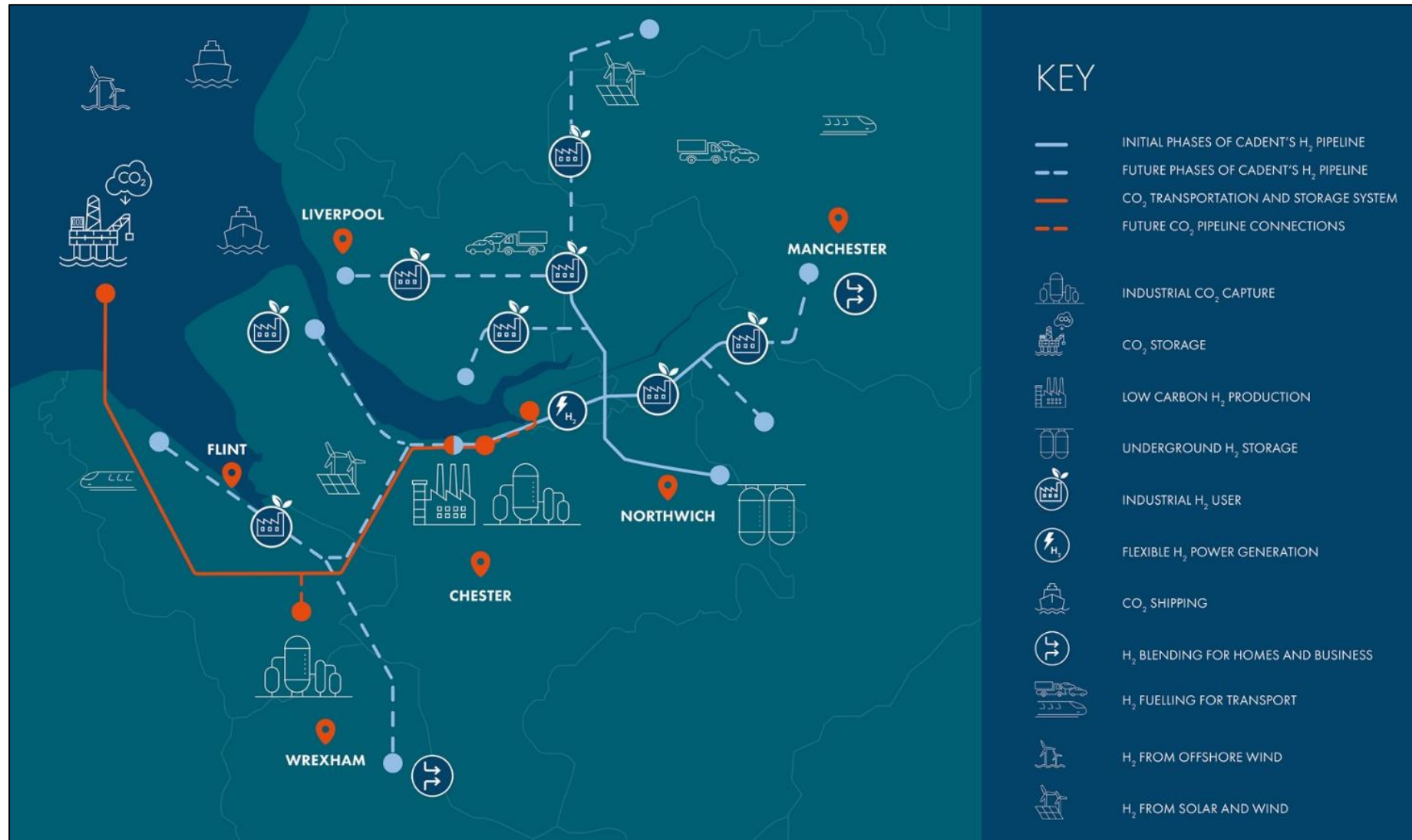
2.1. NEED FOR THE PROJECT

- 2.1.1. The Padeswood Carbon Dioxide Spur Pipeline Proposed Development (Padeswood Spur Pipeline Proposed Development) will form part of HyNet ('The Project') 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 and transport and support economic growth in the North West of England and North Wales.
- 2.1.2. The Government's Overarching National Policy Statement (NPS) for Energy EN-1 (Department for Energy Security & Net Zero, 2024) references the need for new carbon capture and storage infrastructure to ensure the transition to a net zero economy. The Committee on Climate Change states that CCS infrastructure will also be needed to capture and store carbon dioxide from hydrogen production from natural gas, industrial processes, the use of bioenergy carbon capture and storage (BECCS) and from the air (Direct Air Carbon Capture and Storage, or DACCS). CCS infrastructure could be new or repurposed infrastructure.
- 2.1.3. The Committee on Climate Change (CCC) have stated that CCS is a necessity, not an option (Committee on Climate Change, 2019). The Welsh Government in their 2021 Carbon Budget 2 report state that CCS *"may have the ability to support a low cost pathway to net zero"* (Welsh Government, 2021). CCS is fundamental to the decarbonisation of energy intensive industries, such as refineries, chemical and cement plants and will enable domestic production of low carbon hydrogen from natural gas.
- 2.1.4. To meet the UK's sixth carbon budget, the government has outlined an ambition to capture 20-30 MtCO₂ (metric tonnes of carbon dioxide equivalent) per year by 2030 and the CCC have recommended that the first cluster should be operational by 2025, with at least one cluster involving low-carbon hydrogen (Committee on Climate Change, 2019). In November 2020, the Government published the Ten Point Plan for a Green Industrial Revolution. Included in the Ten Point Plan was a commitment to deploy Carbon Capture Usage and Storage (CCUS) in a minimum of two clusters by the mid-2020s, and four clusters by 2030 at the latest, with an ambition to capture 10Mt (Metric tonnes) CO₂/year by 2030 (Department for Business, Energy & Industrial Strategy, 2022)
- 2.1.5. The Project is an innovative low carbon and hydrogen energy project that will unlock a low carbon economy for the North West of England and North Wales and put the region at the forefront of the UK's drive to

Net-Zero. The importance of the Project has been recognised in the Government's choice in taking forward the project in Track-1 of its Cluster Sequencing process (DESNZ, 2021). Additionally, the Padeswood CCS Project was selected as a Track-1 emitter further emphasising the need for the Padeswood Carbon Dioxide Spur Pipeline.

- 2.1.6. The Project will distribute hydrogen via a new pipeline network for use at a range of industrial sites. Carbon dioxide resulting from the production of 'blue hydrogen' will be captured and, together with existing carbon dioxide emissions from local industry, sent by pipeline for secure storage offshore in the depleted Liverpool Bay oil and gas fields. A schematic representation of the Project is shown in **Insert 2-1**.
- 2.1.7. As an integral part of the Project, the Padeswood Spur Pipeline Proposed Development will transport carbon dioxide captured from the Padeswood Carbon Capture and Storage (CCS) Project to storage, contributing to the reduction of carbon dioxide in the atmosphere and making a significant contribution to the international, national, and local effort against the climate emergency.

Figure 2-1 – Indicative Representation of the Project



The green circle shows the indicative location of the Padeswood Spur Pipeline Proposed Development

KEY COMPONENTS OF THE PROJECT

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

- Carbon Capture: The development and deployment of CCS infrastructure to capture carbon dioxide from a range of existing and newbuild industrial sources.
- 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 carbon dioxide (between Cheshire, Flintshire, and offshore): A proposed network of underground onshore and buried subsea pipelines will transport carbon dioxide 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 carbon dioxide will be stored permanently in depleted oil and gas fields located within the Liverpool Bay area of the East Irish Sea. The carbon dioxide is primarily transported via pipelines, but the Project intends to enable ships to transport carbon dioxide in the future from places not located in the pipeline network vicinity.

2.2. CARBON CAPTURE AND STORAGE INFRASTRUCTURE

2.2.1. Carbon dioxide will be captured from existing industrial sources, including the Padeswood Cement Works, before being compressed and transported via an underground onshore pipeline network. It will be further compressed at the Point of Ayr Terminal at Flintshire, transported via offshore pipelines, and then will be stored in existing depleted oil and gas fields in Liverpool Bay.

PADESWOOD SPUR PIPELINE PROPOSED DEVELOPMENT

2.2.2. The Padeswood Spur Pipeline Proposed Development Planning Application seeks approval for the construction, operation and end of life decommissioning of the following key elements which form part of the CCS infrastructure:

- Padeswood Above Ground Installation;

- Padeswood Carbon Dioxide Spur Pipeline;
- Additional equipment at Northop Hall AGI; and
- Temporary Construction Compound(s) and associated accesses.

2.2.3. The Padeswood Spur Pipeline Proposed Development is described in **Chapter 3 – Description of the Padeswood Spur Pipeline Proposed Development** (Document Reference PW.3.2.3) and represented on **Figure 3.2 - Padeswood Spur Pipeline Proposed Development** (Document Reference: PW.3.4.3.2). Temporary construction works are shown in **Figure 3.3 - Padeswood Spur Pipeline Temporary Works** (Document Reference: PW.3.4.3.3).

OTHER DEVELOPMENTS

- 2.2.4. The following scope components also form part of the wider onshore CCS infrastructure, but will be delivered as part of the Project under other consenting routes and are therefore not subject to assessment as part of this ES:
- Carbon Capture technology fitted to industrial emitters along the route, including the Padeswood CCS Project Planning Application (submitted September 2024, with DNS Reference: DNS CAS-02009-W1R1Z7).
 - The Hynet Carbon Dioxide Pipeline (consented on 20 March 2024, see PINS Reference EN070007);
 - The Point of Ayr planning application, FUL/000246/23 approved 23/05/2024;
 - Modifications to the Stanlow Manufacturing Complex and other industrial sources to enable captured CO₂ to enter the new Carbon Dioxide Pipeline. The offshore elements of the Carbon Dioxide Pipeline, Licence Application reference CML2365.
- 2.2.5. This ES has ensured that the potential for cumulative effects between the Padeswood Spur Pipeline 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 18 – Combined and Cumulative Effects** (Document Reference PW.3.2.18).

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