

Chapter 17

Climate Change – Greenhouse Gas Emissions

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17. Climate Change – Greenhouse Gas Emissions

17.1 Introduction

- 17.1.1 The Draft ES has been produced to fulfil the Applicant’s consultation duties and enable consultees to develop an informed view of the likely significant effects of the Project.
- 17.1.2 This chapter presents the current assessment of the likely significant effects of the Project with respect to climate change, specifically in relation to greenhouse gas (GHG) emissions arising as a result of the Project based on the information obtained to date. Following the second round of statutory consultation, the assessment will be updated for the final ES that will accompany the DCO application for the Project.
- 17.1.3 The GHG assessment as part of the Draft ES considers GHG emissions from the construction, operation and decommissioning of the HyNet North West Hydrogen Pipeline Project (the Project). This is the system boundary for the current GHG assessment. It is noted that, following the ruling in R (on the application of Finch on behalf of Weald Action Group) (Appellant) v Surrey County Council and others (Respondent) (“Finch”), consideration will need to be given to whether impacts beyond the project system boundary should be assessed, and if so, how. The implications of this ruling will be duly considered in the final ES at DCO submission. In particular, the Project is an enabler of the wider HyNet North West Programme which forms a major element of decarbonisation efforts in the North West of England. The final ES will consider the nature and implications of this relationship for the GHG assessment
- 17.1.4 This chapter should be read in conjunction with the Project description provided in **Chapter 2: The Project** and with respect to relevant parts of the following chapters:
- **Chapter 11: Traffic and Transport** where there is a relationship between the assessment of effects of traffic generation and GHG emissions; and
 - **Chapter 13: Agriculture and Soil Resources** which considers the presence of peat within the Draft Order Limits.
- 17.1.5 The vulnerability to climate change assessment is reported in **Chapter 18: Climate Change – Climate Change Resilience** and the In-combination Climate Change Impacts (ICCI) assessment is reported in **Chapter 19: Intra-project effects**.
- 17.1.6 This chapter describes:
- the legislation, policy and technical guidance that has informed the assessment (**Sections 17.1 and 17.2**);

- consultation and engagement that has been undertaken and how comments from consultees relating to GHG emissions have been addressed (**Section 17.3**);
- the methods used for baseline data gathering (**Section 17.4**);
- overall baseline, including existing and future baseline (**Section 17.5**);
- embedded environmental measures relevant to GHG emissions (**Section 17.6**);
- the scope of the assessment for GHG emissions (**Section 17.7**);
- the methodology applied for the assessment (**Section 17.8**);
- the assessment of GHG emissions effects (**Section 17.9**);
- the assessment of cumulative (inter-project) effects (**Section 17.10**); and
- a summary of the significance conclusions (**Section 17.11**).

Project overview

- 17.1.7 The Project includes the construction, operation and eventual decommissioning of approximately 100km of new pipeline to distribute hydrogen to industry in the North West. A number of Hydrogen Above Ground Installations (HAGIs), including Block Valve Installations (BVIs) are required to control the flow and pressure of hydrogen at key points along the proposed pipeline.
- 17.1.8 The Project connects the Hydrogen Production Plant (HPP) at the Stanlow site, as the source of hydrogen, for onward distribution to the network. The pipeline transports hydrogen to the Central Hub at the centre of the network, which then serves as the connection and onward distribution point to the North, East and South corridors, which would extend to St. Helens, Partington and Northwich respectively. Branching off from each main corridor would be pipeline spurs connecting hydrogen customers to the main pipeline. Infrastructure has also been included which supports the potential blending of hydrogen with methane in the existing gas network. The Project would also link to underground hydrogen storage facilities in Cheshire used to balance supply and demand through the network.
- 17.1.9 The presently anticipated maximum extent of land in which the Project may take place, which is assessed in this Draft ES, is defined by the 'Draft Order Limits', land within which is hereafter referred to as 'land within the Draft Order Limits'.
- 17.1.10 A proportionate degree of flexibility has been incorporated into the project design so that unforeseen issues that may be encountered following consent can be sufficiently mitigated. For example, previously unidentified poor ground conditions may require a pipeline section to be re-routed slightly for geotechnical reasons. Therefore, to allow for this, new infrastructure would be constructed within specified Limits of Deviation (LoD) which identify a maximum distance or measurement of variation within which the works must be constructed; further detail is provided on LoD in **Chapter 2: The Project**.

Limitations and assumptions

17.1.11 Assumptions have been made to characterise the likely activities associated with the Project and therefore enable GHG emissions to be determined. These assumptions ensure a proportionate assessment has been carried out. The assumptions made in the assessment are stated within **Section 17.8**.

17.2 Relevant Legislation, Planning Policy and Technical Guidance

17.2.1 This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to GHG emissions. Further information on policies relevant to the Project is provided in **Chapter 4: Legislation and policy overview**.

Legislation

17.2.2 A summary of the relevant legislation is given in **Table 17.1**.

Table 17.1 Legislation relevant to the GHG emissions assessment

Legislation	Legislative context
Climate Change Act 2008¹ (including The Climate Change Act 2008 (2050 Target Amendment) Order 2019²)	This legislation established a legal requirement for an 80% reduction in the GHG emissions of the UK economy by 2050 (against a 1990 baseline) and sets interim targets to ensure progress towards this target. In June 2019 the UK Government updated this commitment to net zero emissions by 2050 (the 'UK carbon target', often referred to as 'net zero'). This legislation also established an independent expert body, the Climate Change Committee (CCC), with responsibility for setting 5-year carbon budgets covering successive periods of Emissions reduction to 2050.
The Carbon Budgets Order 2009³	This legislation implements the carbon budgets set out in the Climate Change Act 2008 ¹ . The budgets place restrictions on the amount of GHG the UK can emit over a five-year period. The carbon budgets are: • first carbon budget, 2008 to 2012: 3,018 mega tonnes carbon dioxide equivalent (MtCO₂e) representing a 25% reduction below 1990 levels;

¹ HM Government (2008). *Climate Change Act 2008* C. 27 (Online). Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents> (Accessed 31 May 2024).

² HM Government (2019). *Climate Change Act 2008 (2050 Target Amendment) Order 2019* (Online). Available at: <https://www.legislation.gov.uk/uksi/2019/1056/contents/made> (Accessed 31 May 2024).

³ HM Government (2009). *The Carbon Budgets Order 2009* (Online). Available at: <https://www.legislation.gov.uk/uksi/2009/1259/contents/made> (Accessed 31 May 2024).

Legislation	Legislative context
	- second carbon budget, 2013 to 2017: 2,782MtCO₂e representing a 31% reduction below 1990 levels; - third carbon budget, 2018 to 2022: 2,544MtCO₂e representing a 37% reduction below 1990 levels by 2020; - fourth carbon budget, 2023 to 2027: 1,950MtCO₂e representing a 51% reduction below 1990 levels by 2025;⁴ - fifth carbon budget, 2028 to 2032: 1,725MtCO₂e representing a 57% reduction below 1990 levels by 2030;⁵ and - sixth carbon budget, 2033 to 2037: 965MtCO₂e representing a 78% reduction below 1990 levels by 2035.⁶
Energy Act 2016⁷	The Energy Act 2016 is a UK Act of Parliament relating to UK enterprise law and energy in the UK. It covers three main areas, established the Oil and Gas Authority (OGA) and sets out the formal powers of the OGA.
Environment Act 2021⁸	This legislation makes provision in respect of targets, plans and policies for improving the natural environment, including waste management and resource efficiency (Part 3). The legislation aims to help the Government achieve the net zero carbon emissions target. It establishes a new public body, the Office for Environmental Protection (OEP) which will act as an independent, domestic watchdog. All climate change legislation (including carbon budgets) is within the enforcement remit of the body, ensuring that there is no governance gap in relation to climate change legislation. The OEP's scope is wide-ranging, including monitoring progress against environmental improvement plans and new environmental targets, as well as having the ability to enforce non-compliance with environmental law when public authorities fall short.

⁴ HM Government (2011). *The Carbon Budget Order 2011* (Online). Available at: <https://www.legislation.gov.uk/ukxi/2011/1603/contents/made> (Accessed 31 May 2024).

⁵ HM Government (2016). *The Carbon Budget Order 2016* (Online). Available at: <https://www.legislation.gov.uk/ukxi/2016/785/contents/made> (Accessed 31 May 2024).

⁶ HM Government (2021). *The Carbon Budget Order 2021* (Online). Available at: <https://www.legislation.gov.uk/ukxi/2021/750/contents/made> (Accessed 31 May 2024).

⁷ HM Government (2016). *Energy Act 2016 c. 20* (Online). Available at: <https://www.legislation.gov.uk/ukpga/2016/20/contents> (Accessed 31 May 2024).

⁸ HM Government (2021). *Environment Act 2021 c. 30* (Online). Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents> (Accessed 31 May 2024).

Legislation	Legislative context
UNFCCC Kyoto Protocol⁹	The Kyoto Protocol was adopted in December 1997. It commits industrialised countries and economies to transitioning towards limiting and reducing GHG emissions in accordance with agreed individual targets. These have been strengthened in more recent international agreements culminating in the Paris Agreement, as described below. The Kyoto Protocol covers six categories of GHG: carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), F-gases (comprised of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs)), sulphur hexafluoride (SF ₆), and nitrogen trifluoride (NF ₃). In this GHG assessment, these GHGs are collectively considered "GHG emissions" and reported as carbon dioxide equivalent (CO ₂ e) GHG emissions.
The United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement¹⁰	The UNFCCC is the major international body responsible for managing climate change and carbon emissions. In 2015, it adopted the Paris Agreement, the aims of which are stated as: <i>"to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emission development, in a manner that does not threaten food production; and (c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilience development."</i> The agreement sets targets for countries' GHG emissions, but these are not legally binding or enforceable.
UNFCCC Glasgow Climate Pact¹¹	The Conference of the Parties (COP 26) held in Glasgow in November 2021, resulted in almost 200 countries agreeing on: the acceleration of action on climate change this decade to reduce emissions (mitigation); helping those already

⁹ UNFCCC (1998). *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (Online). Available at: <https://unfccc.int/resource/docs/convkp/kpeng.pdf> (Accessed 31 May 2024).

¹⁰ UNFCCC (2015). *Paris Agreement* (Online). Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf (Accessed 31 May 2024).

¹¹ UNFCCC (2021). *Glasgow Climate Pact* (Online). Available at: https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf (Accessed 31 May 2024)

Legislation**Legislative context**

impacted by climate change (adaption); enabling countries to deliver on their climate goals (finance); and working together to deliver even greater action (collaboration). This agreement is in the form of the Glasgow Climate Pact which reaffirms the long-term goal of limiting global warming to 1.5°C above pre-industrial levels and resolves to pursue efforts to achieve this, recognising that limiting global warming to 1.5°C “requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global CO₂ emissions by 45% by 2030 relative to the 2010 level and to net zero around mid-century, as well as deep reductions in other greenhouse gases”.

Planning policy

- 17.2.3 The primary national planning policy documents relevant to the consideration of the Project are the Overarching National Policy Statement for Energy (EN-1) and the National Policy Statement for Natural Gas Supply Infrastructure and Gas and Oil pipelines (EN-4).
- 17.2.4 Other national and local policies may be deemed to be considered material to the consideration of this Project. Policy potentially relevant to the Project and to this environmental topic is summarised within **Table 17.2**.

Table 17.2 Planning policy relevant to the GHG emissions assessment

Policy	Policy context
National planning policy	
Overarching National Policy Statement for Energy (EN-1)¹²	NPS EN-1 is a key relevant consideration in the determination of the Development Consent Order (DCO) application. The Overarching NPS for Energy (EN-1) is part of a suite of NPS designated by the Secretary of State of the Department of Energy Security and Net Zero (DESNZ) in January 2024. It sets out the general principles for applications relating to energy infrastructure. EN-1 paragraph 2.3.6 acknowledges that to achieve net zero by 2050, transformation of the energy system is needed and identifies the role of low carbon hydrogen (para. 3.3.49).

¹² Department of Energy Security and Net Zero (2023). *Overarching National Policy Statement for Energy (EN-1)* (Online). Available at: <https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf> (Accessed 31 May 2024)

Policy	Policy context
	Although this type of development is essential for the decarbonisation of the UK economy, the development itself can lead to GHG emissions. Para 5.3.4 states: <i>“All proposals for energy infrastructure projects should include a GHG assessment as part of their ES”</i>. A whole life GHG assessment is required with an explanation on how GHGs emissions have been reduced, set out in a GHG Reduction Strategy, secured under the DCO (para. 5.3.7).
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)¹³	NPS EN-4 provides additional technology specific guidance to complement NPS EN-1. Para 1.1.4 reiterates that clean hydrogen is important to the decarbonisation of the energy system and UK industry sectors.
National Planning Policy Framework (NPPF)¹⁴	The NPPF sets out the Government’s planning policies for England and how these should be applied, with the following paragraphs relating to GHG: Section 14, Paragraph 157 of the NPPF provides that <i>“The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”</i>. Paragraph 159 provides that <i>“New development should be planned for in ways that: ... b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design”</i>. Paragraph 163 provides that <i>“When determining planning applications for renewable and low carbon development, local planning authorities should: a) not require applicants to</i>

¹³ Department of Energy Security and Net Zero (2023). *National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)*. (Online). Available at: <https://assets.publishing.service.gov.uk/media/65a789a8867cd8000d5ae9be/nps-natural-gas-supply-infrastructure-pipelines-en4.pdf> (Accessed 31 May 2024).

¹⁴ Department for Levelling Up, Housing & Communities (2023). *National Planning Policy Framework* (Online). Available at: https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf (Accessed 31 May 2024).

Policy	Policy context
	<i>demonstrate the overall need for renewable or low carbon energy...; and b) approve the application if its impacts are (or can be made) acceptable”.</i>
The UK’s Nationally Determined Contribution (NDC) under the Paris Agreement¹⁵	In December 2020, the UK submitted its first NDC under the Paris Agreement ¹⁰ to the UNFCCC, committing to “at least a 68%” reduction in economy-wide GHG emissions below 1990 levels (1995 levels for F-gases) by 2030, aligned with the UK’s 2050 net zero GHG emissions target.
Clean Growth Strategy¹⁶	This report provides the strategy for the UK’s future clean growth to allow carbon budgets to be met and support economic growth. It sets out policies and targets for 2050 for reducing GHG emissions across a number of sectors. It acknowledges the role of low carbon fuels (such as hydrogen) in decarbonisation.
The Ten Point Plan for a Green Industrial Revolution¹⁷	This plan sets out the UK Government’s approach to “build back better” following the impacts of the COVID-19 pandemic. It includes details of how the Government intend to accelerate the path to net zero. Point 2 focuses on ‘driving the growth of low carbon hydrogen’ and the UK Government’s plans to develop low carbon hydrogen production capacity.
Net Zero Strategy: Build Back Greener¹⁸	This strategy sets out sectoral policies and proposals for decarbonising all sectors of the UK economy to meet the coming carbon budgets, the NDC and the net zero target by 2050. It aims to enable the delivery of the objectives set out in the Ten Point Plan ¹⁷ . Section 3ii. covers fuel supply and

¹⁵ Department for Business, Energy & Industrial Strategy (2022). *The United Kingdom of Great Britain and Northern Ireland’s Nationally Determined Contribution* (Online). Available at:

<https://assets.publishing.service.gov.uk/media/633d937d8fa8f52a5803e63f/uk-nationally-determined-contribution.pdf> (Accessed 31 May 2024).

¹⁶ Department for Business, Energy & Industrial Strategy (2017). *The Clean Growth Strategy* (Online). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf (Accessed 31 May 2024).

¹⁷ HM Government (2020). *The Ten Point Plan for a Green Industrial Revolution* (Online). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf (Accessed 31 May 2024).

¹⁸ Department for Business, Energy & Industrial Strategy (2021). *Net Zero Strategy: Build Back Greener* (Online). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf (Accessed 31 May 2024).

Policy	Policy context
	hydrogen, including commitments to reduce emissions from conventional fossil fuels and scale up low carbon alternatives such as hydrogen. The Net Zero Strategy has been judicially reviewed and the UK Government are required to issue an updated strategy detailing a quantified account of how policies will achieve the UK's climate targets. ¹⁹
The Energy White Paper: 'Powering our Net Zero Future'²⁰	This White Paper sets out the strategic vision for how we will transform our energy system to build a cleaner, greener future for our country, people and planet. It states that <i>"decarbonising the energy system over the next thirty years means replacing - as far as it is possible to do so - fossil fuels with clean energy technologies such as renewables, nuclear and hydrogen"</i> .
UK Hydrogen Strategy²¹	This Strategy sets out the role of hydrogen in meeting the UK's legally binding commitment to achieve net zero by 2050. It establishes the case for low carbon hydrogen and the role of hydrogen in meeting net zero, recognising that it will play <i>"an important complementary and enabling role alongside clean electricity in decarbonising our energy system"</i> , stating <i>"low carbon hydrogen will be essential for achieving net zero, and ahead of that, meeting our world-leading CB6 target to reduce emissions 78 per cent on 1990 levels by 2035"</i> .
Carbon Budget Delivery Plan²²	The Carbon Budget Delivery Plan details how the UK Government intend to meet Carbon Budgets 4 to 6 (to 2037), through proposals and policies, and their anticipated emissions reductions (where quantified) to 2037.

¹⁹ Royal Courts of Justice (2022). Friends of the Earth -v- BEIS, Case No: CO/126/2022, CO/163/2022, CO/199/2022, 18 July 2022. (online). Available at: <https://www.judiciary.uk/judgments/friends-of-the-earth-v-beis/> (Accessed 02 August 2024).

²⁰ Department for Business, Energy & Industrial Strategy (2020). *Energy White Paper: Powering our Net Zero Future* (Online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf (Accessed 31 May 2024).

²¹ Department for Business, Energy & Industrial Strategy (2021). *UK Hydrogen Strategy* (Online). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1011283/UK-Hydrogen-Strategy_web.pdf (Accessed 31 May 2024).

²² HM Government. (2023). 'Carbon Budget Delivery Plan'. Available at: <https://www.gov.uk/government/publications/carbon-budget-delivery-plan> (Accessed 31 May 2024).

Policy	Policy context
Local planning policy	
Cheshire East Local Plan Strategy 2010 - 2030²³	Policy SD 1 Sustainable Development in Cheshire East sets out requirements for development. Of relevance is the policy requirement to provide appropriate infrastructure to meet the needs of the local community including energy; and use appropriate technologies to reduce carbon emissions and create a low carbon economy. SE 8 Renewable and Low Carbon Energy. This policy notes that the development of renewable and low carbon energy schemes will be positively supported and considered in the context of sustainable development and mitigation of any adverse impact on the environment.
Cheshire West and Chester Local Plan (Part One) Strategic Policies²⁴	STRAT 1 Sustainable Development: Seeks to enable development that improves and meets the objectives of the Borough in line with the presumption in favour of sustainable development unless material considerations indicate otherwise. Of relevance to GHGs, development should mitigate and adapt to the effects of climate change and ensure prudent use of natural finite resources. ENV 6 High Quality Design and Sustainable Construction: Development must be sympathetic to the environment; incorporate energy efficiency measures and provide for renewable energy generation either on site or through carbon offsetting measures; and mitigate and adapt to the predicted effects of climate change. ENV 7 Alternative Energy Supplies: Support is given to renewable and low carbon energy proposals where there are no unacceptable environmental impacts.
Cheshire West and Chester Local Plan (Part Two) Land	DM4 Sustainable Construction: All development proposals will be expected to achieve the highest levels of energy and water efficiency that is practical and viable, and to maximise opportunities to incorporate sustainable design features where feasible. The Council will encourage the use of sustainable construction techniques that promote the reuse

²³ Cheshire East Council (2017). *Local Plan Strategy 2010-2030* (Online). Available at: <https://www.cheshireeast.gov.uk/pdf/planning/local-plan/local-plan-strategy-web-version-1.pdf> (Accessed 31 May 2024).

²⁴ Cheshire West and Chester Council (2015). *The Local Plan (Part 1) Strategic Policies* (Online) Available at: <https://consult.cheshirewestandchester.gov.uk/kse/event/24907/section/ID-3252194-629#ID-3252194-629> (Accessed 31 May 2024).

Policy	Policy context
Allocations and Detailed Policies²⁵	and recycling of building materials, maximise opportunities for the recycling and composting of waste on all new development proposals and reduce CO₂ emissions. DM53 Energy generation, storage and district heat networks: Proposals will be supported that: make maximum use of renewable energy sources as set out in Local Plan (Part One) policy ENV 7; and provide for electricity storage which assists with balancing the grid and support the use of intermittent renewable energy sources (such as wind and solar).
Halton's Local Plan Core Strategy²⁶	Strategic Objective 9: Aims to minimise Halton's contribution to climate change through reducing carbon emissions. CS19 Sustainable Development and Climate Change: Requires development to be sustainable and be designed to have regard to the predicted effects of climate change including reducing CO₂ emissions and adapting to climatic conditions. Support is given to proposals for decentralised renewable and low carbon energy schemes provided that they do not result in unacceptable harm to the local environment which cannot be mitigated.
Halton Delivery and Allocations Local Plan²⁷	GR5 Renewable and Low Carbon Energy: Requires development proposals for renewable energy developments to take into account and minimise the potential effects of development on the environment. The incorporation of renewable and low carbon energy into developments will be encouraged.

²⁵ Cheshire West and Chester Council (2015). *The Local Plan (Part 2) Land Allocations and Detailed Policies* (Online). Available at:

<https://cheshirewestandchester.objective.co.uk/file/5448701> (Accessed 31 May 2024).

²⁶ Halton Borough Council (2013). *Halton's Local Plan Core Strategy April 2013* (Online). Available at:

<https://www3.halton.gov.uk/Documents/planning/planning%20policy/CoreStrategy.pdf> (Accessed 31 May 2024).

²⁷ Halton Borough Council (2022). *Halton Delivery and Allocations Local Plan 2022* (Online). Available at:

<https://www3.halton.gov.uk/Documents/planning/planning%20policy/newdalp/DALP%20Adopted.pdf> (Accessed 11 June 2024).

Policy	Policy context
St Helens Local Plan Up to 2037²⁸	Strategic Objective 2.2: Aims to mitigate the effects of, and minimise the impact of, development on climate change by requiring well-designed developments in suitable locations. Policy LPA02 Development Principles sets out the requirements for new development in St Helens, such as new development to mitigate their contribution to climate change by meeting appropriate standards for sustainability and energy efficiency and promoting the use of renewable energy and sustainable construction. Additionally, development should use water, energy, minerals and waste resources in an efficient and effective way. Policy LPC13 Renewable and Low Carbon Energy Development sets out how proposals for development that would produce and / or distribute decentralised, low carbon or renewable energy would be considered against competing environmental policies, where appropriate.
Trafford District Council Local Plan: Core Strategy²⁹	Policy L5 Climate Change: Requires new development to mitigate and reduce its impact on climate change factors and maximise its sustainability through improved environmental performance of buildings, lower carbon emissions and renewable or decentralised energy generation. L5.4 requires developments to demonstrate how it will contribute to reducing CO₂ emissions within the Borough, through sustainable design and construction techniques prior to utilising renewable energy generation technologies. L5.12 recognises the role that commercial and community low carbon, renewable and decentralised energy generation and distribution facilities can play in reducing CO₂ emissions and providing viable energy supply.
Warrington Borough Council Local Plan Core Strategy³⁰	CS1 Overall Spatial Strategy - Delivering Sustainable Development: Welcomes sustainable development proposals which have regard to the need to address the causes of

²⁸ St Helens Borough Council (2022). St Helens Borough Local Plan up to 2037 (Online). Available at: https://www.sthelens.gov.uk/media/4315/St-Helens-Borough-Local-Plan-up-to-2037/pdf/Local_Plan_Written_Statement_-_FINAL_adoption_version.pdf?m=1658409100420 (Accessed 31 May 2024).

²⁹ Trafford Council (2012). *Trafford Local Plan Core Strategy* (Online). Available at: <https://www.trafford.gov.uk/planning/strategic-planning/docs/core-strategy-adopted-final.pdf> (Accessed 31 May 2024).

³⁰ Warrington Borough Council (2014). *Local Plan Core Strategy* (Online). Available at: https://www.warrington.gov.uk/sites/default/files/2019-08/local_plan_core_strategy_adopted_2014.pdf (Accessed 31 May 2024).

Policy	Policy context
	climate change and deliver high standards of design and construction that have regard to energy efficiency. Policy QE 1 Decentralised Energy Networks and Low Carbon Development: Encourages proposals that seek to maximise opportunities for the use of decentralised renewable and low carbon energy. Development proposals in all locations should seek to minimise CO₂ emissions and the impacts of climate change by reducing the need for energy consumption; using energy as efficiently as possible; and using renewable and low carbon energy where possible. Policy QE 2 Grid Connected Renewable Energy: Supports proposals for grid-connected renewable or low carbon energy infrastructure and schemes, provided that they do not result in unacceptable harm to the local environment.
Greater Manchester Combined Authority Infrastructure Framework 2040³¹	The Greater Manchester Combined Authority (GMCA) recognise the importance of infrastructure and its continued growth despite environmental and climate change. Key Challenge 1: Low Carbon Heat. Natural Gas provides 96% of primary heating fuel for homes. With the drive to decarbonise, GM will need to develop infrastructure capable of delivering low or zero carbon heat. GMCA identify the need to engage with viability work of a 100% hydrogen replacement and determining the future balance of hydrogen. GMCA continue to support the HyNet programme. GM should work with the National Infrastructure Commission and Cadent to extend HyNet.
GMCA Joint Development Plan 2022 to 2039 'Places for Everyone (PfE)', 2024³²	The Joint Development Plan was adopted in March 2024 and includes policies for nine of the Greater Manchester boroughs, including Trafford where the Project partially resides. Policy JP-S1: Sustainable Development. Climate change is a key theme through all policies of the plan to deliver sustainable development and is not reduced to one individual policy.

³¹ Greater Manchester Combined Authority (2020). *Greater Manchester Infrastructure Framework 2040* (Online). Available at: <https://www.greatermanchester-ca.gov.uk/media/1715/greater-manchester-infrastructure-framework-2040.pdf> (Accessed 31 May 2024).

³² Greater Manchester Combined Authority (2024). *Joint Development Plan 2022 to 2039* (Online). Available at: <https://www.greatermanchester-ca.gov.uk/media/9578/places-for-everyone-joint-development-plan-document.pdf> (Accessed 31 May 2024).

Policy	Policy context
	Policy JP-S2: Carbon and Energy. The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including: taking a positive approach to renewable and low carbon energy schemes. Policy JP-S6: Resource Efficiency. Key measures to deliver include using sustainable design and construction techniques to reduce carbon emissions.

17.2.5 In addition to the local planning policy documents described above, **Table 17.3** includes the commitments that the host local authorities have made to decarbonisation in line with the UK's 2050 net zero greenhouse gas emissions target. All six councils and the Greater Manchester Combined Authority (GMCA) have declared a climate emergency and committed to setting priorities to mitigate climate change.

Table 17.3 Decarbonisation targets of the host authorities

Authority	Declared climate emergency	Decarbonisation target ³³
Cheshire East Council³⁴	Yes – May 2019, further pledge in January 2022	Carbon neutral borough by 2045.
Cheshire West and Chester Council³⁵	Yes – May 2019	Net zero by 2045.
Halton Borough Council³⁶	Yes – October 2019	Net zero carbon by 2040.

³³ Carbon neutral, as defined by PAS 2060 Specification for the demonstration of carbon neutrality, refers to a policy of not increasing carbon emissions and of achieving carbon reduction through offsets, while net zero carbon, as defined by the Science Based Targets Initiative (SBTi), means making changes to reduce GHG emissions in line with the latest climate science and a 1.5°C trajectory – and offsetting as a last resort.

³⁴ Cheshire East Council (2022). *Carbon Neutral Council* (Online). Available at: <https://www.cheshireeast.gov.uk/environment/carbon-neutral-council/carbon-neutral-council.aspx> (Accessed 11 June 2024).

³⁵ Cheshire West and Chester Council (2019). *The Climate Emergency* (Online). Available at: <https://www.cheshirewestandchester.gov.uk/your-council/councillors-and-committees/the-climate-emergency> (Accessed 11 June 2024).

³⁶ Halton Borough Council (2019). *Climate Change Strategy* (Online). Available at: <https://www3.halton.gov.uk/Pages/planning/climate/climate-change.aspx#:~:text=From%202017%20until%202031,carbon%20emissions%20to%208740%20tonnes> (Accessed 11 June 2024).

Authority	Declared climate emergency	Decarbonisation target ³³
St. Helens Council ³⁷	Yes – July 2019	Net zero borough by 2040.
Trafford District Council ³⁸	Yes – November 2018	Carbon neutral borough by 2038.
Warrington Borough Council ³⁹	Yes – June 2019	Net zero council operations by 2030.
Greater Manchester Combined Authority ⁴⁰	Yes – July 2019	Carbon neutral by 2038.

Technical guidance

17.2.6 A summary of the technical guidance for GHG emissions is given in **Table 17.4**.

Table 17.4 Technical guidance relevant to the GHG emissions assessment

Technical guidance document	Context
Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance – 2nd Edition⁴¹	The Institute of Environmental Management and Assessment (IEMA) provides guidance on GHG emissions assessment, mitigation and reporting within an EIA context and this is the primary source of guidance for assessing GHG emissions. The 2022 guidance further builds upon the 2017 guidance, with key changes including an emphasis on mitigation at the project outset and throughout its lifetime, and more nuanced levels of GHG emissions significance.

³⁷ St. Helens Council (2019). *St Helens Climate Change* (Online). Available at: <https://netzero.sthelens.gov.uk/#:~:text=St%20Helens%20Borough%20Council%20declared,borough%20net%20zero%20by%202040> (Accessed 11 June 2024).

³⁸ Trafford District Council (2019). Climate Change – Trafford's Climate Emergency. (online). Available at: <https://www.trafford.gov.uk/residents/environment/climate-change/About-climate-change.aspx> (Accessed 11 June 2024).

³⁹ Warrington Borough Council (2019). Our climate emergency plans and targets. (online). Available at: <https://www.warrington.gov.uk/our-climate-emergency-plans-and-targets> (Accessed 11 June 2024).

⁴⁰ Greater Manchester Combined Authority (2019). Combined Authority declares climate emergency (Online). Available at: <https://www.greatermanchester-ca.gov.uk/news/combined-authority-declares-climate-emergency/> (Accessed: 11 June 2024).

⁴¹ Institute of Environmental Management and Assessment (2022). *Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA) 2022*.

Technical guidance document	Context
Publicly Available Standard (PAS) 2080: 2023 – Carbon management in infrastructure ⁴²	PAS 2080:2023 is a standard for managing carbon in buildings and infrastructure. It looks at the whole value chain and aims to reduce carbon and cost through intelligent design, construction and use.
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (GHG Protocol) ⁴³	The GHG Protocol establishes comprehensive global standardised frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions.
BS EN ISO 14064-1 ⁴⁴ and 14064-2 ⁴⁵	ISO 14064 sets out guidance for quantification and reporting of GHG emissions and removals. The methodology for quantification of GHGs follows this guidance and the stated guidance on reporting will be taken into account as part of this assessment.
Royal Institution of Chartered Surveyors (RICS) Whole Life Carbon Assessment for the Built Environment 2nd edition ⁴⁶	This RICS professional statement addresses the need for technical details of numerous aspects influencing whole life carbon calculations for built projects. It is intended to standardise whole life carbon assessment for built projects.
CCC Sixth Carbon Budget Report Sector Summaries – Fuel Supply ⁴⁷	This document contains a summary of content for the fuel supply sector from the CCC's Sixth Carbon Budget Advice. The key messages include the important role that low carbon hydrogen plays in displacing emissions from

⁴² The British Standards Institute (2023). *PAS 2080: 2023* (Online). Available at: <https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/pas-2080-carbon-management-in-infrastructure-and-built-environment/> (Accessed 11 June 2024).

⁴³ World Resources Institute and World Business Council for Sustainable Development (n.d.). *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)* (Online). Available at: <https://ghgprotocol.org/corporate-standard> (Accessed 11 June 2024)

⁴⁴ BSI (2019). *BS EN ISO 14064-1: 2019 Greenhouse gases. Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*.

⁴⁵ BSI (2019). *BS EN ISO 14064-1: 2019 Greenhouse gases. Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements*.

⁴⁶ Royal Institution of Chartered Surveyors (RICS) (2024). *Whole Life Carbon Assessment for the Built Environment (2nd edition)* (Online). Available at: https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole_life_carbon_assessment_PS_Sept23.pdf (Accessed 11 June 2024).

⁴⁷ Climate Change Committee (CCC) (2020). *The Sixth Carbon Budget - Fuel supply* (Online). Available at: <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Fuel-supply.pdf> (Accessed 11 June 2024).

Technical guidance document	Context
	fossil fuels. The CCC's recommended carbon budget sector allocations for fuel supply are⁴⁸: • fourth carbon budget, 2023 to 2027, 147.71MtCO₂e; • fifth carbon budget, 2028 to 2032, 85.17MtCO₂e; and • sixth carbon budget, 2033 to 2037, 42.23MtCO₂e.

17.3 Consultation and Engagement

Overview

17.3.1 The assessment has been informed by consultation responses and statutory and technical engagement. An overview of the approach to consultation is provided in **Section 3.7 of Chapter 3: Approach to preparing the Draft ES**.

Scoping Opinion

17.3.2 A Scoping Opinion was adopted by the Secretary of State, administered by the Planning Inspectorate, on 08 March 2022. A summary of the relevant responses received in the Scoping Opinion in relation to GHG emissions and confirmation of how these have been addressed within the assessment is presented in **Table 17.5**.

Table 17.5 Summary of EIA Scoping Opinion responses for GHG emissions

Consultee	Consideration	How addressed in this Draft ES
Planning Inspectorate (PINS)	GHG emissions from operation and maintenance (project life cycle stages B1 to B5 and B7 to B9) GHG emissions during operation and maintenance are proposed to be scoped out for project life cycle stages B1 to B9 inclusive. Considering the nature and characteristics of the Proposed Development, the Inspectorate is content that GHG emissions are not likely to result in significant	Noted, no action required.

⁴⁸ Climate Change Committee (CCC) (2020). *The Sixth Carbon Budget - Dataset* (Online). Available at: <https://www.theccc.org.uk/publication/sixth-carbon-budget/#supporting-information-charts-and-data>

Consultee	Consideration	How addressed in this Draft ES
	effects for project life cycle stages B1 to B5 and B7 to B9. GHG emissions from operation and maintenance (project life cycle stages B1 to B5 and B7 to B9) can be scoped out of the ES assessment.	
PINS	GHG emissions from operational energy use (project life cycle stage B6) The Inspectorate does not consider sufficient evidence has been provided to scope out GHG emissions from operational energy use (project life cycle stage B6). The ES must assess impacts from operational energy use (such as pumping and compression) where significant effects are likely.	An assessment of operational energy use GHG emissions has been provided in this chapter of the draft ES (Section 17.9) based on data gathering around energy usage.
PINS	Guidance The Scoping Report refers to the 2017 IEMA guidance on Assessing Greenhouse Gas Emissions and Evaluating their Significance. The ES assessment methodology should refer to the 2nd Edition of this guidance, published since submission of the Scoping Report - IEMA (February 2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance (online).	The assessment methodology has been updated in the draft ES to reflect the newly released IEMA 2 nd Edition GHG guidance ⁴¹ . This is listed in the Technical Guidance used in Table 17.4 .
PINS	GHG emissions arising from disturbance of landfill sites The Inspectorate notes from paragraph 12.4.10/ Figure 12.5 of the Scoping Report that numerous historic and authorised landfill sites are present within the study area for the Ground Conditions aspect. In the event that the pipeline route cannot avoid all these sites, the potential to increase, or give rise to, GHG emissions from these sites	Numerous historical and authorised landfill sites are located within the Study Area which have been considered in the optioneering process and the refinement of the Draft Order Limits. The pipeline route and Hydrogen Above Ground Installations (HAGI) locations are still undergoing further refinement, and these landfill sites will be avoided where feasible. In accordance with

Consultee	Consideration	How addressed in this Draft ES
	during construction should be included in the assessment.	IEMA guidance⁴¹ for GHG assessments, activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions. Based on professional judgement, given the likely scale of emissions in the context of the whole Project construction, consideration of the potential release of landfill gas from these landfills is not considered further in the GHG assessment.
Natural England	The ES should also identify how the development impacts the natural environment's ability to store and sequester greenhouse gases, in relation to climate change mitigation and the natural environment's contribution to achieving net zero by 2050. Natural England's Carbon Storage and Sequestration by Habitat report (2021) and the British Ecological Society's nature-based solutions report (2021) provide further information.	As discussed in Chapter 13: Agriculture and Soil Resources, carbon storage potential in soils within the Draft Order Limits varies from low to high (potential peat). The Draft Order Limits avoids larger expanses of peatland present regionally, but there is potential for peat to be present in several areas. Desk-based review has identified the likelihood of deep peaty soils being present in seven areas within the Draft Order Limits., The ground investigations and peat surveys are partially completed at this Draft ES stage, as such, there is only partial data around the presence and extent of peat (the depth of peat, its thickness and its lateral extent within the study area) and, as such, reasonable GHG emissions calculations cannot be undertaken at this stage. An update of the presence of peat from the completed surveys to date are found in Chapter 13: Agriculture and Soil Resources. Once the surveys are complete, the potential for the release of GHG

Consultee	Consideration	How addressed in this Draft ES
		emissions from disturbed peat will therefore be clarified for the Final ES. For potential areas where peat cannot be avoided by the temporary works or permanent development elements of the Project, specific management measures will be adopted to protect peat during construction. These will be provided in an Outline Peat Management Plan (PMP) to accompany the DCO submission, an outline of which is included in Appendix 13A .
St Helens Borough Council and Wirral Council	It is acknowledged that the Hynet project is considered to be a significant project for the Liverpool City Region for the long term decarbonisation of the LCR. However, it is important the wider project is taken into account when considering the overall climate change impacts of the project. At this point in time, not all hydrogen production is equal with only a fraction of hydrogen being classed as green. This should be considered as part of the climate change assessment and is likely to change over time. The methodology for the Climate Change Assessment seems reasonable.	As described in paragraph 17.1.3 the draft ES assesses the construction, operation and eventual decommissioning of the hydrogen pipeline (the Project). An assessment of the wider HyNet North West Programme and the production of hydrogen is outside of the system boundary. Further consideration will be given to the relationship between the Project and this wider programme in light of the Finch case, and its implications for the assessment of GHG emissions. The outcome will be reported within the Final ES. The GHG assessment within this Draft ES examines the extent to which the Project materially affects the ability of the UK Government to meet its carbon target and budgets by 2050.
Cheshire West and Chester Council	The Councils Climate Change team are broadly supportive of the project and consider the measures proposed in the EIA to be largely comprehensive, however from Table 0.8 A5 Construction; the proposal that land use will not be affected by GHG's through the pipelines route does not seem to	Table 17.9 describes the lifecycle stages that have been scoped into the GHG assessment for this Draft ES. Emissions related to land use change have been scoped in for the elements related to peat as a carbon sink, however this will be reported at the Final ES following the

Consultee	Consideration	How addressed in this Draft ES
	take into account the suggested size of the HAGI's or the pipeline route potentially disrupting other land use change for decarbonisation. It is recommended that this is considered in the wider context. Table 0.8 B6 Operation the project should comment on not being viewed in isolation particularly where the GHG operation may not be significant in themselves but will act as an enabler to associated projects described in Chapter 2 which have much greater potential to release GHG's.	conclusion of the peat surveys. Other GHG emissions sources related to land use change would be gas from historic landfills. This emissions source has been scoped out due to embedded measures to avoid landfill sites and given the likely scale of emissions in the context of the whole Project, consideration of the potential release of landfill gas from these landfills is not considered further in the GHG assessment. The boundaries of the GHG assessment are based on a system boundary in line with the lifecycle stages of PAS2080⁴², which is in line with the IEMA Guidance⁴¹. GHG emissions resulting from the Project over the lifecycle stages which are scoped in are considered in this assessment. As described in paragraph 17.1.3 the draft ES assesses the construction, operation and eventual decommissioning of the hydrogen pipeline (the Project). The Project is an enabler project to the wider HyNet North West Programme and therefore lifecycle stage Module D considers GHG effects beyond the system boundary (the indirect impact of the Project on GHG emissions). The HyNet North West Programme will produce, store and distribute hydrogen – a low carbon energy source – as well as capture and store carbon from industry in the North West of England and North Wales.

Statutory Consultation

- 17.3.3 Statutory consultation took place between 12 September and 10 November 2022 in accordance with the Planning Act 2008. Prescribed and non-prescribed consultees and members of the public were consulted. Various methods of consultation and engagement were used in accordance with the Statement of Community Consultation (SoCC) including letters, website, public exhibitions, publicity and advertising in newspapers and webinar briefings.
- 17.3.4 Cadent Gas Ltd (Cadent) ("the Applicant") prepared a Preliminary Environmental Information Report (PEIR) which was publicised at this consultation stage. The Applicant sought feedback on the environmental information presented in that report. Feedback received during statutory consultation was considered by the Applicant and incorporated, where relevant, into the design of the Project and its assessment and is presented in this Draft ES.
- 17.3.5 A summary of the relevant responses received during the statutory consultation, together with any subsequent discussions held in relation to GHG emissions and confirmation of how these have been considered within the assessment to date is presented in **Table 17.6**.
- 17.3.6 Technical engagement with consultees in relation to GHG emissions is ongoing.

Table 17.6 Summary of Section 42 Consultation responses for GHG emissions

Consultee	Consideration	How addressed in this Draft ES
Cheshire West and Chester (CWaC)	It is however noted that the section of pipeline through Frodsham / Ince Marshes passes through an area containing important peat resources, please see comments of the Planning Policy Team (Appendix A). Chapter 17, page 42, para 17.13.3 identifies that the potential for the release of greenhouse gas emissions from disturbed peat will be clarified in the ES following refinement of the Preliminary Order Limits and further confirmation of the extent of peat during ground investigations. If this identifies high potential impacts, it is advised that additional measures should be considered to prevent impacts on peat / greenhouse gas emissions – for example trenchless pipeline areas or re-routing the pipeline to avoid peat areas?	Table 13.8 within Chapter 13: Agriculture and Soil Resources details the survey findings to date on the presence of deep peat within the Draft Order Limits. The ground investigations and peat surveys are partially completed at this Draft ES stage, as such, there is only partial data around the presence and extent of peat (the depth of peat, its thickness and its lateral extent within the study area). As such, reasonable GHG emissions calculations cannot be undertaken at this stage. Once the surveys are complete, the potential for the release of GHG emissions from disturbed peat will therefore be clarified for the Final ES.

Consultee	Consideration	How addressed in this Draft ES
	Chapter 17, table 17.2, page 12 – reference to ‘Strat 1’ should be changed to ‘STRAT 1’ and reference to ‘Strat 11’ should be changed to ‘STRAT 11’.	Updates have been made to Table 17.2.
	Chapter 17, p.24/26 - note that Natural England have raised issue of greenhouse gas emissions arising from excavation within areas of peat and say that the Environmental Statement should address this. The PEIR response is that a desk-based review has identified likelihood of deep peaty soils – but initial ground investigations have not yet taken place – and will depend on refinement of the route and potential for greenhouse gas emissions will be clarified in the Environmental Statement. There will be a peat management plan to accompany the DCO (the submission is in Appendix 13a). CWaC would endorse this approach but suggest that the assessment / Environmental Statement also investigates the potential presence of shallow peaty soil deposits, which will also need to be taken into account for the potential for GHG emissions (that may be more likely due to the fairly shallow nature of the trenching).	Table 13.8 within Chapter 13: Agriculture and Soil Resources details the survey findings to date on the presence of deep peat within the Draft Order Limits. The ground investigations and peat surveys are partially completed at this Draft ES stage, as such, there is only partial data around the presence and extent of peat (the depth of peat, its thickness and its lateral extent within the study area) and, as such, reasonable GHG emissions calculations cannot be undertaken at this stage. Once the surveys are complete, the potential for the release of GHG emissions from disturbed peat will therefore be clarified for the Final ES.
	Table 17.6 – measures for peat – CWaC suggest that this should be aiming at net improvement or ‘restoration’ at the end of the process – if possible, to enable a net benefit in allowing peat restored peat deposits to both lock in existing and store future greenhouse gasses.	Mitigation measures are included as part of the Outline Peat Management Plan (PMP) in Appendix 13A. The PMP will be developed following completion of the peat surveys and reported in the Final ES.
Natural England	We advise the impacts of carbon release should be considered in ES, taking into account that once peat has been damaged (via excavation, compaction etc) the impacts will be	Mitigation measures are included as part of the Outline Peat Management Plan (PMP) in Appendix 13A. The PMP will be developed following completion of

Consultee	Consideration	How addressed in this Draft ES
	wider ranging than the development footprint.	the peat surveys and reported in the Final ES.
Peak District National Park Authority	It is reasonable to expect that there would be some additional vehicle movements through the National Park during the construction and decommissioning phases of the development, however these would be temporary in nature. Any temporary increase in CO ₂ emissions as a result of these movements would be off set by the projected 10mt annual reduction in CO ₂ emissions that would be realised once the Hynet system is operational.	Agreed. It is unlikely that the construction access routes will affect the Peak District National Park as described further in Chapter 11: Traffic and Transport .

17.4 Data Gathering Methodology

Desk study

- 17.4.1 The UK carbon budgets and the CCC's recommended sector allocations have been used to establish the assessment baseline. Data sources used for the GHG assessment are discussed in **Section 17.8**.

17.5 Overall Baseline

Current baseline

- 17.5.1 The fourth carbon budget (2023 to 2027) of 1,950MtCO₂e and the CCC's recommended carbon budget sector allocations (see **Table 17.4**) can be considered as the current baseline for the GHG emissions assessment. The change in GHG emissions associated with the Project are evaluated against national, regional and local targets for decarbonisation (the future baseline). Therefore, an assessment of the change in GHG emissions arising from current site use to those arising from the Project is not required.
- 17.5.2 As described in **paragraph 17.1.3** the draft ES assesses the construction, operation and eventual decommissioning of the hydrogen pipeline (the system boundary of the Project). The current baseline (the absence of the pipeline) is therefore nil. As part of the consideration of the Finch case, the lifecycle stage Module D, which considers GHG effects beyond the system boundary, may require a reconsideration of the current baseline to allow for an assessment of indirect effects.

Future baseline

- 17.5.3 GHG emissions are expected and required to reduce in the future. The UK Government has set a net zero target which requires the UK to reduce GHG emissions by 100% below 1990 levels by 2050.² Policy has been implemented at national, regional and local scales in order to achieve targets for decarbonisation (see **Table 17.2**). The future baseline considers relevant policy and a number of the UK carbon budgets (including sectoral allocations) over the lifetime of the Project: the fifth carbon budget (2028 to 2032) of 1,725MtCO₂e and the sixth carbon budget (2033 to 2037) of 965MtCO₂e. At the time of writing, carbon budgets beyond this date have not been set.
- 17.5.4 Emissions from a 'without Project' case in the future baseline will not be quantified in this assessment as they are considered to be nil.

17.6 Embedded Environmental Measures

- 17.6.1 As part of the project design process, a number of embedded environmental measures are proposed to reduce the potential for impacts on GHG emissions. These are broken down into measures that are incorporated into the overall design of the Project, and those that are to be implemented during its construction and operational phases. No measures have been specifically identified for the decommissioning phase of the Project. However, it is anticipated that measures equivalent to those implemented during construction would also be effective in mitigating effects on the release of GHG emissions during decommissioning. **Table 17.7** outlines how these embedded measures will influence the GHG assessment.

Table 17.7 Summary of embedded environmental measures

Embedded measures	Compliance mechanism
An Outline Construction Environmental Management Plan (CEMP) will be produced prior to commencement of construction which will detail measures to be implemented to reduce GHG emissions during the construction phase. Goals to reduce embodied carbon in construction materials and encourage circular economy principles will be detailed in the CEMP.	Outline CEMP secured via DCO requirement
Measures to reduce GHG emissions from construction plant and equipment will be detailed in the CEMP. The use of efficient and well-maintained plant and equipment will reduce GHG emissions from fuel and energy consumption.	Outline CEMP secured via DCO requirement
The Outline CEMP will include measures to minimise emissions from construction traffic. This will include measures such as consolidating deliveries where possible and policies such as 'no idling'. Sustainable modes of travel for the construction workforce will be encouraged.	Outline CEMP secured via DCO requirement

Embedded measures	Compliance mechanism
For potential areas where peat cannot be avoided by the temporary works or permanent development elements of the Project, an outline Peat Management Plan (PMP) details the measures to be employed to protect peat during handling, storage and reinstatement, to promote its reuse within the Draft Order Limits where possible, or offsite if a suitable receptor site can be identified, and avoid it becoming waste.	Outline CEMP and PMP, secured via DCO requirement
Embodied carbon of materials. The design has identified carbon hotspots associated with materials used and has investigated ways to reduce the embodied carbon of the materials e.g. a higher recycled content, an alternative material with lower embodied carbon. This will continue throughout detailed design.	Reduction Strategy, secured via DCO requirement.
Materials suppliers. Local suppliers will be utilised as a priority, where possible.	Reduction Strategy, secured via DCO requirement.
Operational energy and water. The design will investigate opportunities to reduce the GHG emissions associated with energy use during the operation of the project e.g. reduce high-energy consuming installations, use low or zero-carbon energy sources.	Reduction Strategy, secured via DCO requirement.
Decommissioning. The design will integrate circular economy principles (ways to avoid generation of waste and keep materials in use) to enable ease of maintenance, replacement and decommissioning which will reduce the need for raw materials or generating waste, e.g. standardised components, plan for ease of maintenance, plan for ease of component replacement, plan for ease of material segregation at end of life.	Reduction Strategy, secured via DCO requirement.

17.7 Scope of the Assessment

17.7.1 The scope of the assessment has been refined as the Project design has evolved and responds to feedback received to date as set out in **Section 17.3**.

Spatial scope

17.7.2 The assessment of GHG emissions is not associated with a geographical area.

Temporal scope

17.7.3 The temporal scope of the assessment of GHG emissions is consistent with the period over which the Project would be carried out and the associated emissions of each stage of the Project, as defined in **Table 17.9**.

Potential receptors

17.7.4 The principal GHG emissions receptors that have been identified as being potentially subject to effects are summarised in **Table 17.8**.

Table 17.8 GHG emissions receptors subject to potential effects

Receptor	Reason for consideration
The global climate	GHG emissions have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. The global climate is therefore the only receptor for the GHG assessment. The receptor has a high sensitivity, given the severe consequence of global climate change and the cumulative contributions of all GHG emission sources ⁴¹ .

Likely significant effects

17.7.5 The project life cycle stages with the potential to result in significant GHG effects, which have therefore been taken forward for detailed assessment, are summarised in **Table 17.9**. This is based on phases as defined within PAS 2080: Carbon Management in Infrastructure⁴².

Table 17.9 Project life cycle stages scoped in for further assessment

Project phase	Main stages of Project life cycle	Sources of GHG emissions and effects
Construction	A1-A3 Raw materials supply, transport and manufacture	GHG emissions associated with the materials used to construct the pipelines and any associated Project facilities. These comprise embodied GHG emissions associated with the raw material assets required to construct the Project. The materials used in temporary infrastructure during construction are not included in the assessment.
Construction	A4 Construction transport	Emissions associated with the transport of construction materials, resources and equipment from point of purchase to the works site. Emissions associated with commuting of the workforce during construction.

Project phase	Main stages of Project life cycle	Sources of GHG emissions and effects
Construction	A5 Construction process stage	Emissions associated with construction and installation processes (including fuel and electricity consumption) of the temporary works, ground works, landscaping and permanent works. Emissions associated with site water demand. Waste management activities (transport, processing, final disposal) associated with waste arising from the Project. GHG emissions associated with land use change including the potential for the release of GHG emission from disturbed peat.
Operation	B6 Operational energy use	Emissions resulting from the energy used by the Project to enable it to deliver its service during operation. This includes the energy requirements of the HAGIs and Block Valve Installations.
De-commissioning	C1-4 End of life stage: deconstruction, transport, waste processing for recovery and disposal	Emissions resulting from the on-site activities of deconstructing, dismantling and demolishing the infrastructure. All GHG emissions due to transport to disposal and / or until the end-of-waste state of waste materials arising. Activities associated with treatment and processing for recovery, reuse and recycling of waste materials arising from infrastructure. GHG emissions resulting from final disposal of demolition materials.

Elements scoped out of further assessment

17.7.6 The project life cycles stages detailed in **Table 17.10** have been scoped out from the assessment because the potential effects from these stages are not considered likely to be significant.

Table 17.10 Summary of project life cycles stages scoped out of the GHG emissions assessment

Project Phase	Main stages of Project life cycle	Justification
Pre-construction	Pre-construction stage	Represents preliminary studies and works, for example strategy and brief development, design efforts, EIA and cost planning. Most, if not all, of these functions will be largely office-based contributions from across the value chain. In accordance

Project Phase	Main stages of Project life cycle	Justification
		with IEMA guidance ⁴¹ for GHG assessments, activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions. GHG emissions related to pre-construction stage are not likely to be significant and have been scoped out of the assessment.
Construction	A5 Construction process stage	In accordance with IEMA guidance ⁴¹ for GHG assessments, activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions. Consideration of the potential release of landfill gas from landfill is unlikely to be greater than 1% of the total emissions and therefore not considered in the GHG assessment.
Construction	B1 Boundary of use stage: installed products and materials	Called 'use', this represents the carbon emitted directly from the fabric of products and materials once they have been installed as part of infrastructure and it is in normal use. It is not anticipated that any of the materials used in the construction of the Project will be capable of emitting carbon directly.
Operation	B2-B5 Maintenance, repair, replacement and refurbishment	Represents the works activities and new materials for the maintenance, repair, replacement and refurbishment of the infrastructure during the use stage / operation of infrastructure. As per the maintenance schedule detailed in Chapter 2: The Project, Section 2.6 , maintenance activities mostly include less than 10 personnel. It is not anticipated that any intrusive pipeline maintenance would be required unless defects are identified. It is therefore anticipated that GHG emissions will be insignificant.

Project Phase	Main stages of Project life cycle	Justification
Operation	B7 Operational water use	Emissions resulting from the consumption of water required by the Project to operate and deliver its service are considered to be restricted to water use in mess buildings which is anticipated to be <1% of the total emissions..
General	D Benefits and loads beyond the infrastructure life cycle	Includes avoided carbon emissions associated with the Project including potential for re-use, recovery and recycling of materials and / or energy and associated GHG emissions beyond the system boundary. The Project is an enabler project to the wider HyNet North West Programme and therefore lifecycle stage Module D considers GHG effects beyond the system boundary (the direct impact of the Project on GHG emissions). HyNet North West Programme will produce, store and distribute hydrogen – a low carbon energy source – as well as capture and store carbon from industry in the North West of England and North Wales. As part of the consideration of the Finch case, Module D will be considered further in the Final ES where relevant.

17.8 Assessment Methodology

Introduction

17.8.1 The generic project-wide approach to the assessment methodology is set out in **Chapter 3: Approach to preparing the Draft ES**, and specifically in **Section 3.10**. However, whilst this has informed the approach that has been used in this GHG emissions assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this GHG emissions assessment.

Assessment criteria

17.8.2 The approach to the GHG assessment is to quantify and contextualise the GHG emissions of the Project, the scenario described as the ‘with Project’ case. The ‘with Project’ case considers the life cycle stages of the Project as set out within **Table 17.9**.

Quantification of GHG emissions

17.8.3 The approach to quantifying the GHG emissions associated with the Project will consider the whole infrastructure life cycle of the Project. The infrastructure life cycle phases as described within the PAS 2080: Carbon Management in Infrastructure⁴² and in **Table 17.9** will be used. These phases will allow for the identification of the GHG emission sources associated with the Project. The assessment will present a reasonable worst-case. This methodology is in line with the latest IEMA guidance⁴¹.

17.8.4 GHG emissions associated with the emission sources described in **Table 17.9** will generally be calculated using the following equation:

$$\text{Activity data} \times \text{GHG emissions factor} = \text{GHG emissions value}$$

17.8.5 Assumptions have been made to characterise the likely activities associated with the Project and therefore enable GHG emissions to be determined. These assumptions ensure a proportionate assessment has been carried out. All assumptions are detailed below.

Quantification of GHG emissions - Construction

17.8.6 For construction emissions, the cumulative emissions of processes up to the start of the use (operational) phase have been considered.

17.8.7 A significant proportion of the emissions associated with the Project are likely to be the embodied carbon of the materials used. This represents the sum of GHG emissions covering extraction of raw and primary materials and their manufacture and refinement into products and construction materials, as well as the transport and supply logistics to the factory gate. The RICS methodology to calculate embodied carbon⁴⁶ along with the embodied carbon figures reported by the Inventory of Carbon and Energy (ICE) Database⁴⁹ have been used. The exact bill of materials required is unknown at this stage; however, design reports and drawings have been used to assess the type and quantity of materials required for permanent assets.

17.8.8 Surface access emissions associated with construction activities have been estimated, based on the details of the number of heavy goods vehicles (HGVs) and light vehicles throughout the construction of the Project. These have been calculated using information from project engineers, where transport data is detailed in full in **Chapter 11: Traffic and Transport**.

17.8.9 Light Vehicles are defined as cars, minibuses, vans and Light Goods Vehicles (LGVs). These vehicles have been assumed to be associated with movement of staff to site alongside smaller deliveries. A one-way commuting distance for construction staff is estimated to be 15km, based on the DfT dataset summarising

⁴⁹ Circular Ecology (2019). The ICE Database v3.0 Nov 2019 (Online). Available at: <https://circularecology.com/embodied-carbon-footprint-database.html> (Accessed: 18 June 2024).

the average number of trips, miles and time spent travelling by trip purpose in England⁵⁰.

17.8.10 In the absence of specific data for the Project surrounding the supplier of materials, the one-way transport distance for construction materials in HGVs (>7.5tonnes) is estimated to be 120km, based on a worst case scenario. This is based on relevant RICS Guidance.⁴⁶ Local suppliers will be utilised where possible.

17.8.11 **Table 13.8** within **Chapter 13: Agriculture and Soil Resources** details the survey findings to date on the presence of deep peat within the Draft Order Limits. The ground investigations and peat surveys are partially completed at this Draft ES stage, as such, there is only partial data around the presence and extent of peat (the depth of peat, its thickness and its lateral extent within the study area). As such, reasonable GHG emissions calculations cannot be undertaken at this stage. Once the surveys are complete, the potential for the release of GHG emissions from disturbed peat will be clarified within the Final ES. The precise details of the nature and quantity of plant and machinery for each sub-phase are unknown at this stage. Therefore, a combination of the value of the Project and a construction industry benchmark for process emissions, published by RICS, have been used to calculate the construction process emissions. These include emissions related to energy consumption, plant use and waste. The RICS Key Performance Indicator (KPI) suggests, that in the absence of specific data, a suitable estimate for emissions related to building construction site emissions is 1,400kg CO₂e/£100k. The cost figure is based on the date of the publication, March 2015, and has been adjusted to current value in accordance with the Consumer Price Index (CPI).

Quantification of GHG emissions – Operation

17.8.12 GHG emissions associated with the operational energy usage of the HAGIs and BVIs have been estimated using information around annual energy usage supplied by the project engineers, reflecting the current design.

17.8.13 The grid average, consumption-based, industrial emissions factors reported as part of HM Treasury's Green Book⁵¹ have been used in the assessment. These emissions factors consider the carbon intensity of UK grid electricity which reflect the projected rate of decarbonisation over time. Transmission and distribution losses are included in the factors used. The assessment has accounted for the modelled Green Book factors showing a two year time lag behind actual published emission factors released by the Department for Energy Security and Net Zero (DESNZ).

⁵⁰ DfT (2021). NTS0403: Average number of trips, miles and time spent travelling by trip purpose: England (Online). Available at: <https://assets.publishing.service.gov.uk/media/64e8b433635870000d1dbfbc/nts0403.odt> (Accessed 18 June 2024).

⁵¹ DESNZ (2023). Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal (Online). Available at: <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal> (Accessed 18 June 2024).

Quantification of GHG emissions – Decommissioning

- 17.8.14 As described in **Chapter 2: The Project, Section 2.7**, decommissioning of the Project would likely involve removing the hydrogen and leaving the pipeline in situ, avoiding removal and associated potential environmental effects. This would typically involve rail, road and watercourse crossings being filled with grout and the removal of all HAGIs and BVIs. The sequence of decommissioning of these elements would be the reverse of the construction sequence (as described in **Section 2.5**) and would likely involve the application of similar construction plant and methods.
- 17.8.15 In the absence of further detailed information for decommissioning, an estimate of the GHG emissions has been based upon the proportion of GHG emissions associated with the construction of the HAGIs and BVIs (as these are the only fixed infrastructure elements to be removed during decommissioning), and an additional allowance for the infilling of crossings during the decommissioning.

Significance evaluation methodology

- 17.8.16 Current IEMA guidance⁴¹ states that: “*The crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*”.
- 17.8.17 The significance of GHG emissions associated with the Project will be evaluated based on the extent to which the Project materially affects the ability to achieve national, regional and local targets for decarbonisation. The primary basis of contextualisation will be the UK carbon budgets (see **Table 17.1**), including the relevant CCC sectoral allocations (see **Table 17.4**) and the UK carbon target of ‘net zero’ by 2050. Consideration will also be given as to whether GHG emissions are appropriately mitigated and compliant with relevant policy.
- 17.8.18 The significance of the GHG emissions from the Project is determined based on the criteria in **Table 17.11** developed from the IEMA guidance⁴¹. Major or moderate adverse effects and beneficial effects are considered to be significant. Minor adverse and negligible effects are not considered to be significant.

Table 17.11 Significance criteria

Significance	Significance criteria
Major adverse	The Project does not make a meaningful contribution to the UK Government meeting its carbon budgets / targets. Adverse GHG impacts are not mitigated / do-minimum and are not compliant with requirements of national, regional and local policy.
Moderate adverse	The Project falls short of fully contributing to the UK Government meeting its carbon budgets / targets. Adverse GHG impacts are partially mitigated and partially meet the requirements of national, regional and local policy.

Significance	Significance criteria
Minor adverse	The Project is fully in line with the trajectory of the UK Government meeting its carbon budgets / targets. Adverse GHG impacts are mitigated with good practice design standards and meet the requirements of national, regional and local policy.
Negligible	The Project has minimal residual GHG emissions and is 'ahead of the curve' for the trajectory of the UK Government meeting its carbon budgets / targets. GHG impacts are mitigated through measures that go beyond good practice design standards and the requirements of national, regional and local policy.
Beneficial	The Project has net GHG emissions below zero, causing a direct or indirect reduction in atmospheric GHG emissions which has a positive impact on the UK Government meeting its carbon budgets / targets.

17.9 Assessment of GHG Emission Effects

Construction phase

Raw materials supply, transport and manufacture

17.9.1 The RICS methodology to calculate embodied carbon along with the ICE Database has been used (see paragraph 17.8.7 for the methodology and assumptions). The GHG emissions associated with the embodied carbon of material resources needed for the construction of the Project are estimated to be 81.70ktCO₂e.

Construction transport

17.9.2 In accordance with the methodology and assumptions in paragraph 17.8.8 to 17.8.10, the total GHG emissions arising from surface access for HGVs and LGVs to transport this material, and the surface access emissions from workers' transport during the construction of the Project, are estimate to be 30.13ktCO₂e.

Construction process stage

17.9.3 Construction process GHG emissions have been estimated using RICS' construction KPI for process emissions per value of the Project (see paragraph 17.8.11 for the methodology and assumptions), giving an estimated total GHG emissions of 14.06tCO₂e.

Summary

17.9.4 The total GHG emissions associated with the construction phase of the Project are estimated to be around 125.9ktCO₂e of which 65% is embodied carbon associated with the use of material.

Operational phase

17.9.5 Based on the design information, total annual energy consumption for all HAGIs and BVIs combined is estimated to be 6,315,171kWh. In accordance with the methodology and assumptions in paragraphs 17.8.12 and 17.8.13, the total lifetime GHG emissions associated with the operational energy use of the Project are estimated to be around 3.07ktCO₂e.

Decommissioning phase

17.9.6 In accordance with the decommissioning phase methodology and assumptions in paragraph 17.8.14 and 17.8.15, the total GHG emissions for the decommissioning phase of the Project are estimated to be around 28.08ktCO₂e.

Summary

17.9.7 A summary of the phased lifecycle GHG emissions assessment is presented in **Table 17.12**.

Table 17.12 Lifecycle emissions over the duration of the Project

Phase of Project	Main stages of Project life cycle	Estimated lifetime GHG emissions (ktCO ₂ e)
Construction	A1-A2-A3 – Product stage: raw material supply, transport and manufacture	81.70
	A4 – Construction transport	30.13
	A5 – Construction process stage	14.06
Operation	B6 – Operational energy use	3.07
Decommissioning	C1-C4 – End of life stage: deconstruction, transport, waste processing for recovery and disposal	28.08
Total		157.04

Contextualisation against relevant UK carbon budgets

17.9.8 The significance of GHG emissions associated with the Project is evaluated based on the extent to which the Project materially affects the ability to achieve national and sectoral targets for decarbonisation. The primary basis of contextualisation is the UK carbon budgets, including the relevant CCC sectoral allocations and the UK carbon target of 'net zero' in 2050. Consideration is also given as to whether GHG emissions are appropriately mitigated and compliant with relevant policy.

17.9.9 The GHG emissions assessment has considered GHG emissions from the Project in three separate phases: construction, operation and decommissioning. The construction of the Project is anticipated to commence in Q1 of 2027 ready for commissioning during Q1 of 2030. GHG emissions from the construction phase will therefore fall within the fourth and fifth carbon budget. GHG emissions from the operation phase of the Project (considered to be 40 years) will fall into the fifth and sixth carbon budgets, and subsequent future budgets once set through from 2038 and beyond. GHG emissions from the decommissioning of the Project will fall entirely within future budgets once set.

17.9.10 **Table 17.13** presents the ktCO₂e associated with the construction, operation and decommissioning phases of the Project during each of the legislated carbon budget periods.

Table 17.13 Lifecycle emissions contextualised against the UK carbon budgets⁵²

Phase of Project	GHG emissions per relevant carbon budget (ktCO ₂ e) and 2050 net zero target (ktCO ₂ e/yr)			
	4 th	5 th	6 th	2050 net zero target
	(2023 to 2027)	(2028 to 2032)	(2033 to 2037)	(2050 only)
Total UK carbon budget	1,950,000	1,725,000	965,000	
CCC sector allocation	147,710	85,172	42,233	
Construction GHG emissions (ktCO₂e)	25.90	99.99	-	-
Operation GHG emissions (ktCO₂e)	-	0.92	0.86	0.03
Decommissioning GHG emissions (ktCO₂e)	-	-	-	-
Total	25.90	100.91	0.86	0.03
Total % of UK carbon budget	0.0013%	0.0058%	0.0001%	-
Total % of CCC sector allocation	0.0175%	0.1185%	0.0020%	-

⁵² GHG emissions have been calculated on an annual basis throughout the Project lifecycle and allocated to the carbon budget periods as per paragraph 17.9.9.

- 17.9.11 This assessment has established that the Project's lifetime net GHG emissions will equate to 0.0013% of the UK's fourth carbon budget, 0.0058% of the UK's fifth carbon budget and 0.0001% of the UK's sixth carbon budget. In 2050, when the UK net carbon budget is zero, the Project will have an impact equivalent to 0.03ktCO₂e/yr. In this context, it is concluded that the Project itself will not have a material effect on the UK Government meeting its carbon budgets / targets. In preparing the final ES, consideration will also be given to the Project's role as an enabler of the wider HyNet North West Programme and any implications that relationship may have for the assessment.
- 17.9.12 **Table 17.7** details the embedded measures to minimise GHG emissions associated with the Project. These are considered to be in line with good practice design standards and the requirements of national, regional and local policy presented in **Table 17.2**.
- 17.9.13 UK Government policy establishes clear objectives for decarbonising energy supply and achieving net zero by 2050. Policy acknowledges the vital role of low-carbon hydrogen as an energy source to replace conventional fossil fuels (see **Table 17.2**). At a local level, the host local authorities have their own decarbonisation targets (see **Table 17.3**) and are implementing policy aligned to achieving these decarbonisation targets. It is considered that the Project aligns with national and local decarbonisation policy.

17.10 Assessment of Cumulative (Inter-project) Effects

- 17.10.1 The approach to cumulative effects assessment (CEA) for GHGs differs from that for many EIA topics. All global cumulative GHG sources are relevant to the effect on climate change, and this is taken into account in defining the receptor as being of 'high sensitivity'. The contextualisation of GHG emissions, by its nature, incorporates the cumulative contributions of other GHG sources which make up that context. Therefore, it has not been necessary to carry out a separate CEA of GHG emissions. This approach is in accordance with IEMA Guidance.⁴¹

17.11 Significance conclusions

- 17.11.1 In accordance with the assessment methodology and criteria for defining significance in **Table 17.11**, the Project is assessed as having a minor adverse effect and is therefore assessed as being **not significant**. The Project is fully in line with the trajectory of the UK Government meeting its carbon budgets / targets. Adverse GHG impacts are mitigated with good practice design standards and meet the requirements of national, regional and local policy. The current assessment of a minor adverse effect is related to the GHG emissions resulting from the construction, operation and eventual decommissioning of the Project alone. As explained above, the final ES will include consideration of the role of the hydrogen pipeline transporting hydrogen as part of the wider HyNet North West Programme and any implications this may have for the assessment of GHG emissions.

HyNet North West Hydrogen Pipeline

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